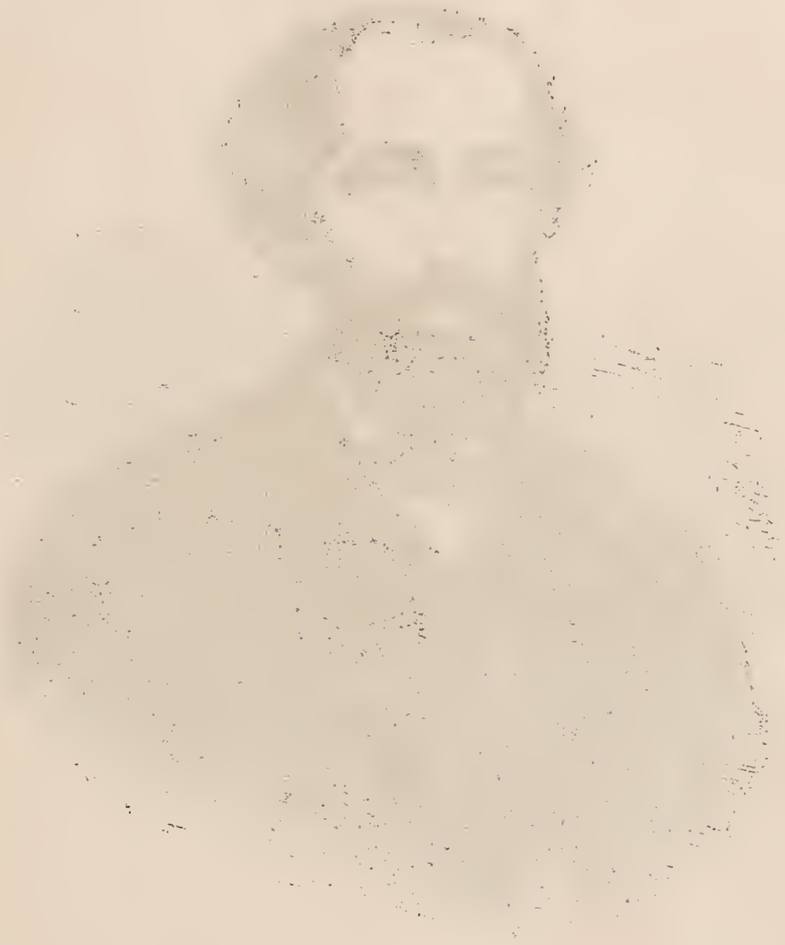

Yours &c. J. W. Stivers

Engraved expressly for the New York Coach-maker's Magazine.

January, 1867.

THE

NEW YORK

COACH-MAKER'S MAGAZINE,

DEVOTED TO THE

LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

EDITED BY E. M. STRATTON,

VOLUME EIGHT,

JUNE, 1866, TO MAY, 1867.

NEW YORK:
E. M. STRATTON, Publisher,
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MDCCCLXVII.

PREFACE.

Custom requires of us, that in closing the Eighth Volume of The New York Coach-maker's Magazine, we furnish it with a preface, which will serve as an index to the contents and a review of the year's progress. Although our political horizon has been somewhat clouded, yet there is hope that the discordant sounds which now greet our ears will die away and our national sky become clear. Until such results are reached business must remain in an unsettled condition, to the great detriment of the coach-making interests, and the discouragement of other trades.

The volume we now place in the hands of the coach-making public exhibit some features in character quite different from those found in the preceding series. Not the least interesting articles embraced in the year's issue, has been those under the respective heads of "Carriage-springs," "Our Carriage Museum," "The Nature and Qualities of Paints," and those relating to the clip king-bolt affair. This volume is especially valuable as containing a much greater variety of designs for light vehicles than any which have preceded it, being particularly rich in buggies and rockaways. We think we may venture the assertion—without fear of successful contradiction—that it would be difficult to find anywhere else so complete and creditable a collection of American carriages as here. To such as have assisted us with their varied talent, both as artists and contributors, without specially mentioning their names, we return our sincere thanks, in the hope that as in the past so in the future we shall continue to receive their favors.

We cannot dismiss this article without expressing our gratitude to the many friends among the trade who have interested themselves in procuring subscribers to this work the past year, unasked and unrewarded. Our intercourse with them has been of the most gratifying nature, and whether our future days be many or few, we have the pleasing consideration that upon the whole we have very few enemies but a host of friends. That the coming year may strengthen the brotherhood between us is the sincere hope of

Yours, fraternally,

New York, April 18th, 1867.

Ezra M. Stratton

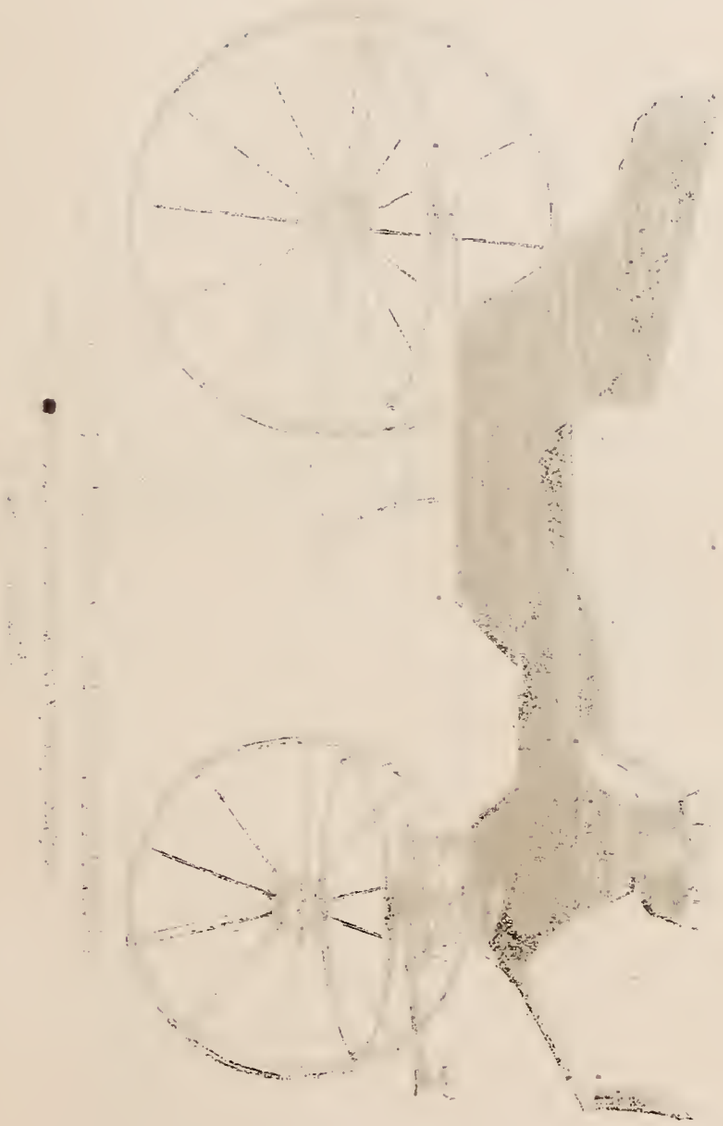
INDEX TO PLATES IN VOLUME EIGHT.

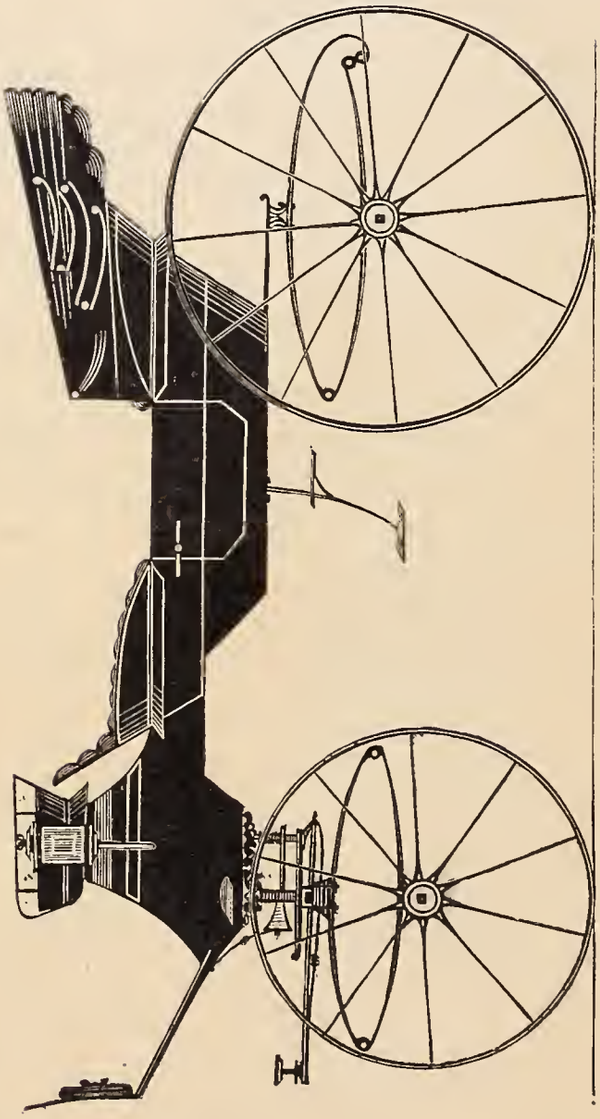
DIRECTIONS TO THE BINDER.—The Portrait of R. M. Stivers, Esq., should face the title-page. The Drafts and Monograms ought to be bound at the end of the volume in the order of numbering, for the convenience of the mechanic.

INDEX TO ILLUSTRATIONS.

INDEX TO VOLUME EIGHT.

To the Reader.—The matter pertaining to the special departments will be found under the separate heads of "Editor's Work-Bench," "The Home Circle," "Sparks from the Anvil," "Paint Room," "Trimming Room," "Patent Journal," &c. These special departments are themselves placed in alphabetical order with the remaining contents of the volume.

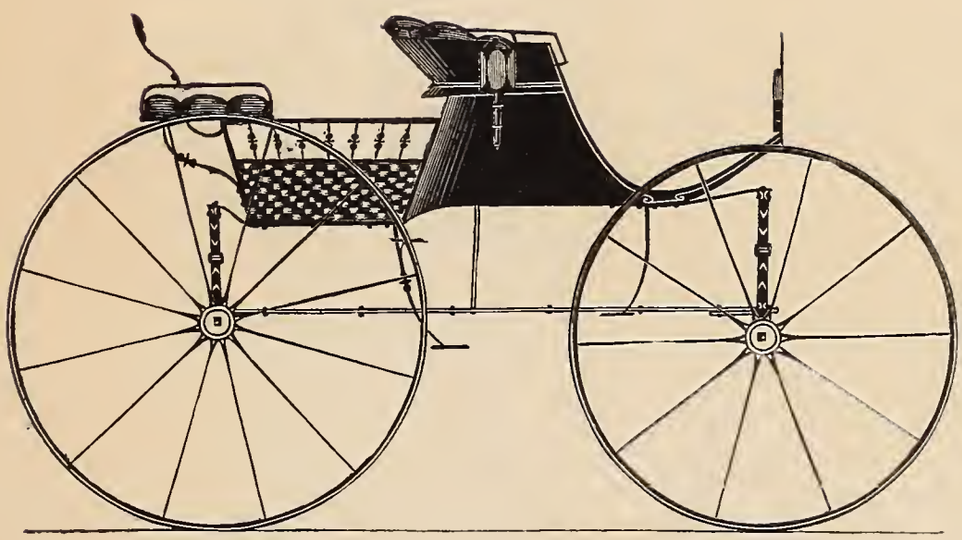




CENTRAL-PARK PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 8.



SPORTING PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

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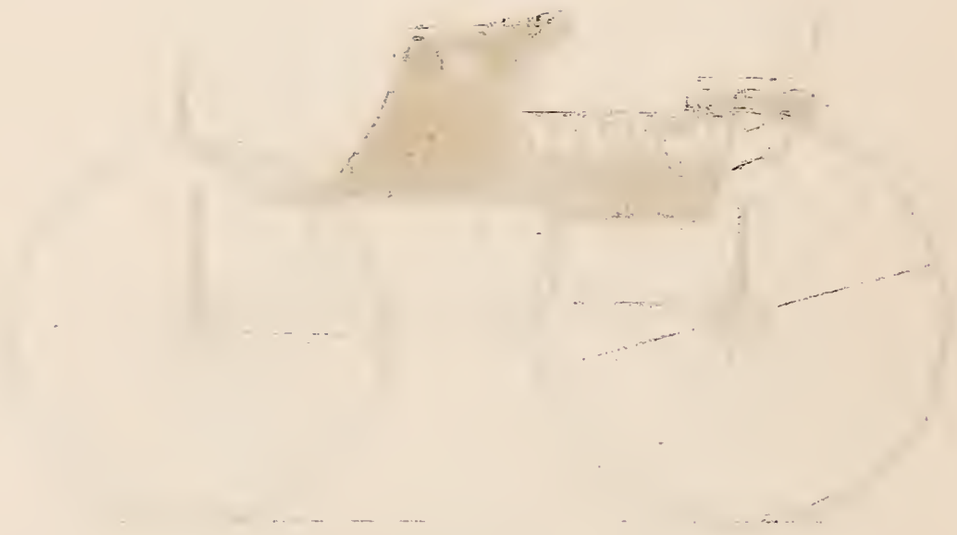
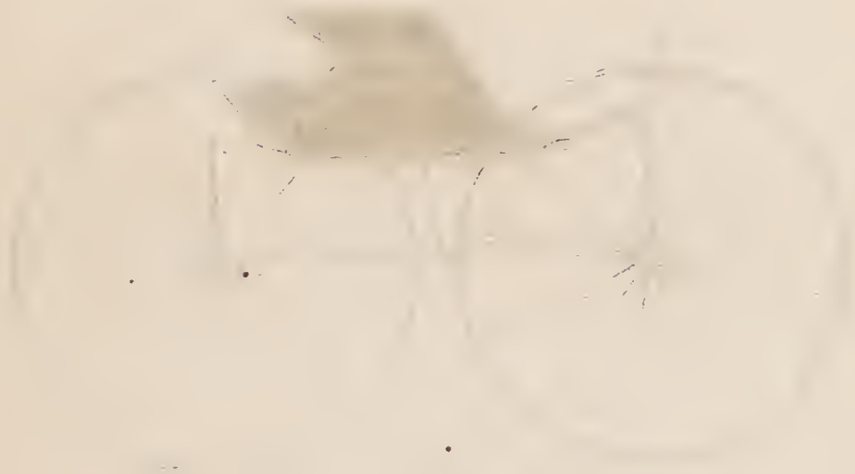
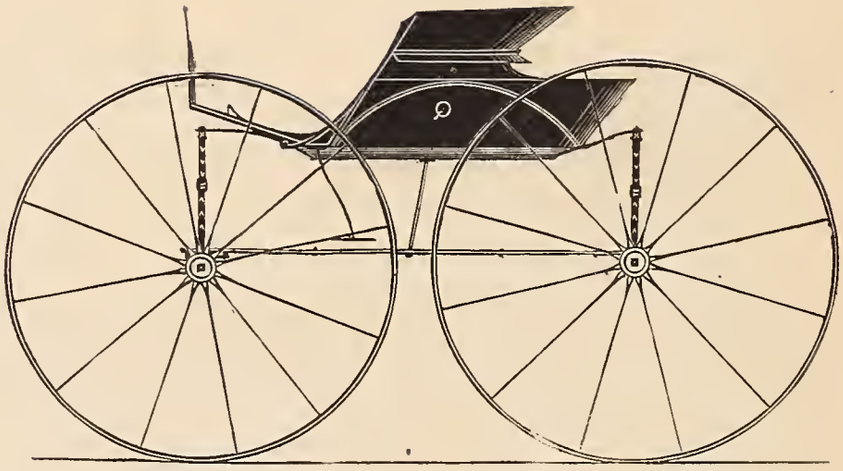


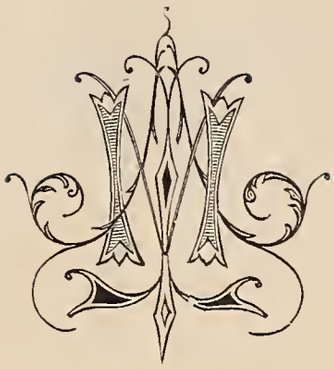




NONPAREIL BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 8.



A. V. M. L.

L. V. L.

F. C.

O. E. E.

ORIGINAL MONOGRAMS.

See remarks on page 10.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, JUNE, 1866. No. 1.

Mechanical Literature.

GLUING PANELS, &c.

BY THE EDITOR.

Seemingly a small matter, yet to have gluing well done is one of the greatest importance in carriage-making. As there is more strain in carriages in use, than in other productions of the mechanic in wood, so there is much greater necessity for care in this respect than in any other branch of mechanism—not even excepting cabinet-making—and yet how little attention is given to the subject by the craft generally. In the hope of benefiting our readers, we add the following observations, in accordance with our experience.

Never use glue because it can be bought cheap; such will always *prove* dear to the carriage-maker. Take the advice of Webster's publishers—"get the best." This may be known from its *clearness* when held to the light, and by bending a piece between the fingers. Should it have a dark color and fly into fragments under the operation, reject it at once. It is *dear* to you at any price. The good article will bend nearly double before it breaks, and when it does part, the separated edges show a whiter tinge than they did before trial.

When you have occasion to use glue, anticipate the want, and put it to soak in cold water before boiling. This procedure not only facilitates the cooking, but avoids that stringy consistency often seen in glue prepared in haste without the previous moisture with water. Glue should neither be too thick nor too thin. To get it just right requires some experience. Should the atmosphere be heated it is desirable to have the glue kept sweet; a little alum thrown in will benefit it.

Above all, never undertake *any* gluing without heating the parts you would join together. Carelessness in this particular has been the fruitful cause of more trouble and after-vexation than almost anything else. Should you have a tenon to insert in a mortise, heat *that* tenon over a fire as hot as possible without burning it, and put it in its place in that condition, in *hot* glue. If you wish to secure a panel to a door pillar, and have it *effectually* secured, *do it right!* To have it done right, first, fit a "caul" (that is, a piece of timber) to the pillar, so that when it is put on the outside of the panel to be glued, it will fit smoothly, and have a little of the hardest pressure in the center. By this method, having applied a hand-screw near the ends, less hand-screws will be required in properly securing the panel in its place. This caul before final application, should be made as hot as possible, *on the inside*, by an assistant, over a good fire, and put to its use in that state. The caloric hidden in the wood is thereby communicated to the panel, and *through it* to the glue spread on the surface of the standing pillar, *sticking* all together in the most secure manner. This mode of securing buggy and other panels to *smooth* work is now alone extensively practiced in the best shops of this city, and elsewhere. To resort to nailing to be hidden by putty, or to screwing to be hidden by plugging, presents obstacles to the beauty of finish, no pains bestowed in the painting will ever surmount. They are sure to show in time: the putty "starting," or the plugs "swelling," marring the entire *finish* of the job.

The following from our *vade mecum*, which should be taken *cum grano salis*, must finish this subject: "Common glue as used by mechanics, is not always sufficiently strong to resist the strain to which the pieces joined together with it may happen to be exposed; sometimes, even, it is required to make metal, glass, or stone adhere strongly to wood, in which case a mixture of glue and ashes of wood will be found greatly preferable to glue in its ordinary state. The latter should first be reduced to the proper consistency required for wood, and a sufficient quantity of ashes added to give it the consistency of a varnish. This mixture must be applied as hot as possible" The same rule in regard to heating the parts to be glued, before inculcated, are applicable to this operation also, especially during cold weather, iron and glass both being strong absorbents of the cold. There is no such operation as making glue "stick" on *cold* iron. The iron and glass will both need warming before application.

The old practice of using wedges to secure the panels in the grooves is a very bad one. We very much prefer to "cork" them on the inside with glued canvas. If carefully done, when the whole becomes hardened, it is almost impossible to remove the panel from its fastening.

WAIFS FROM A COACH-MAKER'S PORTFOLIO.

VII.—HOW TO TURN AN OLD HORSE INTO A COLT.

CRAZY DOW, as he was called, has left us the following receipt, which, in an eccentric fit, he calls "Jockey-law." Our readers will probably see it here for the first time; but should they not, it will bear re-perusal: "Take an old horse, file down his teeth; burn them with a nail rod, to make them appear under seven years, Give him three bushels of sweet apples and three bushels of green corn in the milk, which in seven days will make him appear fat. Shear off the long hairs, and use some coloring if necessary; brush him up to make him shine; blow up the hollows above his eyes, &c., to make him appear plump and full; put a pepper-pod in his tail, to make him antic and full of life; a spur in your own heel and cigar in the mouth; a watch chain, with a button at the end, in your pocket; give the animal some bread and wine, to raise his ambition; and, taking some of the good stuff yourself, then affirm you have as good a "colt" as any gentleman with a fine shining boot. So mount, showing in appearance, that you are as clever a fellow and have as good a horse as any on the turf—according to custom—which makes law!" Lorenzo having been several times "sold" during his life, when *buying* horses, is supposed to speak from experience.

VIII.—CARRIAGES PAINTED IN IMITATION OF TURTLE-SHELL.

MANY an unfortunate carriage-maker has been pained to find that a job in which days of anxiety and labor had been expended, after all, has turned out bad, from the effects of worthless varnish and exposure to the weather. That, however, which is generally taken as a calamity, in a certain instance, was turned to an advantage by an *enterprising* Eastern carriage-builder. We record the fact, as commonly told, without mentioning name, since that is already well known in this locality:

The manufacturer above alluded to, having forwarded a carriage of his own build to his repository in New Orleans, found, after standing awhile, that the paint had cracked—not an unusual thing where defective varnish is applied. This circumstance was improved to sell the vehicle to good advantage, by impressing upon the mind of a customer that the appearance in the paint had been purposely given in imitation of turtle-shell—*the last fashion out*—by which operation our hero obtained an exorbitant price from the dupe, for what with ordinary men would have proved a serious loss. This story, strange as it may appear to some, is told among the craft as being all truth (of which there is little doubt) to this day.

IX.—FATAL EFFECT OF A WABBLING-WHEEL.

AMONG the craft, in New York and its vicinity, in former days, whenever anything in the carriage line turned out worthless or defective in use, it was common to charge it to the cupidity of Rahway carriage-builders. Whether this arose from jealousness on the part of their competitors or from other reasons, is not our business here to investigate; our task is to relate what we have heard told.

Some years ago, when Rahway was *the* carriage-manufacturing town of this country, a celebrated builder of chaises—that being the most fashionable vehicle in use—whose name, out of delicacy, we suppress, sold a home-customer a chaise, which a careless journeyman had let go from his hands with the boxes untrued. A few days afterward the purchaser called upon the seller with the longest kind of a face and a doleful tale, stating that in driving along through a wide street, the vehicle on one side of it and a favorite dog on the other, his chaise wheel, from its wabbling motion, had deceived the eye of his faithful animal, the dog, and run over and crushed him to death!

ENGLISH CARRIAGES AND THEIR CHANGES.

BY CHARLES DICKENS.

"THE disappearance of pigtails and leather breeches from the House of Commons, the rise and fall of the Stanhope gig and cabriolet, the decline of chariots, the extinction of the vis-à-vis, and the introduction of the Brougham." This was the answer of a desperate civil-service candidate to the question, "What were the most remarkable social changes which followed the Reform Bill?" According to the tradition of the Foreign Office clerks, the freshness and truth of the reply saved the modern Phaeton from the fatal "plow."

There can be no doubt that amongst the many remarkable social changes within the recollection of our middle-aged men, none has been more decisive than that in the character of our pleasure carriages. Macadam was the first great revolutionist in Long-acre. He made it possible to dispense with the before inevitable four horses on country roads; and by the smooth easy surface, with which he replaced the jolting pavement, and the miles of mud, which, a hundred years ago, buried Arthur Young's gig on a highway up to its axles, struck a fatal blow at the state coach with six horses, and its guard of active running footmen. The railroad followed, nipped the stage-coach just as it reached perfection, destroyed the professors of four-in-hand, and finally reduced to the value of old wood and iron those luxurious posting-chariots, without which, before the days of the iron-horse, no country gentleman's coach-house was complete.

Although still quite a young man, as compared with premiers and lord chancellors, my earliest recollections—as an unbreeched boy, whose greatest joy was to sit on a horse in the stall, while a groom, the nurse's sweetheart, hissed through his work—go back to the palmy days of posting, and sailing-packets between Dover and Calais. It was in those days of keen observation, of rapid eye-and-ear education, that I accompanied my parents on a journey by post, which extended from the extreme north of England to the south of France. Posting was in those days the indispensable mode of conveyance for a sick man, who could by any sacrifice afford the exorbitant cost. Some scenes of this long journey are as indelibly impressed on my memory as my first pantomime. The formidable state with which we were received at the inns where we stopped for the night, by the landlord, the landlady, and their attendant suite—the fierce battles next morning on the question whether or not the road required a pair of leaders—battles in which my father, a country parson traveling on a legacy which included his first and last carriage, was invariably defeated—the sensation of awe and admiration which filled my infant mind, when, on a high road near a great race-course, our humble chariot and pair was drawn off the pavement into the mud, while there passed along the lord-lieutenant in uniform, in

his state coach drawn by six horses, and preceded by outriders, who, as well as the postilion, bore each on his left arm a badge magnificently embroidered, as big as a dinner-plate, while as for the coachman and his wig, his degenerate representative may still be seen at Lord Mayor's shows. These effects were not exceeded by the procession of Bluebeard or the feats of Harlequin. Not less acute is my remembrance of the disgust with which, a clean little boy, I was compelled to sit next the ragged dirty driver of the hack cabriolet in Paris. Paris of oil lamps, and gutters in mid-street, reeking with filth and crowded with foot passengers, whom our grimy driver seemed to chase with wild cries.

It was on this journey that, near an English manufacturing town, we called with a letter of introduction on one of the new great men of the place, at his stucco-painted mock-Italian villa, staring at the highway. Our host, a little man in satin knee-breeches, with a white powdered head, ruddy cheeks, and amazing black eyebrows, received us with boisterous hospitality, as the bearers of a letter from his friend Dick Somebody. After a profuse mid-day meal, in which he did more than justice to the wine which his invalid guest declined, he proceeded to show the glories of his establishment. A fish-pond alive with gold and silver fish, the first I had ever seen; painted wooden temples dedicated to divers divinities; fountains which spouted from leaden statues on turning a tap; and other cheap classical arrangements in favor at that pre-architectural period; finally we were conducted to the stables and coach-house, where six horses and two carriages were not the least part of the state of the fortunate owner. Then nothing less would serve the excited little man than that the servants should put on their liveries, harness four of the horses to a bright-yellow chariot, resplendent with silver, and parade the whole equipage before us. Even this was not enough; an equally brilliant curricle was produced, and, taking the reins, he drove bare-headed round the grounds. I do not now remember what impression this performance produced on my parents, but to my childish eyes it was as magnificent as anything I had heard of in fairy tales. It may be presumed that there are at this day persons as anxious to display their newly-acquired wealth as the little man just described; but fashion has so changed, that no one unqualified for Bedlam would think of maintaining a reputation on a chariot and four horses. It would rather be in plate, a picture-gallery, a cellar of choice wine, wonderful pleasant covers, or some lavish gift to a literary institution or church.

The curricle with its silver bar flourished in its most expensive shape with two grooms attendant, in the time of George the Regent. The little boot which in later days carried the grooms, was an economical compromise; four horses and two servants to carry two persons in a carriage only fit for day-work, was surely the height of extravagance. It was necessary, too, that the horses should be matched to the greatest nicety in size and step, as well as color, and match horses are always an additional expense.

The most celebrated curricle of the last century was built of copper, in the shape of a sea-shell, and was driven by that caricature of dandies, Romeo Coates. The last curricle about town was Count D'Orsay's, and although the shape of the body of the carriage was inelegant, the effect of that kind of be-plated luxury was very striking when the horses were perfect, and the harness gorgeous and well varnished.

The Four-horse Coach Club was in great force forty years ago, when the highest professors of the art of four-in-hand were to be found by day and night on every high-road in the kingdom. The coaches of the club of the regiments in which the art still survives, are perhaps as complete specimens of mere mechanic art as ever. Among the carriages which have altogether disappeared since the Reform Bill, is the vis-à-vis, essentially a court carriage, requiring a pair of horses, a coachman and a footman; it must have been the work of an inventor seeking the smallest result at the largest expense, as it had no apparent advantage over a chariot, and was less useful.

The chariot still retains its place among those who always have at least one footman to spare—among a decreasing number of dowagers and a few physicians; but such is the effect of change of fashion, that a second-hand one is almost unsaleable; twenty pounds will buy what cost two hundred and fifty pounds; whereas fifty years ago no carriage was in such demand as the chariot; and in its lowest stages it was to be found on hack-stands and at livery stables, in the place of the modern fly.

The mail phaeton of the last generation of the pre-railroad age has been reduced in size and weight, and (in the majority of instances), by the abolition of the perch, transformed into the Stanhope phaeton. It is likely to continue popular with the large number who enjoy driving, and can afford to drive, a pair of horses. The old mail phaeton, some specimens of which may still be seen driven by country bankers and masters of hounds, required a pair of full-sized expensive horses to draw it well, instead of the small blood horses which best suit a Stanhope phaeton; but it was, of its kind, a luxurious carriage, by its strength and weight defying the jolts of the worst roads, and overpowering the impudence of the drunken drivers of market-carts. Nothing less than collision with a four-wheeled wagon could shake it, while the driver, high above his horses, held them in complete command, and rolled serenely along, overlooking garden walls, and looking down on all ordinary vehicles. In the days when roadside inns regularly expected and received a succession of guests, there was nothing pleasanter than a tour of visits to hospitable friends, in a well-appointed mail phaeton, with an agreeable companion at your side, and a clever handy groom behind. The big hood was a partial protection to the great-coated many-caped inmates, and the blazing lamps and rattling pole-chains made even a dark and foggy night not altogether disagreeable, from the comforting sensation that if anything you could not see did run against you, it was not your solid carriage that would get the worst of it.

The fashionable two-wheeled half-covered town carriage of Reform Bill days was the cabriolet. Palace-yard was full of them on the evenings of great debates. Now, you may count on your fingers the number that are worth looking at in the Park, or at the doors of the best clubs. The Brougham killed the cabriolet, superseding it entirely as the one carriage of the bachelor, and leaving it only for a few, to whom a carriage, more or less, is of no consequence. In another twenty years the cabriolet will have followed its predecessor, the curricle, to the limbo of marine stores. The cabriolet, when perfectly appointed, was a very stately bachelor's day-carriage, costing a large sum of money to build, requiring a very expensive horse, with

a change if used at night as well as day, unfit for country expeditions, and not complete without a perfectly useless boy jolting unmercifully behind, and too small for anything but ornament.

The age of Tom and Jerry bucks drove fast trotters in gigs, or dashed along in tandems—tandems which are nearly abandoned by under-graduates, and almost confined to headstrong shop-keepers on Sundays, and the long journeys of young Norfolk farmers on market-days.

The Brougham, invented in 1839, gave a fatal blow to the cabriolet, by affording the maximum of appearance and convenience at the cost of one horse and one servant.

It is rather surprising that the noble lord who gave the idea and his name to this invaluable improvement in town-carriages, has never made it the subject of a paragraph in one of those wonderful discourses on everything in general and nothing in particular, addressed to social science meetings. For the social results of the Brougham have been immense, harmonizing families, bringing husband and wife together, accommodating children, making beauties look more beautiful, cutting off the necessity of a footman, and, not least, reforming street conveyance, which traveled through a fearful interregnum of danger and discomfort, between the decline of the hackney-coach of our childhood and the rise of the four-wheeler of our first whiskers. The secret history of the origin, rise, and triumph of the Brougham has never been written, and perhaps never will, yet it is worth the attention of those industrious biographers who devote their whole energies to the researches into the private lives of jockeys, blacklegs, and boxers, record their tastes in meats and puddings, their triumphs, their recondite jokes, and exhaust classical quotations from Mr. Maunder's manuals on their adventurous lives and premature deaths.

The germ of the Brougham is to be found in certain street vehicles drawn by one horse in use in Birmingham and Liverpool forty years ago, under the name of one-horse cars. So recently as 1837 a gentleman's covered carriage on four wheels drawn by one horse, was entirely unknown to the genteel, not to say the fashionable, world; for in that year the most complete and scientific book on pleasure-carriages was published by Mr. Adams, then a coach-builder, since a distinguished mechanical engineer, and he gives no hint of the coming carriage reform.

Mr. Adams made an early display of his ingenuity by building a carriage now only remembered in connection with the grand Duke of Wellington, who drove one to the last, the Equirotal, which, in theory, combined the advantage of a two-wheeled and a four-wheeled carriage, the forepart and wheels being connected with the hind body by a hinge or joint, so that no matter how the horses turned the driver always had them square before him; a great advantage. It was also, at the cost of something under five hundred pounds, convertible into a series of vehicles. Complete, it was a landau, holding four inside, besides the servants' hind dickey; disunited, it formed at will a Stanhope-gig, a cabriolet, or a curricle. In spite of the example of the Iron Duke, and the eloquent explanations of the inventor, the public, either not caring for such a combination, or not willing to pay the price, never took to the Equirotal.

The Brougham, on the other hand, advanced from the first, and eventually spread over the whole civilized world. To obtain lightness, the perch and the C-springs were abolished, at the cost of a certain buzzing noise still to be found in the work of inferior builders. There are Broughams with C-springs, but these are luxuries and a departure from the original principle. Broughams were built at first for two only, then were extended to four seats; single and double Broughams were soon adopted by the fairest of the fair, because it was discovered that the plate-glass windows presented charming portraits, hung, as they should be, *exactly on the line*, while ascent and descent presented none of the difficulties of the old-fashioned chariot. It was found that the finest cabriolet-horse looked twice as well in a Brougham, and, with the weight off his back and legs, lasted twice as long; besides, if it were necessary to make a long journey instead of a succession of flashes through street or park, then, by exchanging the sixteen-hands stepper for a pair of light blood horses, the Brougham still became the most agreeable conveyance, as long as the beauties of nature were not the object of the journey. In the early days of Broughams attempts were made to reproduce the chariot, with hammercloth and knife-board for the calves, but these were mistakes. The greatest mistake of all is burying a Brougham behind two gigantic horses. A single horse, if well shaped for harness, should not be under fifteen hands three inches high—sixteen hands one inch is better. Remarkable colors, even duns, skewbalds, and white stockings, if with good knee action, are permissible; but when a pair are harnessed, about fifteen hands one inch is the most harmonious height; and blood galloways, even smaller, look very well if the Brougham be built for them. A single-horse Brougham is essentially a town carriage; taken into the country, it is apt to degenerate into a cruelty carriage.

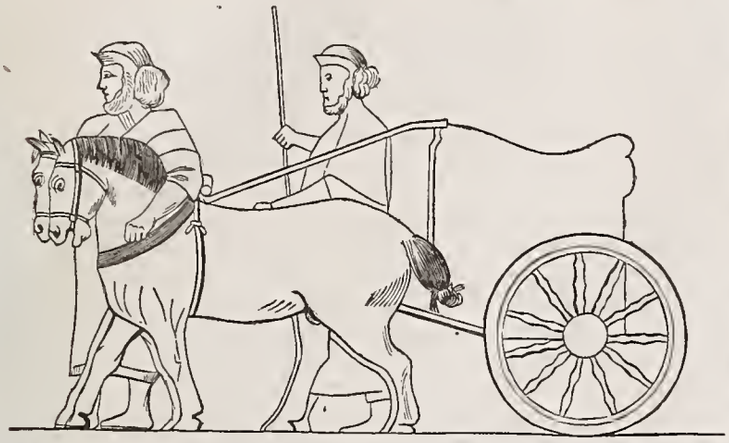
(*To be concluded next month.*)

OUR CARRIAGE MUSEUM.—I.

IN some of the preceding volumes we have presented the reader with a series of chapters devoted to an historical and pictorial elucidation of ancient and modern carriages, some of them being of the most interesting character and description, and never before presented to the public in so cheap a form. Later research among the bulky tomes in the public and other libraries of New York has brought to light many others of an equally interesting kind, which it is our intention to introduce to our Museum from time to time, as opportunity occurs. This we shall endeavor to do in a classified manner, without confining ourself to strictly chronological rule. They cannot fail in being interesting to all sincere lovers of coach-making.

Our first illustration represents a Persian chariot and horses in bas-relief, on a slab discovered by Sir R. K. Porter, in his Eastern travel. In some respects the *tout ensemble* has the characteristics of the Assyrian chariots of an earlier period, which the reader will find engravings of in Volume I., on pages 103 and 123. The body of this chariot is not so well defined as it should be; but the wheel presents us with a remarkable example of strength, and exhibits a degree of progress over other examples left us by the ancients. The odd spoke is certainly *very odd*, which is probably the fault of the artist in terre-cotta, rather than of the builder. This entire drawing is suggestive of arms, and in the wheel we see the genius of Cyrus, who, in order to render his scythe-chariots the more efficient, had the wheels strengthened

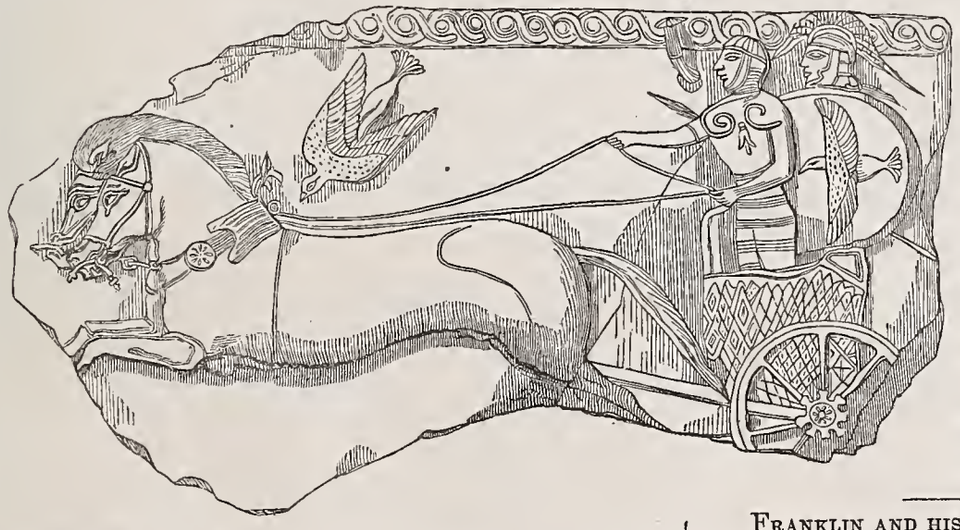
with additional spokes. The manes of the horses, in this instance, fall loosely on the neck, although the Persian



custom in this particular was often varied. The tying of the tail in a bunch is decidedly Persian.

The second example is from the Lyons' Collection, in France. The following remarks in regard to it have been translated from the *Magasin Pittoresque* for this Journal:

"The bas-relief in baked earth from the Lyons' Collection, of which we give an engraving, has not, we believe,



hitherto been the subject of any publication. It belonged to Mr. Raoul Rochette, keeper of the cabinet of medals; and at the sale which took place after his death, came into possession of the Duke of Lyons. We cannot tell whence this bas-relief comes; it appears to us to be Etruscan, and represents some incident in heroic mythology, which seems to have been a common fund for the artists of Greece and Etruria. Its style, which classes it among the works of a very remote time, and all its details, make it an interesting subject of study.

"Two men are standing in a chariot: they appear to be warriors, or rather a hero and his esquire or charioteer; as it will be observed that the one wearing a plumed helmet carries a lance and buckler, while the other is only covered with defensive armor, and seems to be solely occupied in guiding the horses which draw the chariot. By the position of the arm it is evident that he is about to turn the team to the right. Both men have their eyes fixed on a bird, doubtless of good omen, which is flying before them. It is known that the ancients drew omens from the flight of birds; that the apparition of certain kinds of birds on the commencement of an expedition, or in any other circumstance of doubtful issue, was invoked and interpreted, according to the direction of their flight, as a sign of the celestial will. The eagle, the falcon, and other birds of prey, were particularly considered as the messenger of some divinity. The bird which wings its flight over the chariot as if descending from heaven, appears to be of this kind. A similar bird is represented on the buckler of the principal warrior; it is the emblem by which he may be recognized when he advances with the lowered vizor in the midst of the battle. We have, therefore, an additional motive for believing that the presence of the bird which is flying before him is not an indifferent circumstance. In Greek and Etruscan painted vases and bronzes, birds are thus frequently represented accompanying warriors and chariots. It is, unfortunately, difficult to say precisely to what species the bird before us belongs; if we knew, we could, perhaps, know also who the warrior is who has taken it for his distinctive insignia, and know, to a certainty, what scene of the heroic mythology is here represented.

"The details of the team, the harness, and the chariot, are interesting to observe. The body of the chariot seems to be made of a light wood, as of interlaced canes. Similar chariots are seen in the Assyrian bas-relief, and others somewhat resembling this, on Etruscan and Grecian painted vases. A chariot thus constructed must have been of extreme rapidity, and of scarcely any weight. Such was, no doubt, under the sheets of gold and silver which covered it, the chariot which Diomede took as spoil from Rhems, after having killed him; in fact, he deliberated with himself, says the poet (Homer's Iliad, x., 503-505), as to whether he would take it off of its wheels, and carry it away on his shoulders."

FRANKLIN AND HIS GIG.—It is more than a century since Benjamin Franklin, Postmaster-General of the American Colonies, by appointment of the Crown [of England], set out, in his old gig, to make an official inspection of the principal routes. It is about ninety years since he held the same office under the authority of Congress, when a small folio (still preserved in the Department at Washington), containing but three quires of paper, lasted as his account-book for three years. If a Postmaster-General were now to undertake to pass over all the established routes, it would require six years of incessant railroad travel, at the rate of one hundred and twenty miles daily; while, if he were to undertake the job in an "old gig," he would require a life-time for its performance. Instead of a small folio, with its three quires of paper, the Post-office accounts consume, every two years, 3,000 of the largest-sized ledgers, keeping upward of a hundred clerks constantly employed in recording transactions with more than 30,000 contractors and other persons.

Home Circle.

SUMMER-TIME.

BY FRANCES LAMARTINE.

THE summer-time is come again,
The summer-hours are here,
And all that's bright and beautiful—
All that we hold so dear—
Is smiling o'er our earthly home
To make it bright and fair;
And fragranee from the southern elimes
Comes floating on the air.

Far hidden by the shadowy boughs
The little warblers swell,
Their joyous songs which gush so free
From out their hearts' deep well;
And all that nature ean bestow,
To mortals, she hath given,
To make this earthly dwelling-plaee
Like that bright home in Heaven.

The forests, fanned by breezes low,
Seem whispering in *play;*
But when I list *with all my life*
And hear the *words* they say—
And when I see the shadows dark
Sweep out the light of day,
The *shadows* and the *mystic words*
Take all *earth* joy away.

For oh! they tell me summer hours
Will not forever last,
And all the fair things summer claims
Will soon be gone and past;
That autumn eold will shortly steal
Their beauty and their hloom,
Then wrap its shroud around them all
And lay them in the tomb.

And thus is Life! Of every joy
On *earth* we'll be bereft,
And there will be no loving tones,
No eheering voiees left.
Then oh! we'll strive to gain that land
Where hope fades not away;
Where hearts we love will ne'er grow eold
Nor summer flowers deeay.

A SUMMER AT THE SEA-SIDE.

BY A NEW CONTRIBUTOR.

IT was a burning July day, when I turned the key on my bachelor lodgings and left the great city, with its noise and dust, and pent-up courts and steaming vapors, and sailed away down the wide, breezy bay to a peaceful little retreat by the sea-side.

Crowded and fashionable resorts are not to my taste; therefore, on landing, I turned from the throng of fellow-passengers that pressed up to the great hotel, and took my way to the unobtrusive abode of a widow, in whose neat and well-ordered household I had, for several successive summers enjoyed the retirement so congenial to my habits. Mrs. Cathurs—such was the name of my hostess—occupied a pleasant cottage, very near the beach. It was enclosed in a neat garden, and somewhat sheltered from the rough, easterly winds by a line of dark firs, that interposed a perfect wall of verdure between the little rural domain and the surf-beaten coast. Along the front of the house extended an ample piazza, where, in company with the few single gentlemen that had heretofore constituted the staple of Mrs. Cathur's boarders, I had lounged through many a tranquil summer day in the enjoyment of a pure content that is rarely vouchsafed to us in this mortal sphere.

My hostess met me at the gate. She had observed my approach, and there she stood, as I advanced along the grassy lane, presenting the same *tout ensemble* that had charmed and cheered me on the day of my first entrance to her hospitable abode. Ten years had not added a wrinkle to her face or abstracted a modicum from her rotundity; tidiness and good-nature were apparent all over her ample person. She still wore the neat, brown-and-white print, and black silk apron, and the same snowy cap, with its ample frill and fluttering strings, adorned her head; and, better than all, the same dimpled hand, as plump as a pincushion, was extended to meet my cordial grasp.

We exchanged greetings, and she led the way to the house.

"Shall I show you to your room, sir; or will you sit awhile and rest?" asked the widow, as we ascended the steps.

"I will wait here until my baggage arrives," I replied, as, with a sense of keen enjoyment, I seated myself on the shaded piazza, and bared my head to the pleasant sea-breeze. My hostess sat down also.

"You come down late this season," she remarked.

"Yes, some three weeks later than usual; you received my note?" I added, inquiringly.

"Oh, yes, sir! and reserved your room."

"The house is full, then," I returned, carelessly; "the Masons, and Tompkins, and Harris, all here before me, eh?"

"The Masons! I thought you knew, sir, they are gone abroad; and Mr. Tompkins wrote me early in the season that he was going North this summer; and Harris I have not heard from; and, in short," continued the good lady, with a little perturbation of manner, "I have quite a new set of boarders this season."

I looked up inquiringly, and she proceeded:

"I prefer single gentlemen, as you know, sir; but all my old boarders failing me, except yourself, I was compelled to select from such as offered. Those I have received are unexceptionable people—very quiet and agreeable—I think you will be pleased with them."

"Pray, who may they be?" I ventured to inquire.

"Well"—here my landlady's cap strings fluttered uneasily—"first I took Mrs. Howard—a widow—a very ladylike person, you'll find her, sir; she has a daughter, a charming little"——

She came to a sudden stop. I think the consternation depicted on my countenance caused the interruption.

A widow and her daughter! I turned away from Mrs. Cathurs and looked down into the shadow of the firs. Shades of heroes departed! here was a predicament for a shy old bachelor! After awhile I succeeded partially in mastering my emotions, and again facing the lady, begged her to proceed.

She was a woman of infinite tact; I think she appreciated my feelings, for she said no more about the widow.

"Mr. Chalmers," she resumed, "came down early in June, and engaged all the rooms that were left for his

family and two young friends that were to accompany them. These are all the boarders I have at present, sir."

I took the liberty of urging some inquiries in relation to the family mentioned by my landlady, and learned that it consisted of father and mother and two daughters."

"The oldest of the young ladies, Miss Imogen," continued my informer, "is engaged to one of the young gentlemen that accompanied them, and is, I believe, shortly to be married."

"And the other, I suppose, pairs off with young gentleman No. 2," I rejoined, with a grimace I could not control.

"Oh, bless you! no, sir; Miss Rose, poor young thing, has had a disappointment; she was quite ill for a time, and that's why they brought her here so early in the season."

"Pale and melancholy, eh?"

"Why, no, sir; not exactly," returned my landlady, with a curious smile. "I think she was, rather, at first; but she seems in very good spirits now. These young people soon get over their troubles, and somehow I think they are not always really in love when they fancy they are."

The arrival of the porter with my luggage here interrupted the conversation, and I retired to my room. I did not intend to fling the door, but somehow it closed behind me with a fierce snap. I was not in a placid humor. It was obviously the duty of Mrs. Cathur's to inform me of the changes in her establishment before I left home; I felt injured; I was entrapped; domiciled for the summer with an interesting family—a starched-up old lady and a brace of love-sick damsels, to say nothing of those monkeys in leading-strings, the silly fops that danced attendance on them; a widow, too—a thing I detest. I have an instinctive horror, a wholesale aversion to the whole tribe—flirting, coquetting, designing creatures they are, all—but this one—she has a daughter; so much the worse—probably she is old and has dyed hair and rouged cheeks, and an advancing tusk, over which her thin lip curls in ghastly defiance to all mankind—a hideous, malicious gossiping old witch, I'll venture to say. At this point I came to a pause. I had been pacing the room with angry vehemence. I contemplated my trunks; they were yet unstrapped. What should hinder my changing my quarters? There was a large hotel down in the village; there I could isolate myself as completely as I pleased, and call down disagreeable remarks. Somehow the thought did not delight me; I hated the eternal din, the perpetual ebb and flow of the human tide, the jostling with grinning waiters and the horrible clang of the gong, all of which I had rushed from the city to avoid. Then I liked my present abode; many years occupancy seemed to have confirmed my right to it. I was attached to my kind hostess, who appreciated my peculiarities, and studied my comfort, and I scorned—yes—I scorned to be driven hence by these new-fangled upstarts—these feminine usurpers. My resolution was taken—I would maintain my ground!

Having come to this valiant determination, I subsided into a comfortable easy chair, cosily placed in the wide recess of a window. I flung back the blind and looked out on the pleasant garden and the dark firs, and caught, through the opening of their tapering spires, glimpses of the bright, blue sea beyond. The odorous breath of flowers, the low hum of insects, the silver chimes of the sounding surf, came through the open window—a delicious mingling of melody and fragrance, soothing and sanctifying soul and sense with their holy ministry. I was calmed and comforted in spite of myself. In this mood I rose to prepare for dinner. After divesting myself of my traveling apparel, and making myself neat and comfortable, I descended to the hall below. This, in the hot summer days, was the customary gathering-place of the household. As I came down I observed Mrs. Cathur's, knitting-work in hand, sitting in her low rocking-chair by the open door; opposite to her sat another person similarly employed.

"Mr. Brown, Mrs. Howard—allow me to make you acquainted," said Mrs. Cathurs, with elaborate politeness.

This, then, was the formidable widow of whom I had conjured up such frightful phantoms—this pert-looking little minx, with rosy cheeks and up-turned nose and pouting lips. She was not old at any rate; there were no pinched and elongated features, and projecting tusk, to remind one of witches riding through the air on broomsticks. I seated myself on the sofa, and, taking from my pocket a morning paper, stole over the top a second glance at the little beauty. She sat there very still, with her little round head bent over a heap of white worsted that seemed to be growing into shape, by the aid of a little hooked instrument that she plied right dexterously. Soft ringlets, of a light golden-brown, fell gently over her face; a black dress of the most airy texture, the last faint remnant of the insignia of widowhood, draped her plump little figure, and, from under its ample folds, peeped forth a foot that might soften the bosom of an anchorite; altogether, she made a pretty picture, and, in spite of the coquettish cast of her features, she looked as modest and meek as a saint.

A rosy little girl, of some four or five years, came skipping up the gravel walk, screaming with delight at the humming-birds that were dipping their luxurious bills in the honeysuckle-cups that clustered around the columns of the piazza.

"Hush, Nina, you make too much noise," said the little widow, in a tone of gentle rebuke.

"Let her alone, Mrs. Howard," interposed Mrs. Cathurs, good-naturedly; "it isn't right to repress the little things too much."

"I fear she may be an annoyance," returned the lady, directing a side glance at me.

Charming consideration! I was quite touched; I had serious thoughts of laying aside my paper, and endeavoring to make myself agreeable. Before I had an opportunity, however, of accomplishing my benevolent intention, Nina ran in, exclaiming—

"Here they come, mamma! they are all coming up from the beach! Why didn't you go, mamma? Why did you stay home all the morning? and its so beautiful down there, and so cool, Miss Rose says."

I happened to be observing Mrs. Howard while the little lady made her communication, and I saw her cheek flush as she cast a quick glance down the walk up which the little party were advancing; the next instant she drew back, and assumed a more quiet and unobservant demeanor than had hitherto marked her. The look and act were not without a certain significance, and I at once became an interested observer of her movements.

The hum of happy voices, and a ringing laugh, like the chime of silver bells, fell on my ear.

"Just in time for dinner," said Mrs. Cathurs, rising and settling the folds of her apron, preparatory to a tour to the kitchen.

"We shall do it the fullest justice, madam," was returned in rich, manly tones from without, and the next moment the broad doorway was filled by two figures—that of the speaker and Miss Rose Chalmers.

"Mr. Neville, Mr. Brown—Miss Rose;" such was the introduction of our polite hostess.

Well, here was another young beauty, but of quite a different type from the widow; a creature of fairy-like proportions, with the most dazzling complexion, the brightest eyes, the most pearly teeth, and long flowing ringlets. She flitted past me like a tricksy sprite. As she ran up the stairs, with the light scarf falling from her shoulders, and her straw-bonnet swinging on her arm, I thought of the young fawn—the wild gazelle—of all that I had ever read or dreamed of wild, untutored grace. Scarcely had this fair vision vanished ere another lady, with her attendant cavalier, appeared through the open door. They paused; and while the young gentleman lowered the umbrella with which he had screened his fair companion from the rays of the noon-day sun, there was an interchange of low-toned words and soft smiles, and lingering glances, that indicated how reluctant was the parting, though but for a few brief moments.

Mrs. Howard, quite withdrawn into the corner beside the door, sat with downcast eyes, looking as demure as a pussy-cat, but no movement of the lovers escaped her observation. An occasional eager glance, and a quick flush on her cheek, denoted the stir of unwonted emotions in her gentle bosom. She greeted them with a pleasant salutation, however, as they passed her on their entrance to the house.

(*To be continued.*)

Pen Illustrations of the Drafts.

CENTRAL-PARK PHAETON.

Illustrated on Plate I.

THIS is an original drawing made expressly for this Magazine, which will commend itself to every practical workman of refined taste. We can conceive of nothing more convenient or elegant, for our Central-Park drives, than a carriage of this kind, it being both open and airy—two very important considerations. Some of the lines in this design, we think, are peculiarly graceful, especially those about the seats and doors. The defects are that, in order to show the joints fairly, the artist has not dropped his ealash-top sufficient to look mechanical, and the driver's seat is a little cramped in producing light effect. The spokes in the wheels should not be less than 1¼ inches. The rims the same also.

Perhaps we might as well state here for the benefit of our country readers—as we are supposed to be in the Central Park—that an ordinance has just been adopted by the Aldermen of New York city, regulating the eharges of the hackney coachmen plying there. These are as follows:—All round the Park, with the privilege of keeping the coach for two hours, $4; principal parts of the Park, $3; to Cassino and lake, and return, $2; when engaged by the hour, $2 per hour; when for three or more hours, $1.50 per hour.

SPORTING PHAETON.

Illustrated on Plate II.

THIS Phaeton, or American Dog-cart, has some features that recommend it to the notice of the reader. It fully answers the purposes of both the dog-cart and the road-buggy. In this respect, it surpasses anything imported from abroad. The back part of the body is much wider than the front, affording ample room for the canine additions to the sportsman's outfit, or for the more roomy convenience of two waiters, on the turn-out back seat. The front seat is narrower, conforming in this particular to the modern fashionable-folly of crowding two *exquisites* into the smallest possible space, in order to look big—or, in other words, to appear different from *sensible* people, who study comfort in preference to what some have termed "style." Yellow colors for the carriage-part, and blue for the body, constitute good shades for the sportsman.

NONPAREIL BUGGY.

Illustrated on Plate III.

OUR artist has, on this plate, given us an original design of some importance. In it he has combined the features of a fashionable style with some points of his own devising. No doubt a buggy made after this drawing would meet the fancy of some customers, and find a ready sale. The arch to the side of the body is simply the effect of a small half-rounded moulding. The sinking, being concaved, imparts a lighter appearance to the whole.

Sparks from the Anvil.

SHIFTING RAILS.

OUR readers will find on the cover of this Magazine several rails advertised, each having some meritorious feature, peculiarly its own. The oldest in point of time is that of Stivers & Smith, of New York city. This rail will fit either a narrow or wide seat, for two persons, as it fastens to the seat *through* the bottom. In the language of the inventors "it gives to spindle seats much additional strength, and is easily put in proper shape; if from accident it gets bent it need not detain a carriage from use while repairing a top, nor prevent the trimmer from finishing a new one while the painter proeeeds with his work." The next, is the invention of A. S. Grant, of Waupun, Wis. Mr. Grant claims that his top can be put on and secured to a seat in twenty seconds by one person alone. It certainly is a very efficient and mechanical mode of securing a top to a seat. It met with a ready sale here on its introduction to the city carriage-

makers. The third, in order of time, is that of Joseph Enders, of Louisville, Ky. The mode of attachment is sufficiently explained in the advertisement, to which those interested are referred. When this rail is removed there are no unsightly eyes sticking out, as in the old mode, to mar the neat appearing of the seat, which, when they do, seems to give our fancy customers considerable uneasiness.

Having, above, given our readers the special merits of each separate invention, our readers will not expect anything further from us by way of opinion other than the assurance that all these inventors have properly patented them at Washington; and, therefore, they must not be classed with those "gentlemen humbugs" who are scouring some parts of the country with claims to which they have no possession, except it be that special reward—being "kicked-out-doors."

MANUFACTURE OF IRON AND STEEL.

The object of this invention (by S. C. Kreeft, of London) is to impart homogeneity and a compact molecular arrangement to cast-iron, cast-steel, and to Bessemer metal, and thereby to give increased strength to the articles manufactured therefrom. To attain this end, a powerful current of electricity is applied to the metal while in a state of fusion, the current being obtained either from a voltaic battery or an induction apparatus. The electric current is applied by means of carbon points connected with the wires of the voltaic battery or induction apparatus, the points being brought into contact with the metal while it is being run off. The metal is thus caused to assume (while in a state of fluidity) the desired homogeneous and compact molecular arrangement, which arrangement it retains after cooling. By applying the electric current during the running-off of the fused metal—and more especially the metal obtained by Bessemer's process, and the cast-steel produced in furnaces with saggars—the occurrence of flaws or bubbles is prevented, as the molecular movement set up by the electricity prevents their formation. The metals thus treated acquire a tenacity superior to that of iron and steel manufactured and cast under ordinary circumstances. The effect of this treatment is also to give to the metals thus acted upon a perfect magnetization, which renders possible the economical construction of magnets. The patentee claims, "subjecting manufactured iron and steel, while in a state of fusion, to the action of electric currents, for the production in cast-iron, cast-steel, and Bessemer metal of a homogeneous and compact molecular arrangement, as described."—*Newton's London Journal of Arts.*

COMPOSITION USED IN WELDING CAST-STEEL.

Borax, 10; sal ammoniac, 2; flour of sulphur, 1 part; grind or pound them roughly together; then fuse them in a metal pot over a clear fire, taking care to continue the heat until all spume has disappeared from the surface. When the liquid appears clear the composition is ready to be poured out to cool and concrete; afterward, being ground to a fine powder, it is ready for use.

To use this composition, the steel to be welded is raised to a heat, which may be expressed by "bright yellow;" it is then dipped among the welding powder, and again placed in the fire until it attains the same degree of heat as before, it is then ready to be placed under the hammer.

GETTING THE LENGTH OF JOINTS.

This may seem a trivial question to many, but there are so many ways—each one the *very* best—that we are induced to invite communications on this subject for the purpose of investigation. We want them for publication in this journal at an early day.

Paint Room.

NATURE AND QUALITIES OF PAINTS.

BY A PAINTER.

The design of the series of articles here begun is to make the painter better acquainted with the materials he uses, in the hope that with the knowledge given him, he will be able to select the most durable and reject the worthless, and in so doing, be able to produce a more enduring and handsome piece of work. We have become fully satisfied from long practice, that in this respect American painters are faulty. Without entering into details suggested by this belief, but which must be apparent to all, we enter at once upon the consideration of our subject in alphabetical order.

BLACK.

There are several kinds of blacks found in the shops, some of which are worthless, but those chiefly required by the coach-painter are known as drop and lamp-blacks. It requires much experience to select a good article, and it is found that the best lumps are those the most solid and heavy. One good test in purchasing is to break a lump, and should you detect spots of white therein you may safely reject it, for these are certain to injure the beauty of the work if used. There is a great difference between the American drop or ivory blacks. The latter, we are pained to say, is comparatively worthless. It is gray as well as spotted compared with the imported, the only recommendation it possesses being its low price. To call it cheap would be an abuse of the word, it in most instances being dear at any price. The relative price is as twenty-five to thirty cents.

An article has been imported by an individual in New York city, and supplied by him in person to many of the best shops there, the nature of which is so peculiar and satisfactory as to produce the blackest and most lasting paint yet employed for coach work. It is sold much higher—say 40 cents—but is worth more than the difference. We do not approve of adding Prussian blue with the drop or patent black for the purpose of improving the color as some have recommended, thinking thereby to give it "more depth and brilliancy." Ivory black is considered a slow drier, and therefore needs artificial assistance from other ingredients in some cases. The best is produced from bones subjected to heat in air-tight vessels. Much of the worthless article sold in the shops as drop-black is nothing more than calcined peach-stones and nut-shell. A little care will detect the imposition.

Lamp-black is of two kinds, crude and refined. It is

produced in the Eastern States while smoking fish, and often sold to New Yorkers by "the smackmen" themselves. Indeed the best crude which we have ever purchased has come from the Nahanters. In the Southern States where pine forests abound much is produced in "the smoke-stacks" erected for burning pitch-pine, the only purpose of which is to produce the *soot* which collecting at the sides is gathered and sold as lamp-black. In some sections of our extended country lamp-black is gathered from the house-chimneys and cupidily disposed of as a good article. This may be easily detected by the large quantities of mortar and dirt mixed in it.

Sometimes lamp-black is found to contain an oily matter very deleterious to its otherwise good qualities. This can be easily removed by subjecting it to heat on a sheet-iron plate over a coal fire until it ceases smoking, which is a sure indication that all impurities have been removed and the color much improved. In painting bodies black some recommend that lamp-black, which is used in lead-color also, be used for the first coat, as the best patent blacks do not cover well upon lead-colors. Some extended observations on this subject will be found in Vol. II, at page 191, to which the reader is referred.

(*To be continued.*)

FASHIONS IN STRIPING.

MANY persons have written us, asking that we post them in the New York fashions of striping. This it would be hard to do, as *whim* more than *fashion* reigns now in this particular. The tastes of customers seem to vary so much that they have placed the fashions nowhere, or made, to use a trite phrase, "a muddle" of them. We will, however, try and throw a little light on the subject.

In the first place, then, draw a broad stripe—say five-sixteenths of an inch wide—through the middle of the sides of the spokes from the hub to the rim, the whole length. (Don't cut the ends as in the engravings found in Vol. I, at page 229.) Next draw a fine line stripe of some color showing to advantage by contrast at the two *outer* edges, allowing a little of the original broad stripe to show at the outside. Now when we mention colors we have said all, and we will endeavor to do this according to the present popularity of each—a broad stripe of dark cream color with a fine one of black; the same of red with white on a black ground; the same of white and red on a blue ground, &c. From the foregoing our friends will see that, strange as it may appear, there is nothing particularly fashionable, and yet there is scarcely any color which may be used unfashionable. There is no "royal striping" in our Democratic—by which we mean Republican—country at present. We leave all such "conventionalities" to such "old fogy" lands as France, of which read the particulars under the head of "Review of Trade," in the "Editor's Work-bench," further on.

ORIGINAL MONOGRAMS.

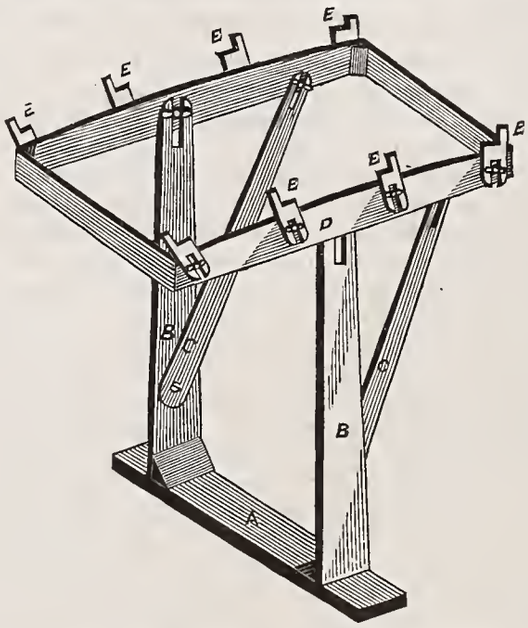
Illustrated on Plate IV.

WE find that our series of monograms meets with much favor from the public. This circumstance has induced us to continue them in this volume. These have been designed expressly for us, at considerable expense, in the hope of making them generally useful. They are just about the right size for buggies, and intended to take the place of dogs, griffins, and other *outre mer* figures which have so strong a hold upon the *tastes* of our country friends. When we say take the place, &c., we mean they are intended as aids in the combination of such initials as your customers order—as studies for you in this line of business.

Trimming Room.

BOW-SETTER.

MANY carriage-makers, for the want of a proper machine, have some very ill-shaped tops to their carriages. This would be remedied by providing the proper instrument, and likewise economize labor. To assist those who would avail themselves of its advantages, we give a dia-



gram sufficiently explained to enable our readers to make one for themselves. A few bolts with thumb-nuts, strips of plank and deal, are about all required to proceed with. At A will be found the 1¼ inch strip of plank forming the base; B B designates the supports or uprights; C C the braces regulating the top frame by the slide at the ends, so as to give the proper pitch to the top; D D the frame; E, of which there are eight, points out the guides, secured by thumb-screws and sliding in grooves, so as to make the top higher or lower at will. After the top is set and the bows secured in their places, by bracing, these guides may be pushed to a horizontal position, which so far releases the frames from the bows, that it may easily be removed altogether. This instrument will enable any one, single-handed, to set a top in a very few minutes. Should the reader have anything better, and will send us a sketch, we shall be happy to publish it. Communications in regard to extension-tops will be acceptable likewise.

SILK MACHINE THREAD.—We hope our friends will not trouble us with orders for this material. The independence shown by the dealers in this article is such that we want nothing to do with them.

SPECIAL NOTICE TO TRIMMERS.

We have never been able to properly call out the talent of trimmers for this department of our Magazine. We hope this year to be more fortunate. That we may encourage the so disposed we offer as a reward to any sending us, within the year, sufficient matter—drawing being also counted as matter—to make when printed two and a half pages, a year's subscription to this work. If more is furnished by the same individual we will for the like quantity of original matter furnish any back volume (except the 7th, of which we have but a few left) he may select, bound, the costs of transmission only being charged.

When we invite trimmers to write, we are almost invariably told that there is nothing new to be said on the subject. We take this to be a mistaken idea. To any thinking mind it is evident there is much suggestive as well as practical matter, which has never yet been properly diffused abroad; much that is merely local, and would be new to many elsewhere. We hope, therefore, that none will be deterred by such fancies, as that they are not scholars enough to express themselves learnedly for the public. We don't expect smooth sentences or anything very fine. Give us the *crude* ideas, the gold in the ore. We will do the *refining* if necessary. We hope the bosses will take some interest in this subject, and introduce it to the notice of their *smart* trimmers. Let us see how much can be said, in this department, to profit.

Editor's Work-bench.

EDITOR TO THE READER.

In this enlightened age and time of progress, almost every department of business has its special organ. It may be said to the credit of the craft which we represent that coach-makers early perceived the advantages arising from the monthly visits of a periodical devoted to their interests, and, with a few exceptions, have stood ready to lend it their pecuniary aid and patronage during the past eight years. It is true that four of these years were stormy, the clouds of war having obscured our political horizon, scattering horror and dismay all through the land; yet during the darkest hours we were buoyed up by the sympathies of friends and the hope of better days. Nor did we hope in vain. The past year has been one of comparative sunshine, which, we trust, is but the the foretaste of a still more brighter one. We are sure it will be, if our friends will devote a few of their spare moments to giving us their mechanical experience in writing, for our pages, and in recommending all those with whom they come in contact, to subscribe for the work without delay. In order that we may be able to make the Magazine worthy of your patronage, we spare no expense or pains in making it classical, reliable, and useful. In addition to this, we may point with just pride to the fineness of our engravings and the beauty of our typography. We think they are excelled by none. Of this, however, our readers must judge.

Of the usefulness of such an organ as ours there can be no question, and our friends will excuse us in saying that to this Magazine, in no small degree, must be attributed much of the remarkable progress which carriage-making has made in this country during its publication. Look, if you please, at the drawings in our first volume, and compare them with the present. Look into the shops where this work is taken, and into those in the same town or village where it is *not* taken, and behold the contrast! There is as marked a difference between them as there is between day and night. While the one has a stock of fashionable and neatly-finished carriages in his ware-room to offer the public, the other has but a sorry-looking collection of "old tubs" to show. So much is this the case, that, like the proprietor, everything around wears a *mean* look, excuse it as he may. The expenditure of a five-dollar "greenback" yearly, would have saved his personal credit, and made his carriages creditable. But, alas! instead, blindness and stupidity predominate.

Look at the losses of a mechanic who neglects to give us his subscription. In the first place, he has no means of showing his customers the fashionable style of carriages, his own ignorance and the lack of designs presenting difficulties he cannot surmount. Secondly, he is a fit subject for the operation of some artful, vagabond patentee of an old, exploded, and worthless idea, and consequently gets—as he deserves to be—*well* "fleeced." Thirdly, he remains in ignorance of what is transpiring elsewhere among the craft, and consequently is non-progressive in everything which contributes to make a *live* mechanic. There are many other important points for review which might be presented had we space for detail. These we must defer for the present, merely noting the fact, "that knowledge *is* wealth" to him who possesses it.

To those *who do* take the work, we have something to say, which is for both *your* and *our* interests. Almost every day some one calls upon you to buy his patent-right for your shop. Some of these are valuable, many more are worthless. When "a good thing" does present itself, how easy would it be for you to call the attention of the visitor to the importance of advertising it in our pages. If successful, means are put in our hands to furnish you with a better Magazine, and in this way you are directly benefited. Then, too, you have some around you who would subscribe also, with a little persuasion. These, whether jours or apprentices, by study would become more skillful workmen, and this would likewise prove beneficial to you. Try it for a year, and see if this is not so.

The reader will observe that with this number a new volume begins. All subscribers whose names are entered on our books previous to December next, will be supplied with a perfect volume from this date. We do not intend

to suffer subscriptions to begin with any of the intermediate months, as to do so causes a loss to us. What we may do after December will be explained at the proper time, if necessary. Meanwhile, we invite all to whom this number is sent, and whose subscriptions ended with the May issue, either to send us the money ($5), or else return it through the post-office to our address, with their names on the cover in pencil, that we may know from whence it came. The law holds those who take and keep this number responsible for the year's subscription. *We* shall hold such responsible also.

We would, finally, request those making remittances to send us a Post-office Order for the amount, whenever this can be done, since there is no possibility of loss in such cases. In the small towns where such are not issued, a registered letter will answer. For this we assume, if properly addressed to us, the entire responsibility. All other remittances must be made on the subscribers *own* responsibility. Send us no checks on banks out of New York, we cannot collect them without too much expense. When drafts are offered, make them payable to our order on some house in New York city.

TASTE APPLIED TO CARRIAGES.

What is taste? This question is more easily asked than answered. In a general sense it may be defined as a nice perception or the power of perceiving and relishing excellence in human performances; a well-balanced judgment; the faculty of discerning beauty; order, congruity, proportion, symmetry, &c. Webster tells us that "taste is not wholly the gift of nature, nor wholly the effect of art," and yet in order to arrive at a correct taste, both the natural and the cultivated gifts are required. Taste as displayed among the barbarous and civilized nations are as widely different as the countries they inhabit. The uncultivated mind exhibits taste in the display of showy dress, gew-gaws and paint; while the enlightened or refined taste studies to show itself in subdued tones, nicety of finish and graceful lines.

There is a vast difference in taste among individuals to-day; and fashion, which holds a despotic sway over mankind, will inaugurate a different standard of taste to-morrow. Fashion being the acknowledged ruler we may define taste as the educated subject. Fashion leads and taste follows, but in the crowd are found tastes good and bad, and we say of certain individuals, they exhibit a "miserable taste," whilst of others we say "they show a good taste." In this state of affairs the question naturally comes in, What constitutes a good taste? In order to answer the question fully we shall consider it, both negatively and positively, in connection with carriage-building.

First. Negatively, it (good taste) is not found in painting a carriage with *gaudy* colors, nor in *showy* linings, nor in *elaborate* plating, nor *profuse* striping. Neither is it shown in that habit our German friends practice, of adding a scroll here, and an angular line there, which is worse than labor lost—a remnant of barbarism which ought to be abandoned at once. Many of our Eastern friends, previous to our late troubles, who catered for the Southern States and the Mexican market, were obliged to study what we may call "a Spanish taste,"—very properly designated as *taste run wild*—in order to please their customers and secure their patronage. This study produced serious defects in the taste when afterward their custom was confined to a Northern market. We saw this strongly exemplified in the Eastern-made carriages for sale in the Western States through which we traveled last year. It seemed to our superficial vision as though the carriages consisted mostly of those built originally for the South which the force of circumstances had sent in another direction to be sold. This of itself would be of little consequence did it not exert a baneful influence on the advancement of *artistic* taste, wherever introduced. The Western builders—those who neglect to take this journal—very naturally look to the Eastern States for their fashions, and so when they see an Eastern-built carriage at their doors, they take it as the standard, their ignorance of things blinding all discrimination, and shutting out the fact that "fashion and taste" widely differ between the Eastern States and New York. This class of mechanics often tell us that our designs cannot be in the fashion because they judge from false premises. The fact is those who take *their* fashions from the repositories of Eastern work will always be fully two years behind the New York styles.

Secondly. Positively good taste consists in embodying correct mechanical principles in construction, with simple elegance of outline and chasteness in finish. Of course these are *warped* under the influences of the change in fashion, but fashion itself should be made to yield thereto. Taste and fashion, although they differ many times, yet when united may both yield a happy influence over the progress of art. The first consideration in carriage-building—perhaps the most important—is to adapt the construction to the uses for which it is intended. If this is not done the whole thing must prove a failure. The next is to have the outlines graceful, true, proportional and symmetrical, even when influenced to step aside from this bystyle or mannerism. In no department of mechanical art is the study of "the beautiful and true" more urgent, nor the field of improvement more extensive than among carriage-makers. Next to careful workmanship is the employment of good material; of wood well-seasoned, of iron *the* best the market affords, of lining the finest fabric in *fast* colors, which when combined, without at-

tracting particular attention to any one part, gives a pleasing satisfaction to the whole carriage.

Here we meet with the objection from some: if we were to make the finer class of carriages we could not find customers for them. And why? "Because when our fancy or rich men want a *very nice* vehicle they go to New York and buy one. We think we can and do make as nice work as you do in the city, but we cannot convince our neighbors of the fact." Just so, because it is *not* the fact. Your ambition has taken a wrong direction from the pressure of circumstances. In your study to undersell your cotemporaries you have been inclined to get up a *very* cheap and coarse description of work, which when sold is neither profitable to you nor creditable to the craft. You have yet to learn that the finest made carriages sell and pay best. The true reason why the carriages built in New York, Cincinnati and a few other cities is most sought after is that the material is select and the workmanship more pains-taken. Prejudice may operate against you to some extent for a season in the undertaking, but we are fully convinced that it may be overcome and your customers kept at home if you would but study a more refined taste and pay more particular attention to details, as is done here. We have not space to follow out this subject further this month but may return to it again. We would, however, impress it upon the mind, indelibly, that *good taste insures good pay.*

REVIEW OF TRADE.

The return of Spring once more brings joy to the coach-maker's heart, by encouraging him to hope for sales, from the profits of which he may be able to replace the outlays of a dull winter. From what we can learn, the past has been very dull indeed. This, doubtless, has been caused, in a great measure, by the downward tendency of the gold market, and the consequent depreciation in prices of all description of merchandise. Added to this the heavy failure of a banking-house in Wall Street has served, in some degree, to make matters worse in this locality.

As yet we cannot report a brisk state of affairs, although there is a little trade (we write this April 30). We have reason to think, however, that the market will not be found overstocked, for it would be the height of folly to build largely on a falling price. In this singularly uncertain condition of trade to which we have alluded, we cannot more profitably occupy the space allotted to this subject than by presenting our readers with a translation from the *Mercurè Universel* of the 15th of February, in regard to carriage-making in Paris:

"Although at the commencement of this year commercial affairs were dull, yet now we may announce a revival of business. Basket carriages will still be much used the coming season, particularly the vis-à-vis, notwithstanding the fact that wicker-work begins to be somewhat displaced by balustrades, palmettos, and some fancy woods. The vis-à-vis introduced in December last has been very popular. There will, at least, be as many of these used in Paris this season, as there will be of those formed of osier or wicker-work. Almost all of the plainer carriages are built mostly in panel, without mouldings, the coach-box (boot) being made very high and narrow under the coachman's seat, the bodies being hung a little nearer than they were last year. The curves as well as the tops (covers) of Landaus are made much less rounding. The wings (dusters) for Landaus are invariably made for the front only, the same as in the drawing furnished in January, 1865. Many of the hoopings are made of steel, the English style of tire being abandoned. We also make some of the wheels (though now somewhat common for pleasure carriages) of white hickory wood. The Mylords (the aristocratic carriages) are also changed in form. Of these there will be an exhibition next month, as also of some duchesses of a new class, together with light phaetons, peasant (bourgeoise) ponys, and omnibuses. The four-spring carriages will appear in July and August of this year.

"The painting this year on those carriages which are being prepared for Longchamps (a fashionable drive in Paris) is generally blue, with lighter striping on the body and wheels. Some are painted a light blue with straw-colored stripings; and dark green (the shadings being havana and black) are still used. There are a few small fancy carriages made, variegated with diverse colors, which disport themselves pretty well on the public squares this season.

"As to the trimmings, there is very little change, except in material, the styles only differing according to the form and combination of the figures. Some imitations of sculptured wood are also made, that are stamped, the ground-work of which is hair. This, however, has but little importance in Paris, where, in reality, nothing but a proper economy is sought after, and which is never to damage the value of the work. Therefore, to sum up all and close this bulletin, we may say, that if work is not over abundant, still all the establishments have a little to do."

NO CHANGE IN ARRANGEMENT.

So thoroughly was our plan digested before issuing the first number of this Magazine, eight years ago, that we have not found it necessary to change it much since. The departmental arrangement subjects us to difficulties no other journal is called to surmount. It would prove a much easier task to edit could we dispense with them altogether, and leave the printer to make up his forms

unfettered, or as he thought best. We could in such case omit much of the matter we are now obliged monthly to hunt up for the smith, painter, and trimmer, whenever we found it convenient to do so. We venture to say that no other editor ever took upon himself so inflexible and determined a rule as we have shown; at least we have no knowledge of such. The now defunct carriage-builder's *Art-Journal*, and the less pretentious *Mercurè Universel*, have neither of them been so laboriously conducted. We would not say this boastingly, but as a matter of interest to our patrons, and worthy of some credit. We perhaps could make them a little more useful, could he get more outside help—could we find more practical mechanics skillful with the pen. Such seem to be few, consequently we are often obliged to depend wholly our own resources. There is no lack of purely literary talent offering; it is the mechanical in which the dearth appears. Cannot our friends exert themselves a little, and give us aid in making the three most important departments of this Journal more full, and consequently valuable? We will hope so.

HOPE FOR THE CARRIAGE-MAKER.

THE proposed reduction in the Internal Revenue Law is likely to culminate in favor of the long weighed-down carriage manufacturer. The reduction from six to five per cent. on manufactures is something; but that which frees curled-hair, lamps, malleable-iron castings, paints, hubs, spokes, fellys, repairs, bolts, anvils, vises, springs and carriages costing less than three hundred dollars, are matters of great satisfaction to all interested in the trade.

This movement on the part of the Committee of Ways and Means, so soon after one of the most bloody civil wars of any age, speaks volumes in favor of our free government. The contemplated reduction will reduce the rates of Internal Taxation full one-fifth, and after the pressure to which we have been, as a Nation, subjected, bring encouragement and joy to all business men. The clause exempting all incomes under one thousand dollars from taxation, is another feature which is well calculated to bring relief to a class of our population standing very much in need thereof. We trust the proposed changes will speedily be made, and the law passed.

Patent Journal.

AMERICAN INVENTIONS.

April 10. (53,821) SMITH'S VISE.—S. S. Hepworth, Boston, Mass.:

I claim the sleve B, in eombination with the nut A, connected to the movable jaw E, operating as and for the purpose described.

17. (53,957) TIRE-TIGHTENER.—P. Daniels, Jackson, Mich.:

I claim the piece F G, in eombination with the tire of a wheel, arranged relatively with the right and left threaded serew, and operating in the manner and for the purpose herein specified.

(54,001) WAGON.—O. E. Miles, assignor to David B. Turnbull, Aurora, Ill.:

I claim the east-iron box, with its central opening and projecting flanges in one pieee, for tbe purpose of receiving and seeuring the ends of the braces to the couplings, each as herein shown and described.

(54,081) METHOD OF EXTRACTING TURPENTINE FROM WOOD.—J. Antoine Pastorelli, Marseilles, France:

I elaim the distillation of the resinous woods for the extraction therefrom of the essence of turpentine, ete., by the means and in the manner herein set forth, that is to say, by plaeing the wood in the boiler, over an ordinary fire, together with water to form steam to prevent the burning of turpentine formed, as above deseribed and for the purposes set forth.

24. (54,111) CHILD'S CARRIAGE.—Andrew Christian, New York City:

I elaim the improvement in that elass of ehildren's carriages known as "perambulators" herein deseribed, the same consisting in supporting the front end of such carriages upon two in lieu of one wheel, substantially as and for the purpose herein specified.

(54,155) CARRIAGE-WHEEL.—G. G. Hickman, Coatesville, Pa.:

I elaim the combination of the concave-faced hollow socket A, laterally sustaining the sides of the felly with the hollow-threaded eap-pieee B, the elastic material E, spoke C, and felly F, arranged and operating as described and represented.

(54,159) DEVICE FOR TIGHTENING WAGON-TIRES.—George Hillegass, Philadelphia, Pa.:

I claim, 1st, A device for contracting the tire of a wagon or other band, by an endless screw F, nut E, collar C, and tongue B, substantially in the manner set forth.

2d, The rib G, on the inside of the tire A, in eombination with a device for contracting the tire, substantially as set forth.

(54,165) TIRE-SHRINKER.—James P. Howell, New York City:

I elaim, 1st, The vise N, when supported on a pivot or its equivalent, to allow it a eircumferential motion in direction of the motion of the jaw *d*, of the swinging-arm C, substantially as set forth.

2d, The bed-plate *m*, cast in one piece with the stationary arm *d*, and used in eombination with the swinging-arm *c*, for the purpose and in the manner substantially as herein set forth and shown.

3d, The combination of the pawl R, and ratchet *u*, with the lever *m*, for operating and holding the movable jaw *j*, of the vise, substantially as and for the purpose set forth.

(54,169) SHIFTING RAIL FOR CARRIAGE-TOPS.—Shadrack Johns, Waupun, Wis.:

I claim, 1st, The adjustable and loeking feet attaehed to lower rails, eonstructed and operated substantially as described and for the purpose set forth.

2d, The serew-rod G, in eombination with the rail B′, eonstructed and operating substantially as described and for the purpose set forth.

(54,206) SAW-FILING MACHINE.—J. H. Rector, Syracuse, N. Y.:

I elaim, 1st, the eombination of the index-drum V, the lever and point S, the table J, the dial *b*, the raek K, and the pinion-wheel *q*, all arranged substantially as described.

2d, The eombination of the treadle G, the index-drum V, the lever and point S, the wheel N, and the wheel *m*, with the table J, and the rack K, constructed substantially as and for the purpose above described.

(54,212) SHAFT-COUPLING. — Stephen P. Ruggles, Boston, Mass.:

I claim a shaft-coupling made in two parts, and held together and to the ends of the shaft by a differential serew-bolt and

screw-threads in said parts, and by a key, substantially as and for the purpose described.

(54,246) Device for Lubricating Carriage-axles.—N. B. Brown, assignor to himself and Elbridge Sims, Antwerp, N. Y.:

I claim the spring-valve *a*, in combination with the slotted receiver A, applied and operating as described.

(54,253) Carriage-shackle.—Wilson W. Knowles, assignor to himself, Julius B. Savage, and Willis B. Smith, Southington, Conn.:

I claim constructing the shackle to receive the clip-bar, substantially as and for the purpose herein set forth.

(54,265) Tuyere.—James M. White, assignor to himself and David King, Springfield, Ohio:

I claim the peculiar arrangement of tuyeres for blacksmiths' forges, consisting of two parts, *a* and B, united by the bolts E, and having the hemispherical cap F, resting upon legs D, permanently attached to it, which rest upon the bottom-piece B, which has also a slide C, in the bottom; the several parts constructed and arranged substantially as and for the purpose set forth.

FOREIGN INVENTIONS.

August 29th, 1865. Apparatus for Disengaging Runaway Horses, &c.—R. T. Holmes, Kingsland:

This invention relates to improved mechanical arrangements or appliances for instantaneously disengaging and freeing horses from the carriages or vehicles to which they may be harnessed in the event of the horses taking fright and running away, kicking, or otherwise endangering the lives of persons riding in such said vehicles. The following is an example of the means by which the object of this invention may be effected: To adapt this invention to a single-horse vehicle—a four-wheel chaise, for example—the patentee proposes to adapt to either one side or the other of the splash-board or guard a lever of the first order; one end of this lever has a locking-bolt or pin attached thereto, the said pin passing through the perch-bolt of the vehicle, which said perch-bolt, for the purpose of this invention, is formed hollow. The aforesaid bolt is intended to project beyond the perch, for the purpose of locking thereto a duplicate futchell, the single end whereof fits into a socket fixed to the under side of the perch. The double or forked end of the said futchell receives the ends of the shafts, which may be connected thereto in the usual way, the said duplicate futchell being concealed by being placed underneath the proper or usual futchell. The patentee also proposes to affix a slip or fork to the outer end of the aforesaid lever, for locking the perch to the under-carriage as hereinafter described. The operations of the mechanism of the invention are as follows: The futchell and shafts being connected by the aforesaid locking-bolt to the perch of the vehicle, and maintained in that position by a strong spring, when it is desired to detach the horses from the vehicle, it is simply necessary to depress the outer edge of the aforesaid lever by the action of the foot—or it might be depressed by a screw or otherwise—the effect of which will be to withdraw the locking-bolt from the hole in the duplicate futchell, thereby immediately detaching the same and also the horses, which leaves the vehicle with the shafts and duplicate futchell suspended horizontally by the harness, which is thus prevented from dangling against the horses' backs; simultaneously with the disengaging of the horse, the clip above mentioned, which is attached to the lever, embraces the perch and under-carriage, and thus prevents the vehicle from swerving sideways. He also proposes, in connection with the above mechanism, to employ a very long safety rein, which would be paid out as the horse left the vehicle, and thus afford an opportunity of securing him from running away.

31. Applying Springs to Two-wheeled Vehicles.—W. George, Liverpool:

This invention has for its object certain improvements in applying springs to two-wheeled carriages, in order to prevent the unpleasant jolting motion of the draft animal attached thereto being communicated to the body of the vehicle, and consists in jointing the rear end of the shafts to the forepart of the body of the carriage, or to a rigid stay or stays attached to the body of the carriage, and which, by preference, project a little forward therefrom horizontally, or in a curved line, and in applying to the underside of each shaft a spring, the lower end of which is jointed to a stud-piece or small bracket at the lower end of the stay-piece—when a stay-piece is used—near the front of the underside of the body of the carriage; and the other end may be connected to a bracket or stud-piece, immediately below the joint, on the rear end of the shaft, or a little in advance thereof. The spring is slightly curved backward at the top, so as to form what may be termed an O G spring. When the spring is jointed at the point immediately below the joint connecting the shaft to the body or stay-piece, a rigid metallic stay is jointed to it about the center of the underside of the spring, and is carried forward a short distance in advance of the shaft-joint, and is connected to the underside of the shaft; but when the spring is attached to the underside of the shaft, the connecting-rod or link is jointed to the upperside of about the center of the spring, and is jointed to the rear end of the shaft in connection with the body of the carriage, or rigid stay springing therefrom. The springs are so constructed that they will play equally each way, that is to say, both upward and downward, and may each consist of a center-spring, on the end of which are formed the connecting eyes to receive the joint-bolts, and elastic or semi-elastic surrounding tubes or packings. One or more scale-plates may be fitted on the top and bottom of the center spring-plate. *Not proceeded with.*

Sept. 4. Apparatus Used for Removing Axle-boxes from Wheels.—J. Durbble, Southwark Bridge-road, London:

Hitherto it has been usual to punch or drive out the axle-boxes from the hub or stock with a piece of wood and sledge-hammer, the wheel being placed on the ground for the purpose, by which method there is great liability of the axle-box becoming broken. According to this invention the wheel is placed in a horizontal position on the ground, but previously to which the patentee introduces a stem or mandril through the box, the end of which stem has a head, on which the axle-box rests. This stem is made of sufficient length to rise some distance above the stock, so as to receive a hollow metal cap or bonnet, having a flange around the lower edge, which is placed in position on the stem so as to rest on the upper end of the stock or hub. Toward the upper end of the stem or bolt he makes a long slot therein of suitable length, one-half or two-thirds of which projects above the crown of the cap or bonnet. In this slot he inserts one or two cutters of taper form; if two are used he inserts them on opposite sides of the stem by driving these cutters with a hammer or otherwise; they, by reason of their taper form, are caused to bear the one on the end of the slot in the stem, and the other on the top of the cap or bonnet resting on the top of the stock, and as the head of the stem is in close contact with the axle-box beneath the wedge action tends to raise the stem, and draws with it the axle-box out of the stock to an extent equal to the length of the slot in the stem below the top of the cap; this may be two inches or so only, which is sufficient for the purpose desired.

4. Apparatus for Promptly Disconnecting Horses from Carriages and other Vehicles.—P. Marvaud, Paris:

The nature of this invention may be understood by the following description:—The shafts are so arranged as to be readily detached from the carriage; and for this purpose the inventor causes the ends of the futchells of the fore-carriage to be forked, and between the branches is a ratchet or key-piece securing the shafts to the futchells by means of a headed spring and a bolt passing through them. In order to unlock the key-piece all that is required is to raise a lever arm traversing the fore-carriage and the bottom of the vehicle, which causes a cam to press upon the spring freeing the ratchet and bolt simultaneously; the shafts, together with the horses, are then instantly detached from the vehicle. *Not proceeded with.*

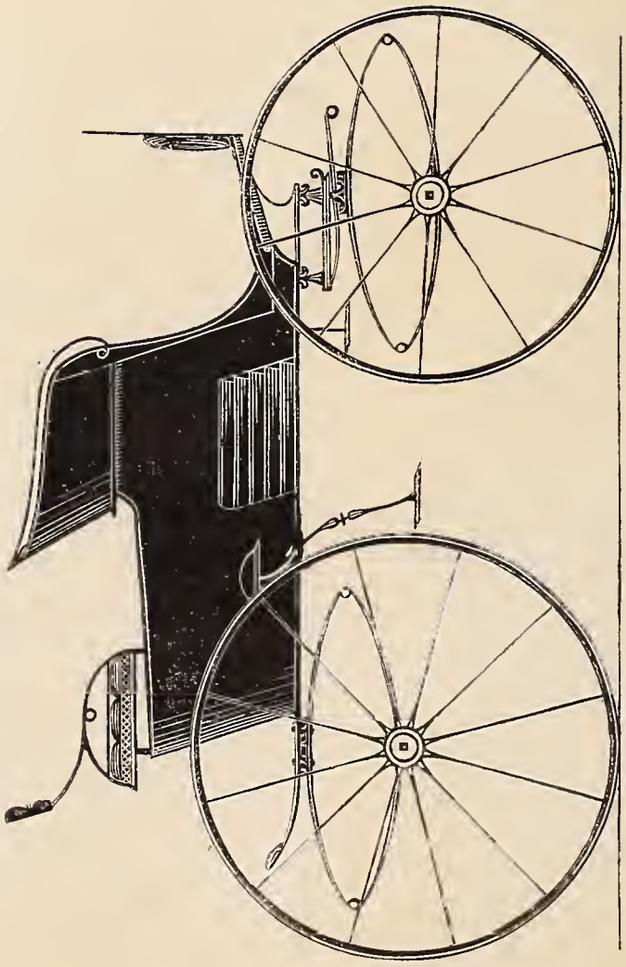
CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, May 10, 1866.

Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10½c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, aud larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $2.00.
Do. rims, uuder 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.25 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozeu, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 90c.; 5–4, 85c.
Do. Ducks, 50 in., $1.20; 5–4, $1.00; 6–4, $1.35.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.00—coach, mortised $2.00.
Japan, per gallon, $3.
Knobs, English, $1.50 *a* $1.65 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 15c. to 20c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 31c.; split do., 18c. *a* 22c.; enameled top, 32c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 28c.
Moquet, 1½ yards wide, per yard, $9.00.
Moss, per bale, 12½c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, 1 ead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $1.80.
Paints. White lead, ext. $17, pure $17½ p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.25.
Screws, gimlet.
☞ Add to manufacturer's printed lists 10 per ct.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.50 *a* $1.65 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 85c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 22c.; bright, 23c.; English (tempered), 26c.; Swedes (tempered), 30c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 9½c.; 1-4, 9c.; heavier sizes, 8½c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 9c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.45; 30, $1.55; 35, $1.80, gold.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.25; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, $1.30.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $5.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $10.50 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.

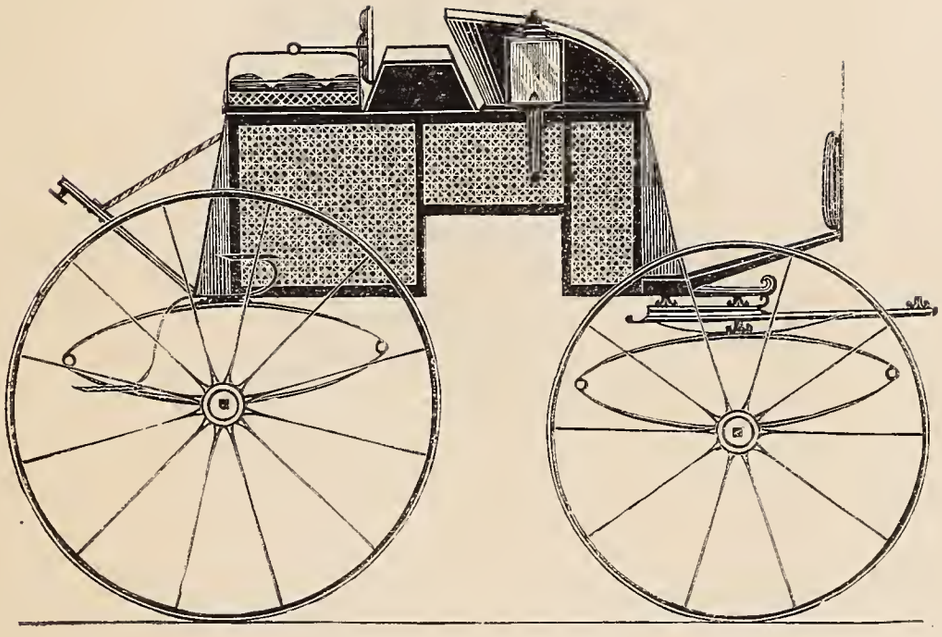
SPECIAL NOTICE TO SUBSCRIBERS.—With this number a new volume and new subscriptions begin. Such as receive it will be expected to comply with our terms, and send Five Dollars, IN ADVANCE, immediately. Where it is practicable send us a Post-office order for the amount. If such are not issued at your office, then send a "greenback" in preference to any other money, in a registered letter. Never send individual checks on a country bank. They are of no use to us. Canada subscribers must send us 25 cents extra to pre-pay U. S. postage. Be careful and pre-pay your postage, or, instead of reaching us, your letter will go to the Dead-letter Office at Washington. Observe that our address now is ☞ No. 5 Ludlow St. ☜ *not* 106 Elizabeth St.; *nor yet* 82 East 14th St., as formerly, and as some still persist in directing their letters.



DOG-CART PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 25.



UNION DOG-CART.—½ IN. SCALE.

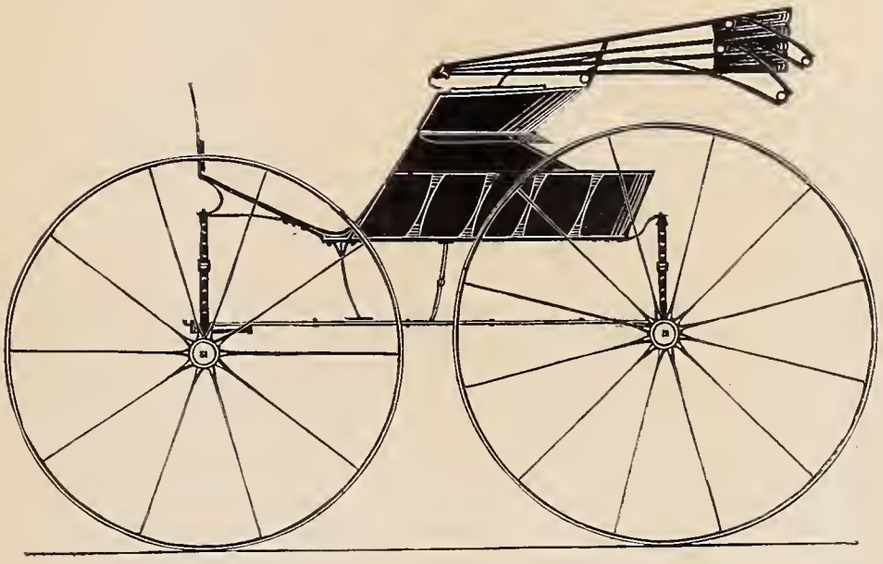
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 25.

TOLMAN PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 26.



RECONSTRUCTION BUGGY.—$\frac{1}{2}$ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 26.

THE NEW YORK
CARRIAGE MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, JULY, 1866. No. 2.

Mechanical Literature.

ENGLISH CARRIAGES AND THEIR CHANGES.

BY CHARLES DICKENS.

(*Concluded from Page* 4.)

The International Exhibition of 1851 left an indelible scratch—to use the phrase of one of our greatest engineers—on the history of carriage-building, especially in the large class of cheaper vehicles, which good roads, suburban villas, railroad stations, and the repeal of the penal taxes on the owners of more than one carriage, had created. The great builders, the aristocracy of the trade, were there. The four-in-hand drag, fitted with ice-pails and a dozen luxurious contrivances, of which the previous generation never dreamed, was there. There was the capacious coach, of dignity and state, in which the high sheriff of a county meets the judges on circuit, or the many daughtered duchess attends the Drawing-room or the royal ball. There was the stately and elegant barouche; and there was a mob of phaetons, dog-carts, two and four-wheeled, Whitechapels, Coburgs, and pony carriages of every conceivable variety of shape and name. It was in 1851 that the celebrated clothes-basket took up its position as a low-priced, not very clean rural resource. Southampton and Derby became famous; and out of a cottage dog-cart arose, in Nottingham, that steam-driven carriage manufactory which now vies with the best names in London for solidity and taste.

The rise of the four-wheeled pony phaeton—which has since branched off into many varieties of shape and price—dates from the fallen days of George the Fourth, when he entered into voluntary exile at the cottage near Virginia Water. The king's pony phaeton was one of the rare instances of good taste patronised by the author of white kid breeches, stucco palaces, and uniforms in which fighting was impossible and dancing difficult.

The Chancellor of the Exchequer who reduced the tax on low-wheeled carriages was the real author of the swarms of pony phaetons that branched off and vulgarised, as the French say, the George the Fourth model. The nineteen-guinea dog-cart that never carried dogs, and the thirty-inch wheel pony phaeton, were bred in the same year by the same budget. As a special boon to the agricultural public, in a chronic state of discontent, the exemption from taxation, which had previously been confined to the springless shandrydan, was extended to any two-wheeled carriage built for less than twenty pounds, provided the owner's name appeared in letters of a certain length and undefined breadth, on the cart or gig. This bounty created a large crop of dog-carts at fabulously low prices, embellished with letters which presented the nearest approach to length without breadth. The exemption has long been repealed, but it lasted long enough to make the "cart" an institution, without which no gentleman's establishment was complete. It raised a number of ingenious adventurous wheelwrights into builders of carts, who by degrees, when all one-horse springed vehicles were put on the same footing, advanced to better things, broke through the costly traditions of Long-acre, and displayed great ingenuity in varying the form and shape of vehicles, on two and four wheels, for town and country use. These found a place and new customers in the Crystal Palace Exhibition and at agricultural shows.

Among the novelties, is the wagonette, beloved of nursery-maids and children; it is excellent for the ladies with sandwich-baskets and flasks at cover-side, where roads run handy; useful for a country race-course; not bad at a pic-nic; indispensable where much luggage goes to a station. The wagonette, which one, or two, or four, horses may be harnessed to, which may have a table in the center, and a long boot beneath, and may be as coquettish as a Stanhope phaeton, must not be forgotten. The wagonette is an improvement on the French char-à-banc and the old English break, or perhaps it is an outside car, Anglified, made solid on four wheels, and turned outside in. The wagonette is essentially a sociable carriage, comprehensive, and conversational, but uncomfortable for stout middle age.

Latest of all is the sociable; a light, cheap, and elegant edition of the family coach.

Before the rise and fall of the cabriolet, and before the dog-cart, with its convenient receptacle for luggage, had made its way from tandem-driving universities into private families, the gig, under various names, as Stanhope, Whiskey, Dennet, Tilbury, was both a fashionable and a domestic conveyance, as may be learned from the carica-

tures of the first half of this century. The Stanhope form—the best—has survived the changes of fashion. The commercial traveler's gig is almost a thing of the past. Where these ambassadors still use wheels, they now generally go on four, not trusting their necks and parcels to the safety of a horse's fore-legs.

Public hired carriages, at any rate in London, have closely followed the changes in private vehicles. As long as chariots and family coaches were in common use, the dreadful jingling hackney-coach and pair claimed its place upon the stand. The introduction of the private cabriolet led first to that dangerous rapid high-wheeled cab, with its outside perch for the driver, immortalized by Seymour in the illustration of adventures with which our readers are familiar. The cab that conveyed Mr. Pickwick to Charing-cross is the ancestor of the most luxurious of hired swift carriages, the Hansom, imported from Naples. The private Brougham soon found its way into the street as a four-wheeled cab, and with its one horse killed off the pair-horse coaches. While the Brougham is a purely British invention, the omnibus is a foreign importation. For some mysterious reason, the best omnibuses are to be found in Glasgow; the best Hansoms, in Birmingham. Leamington forty years ago rejoiced in coquettish little open phaetons, drawn by one horse, and ridden by boys in neat postillion costume, but, since the advent of railroads, these have given way to the universal cab. Can any one explain why Ireland, with a damp climate, adheres to that eccentric conveyance, the outside car, while Cornwall, with a like weeping sky, has for an unknown period traveled to market in a covered cart, called in genteel family circles a Coburg, and has performed stage-coach business in a boxed-up jolting one-horsed omnibus for ages?

It is, however, due to Ireland to admit that the jaunting-car probably first taught us the capabilities of a single horse, when harnessed to a light vehicle.

A carriage is like a piano as an article of manufacture. You cannot find out whether it is worth its price until you have used it for some time. Paint and varnish hide many defects, and only an expert can judge the value of metal-work. Before Macadam's time, a nobleman's coach required to be as strong as one of Pickford's vans. It was often, on journeys to or from the manor-house, drawn out of sloughs and quagmires. At present, the object successfully pursued by our best manufacturers, is to produce the minimum of lightness with the maximum of strength. The best mechanical arrangements have been studied; foreign woods have, the duty being repealed, largely replaced native produce; and the toughest and most expensive iron and steel have superseded the cheaper produce of Staffordshire.

The coach-makers' wood-loft contain oak, ash, and elm, from trees which have lain a year after falling, and which, after being cut into planks of various thicknesses, must remain unused as many years as they are inches thick. A certain class of carriage-builders use green wood of any quality, relying on paint to cover all defects, not expecting or caring to see any customer twice [a serious charge, we are happy to say, finds few imitators in this country]. There are some advertising fabricators of diminutive Broughams who are especially to be avoided.

Besides European woods, there is also a large demand for mahogany and lance-wood from the Gulf of Mexico, Quebec pine, birch and ash from Canada, tulip-wood and hickory from the United States. These, for the most part, are cut ready for use by steam saws before going into the hands of the coach-builder.

The first step for the construction of, say a Brougham, is to make a chalk drawing on a brick wall of the same size. On this design depends the style of the carriage. Some builders are happy or unhappy in designing novelties; others have a traditional design, a certain characteristic outline, from which they will on no consideration depart. The next step is to make patterns of the various parts. In first-class factories, each skilled workman has been apprenticed to, and follows only, one branch of the trade. The leading workmen in wood are body-makers, carriage-builders, wheelers, and joiners—all highly skilled artisans, as may be judged from the fact that a chest of their tools is worth as much as thirty pounds.

The framework is sawn out of English oak. The pieces, when cut by the band-saws, are worked up, rabbeted, and grooved to receive the panels, and thus a skeleton is raised ready for the smith and fitter, who, taking mild steel or homogenous iron, forge and fit a stiff plate along the inside cart-bottom framework, following the various curves, and bolted on so as to form a sort of backbone to the carriage, which takes the place of a perch:—universally the foundation of four-wheeled carriages before the general adoption of iron and steel.

The frame is then covered with thin panels of mahogany, blocked, canvased, and the whole rounded off. After a few coats of priming, the upper part is covered with the skin of an ox, pulled over wet. This tightens itself in drying, and makes the whole construction as taut as a drum-head, the joints impervious to rain, and unaffected by the extremes of heat or cold. Meanwhile the "carriage-maker," the technical name of the artisan who makes the underworks, arranges the parts to which the springs and axles are bolted, so that the body may hang square and turn evenly with the horses, on the fore-carriage. The coach-smith and spring-maker have also been at work arranging the springs, the length and strength of which must be nicely calculated to the weight estimated to be carried. The ends of these springs are filled with india-rubber, to make the carriage run lightly and softly.

The best modern wheels are on the American plan of two segments, instead of several short curves. These, thanks to Mr. Bessemer, are bound with steel tyres, and when bushed and fitted with Collinge's excellent wrought-iron axle-boxes, are ready to run a thousand miles. In the shafts of four-wheeled carriages the greatest modern improvement is the substitution of wrought-iron hollow tubes for wood. The iron shafts are much stronger, and cannot, under any circumstances, injure the horse by splintering. They can also, without loss of strength, be made to assume the most graceful curves.

The carriage—call it a Brougham—all the minor metal-work being fitted, is now ready to be turned over to the painters and trimmers.

The wood-work intended to be varnished is "primed," then "filled up" with a coarse metallic substance, and then rubbed down with pumice-stone and water, to obtain the beautiful enameled surface which forms the foundation for the color and varnishes of the resplendent panels. On this foundation in a first-class Brougham, a builder who cares for his reputation will lay twenty-four coats of paint and varnish, and flat down each; therefore the operation cannot be hurried, and time is an element in producing a

well-made, well-finished carriage, which no expense can supersede. Herald painter puts in the owner's crest or monogram before the last coat of varnish is laid on.

Improvements in glass manufacture have made plate-glass carriage windows universal, and circular fronted Broughams possible: while lamps are much indebted to patent candle makers for their convenience and brilliancy. When finished, although the best workmanship and the best materials of every kind have been employed, and the greatest pains taken in every detail, unless the manufacturer have the gift of style and taste, the work may be a failure. A good carriage should combine the elements of strength, lightness, ease and gracefulness, harmonious forms and colors, and should roll smoothly and silently along. To be sure, taste is a matter of fashion. The gilt chariot of the City Sheriff was the height of fashion in the days of the great Lord Chesterfield. In the present day, "severe elegance" achieves the greatest success.

The carriage ready for traveling is incomplete without a horse or horses, harness, and a coachman; but these require and deserve another chapter.

OUR CARRIAGE MUSEUM.—II.

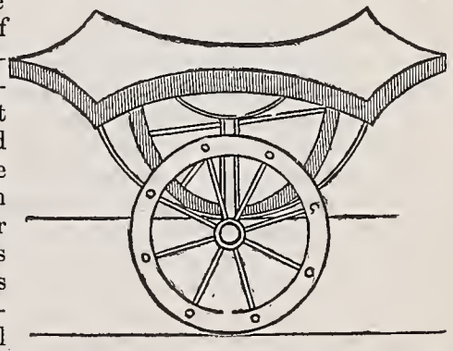
In our first volume will be found two examples of the scythe-chariot. The third is here given. The invention of these chariots have generally been ascribed to Cyrus by historians. Indeed, it would appear from the remarks of Zenophon on the subject, that Cyrus, more than any other man in ancient times, caused a revolution in all pertaining to the use of chariots for war purposes. We have no disposition for contradicting so faithful an historian as Zenophon evidently is, and yet Cetesias, a much older writer, tells us that Ninus, the son of Nimrod, who is supposed to have founded Nineveh, in his expedition against the Bactrians, had an army that "consisted of seventeen hundred thousand foot, two hundred thousand horse, and about sixteen thousand chariots armed with scythes." As no example of these chariots has yet been found among the exhumed slabs from the ruins of Nineveh in our day, some may find occasion for doubt; but, notwithstanding this, we cannot get over the fact as it stands recorded in history.

Zenophon, in his "Institution of Cyrus" (page 97, Wardle's Edition), states, that having abolished the chariots as used by the Cyrenians, Medes, Syrians, Arabians, and other Asiatic nations, instead thereof Cyrus "provided a sort of warlike chariot, with wheels of great strength, so as not to be easily broken, and with axletrees that were long, because things that carry breadth are less liable to be overturned. The box for the drivers he made like a turret, and with strong pieces of timber; and the highest of these boxes reached up to the elbows of the drivers, that, reaching over these boxes, they might drive the horses. The drivers he covered, all but their eyes, with armor. To the axletrees, on each side of the wheels, he added steel scythes of about two cubits in length; and below, under the axletree, he fixed others pointing to the ground, as intending with these chariots to break in on the enemy."

The engraving here given of a scythe-chariot, hung on four wheels, appears to be an improvement over those of very ancient times. This chariot is evidently far better fitted for war purposes than the one invented by the Persian king. Here the fighting man is placed on an elevated back seat, that gives him several advantages over

an enemy in battle. He is able to survey the whole field and, having given orders to the driver, may improve such opportunities as hope of success may place before him. The chariot itself appears to be made of iron, in the strongest possible manner, while both horses and men are clothed in coats of mail. Usually the soldier as well as the charioteer are represented as standing, by the painters, but some grammarians tell us that in the army of Cyrus they sat.

The second illustration presents us with an example in striking contrast with the previous one. Ours is an enlarged drawing from that given by Adams, in his "English Pleasure Carriages," who says of it: "The vehicle here inserted is taken from an engraving of some specimens of the remaining ruins of Persepolis, destroyed by Alexander the Great three hundred and thirty years before Christ. It is from one of a number of representations of different deities typical of the seasons. This small wheel carriage served as a sort of moving platform for one of these idols, who was seated upon it in Oriental style. The mode of attaching the axle to the carriage differs from that of the Greek and Roman cars of a cotemporaneous period,—or, indeed, from any other we have seen in antique sculpture, or elsewhere."



Persepolis was an ancient city, the capital of Persia, and, in the days of its prosperity, one of the wealthiest of the world. This city stood in one of the finest plains of the east, twenty leagues long by six leagues broad. Hither the victorious Alexander repaired after the sanguinary battle of Arbela, in which he so signally defeated the Persians under Darius. In this battle Darius had two hundred chariots armed with scythes, two hundred years having past since their introduction by Cyrus. With these chariots the Persians endeavored to break the ranks of the Macedonian army, by driving through them. The noise which the soldiers made by striking their

swords against their bucklers, and the arrows which flew on all sides, frightened the horses, and made a great number of them fall back upon their own troops. Others, laying hold of the horses' bridles, pulled the riders down, and cut them to pieces. Part of the chariots drove between Alexander's battalions, but with little success, as they opened on the approach of these formidable engines, suffering very little damage. The story is well told by Quintius Curtius, to whose works the reader is referred.

EFFECTS WHICH DIFFERENT SHAPED RIMS (TIRES) HAVE ON ROADS.

BY ALEXANDER CUMMINGS, ESQ., F. R. S.

(*Continued from page* 167, *Vol. VII.*)

As many may be disposed to suspect the accuracy of experiments, the results of which are, in several instances, so contrary to general expectation as the following, it was thought necessary to give a short description of the apparatus with which they were made, that others, who may incline to try the same, or similar experiments, may prepare an apparatus, with which the same result may reasonably be expected, for any alteration in the apparatus might occasion a different result to the experiment. If, for example, any person were to try the experiment No. 7 with a carriage having its hind wheels larger than the fore wheels (as is usual in all four-wheel carriages), the result would always be different from what is here stated, because the hind and fore wheels rolling on the same friction bars would counteract each other, and be liable to give a different result every time the experiment was repeated, according as the road pressed more upon the hind or upon the fore wheels. Whoever takes the trouble of making himself acquainted with the principles laid down in the preceding essay, may anticipate the effect of every experiment that can be made under all possible variety of circumstances; and he who is not so completely master of it as to recollect as well as to understand every part and reference, will always be liable to misconception, and to draw erroneous conclusions from his experiments; and as the number and variety of experiments that might be suggested for ascertaining the best construction of carriage-wheels are endless, Mr. Cummings has offered only what appears to him to be the *leading ones* having a direct tendency to prove the superiority of the cylindrical shape, and to contrast it with the ruinous shape of the conical; and it will afford him much pleasure to find that others would have recourse to such further experiments and investigations as may be necessary to convince themselves, where his endeavors may have failed. He wishes to recommend nothing that will not stand the test of accurate experiment and sound reason, and it will always be pleasing to him to see every argument which he has advanced minutely scrutinized; nor will he ever be ashamed to acknowledge any mistakes he may have made, nor backward in answering any objections that may be started, if candidly and fairly urged.*

The power required to draw the loaded carriage in these experiments will vary according as the wagon-way may be more or less inclined to the horizon. The experiments here stated were made on a dead level, and repeated on different days, three several times on each day, with the same result each time.

Description of the Apparatus.

The apparatus with which these experiments were made consisted of two models of wagons, each of which, with its wheels and axles complete, weighed four pounds, and with a leaden weight that was occasionally used (as a load) to either of the loaded wagons weighed thirty pounds.

Cylindrical Wheels.

1. The one wagon had *cylindrical wheels* $2\frac{1}{4}$ inches broad in the rim, and $4\frac{1}{4}$ in diameter. The rim of all the wheels and the surface on which they rolled were covered with one thickness of fine woolen cloth, to give an uniform resistance like that of dust or sludge on the roads, and that all the parts of the whole breadth of the wheels might, with the greatest certainty, touch and bear equally upon every part of the surface over which they were drawn.

Axles.

2. The axles were made of steel, and the parts that set in the boxes were truly turned, and about $\frac{5}{16}$ of an inch in diameter. They worked in brass bushes or boxes $2\frac{1}{4}$ inches long, and all of them were opened with the same implement exactly to the same width, so that the axles being fitted to them must all be of the same size with each other. They were very little tapered, and touched the bushes only about half an inch at each end.

Conical Wheels.

3. The breadth or flat bearing of the rim of the *conical wheels* was the same as that of the cylindrical ($2\frac{1}{4}$ inches); their greatest diameter $4\frac{5}{8}$ inches, the least $3\frac{7}{8}$ inches. Difference of the greatest and least diameters $\frac{3}{4}$ inch. The mean diameter $4\frac{1}{4}$ inches, being equal to the diameter of the cylindrical wheels. The *inside* (by inside is meant the side nearest the carriage) of the wheels in both carriages were distant from each other five inches, so that both carriages roll on the same track, and every part of the *whole breadth* of each wheel was carefully made to apply equally to the flat surface on which it rolled.

4. The *path* or *way* on which the carriages were drawn, by means of weights suspended by a fine silk line, was of sufficient breadth for the carriages to roll upon, and seven feet long. Each *carriage* was ten inches long, and the immediate action of the descending weight draws the carriage forward four feet only, so that a space of two feet is left for the carriage occasionally to advance after the descending weights have done acting upon it.

Scale of acceleration; how constructed.

5. By comparing the space which the carriage advances, after the *weights* have done acting upon it, with the space in which they acted, we discover how much the acting power was greater than the resistance to the progress of the carriage during the time of their acting. Thus, if ten weights descending a given height are capable of drawing the loaded carriage a given space, one of these weights, in descending the same height, will draw the carriage one-tenth of that space. Let the space which the carriage is made to advance, by the immediate action of the descending weights, be divided into ten equal parts,

* Mr. Cummings has long since ceased to be in a position to answer questions on this subject, for it is more than half a century since he volunteered to do so. However, any objections urged by contributors shall receive our most considerate attention.

and it is evident that one-tenth of the power by which the carriage is drawn over the whole space will be required to draw it over one of these divisions (a tenth of the whole space); and if these divisions are continued forward from the point at which the descending weights have done acting, and which may be called the *point of rest*, the number of spaces which the carriage advances beyond this point, by the velocity which it has acquired, will show how much the resistance to the progress of the carriage is less than the acting power, every space or division on the scale which the carriage advances, after the weights have done acting upon it, being equal in value to a tenth of the weight or power by which the carriage was drawn. If the resistance to the draught be just equal to the power by which the carriage is drawn, it will stop the instant the weight has ceased acting upon it; but if we find the carriage advance one space on the *scale of acceleration* (*i. e.*, one space past the *point of rest*), we conclude that the resistance is one-tenth less than the power: if it advances two spaces, the resistance is to the acting power as 8 to 10. The numbers in column C of the following table of experiments refer to this scale, and show the number of spaces which the loaded wagon advances by its *innate force* (or velocity acquired), when the weights have done acting upon it.

The Fore Wheels.

6. It is here to be particularly noticed that the fore and hind wheels in each model or carriage must be exactly of the same size, otherwise the experiments with the friction bars will not succeed. If the fore and hind conical wheels were of different diameters, as is usual in four-wheeled carriages, they would have different degrees of rubbing at their rims; and when the hind and the fore wheels roll on the same friction bar, the smaller wheel, having a greater tendency to give it motion than the larger wheel, they would counteract each other, and give a result very erroneous and different from what is stated in the following experiments.

The experiment with the Conical Wheels shows only half of the true derangement.

7. It is also to be observed, that the derangement of the materials that is shown in the seventh experiment, represents only *half the damage* that is done to the roads by deranging and breaking the connection of the parts that form its crust; for either the hind or the fore wheels alone, that roll on the same bars, would give the same motion to the bars that both the wheels give it; but when they act separately and independently (as they do on the roads), each will have *a separate effect* in destroying the texture and cohesion of the materials, equal to what is exhibited in the experiment, by *the united action* of the hind and fore wheels together.

8. And if the fore and hind wheels in the model (with the conical wheels) were made to roll a double surface, the fore and the hind wheels would *each* exhibit as much motion of the friction bars as they would both do when they roll on the same surface, as in the following experiments.

The Weights that draw the Carriage.

9. The loaded wagon, *with the conical wheels*, being placed on its path or wagon-way, a fine silk line was applied to draw it forward, and to this line (after passing over a pulley) was suspended a thin bag or purse, into which was poured small lead shot, just sufficient to draw the loaded wagon and to begin its own motion, which weight being divided into ten* equal parts. Each of these weights is supposed to represent one degree (or one-tenth) of the whole power; and, according to the number of these small weights that are required to draw the wagon under differing circumstances, so the comparative resistance to its progress are determined.

Nature of the Experiments.

10. The apparatus is furnished with different long slips of wood, covered with cloth, in those parts only on which the wheels are intended to bear; so that, by changing those slips, the wheels may be made to bear on their whole breadth, on the middle only, or on the extremities of the rim; and by making the conical and the cylindrical wheels to be drawn with the same load, on those different slips, in their turn, *the comparative forces that are required to draw the same load on each kind of wheel under all the variety of circumstances that can occur, may be ascertained experimentally, with sufficient accuracy to determine which principle should be preferred.*

Use of the Part of the Apparatus hitherto described.

11. This part of the apparatus serves only to ascertain *the comparative degrees of power that are necessary to draw the same load* under all the different circumstances that may occur in practice, and may be considered as regarding only the *labor of cattle.* The following part of the apparatus is to represent to sight and prove to our senses, the different effects which the *conical* and the *cylindrical* wheels have on the roads, the one in destroying, the other in improving them.

Friction Bar.

12. Besides the slips of wood already mentioned (10), there is another *set* of narrow wooden bars, laid longitudinally and collaterally, so as to form one even surface for the wheels of the carriage to roll upon. These bars are covered with cloth also, and each slip or bar is supported by a set of friction pulleys, so as to move independently of each other, and with very little friction. Seven of these bars lie under the breadth of one wheel, which is made to press equally upon each of them. The friction bars may be fixed or set at liberty at pleasure.

Their Effect in the Experiment.

13. *When the friction bars are at liberty*, they move easily on the friction rollers (12), and when *a conical* wheel is made to roll upon them (the parts of the rim of which have necessarily different velocities) each bar will comply with the velocity of that part of the wheel that presses upon it; and the different motions of the bars will exhibit to view that difference of motion or velocity of the several parts of the wheel, that occasions the dragging and increase of resistance to the progress of the carriage; and by fixing these friction bars, or setting them at liberty occasionally, the friction or rubbing on the rim of the wheel that rolls upon them may be removed or restored at pleasure; and by that means *its resisting effects* may be separated from all others, its

* The ten weights, which together drew the wagon on conical wheels, were equal to a 24th part of the load, and each weight separately was equal to a 240th part of the weight of the loaded carriage; and by this means the proportion which the power that drew the carriage bore to the weight of the loaded carriage, was in all cases to be easily ascertained.

existence distinctly proved, and its quantity accurately ascertained in all possible cases.*

Destructive Effects of Conical Wheels on Roads.

14. And by this means also, the destructive effects which this difference in the velocity of the parts (10) of the conical wheels have in pulverizing, breaking, and opening the *protecting crust or surface* of the road, is more convincingly exhibited, and brought more within the comprehension of all capacities, than would be done by lines and demonstration only. And what is here said of the *conical wheel* is applicable also in some degree to every other possible shape of a rim *that is not perfectly cylindrical.*

EXPERIMENTS WITH THE CONICAL WHEELS.

Experiment First.

15. The loaded carriage *upon conical wheels, having the whole breadth of the wheels flatly applied to the road,* was drawn by nine weights.

Experiment Second.

16. The same loaded carriage, *with its wheels bearing only on a fourth part of their breadth,* was drawn by six weights.

Observation on First and Second Experiments.

17. If a conclusion were drawn from the result of these two experiments, it would be that the *resistance* must always be diminished by narrowing the bearing of the wheel, and increased by making the *flat bearing* broader. And it would seem as if *this resistance was inseparable from a flat broad rim.*

18. *Observation 2nd.*—The preceding conclusion appears so consistent with the general opinion, founded on extensive experience and attentive observation, that all further inquiry into the cause of this increase of resistance with the broad wheel was totally suspended, as vain and fruitless; and the high tire on the middle of the wheel was universally adopted by the wagoner as the only means of removing that increase of resistance which was found to take place with the flat rim bearing equally on its whole breadth, and which was considered as *inseparably connected* with that flat bearing of the whole breadth.

Experiment Third.

19. *The same loaded wagon* and wheels, bearing only on *two slips or tires at the extremities of the rim,* which together were in breadth only equal to one-third of the breadth of the wheel, was drawn by *eleven* weights.

OBSERVATION ON A COMPARISON OF THE FIRST AND THIRD EXPERIMENTS.

20. Here we see the resistance to the progress of the carriage *increased by narrowing* the breadth of the wheel. When the whole breadth of the wheel pressed equally on the road, the carriage was drawn by nine weights, as in Experiment 1; but in Experiment 3, although the bearing is reduced to one-third of the whole breadth, the resistance is increased, and eleven weights are required to draw the same load that in the first experiment was drawn by nine, and in the second by six weights.

Observation 2nd.—How repugnant is this to the conclusion that must have been drawn from a comparison to the *first* and *second* experiments (17, 18). This third experiment proves that the resistance to the progress of the carriage, and consequently the labor of the cattle, may be *increased* by making the bearing of the wheels on the road narrower; while the second experiment proves that the resistance and labor of the cattle may be *diminished* by making the bearing of the wheel narrower.

21. *Observation 3rd.*—And the joint evidence of these seemingly contradictory results proves, that the resistance to the progress of the carriage does not depend altogether on the breadth of the wheel, nor on the flat bearing of the whole rim of a broad wheel. For if it did, that resistance must always be increased or diminished as the part of the rim that bears upon the road was broader or narrower. But this does not happen, for, in the second experiment, the resistance is diminished from nine to six by making the bearing of the wheel narrower. But in the third experiment, we see the resistance increased from nine to eleven, by reducing the bearings of the same wheel to one-third of its breadth. We must, therefore, examine more minutely, to discover the *true cause* of this fluctuation of the resistance, for it cannot possibly depend upon the breadth of the wheel, or of that part of the wheel which bears the pressure of the load.

22. *Observation 4th.*—The greatest *difference of the velocity* being at the extremities of the *conical rim,* that is, at the largest and the smallest part of the wheel, the *largest part,* if detached from the smallest, would advance at each revolution farther than the smallest; but being connected, the largest part cannot advance with the smallest, which must constantly be dragged forward on the road, a space equal to what it would fall behind the largest in a separated state in an equal number of revolutions. This consideration alone would fully account for the resistance in the third experiment being *equal* to the resistance in the first. But the resistance is *greater* in the third than in the first experiment, because the pressure of all the load is, in the third experiment, thrown wholly on the extreme parts of the rim, where the difference of velocity of the parts, and the resistance of this dragging necessarily becomes greater as the weight and pressure on this part or parts that are dragged is increased.

23. *Observation 5th.*—In the first experiment the pressure is diffused on the whole breadth of the wheel, so that the extreme parts sustain only a third part of it. In the third experiment, the whole pressure is confined to extremities of the rim, where it becomes more intense as the supporting surface is narrower; and, owing to this increased intensity of the pressure on the whole parts of the wheel where this dragging is the greatest, the resistance to the progress of the carriage is greater in the third than in the first experiment, in the proportion of eleven to nine.

24. *Observation 6th.*—And this consideration totally removes all the apparent disagreement between the second and third experiments. It opens a new field of inquiry, fully accounts for the unexpected result of the third experiment, and shows the danger of adopting ap-

* To render the relative motion of the friction bars more evident, and to represent the derangement that takes place in the material of the roads the better, these friction bars are covered with striped cloth (the stripes laid across the road). And when the bars are fixed in their places, the stripes in the cloth join, so as to appear in one entire cross line; but when made to move by the rolling of the conical wheels over them, the derangement of this material on the road is naturally represented by the relative motion of the contiguous stripes of the cloth. In all the *preceding experiments* this part of the apparatus is concealed by a piece of cloth of one color, stretched tight over the surface of the friction bars, which gives the wagon-way the appearance and effect of one entire piece, or solid bed, for the wheels to run upon.

it indispensable to his happiness. The charming widow was *au fait* at this. Mr. Green soon found a congeniality of feeling and a flow of soul that were lacking in his intercourse with the colder and more stately lady to whom his vows were plighted. If Miss Chalmers had become conscious of any diminution of regard on the part of her affianced she had too much self-respect to suffer it to appear. Both the false lover and his artful little accomplice were as yet extremely guarded in her presence. Another eye than mine, however, had detected the existing state of affairs; it was that of Vivian Neville. He had too much genuine, manly feeling to be guilty of intentional rudeness toward a lady: but a certain brusqueness of manner and an occasional biting sarcasm directed toward Mrs. Howard sufficiently indicated the contempt with which her duplicity had inspired him.

Vivian loved Imogen Chalmers, and it was love that made his observation so acute. He had known her from childhood, and being some ten years her senior, he might be said to have watched her mind's development. As a child she had won his affections, as a woman she realized his ideal. Love, in such a nature as his, was no evanescent fancy—no mean passion, the rank growth of a groveling propensity—but a deep, holy sentiment, the offspring of true tenderness, and the result of just perceptions, and a fond reverence for all that constitute the perfection of womanly character.

Perhaps he had not realized how deeply his heart was interested until aroused to its true state by the sudden announcement of her engagement to Green. How keen the pang this had inflicted, or how he had reeled under the blow, would never be known. The secret of his love and sorrow lay buried in the depths of his own bosom.

He did not fly from her. He did not believe it necessary that he should turn away from the contemplation of her loveliness, or deprive himself of the charm of her society, to subdue feelings he had no longer a right to cherish. He had never betrayed his preference by word or look, therefore no consciousness on the part of either the lady or himself would embarrass their future intercourse. Possibly there existed in some secret depth of his heart a conviction, scarcely acknowledged to himself, that this betrothal was founded on no true affection. He was aware of the circumstances under which it was contracted; he knew that the impression made by the graceful person and showy accomplishments of the young gentleman had been strengthened by the judicious and well-timed praises of the father, enamored of his wealth. Would not a more intimate acquaintance unveil to the mind of Imogen Chalmers the utter hollowness of her lover's character? If so, God grant the disenchantment may come in time to save her from the life-long agony of a loveless and discordant marriage!

On the week after my arrival a new actor appeared on the scene.

My nephew, Claude Rivers, who had a standing invitation to follow me to the sea-side retreat, took it into his head one fine morning to come down. He was a harum-scarum fellow, and annoyed me in various ways; but somehow I liked him and was always glad to see him.

I was seated in my favorite chair by the window, absorbed in the pages of a new book, when Claude, with his customary impetuosity, burst in upon me. After expressing his delight at finding me sane and safe, he flung himself into a chair and took a liberal survey of the premises.

"All right here, I see; comfortable, bachelor's quarters, everything in *statuo quo*, book-shelves over the table, cosy chair in the window—but down below—bless me! A tornado has swept over the place, or the sea has risen and swept off the old landmarks after the fashion of Noah's flood. Not a bald pate, nor a puff of smoke; but piles of worsted and an embroidery-frame, and a fancy bit of feminity tied up in blue ribbons. What does it all mean, good uncle, and how do you manage to exist in the midst of such fantastical surroundings?"

When he stopped to take breath I opened my mouth and gave him, as nearly as I could remember it, the history with which the good hostess entertained me on the morning of my arrival, not omitting the affecting recital of Miss Rose Chalmers' unhappy love affair.

When I had concluded, Claude remained silent for the space of a minute; he was touched, evidently. "Rose, eh? pretty name! Young, sweet, soft-hearted, disappointed in love, all tender, melancholy and delicate languor, I suppose?" he remarked, inquiringly.

"Young? yes; 'The green and growing leaves of seventeen are round her.'"

"And," exclaimed Claude, "Uncle John quoting poetry—Pygmalion's statue warmed into life! She must be a rare creature, this princess of seventeen!"

"Be quiet," said I, "if you wish me to speak. Sweet—that is your second item, I believe. She is a very garden queen, exhaling the fragrance of the flower whose name she bears."

(*To be continued.*)

Pen Illustrations of the Drafts.

DOG-CART PHAETON.

Illustrated on Plate V.

CONTRASTED with others we have lately published, this design appears heavy. Instead of being detrimental this feature recommends it to the taste and fancy of a certain class of customers, whose daily increasing numbers ask for a deeper panel, so as to have something different from the common class of people. Should any of our readers wish to study "style," as exhibited in "fancy life," by taking a favorable position in the Drive at the New York Central Park, on some pleasant afternoon, they will probably observe some "blood" with two horses hitched to just this kind of a phaeton, which he guides sitting bolt-upright, with the most showy ribbons, imagining the while himself a lord, whilst others, with good reason, judge him an imbecile. This, in our day—with reluctance we confess it—passes as something very respectable among a certain class.

UNION DOG-CART.

Illustrated on Plate VI.

JULY brings with it increasing opportunities for the sportsman to exercise himself in the use of the gun. To do this in perfection he requires a dog-cart, a thing

very little known among us. Indeed, this kind of vehicle is more extensively used in Canada than on all the continent beside, although it is daily becoming more and more in request here.

The drawing we present has been made expressly for us by one of our own artists, after an original design. We can imagine nothing more suited for the purpose intended than this, everything about it contributing to ease and comfort. We hope it will meet a timely want.

TOLMAN PHAETON.

Illustrated on Plate VII.

THE main points in this design have been furnished by Messrs. Tolman & Co., of Worcester, Mass., who write us that they "have not anywhere seen the draft of a good phaeton, and no form of carriage needs improvement, or is more generally used." Now, we have published a variety of phaetons, some of which we thought pretty good, but it seems we were mistaken. We acknowledge that our editorial pride has been somewhat taken down by the announcement of our Eastern friends, and in order to restore matters to an equilibrium, we now place before the reader what we hope he will take as the *ne plus ultra* of phaetons.

RECONSTRUCTION BUGGY.

Illustrated on Plate VIII.

WE confess that we have been much puzzled to find a name for this *original* design; but have finally concluded to call it the "Reconstruction Buggy." Like our President's "policy," it has some odd features about it, which to some are all right, and to others all wrong. The drawing exhibits the most popular points in the present fashions, with a new mode of striping the body, lately adopted in Paris. In our draft these look like "slats," although they are simply the effect of striping. The striping may either be done in subdued or gaudy colors as fancy or taste may dictate.

Sparks from the Anvil.

WHY DO CARRIAGE AXLES "STICK?"

No question is of greater importance to the carriage-maker than the one which heads this article, and yet there is no subject on which so much ignorance exists. In the hope that we shall be able to awaken the attention of others to this matter, we here give the substance of a conversation recently held with one of our oldest axle-makers.

The *sticking* of an axle, as most mechanics already know, is attributable, in a great measure, to the natural expansion of the iron under heat, in this case produced by friction. The constant revolving of the cast-iron box around the journal generates caloric which, distributed through it, causes it to swell or expand, after the same principle that we enlarge a tire by heating for setting it on a wheel. The axle-maker to whom we allude above, insists upon it that axles, as generally made, are erroneous in theory, and imperfect in construction. In the accompanying diagram of a mail patent axle, box, and hub, close inspection will detect a small white line between

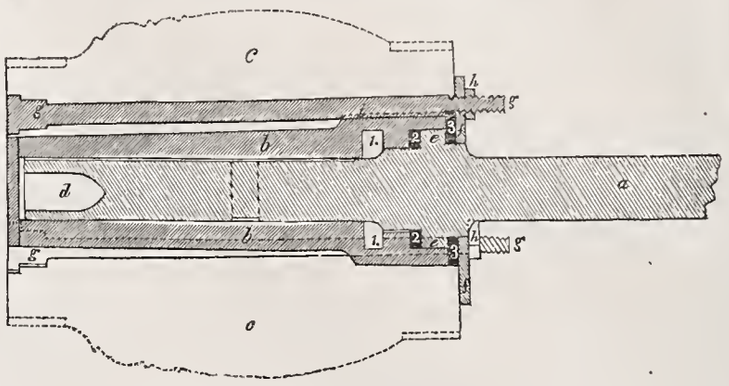


Fig. 1.

the axle-arm *a*, and the box *b*, intended to show that the box in this case does not fit close to the journal except at the two ends. This, our informant says, is the plan on which nearly all of our axles are made, under the mistaken idea that when so made they will run easier, having less bearing for friction. This he insists upon is altogether wrong, as in this little bearing all the heat generated is concentrated so extensively that it—the axle—swells inordinately, the result of which is that in the absence of a lubricating fluid, it sticks fast in the box. Opposed to this mode of construction, he always *grinds* his boxes to fit close to the journal the entire length, so that the friction distributes such heat as is generated throughout the entire axle, but never in such quantities as to cause it to stick. The oil chamber 1, in the box, and the hole *d*, in the end of the axle, he omits, under the conviction that when made they serve as receptacles for spent oil and accumulated dirt, which serve only to absorb the new oil which may be applied, very soon afterwards. Whether this theory be right or wrong we leave to the judgment of others, without expressing our own.

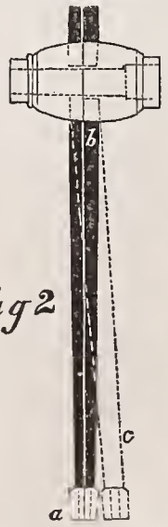


Fig 2

The same gentleman gave us an additional cause why axles stick. This, he says, arises from defective made wheels. In order to run well all wheels should be made so as to have the center of the felloe *a*, or tire, on an exact line with the center of the hub *b*, in Fig. 2, thus producing when running an equal bearing on the entire box, in harmony with known mechanical laws. When the spokes are placed at variance with correct principles, as when thrown out of the center, as shown in the dotted lines *c*, the bearing is unduly distributed at the shoulder, and heat consequently concentrates there when running. This, too, would cause sticking. It is strikingly evident, that in order to have a dishing wheel—the advantages of which we need not dis-

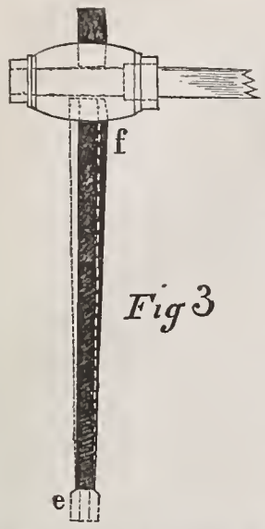


Fig 3

cuss here—we ought to place the "root" of the spoke a trifle back of the center as at *f* in Fig. 3, with the "tang" meeting at the point *e*, or in a line with the perpendicular-center, as in Fig. 2, above. The true theory in setting axles is to have the center of the underside of the axletree, and the center of the tire exactly at a right angle when set for running. Should this be otherwise,—by having too much "pitch" at the point—an axle will surely "grind-out" at the shoulder, and soon ruin it.

The last cause which we shall notice here, is bad setting. In diagram Fig. 4, we have a back view of an axletree with the wheels set—one of them

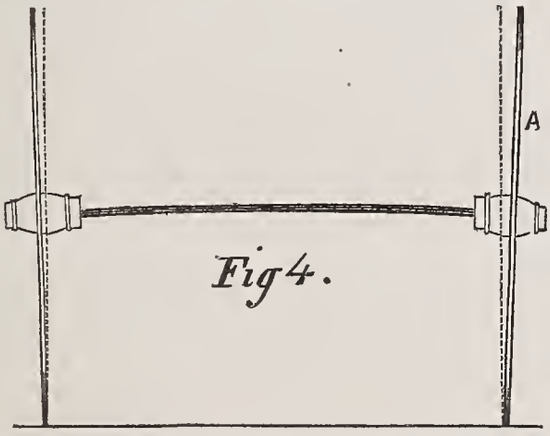


Fig 4.

(the one at A), improperly. We will suppose that soon after this wagon is "turned-out," this arm sticks, but all the others run easy and well. There is evidently some reason for this state of things, and probably when examined it will be found that this particular arm is set different from all the others. Let us see. Supposing that all the wheels are made just alike, we will stand the carriage on a level floor, and having applied a square to the lowest spokes of both wheels we discover that the difficulty arises from the fact that the sticking axle is set entirely different from the other three. All that now remains is to re-set this one so as to conform to the others, and in all probability the trouble will cease.

In submitting the foregoing to our readers, we think it necessary to remark, that we give these theories for what they may be worth as coming from another, not as our own. Some of them look plausible enough, and may be correct. Thus much candor obliges us to mention, as well as to remove all cause of censure from our shoulders, should they prove erroneous. In dismissing this subject—it being worthy of study—we solicit the correspondence of our readers giving their views for the edification of numerous readers, to whom it is all important that a knowledge of the best means for remedying a great evil should be made known. We hope that no correspondent will let the plea (so often repeated), that they are unaccustomed to write for the press, debar us of the pleasure of publishing their theories.

Paint Room.

NATURE AND QUALITIES OF PAINTS.

BLUES.

There are four kinds of blues used in connection with paints, viz., Ultramarine, Prussian Blue, Indigo, and Blue Verditer. There are but two, however, of any use to coach-makers, Ultramarine and Prussian Blue, the first a later discovery, being the most valuable, or in other words, most beautiful.

Ultramarine.—The name given to this beautiful production is compounded of two Latin words, *Ultra* (beyond) and *marine* (the sea), indicating, as it truly does, that it comes from beyond the sea. It has one property beyond all other paints; It is that fire, which will change the color of all others, has no sensible effect on this. Precious in quality, it is also high in price; hence it was an object with the French Government to propose, as it did, a reward of six hundred francs [about $120], to whoever should discover a composition, that combining all the elements of the blue of the lazulite, might safely replace it. This was done by M. Guimet, whose factitious ultramarine, unchangeable by the air, or by fire, is now the kind that is sold at the shops everywhere for the original pigment—except the true mineral color be expressly ordered and paid for at an exorbitant price, which, greatly lessened as it is from what it once brought, is even now at Rome, where it is cheapest, $20 the ounce, whereas Guimet's ultramarine can be bought for $1. This difference in price, if for no other reason, constitutes the discovery of Guimet as one of *inestimable* value. Ultramarine is of different degrees of intensity, designated by number, the lowest number being the deepest.

"Could one find any fault with Ultramarine," says Bouvier,—when speaking of the genuine or lazulite blue,—"it would be that, used with oil, it gains intensity in proportion to the age of the picture, rather than looses the least part of its brilliancy and force; so that we should rather fear excess than otherwise in its employment, especially *in skies, and in the soft demi-tints of carnation*," &c. There can be no question in respect to the adulteration of this article. The importation, as shown by custom-house statistics, would not furnish one-quarter of that required or used, so that the inference is very plain.

Ultramarine possesses but very little body, and consequently demands much care in spreading; sometimes as many as four coats being required to "cover" sufficiently to make a good job. Some painters have recommended an addition of a little flake-white, lake, or rose-pink, as may be required, when mixing. An experienced painter advises, that "before applying this color, care should be taken to stir the contents of the cup well, they being liable to settle after standing a short time, and it should always be laid on as heavy as possible. Some use varnish in mixing this color, but one part oil with two parts turpentine are preferable, using sugar of lead as a drier. The use of japans impart a dirty, muddy hue. Very often this color is mixed with the sulphate of Indigo, or as it is more commonly termed, 'Saxon blue,' which having in its composition a large per cent. of oil of vitriol, has a very bad effect, causing the work to crack, and appear of a dead, pale color. To test it, take a small quan-

tity and mixing it entirely with oil, expose it to the sun's rays, when, if the Saxon blue forms the portion of the paint, it turns to a dull green color." The reader will find out how ultramarine is made and from what material on page 88, of volume five. The young painter will find some further practical observations regarding ultramarine on page 172, volume two of this magazine.

Prussian Blue.—This is a valuable paint to the coach-maker, it being very useful in preparing other colors—greens, &c. The best Prussian blue communicates likewise to varnish a very transparent blue color, useful for many purposes. There are no other colors called blues that contain so much body and coloring matter as this, it being with the carriage-maker an indispensable requisite. Its discovery was in this wise: A Prussian druggist in making experiments, formed a solution of one of the salts of iron into a barrel of liquid potash, and discovered that a bright blue color was the result. Following up his experiments he produced the article under consideration, and thus conferred a great benefit upon mankind. It is extensively manufactured in the United States, but is frequently adulterated with other mixtures, such as chalk, starch, &c. Adulteration may be detected by the application of vinegar. Should it crumble to pieces, it is a sure indication that chalk enters into the compound, and if when tested with boiling water it forms a paste, it is proof that starch has been mixed with it. Sometimes the cupidity of the chemist and others, leads them to adulterate the Prussian with Indigo blue. This may be detected by breaking a lump and rubbing with the finger-nail. Unless the coppery tint disappear under this process, it shows that Indigo is present.

In mixing this color no oil should be used, since to do so imparts a yellowish tint, which will be more or less heightened by the quantity used. The author of the Handbook of Oil Painting, tells us:—"The best Prussian blue when used with gum-water simply, has stood the test of thirty years' exposure to the full glare of day, and even of a summer's sun. Through all this lapse of time, it underwent no sensible alteration, though mixed with Krems White as well as with ochres, reds, and divers other colors. When mixed, however, with vermillion, it was somewhat changed; but even this change took place only after many years. From all of which he concludes that a Prussian blue of good quality is all but unalterable as a water-color. Employed with oil it was not so satisfactory; it took a greenish or a reddish cast; but always very lightly, when a good fabric, compared with what was the result with ordinary specimens.

"It is not the less a very valuable pigment, even for oil painting, because it makes, when mixed with different yellows, greens of a charming shade; and even employed with white, and connected by lake, by black, or by red-ochre, it may render the greatest service. But it must not be employed pure with an admixture merely of white, its tint has something extremely harsh and hard, that is in harmony with no other color. Let us add, that all the alkalies attack this color. It is not, therefore, to be employed with those pigments which have any in their composition." Prussian blue is simply the prussiate of iron, from blood, leather, and other materials in which the properties of iron are found. With it and whitelead a variety of beautiful colors are obtained, but these are all more or less apt to fade. When used alone it makes a very handsome blue-black, superior to any other of that name, and is a good paint for receiving polish when varnished over. Our readers will find some very useful observations in regard to this paint in volume two, page 171 *et seq.*, and in volume five, page 75, which, read in connection with this entire chapter, will perfect him in all the knowledge required for his business in regard to blues.

Trimming Room.

PROTECTING THE EDGES OF CARRIAGE MATS.

Two Englishmen in Manchester, R. Knowles and J. Lindly, have proposed to form a new kind of binding for rugs, by using in combination two or more threads of silk, cotton, wool, or other suitable fibrous material, for forming the edging, binding, or fringing, both or all of the said threads being either of the same or of a different color to the article to be ornamented on its edge. One of the said threads forms the fringe or edging by being laid by suitable mechanism upon the edge of the covering in a zig-zag or plaited direction, whilst the other thread is used for securing the said fringe or edging to the article to be ornamented, in contra-distinction to having the edging or fringe made separately and afterward sewn to the article to be ornamented.

CARE OF HARNESS.

Oil the harness and have it prepared before a drier season sets in. Wash it thoroughly with warm soft water and castile soap, and brush out every particle of dirt, before putting on the oil. This is *the* important point. Better not oil at all than to apply it on dirty leather. The harness should be taken apart and the pieces washed and oiled separately. Rub on the oil while the leather is softened with the water. It can be applied at once if the leather is rubbed a little with a dry cloth. It should be soft but not too wet. After applying the oil hang up to dry for a few hours, till the oil is absorbed. Old harness that has been neglected and is dry and hard, had better not be oiled; it will do no good; the evil is already done. The fibers of the leather have lost more or less of their tenacity, and oil will not restore it. In fact by softening the leather it only weakens it, just as a wet sheet of paper will tear more easily than a dry one. Oil does not add to the strength of leather; it merely softens it and keeps it from cracking. It is a preventive of decay—not a restorer. Harnesses are now so high that it is more than ever important to take good care of them. Never let them suffer for want of oil; kept in good repair they will last a long time.—*American Agriculturist.*

CARRIAGE LACES.

Our readers will find in its proper place on the cover of this number of our Magazine, Messrs. William H. Horstmann & Sons' advertisement, to which we would respectfully direct attention. This house is without doubt the largest of the kind in the United States, if not in the world, a visit to which will amply repay any carriage-maker disposed to give them a call.

Editor's Work-bench.

ANOTHER VISIT TO OUR WESTERN FRIENDS.

In October last we paid a visit to several Western cities, *via* Philadelphia, Wilmington, Baltimore and Washington, extending as far south as Cincinnati. It is not our purpose in this article to repeat details given in one printed on page 91, Volume vii, but merely to note such changes as have since taken place in the cities visited, reserving our limited space for a more particular notice of those we have never seen before.

We left this city on the morning of the 14th of May for Philadelphia (calling on the way at New Brunswick and Trenton), where we arrived at 5.50 P. M. We found the craft complaining of the hard times, although ready and willing to patronize this journal, as usual. The only new shop which came under our notice, is that of Haskell & Brother, located at 1712 Coates Street. Mr. Dunlap appears to have enlarged his business very much within the past eight months, and Mr. Rodgers told us that he had found sales for all the buggies he had made during the Winter. We saw but little indication of dull times in our visits to the several shops, and probably would never have dreamed of such had it not been the general complaint among the craft. The same remark applies to Wilmington, Baltimore and Washington as well.

In Wilmington we found three new firms; those of Wm. E. Stimmel, Morris D'White and Cooling & Lloyd—the latter gentlemen occupying a new brick shop built purposely for them. There are now in Wilmington some fourteen shops, which, when the size of the city is taken into consideration, constitutes it one of much importance as a carriage-making place. Our friend, Henry Pretschner, Esq., with characteristic consideration made our visit agreeable by his kind attentions to our wants while we were there, for which in this public manner we express our thanks.

In Baltimore we found one new shop, Messrs. Green and Hoffman's, on the corner of Richmond and Tyson Streets. A visit to Washington completed the visits this side of the Ohio River. In all the cities named we have more subscribers now than for the past five years, giving us much encouragement in this respect, and never were we more cordially welcomed by the entire craft, than in this visit. All have our warmest thanks.

By the Ohio & Baltimore Railroad we pursued our journey on to Cincinnati by the way of Parkersburg, which gave us the opportunity of noting some of the miseries which slavery has entailed upon the people of Virginia, but which it is no part of our plan to dwell upon here. A long journey of thirty-two hours' constant traveling set us down in the Queen City, covered with dust and the depressing influences of a warm day. This being our third annual visit, and having become somewhat acquainted with the city, we were able to make our way to the establishment of our friend, J. W. Gosling, Esq., without much difficulty, and soon found ourself in pleasant quarters at his splendid villa on the outskirts of the city. The next morning we were kindly taken by his son in a buggy to the different shops, where we were successful in securing a goodly number of patrons to this journal. In this city we found one newly-established shop since our last year's visit—that of Roberts & Shardon. As our readers may already know, Cincinnati is the metropolis of the State of Ohio, and one of the most enterprising of our inland cities. The carriages manufactured there are for the most part second to none, and as a consequence sell for a good price, and the craft a clever set of men, who consider no trouble too great when taken for the furtherance of an object such as is involved in the publication of this Magazine. For the unflagging interest they have always shown in our behalf we tender them our heartfelt thanks.

Intending for the first time to pay a visit to Louisville, at 4 P. M., on the 23d of May, we made our way to the "levee," as we believe the landing places of these high-banked Western rivers are termed, where lay moored two flat-bottomed steamers, called respectively the "Wild Wagoner," and the "General Lytle," opposition packets, running daily between Cincinnati and Louisville, a distance of one hundred and fifty miles, at the low price of only two dollars, including a good supper and a nice stateroom. On the respective boats we had either the choice of a better fare or faster travel. We choose the latter and took the General Lytle, a magnificent vessel carrying the United States mail. We reached Louisville long before business hours, having enjoyed a good nights' rest on the voyage. The only person with whom we were acquainted in the place was our friend, Joseph Enders, whose patent shifting-rail is given on the cover of this journal. Of course our first call was made to the shop of Messrs. Enders & Severson, where we were cordially received. These gentlemen manufacture the very best class of work, and this remark applies generally to all shops in the place. Indeed it is no disparagement to say that we are agreeably disappointed in the work produced in this Kentuckian city. We will mention the principal shops in the order in which we visited them: Messrs. Enders & Severson's, Ed. Pierce's, Horace Gooch's, Wm. Ruby's, James McQuillan's, Clark Bradley's, Cooling & Wheeler's, W. F. Spybey's, and Baker & Rubels'. We were likewise introduced to Mr. I. F. Stone, who keeps a store for supplying the craft with carriage materials. When the size of the place is considered,

one is led to wonder how the craft there are able to dispose of the numerous carriages they manufacture; but on inquiry we learned that they found a home market for nearly all, showing that the people of that vicinity are sensible—fond of the innocent pleasure derived in carriage-riding. Being under the special charge of our friend Enders, the editor of this journal had little else to do than to make the acquaintance of the craft, take their subscriptions and make himself comfortable, while in the place.

Opposite Louisville, across the Ohio River, Jeffersonville, in Indiana, is located. This place has over 4,000 inhabitants, and only one carriage-shop, Mr. J. W. Kane's. Mr. Kane, although encountering the disadvantages to trade presented by his Louisville neighbors, yet seems to be doing a very fair business, which the good style in which he gets up his carriages justly entitles him to. From this point we passed on through many pleasant and thriving villages to Indianapolis, but would not recommend this road to any who can avoid it, for several reasons.

On the part of Col. B. C. Shaw and S. W. Drew, the heads of the two best shops in Indianapolis, we experienced the same kind attentions we received on our former visit. The colonel is one of nature's noblemen, and to know him is to love him. Indeed, this remark may, in a general sense, be applied to Western men. In this city we received the pleasure of an introduction to Mr. George K. Share, late of Auburn, in this State, of the firm of Geo. K. Share & Co. These gentlemen, as will be seen from an advertisement found accompanying this number, have established a house for the sale of carriage and saddlery hardware and other materials, to which the attention of our Western friends is particularly directed. They will there find all they need at as low figures as goods can be bought in the Eastern market, and of the best qualities.

From Indianapolis we turned eastward, through Dayton and Springfield to Urbana, O. There are two shops in this place: the old establishment of Messrs. Warren & Gaumer, and the new one of Heiserman & Aughinbaugh. These gentlemen gave us a cordial welcome, and added much to our enjoyment while a stranger in a strange place. Urbana is located in one of the most fruitful sections of Ohio, and is destined to eventually become a place of much importance considering its position. From this point we returned home, after an absence of fifteen days, having traveled a journey of two thousand miles, renewing old acquaintance and making new friends, which we trust will ever remain satisfactory as well as mutually beneficial to all parties. It gives us peculiar pleasure to find that our humble effort in journalism meets with the approval of all whose good opinions are of any value, and we trust that the interest we have endeavored to awaken in others in behalf of our enterprise will not be without its good effects. We are certain that the more industry our friends exhibit in inducing others to send on their subscriptions, will not only encourage us, but redound to their individual profit, by enabling us to publish a still more useful and entertaining monthly. This can very conveniently be done by the craft in cities, when their country friends call on them from points never reached by rail, by showing them a copy of the Magazine, and explaining the advantages of its monthly visits from a mechanical stand-point. Please try the experiment and you shall receive our warmest thanks therefor.

REVIEW OF TRADE.

OUR recent visit to the West enables us to report that, as a general thing, so far as the sales of ready-made work are involved, trade is dull on this side of the Alleghany Mountains. In order and jobbing, business is moderately fair, although in some localities discouraging. This may be said of Philadelphia, Baltimore, and Washington particularly, for while in the above-named cities there may be one or two establishments where they have succeeded in clearing their warerooms, yet the majority have them still filled with new carriages unsold. In a word, while one or two manufacturers say they have done a good business, others assert that business has not been so dull with them as now for a long time—one gentleman saying not for the last twenty-five years.

Westward of the Alleghanies trade is good, and money plenty. Indeed, we have seldom found so decided a collection of cheerful faces among the fraternity anywhere. We attribute this state of things to the fact that instead of buying Eastern made work, the inhabitants are more inclined to patronize the home manufacturer, and to that other and still more evident truth, that our Western friends have greatly improved in their mechanical status since our journal has been introduced among them. Perhaps it may be deemed immodest on our part, still the usefulness to the Western carriage-maker of such a journal as ours, is so strikingly apparent, that we cannot resist the temptation to say so, for the interest of some who have thus far neglected to patronize us. We could even mention shops in the same town where one takes and the other does not, and show by contrast the difference in the work produced by each. The simple truth is, the former is always in advance of the latter. Take an example for an illustration of our averment. In the village of Springfield, Ohio, there are four shops, three of which are subscribers to this journal, the fourth is not. When we state that the manager of this last makes a sorry looking kind of work, the reader can draw his own in-

ferences, and will not wonder to hear that this same person is disgusted with the trade, and threatens to leave the business altogether. But we are digressing.

Trade in this city is but moderately good, owing, doubtless, to the coldness of the season, the caution with which purchases are now made, and some other influences peculiar to the times. The chief excitement just now is expended on the Woburn spring, of which our friends, Messrs. Brewster & Co., are the sole proprietors, as may be seen from the advertisement on the third page of our cover. This, however, is not confined to this city alone, our western visit having developed the fact that others, elsewhere, have become interested in making buggies with these attached. As enquiries respecting this spring may be extended, we may as well state here, that all letters in relation to this subject should be directed to Messrs. Brewster & Co., corner of Broome and Mott Streets, New York City. We are told that those complying with the restrictions imposed, are supplied with the bent springs as they come from the bender for $15 each pair. This, of course, gives the right to apply them, and places all parties desirous of using them on an equal footing.

On the streets we observe that dog-carts and Clarence coaches take the lead among the *bon ton*. The general tendency in the call now from the fashionable world, is for a heavier looking class of work, which our readers may form some notion of by inspecting some of the plates accompanying this number. This, although in direct antagonism with our American idea of taste, we are sorry to find is getting more and more popular every day, showing that after all we are not independent of old-world customs and influences. There is one house in this city where this taste is fostered to an unlimited extent, which we are sorry to find is carried out very successfully. To our mind this *improvement* is of a very questionable nature, and hard on the poor animal we call a horse. Ought not this subject to receive a share of the attentions of our recently established "Society for the Prevention of Cruelty to Animals?" We think so.

WOODEN HORSES.

We read in the Odyssey that Epeus, assisted by Minerva, prepared a hollow wooden horse, which, having been filled with armed men, was left near the walls of ancient Troy, a city the Greeks were then laying siege to. By this means, other plans having failed—the Trojans themselves having foolishly drawn it within the city—they introduced an army which sacked the place. So a wooden horse is nothing new, some may say. Well, be it so; but still we believe that a *solid* one, large as life, and almost as natural, for a carriage repository *is* a novelty. When hereafter this finds imitators in other localities, let it not be forgotten that "the genuine original" wooden-horse, was first placed in a carriage wareroom, and harnessed to a coupè, on the corner of Broadway and Great Jones Street, New York, by Adams & Cone; gotten up, "regardless of expense," in their own manufactory. We confess that *this* animal deceived us as we passed by, and doubtless others were as much deluded into the notion that the "critter" was a real horse as ourself; for it did, and is attracting crowds of visitors daily. As a business card it is a decided hit, this modern contrivance, doubtless answering its purpose as effectually as its ancient prototype.

Since the above was put in type, an artist connected with this journal informs us that these wooden horses are a very common thing in the European carriage warehouses.

LITERARY NOTICES.

Every Saturday, is a weekly, in our opinion, precisely what it claims to be,—a journal of *choice* reading selected from current literature. The editor has the range of all the English and Continental Reviews, Magazines, and first-class Weeklies, which press into their service the ablest, wisest, and wittiest writers of Europe. From this almost immense storehouse, he selects that which he judges best adapted to suit the taste and intelligence of the American people.

The selections in the numbers already issued have embraced a wide variety of topics,—all of interest to cultivated minds, and nearly all of a character to be highly attractive to the majority of American readers. There have been excellent short stories, thrilling adventures, exquisite poems, graphic historical sketches, popular scientific articles such as appear originally only in English and French periodicals, racy essays in biography, criticism, and anecdote. In fact, it contains the cream of foreign current literature, and is offered at a price that brings it within the reach of all.

Each number being complete in itself, it is just the thing for travelers; and each number is of such sterling merit that it is just the thing for those who stay at home. Whoever wishes the freshest and choice foreign periodical literature, must get "Every Saturday."

The Atlantic Monthly for June, contains a great variety of articles on subjects of an interesting nature, among them the Last Days of Walter Savage Lander; The Dead Ship of Harpswell; Tied to a Rope; Giotho's Tower; a continuation of Passages from Hawthorne's Note-books; a Pioneer Editor, and the usual Reviews and Literary Notices.

Our Young Folks continues to amuse as well as instruct the juvenile—and we might add the older members, too—of every household which is fortunate enough to secure its regular visits. The contents for June are: The Little Southerners; The Violet's Lesson; The Bird Question; Sea Life; A Summer in Leslie Goldthwaite's Life; The First May Flowers; Mother Magpie's Mischief; Spring Song; The Four Seasons; A Tennessee Farm-house; The Dew-fairies; Round the Evening Lamp, and our Letter-box. All the above are published by Ticknor & Fields, Boston.

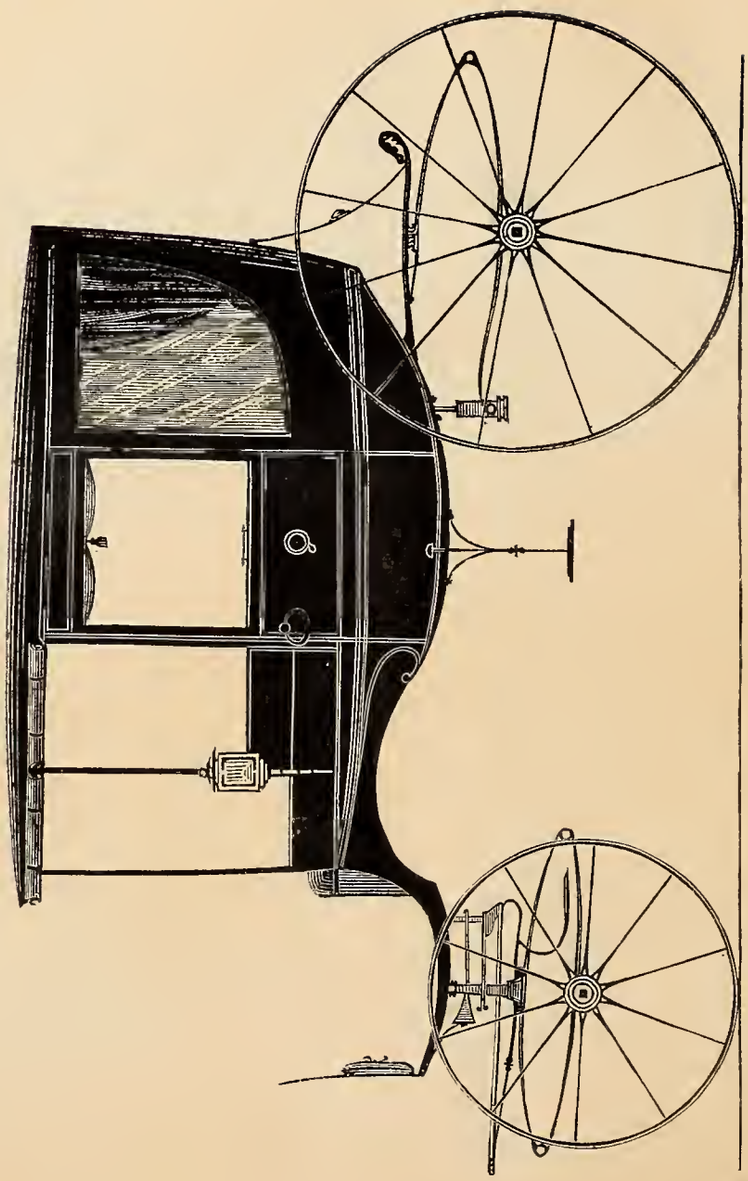
CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, June 20, 1866.

Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10½c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, huggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 90c.; 5–4, 85c.
Do. Ducks, 50 in., $1.15; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Huhs, light, mortised, $1.20; unmortised, $1.00—coach, mortised $2.00.
Japan, per gallon, $2.50.
Knobs, English, $1.50 *a* $1.65 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 15c. to 20c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 31c.; split do., 18c. *a* 22c.; enameled top, 32c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 28c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 12½c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $1.80.
Paints. White lead, ext. $17.50, pure $18 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.25.
Screws, gimlet.
☞ Add to manufacturer's printed lists 10 per ct.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.50 *a* $1.65 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 85c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 24c.; bright, 25c.; English (tempered), 28c.; Swedes (tempered), 32c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 9½c.; 1-4, 9c.; heavier sizes, 8½c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 9c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.45; 30, $1.55; 35, $1.80, gold.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.25; 632, $2.60, gold.
Tufts, commou flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, $1.20.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $5.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $10.50 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.

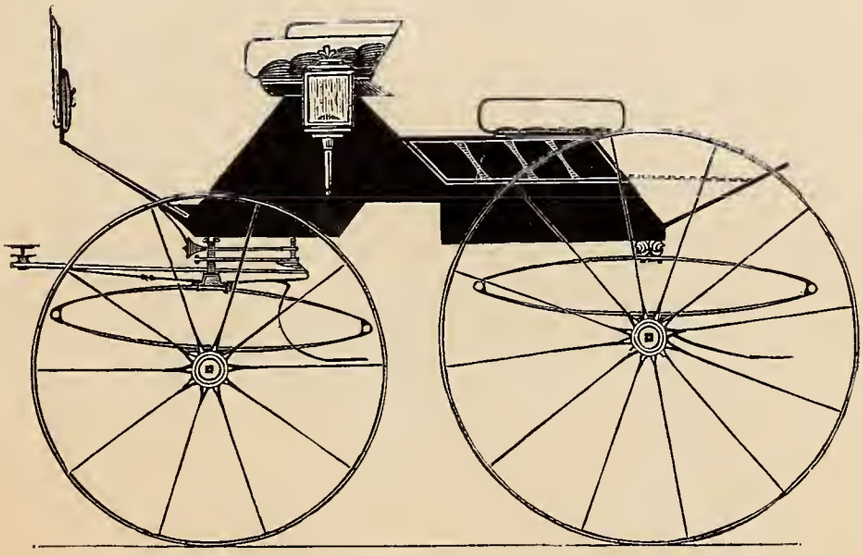
SPECIAL NOTICE TO SUBSCRIBERS.—With this the second number of a new new subscription is furnished. Such as receive it will be expected to comply with our terms, and send Five Dollars, IN ADVANCE, immediately. Where it is practicable send us a Post-office order for the amount. If such are not issued at your office, then send a "greenback" in preference to any other money, in a registered letter. Never send individual checks on a country bank. They are of no use to us. Canada subscribers must send us 25 cents extra to pre-pay U. S. postage. Be careful and pre-pay your postage, or, instead of reaching us, your letter will go to the Dead-letter Office at Washington. Observe that our address now is ☞ No. 5 Ludlow St. ☜ *not* 106 Elizabeth St.; *nor yet* 82 East 14th St., as formerly, and as some still persist in directing their letters.



SIX-SEAT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coachmaker's Magazine.

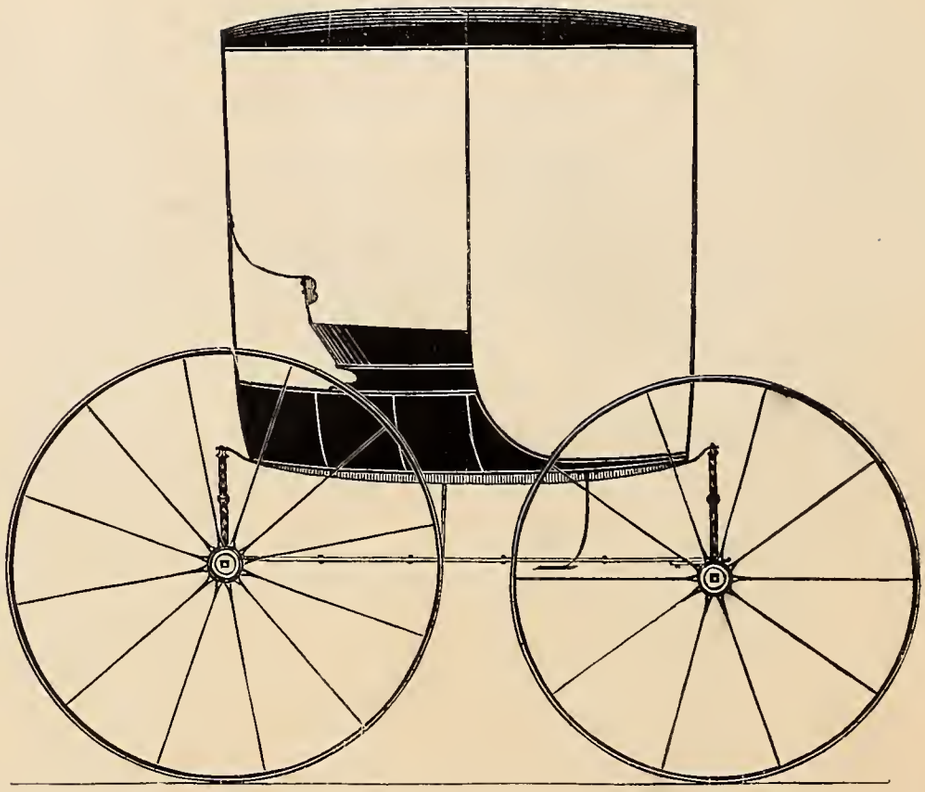
Explained on page 39.



DOG-CART PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

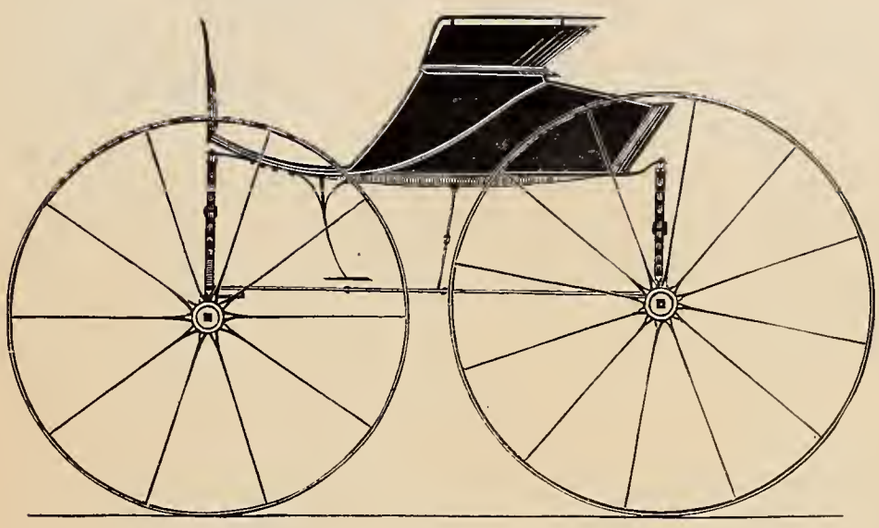
Explained on page 39.



STANDING TOP OR JENNY LIND BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 39.

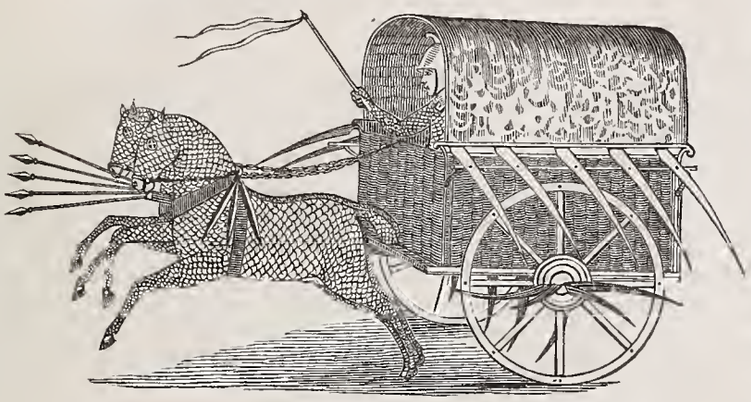


FANCY ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 39.

horizontal nor bend upward, as all pierced by them would have remained thereon. We suppose they were bent a little toward the ground, that the pierced bodies could drop off. Those spears on the pole could, after all, have been spared altogether, as the horses made their way through [the ranks of an enemy] for themselves. The points between the spokes were also useless, because the



scythes above the wheels stretched out so far that their points could never do any harm. For the same reason it would have been useless to attach the scythes to the outside of the felloes, saying nothing of the impossibility of their moving on. Constructed in this latter way, the scythes attached to the outside of the felloes could have—whilst moving in the circle with the wheels—wounded an enemy, or thrown them to the ground, but not cut through in the middle [of his ranks] as was often the case, for Diodorus (Lib. xvii.) writes: 'The scythes were made so sharp and destructive that many have had their arms separated with the shields; many have had their heads cut off in so short a time that the expression of their faces did not show the slightest change. Many besides were cut in one stroke so fearfully that they fell lifeless to the ground.'

"I think the scythes were attached, not on the felloes, but above them on the body, in order to allow the wheel to turn unobstructed. In this way the scythes had a firm hold and could inflict more damage than if they had been applied to the wheels or felloes and revolved with them. Nearly all writers treating on this subject are of this opinion, and Curtius says, '*Alias deinde Falces summis rotarum orbibus hærebant.*'" [Other scythes were fixed above the wheels, from thence curving downward.]

"The scythes could easily have been attached to the body, as the engraving shows, and nevertheless, it could be said they extended over the felloe, for Curtius said, not that the scythes revolved with the wheels, but says, "*hærebant*,"—[they were fixed]. We have to remark that our picture is not intended to represent the wagon as described by Curtius, but a Gallican *Covinus*, or battle-wagon, mounted with scythes all around. Just as well might scythes be applied to the bodies made by the Persians, which originally looked like a Greek "Diphron," but later were made closed all around.

"Whilst marching, the scythes had to be taken off the wagons to allow an unobstructed travel and prevent injury. Others go so far as to say that whilst traveling in the neighborhood of an enemy, or between the armies, the scythes were taken in by means of cords and turned out again.

"Diodorus describes these same battle-wagons more intelligibly (Lib. xvii., Cap. 53), as follows: 'On each of the two hundred scythe-wagons of Darius were fastened, on the small yoke of the outside horses, sharp knives, three spans long, which in battle were turned forward to face the enemy. Two other knives were on the body; those were longer and broader, and in direction also forward, cutting. The scythes were fastened on the ends of the axle. Darius provided the whole force with superior arms, and valiant officers, and left Babylon with eight hundred thousand foot-soldiers and two hundred thousand mounted men.'

"The scythe-wagons of Antiochus were different, and Livy describes them in Lib. xxxii, Cap. 41, as follows: 'Round the pole were sharp-pointed spears, which extended from the yoke about ten "*cubita*" (about 15 feet). With these they pierced everything in their way. On the end of the yoke of the two outside horses were two scythes, one being placed horizontally, the other toward the ground. The first cut everything coming from the sides; the others catching those lying on the ground or trying to crawl under. There were also on both ends of the axle scythes going out in different directions. The long spears (*cuspides*) were not on the yoke, as some say, for how could it have been possible that such spears could stand firmly straight forward and pierce enemies? Such were attached to the tongue, the end of which did not reach out one foot over the breast of the horses, as on our wagons, but just terminated before the yoke; it follows that Livy only intended to say that the part of the spears running out from the end of the pole was ten "*cubita*" long, measured from the yoke.

"I have already mentioned that the 'Funales,' or side horses, were mounted in the oldest times with small yokes, and on these were fastened the holders, the surcingles, and the poitrals. In this way it was possible to attach to a Quadriga scythes at a small yoke. But to have scythes reaching from the middle yoke over the backs of the side-horses would not have been advisable, but dangerous for the side-horses. This mode could only have been applied to '*Bigas*' [two-wheeled vehicles], where there were no side-horses."

(*To be continued.*)

MECHANICAL POWER OF MAN.

The Mechanical Powers of man cannot fail to be an object of importance, more particularly in a country like ours, where mind is expanding in every branch of useful knowledge. The powers and laws that govern most visible bodies in the universe have already been investigated with great accuracy by men of science, but few have taken the pains to ascertain the extent of the mechanical power of man. It is true, we find in some practical works on mechanics the result of experiments on the powers of man to carry burthens, and to draw a load horizontally, and upon planes nearly horizontal, and also to raise a load by means of the windlass; but there are many other modes of applying the strength of man which deserve notice, such as the act of rowing a boat, lifting a dead weight, using an augur, a gimlet, a screw-driver, the bench and hand vise, the wrench, &c.; most of which might be determined with sufficient accuracy for general purposes by many of your readers, if they were to register the re-

sults of observations often in their power to make. For the purpose of inviting communications of this kind in your useful magazine, I beg leave to offer the following list, to be corrected from time to time, as may be found necessary. Many ordinary operations are performed in a brief space of time, but might be done by greater exertion much sooner. Thus a person for a short time is able to use a tool or instrument called

	LBS.
A drawing-knife, with a force of.....	100
An augur, with two hands.....	100
A long screw-driver, one hand	84
A common bench vise handle.....	72
A chisel and awl, vertical pressure.....	72
Pincers and pliers, compression.....	60
A wrench.....	55
A hand-plane, horizontally.....	50
A hand or thumb vise...	45
A hand-saw.....	36
A stock-bit (revolving).....	16
Small screw-driver, twisting by the thumb and forefinger only.....	14

I may hereafter send you a few cases to exemplify the use of the above, but will not trouble you with any farther observations at this time, my object being to draw the attention of your correspondents to this subject for the purpose of ascertaining the practicability of the powers of mechanics in their everyday avocations. If you think the suggestion worth publicity, a space in your useful magazine will oblige,

J. B. P.

IRVING AND THE CARRIAGE-MAKER.

A Philadelphia manufacturer once lost some extensive orders from Russia by a want of attention to visitors, and the following incident, said to be literally true, is told of another Philadelphia trader, who subjected himself to great mortification by impoliteness. He had been annoyed by idle calls, and become a little crusty.

About this time, the owner was one day standing in his door, when up came a rough-looking man in well bundled overcoat, wearing coarse, unpolished boots, and carrying in his hand a whip, who thus accosted him:

"Good-day, sir! Are you the owner of this establishment?"

"Well, I am," replied the other, with a look which seemed to say, "Now you want to try it, don't you?"

"Have you any fine carriages for sale?" inquired the stranger apparently not heeding the boorishness of the other.

"Well, I have."

"At what prices?"

"Different prices, of course."

"Ah, yes! Can I look at them?"

"You can do as you please, stranger. They are in there."

The stranger bowed politely and passed in, examined the vehicles for a few minutes, returned, and said:

"There is one I think will answer my purpose," pointing toward one; "what is the price?"

"Two hundred dollars."

"Is that the lowest?"

"That is the lowest."

"Well, sir, I will call and give you my decision to-morrow;" and the stranger walked away.

"Yes, you'll call to-morrow! O yes, certainly," replied the owner in a tone of irony, not so low but the stranger heard him; but he kept on his way, taking no outward notice of it.

"Fool me, will you?" and the owner commenced whistling.

The next day came, and with it the stranger also.

"I have come according to promise," said he.

"I see you have, sir," replied the owner, a little abashed.

"I will take that carriage, sir;" and, to the astonishment of the other, he pulled out an old wallet, well stuffed with bills, and deliberately counted out $200.

The owner was completely staggered. Here was something new. A cabman with so much money. He took the money, looked at it, and then at the stranger, eyed him from head to foot, and even examined his boots attentively. Then he counted his money over, and held up each bill to the light to see if it was counterfeit. No, all was good. A thought struck him; he would find out his name.

"I suppose you would like a receipt," said he at length to the stranger.

"It may be as well."

"Yes, sir. What name?"

"Washington Irving."

"Sir!" said the other, actually starting back with amazement; "did I understand your name was—"

"Washington Irving," replied the other, an almost imperceptible smile hovering around his mouth.

"Washington Irving! sir, my dear sir," stammered the owner confusedly, "I, I, I, really, sir, beg ten thousand pardons, sir, but I mistook you for a cabman sir, I did indeed."

"No excuse, my friend," replied Irving; "I am no better than you took me for. You acted perfectly right;" and having at length succeeded in getting his receipt, and a host of apologies, he politely bade the humble carriage-maker "good-day," and left him to the chagrin that he had mistaken for a cabman a man whose lofty genius had commanded the admiration of the whole world.

The friend who related this anecdote asserted that it was a fact, and was told by the veritable owner himself. It doubtless proved a lesson to him not to judge men by their dress.

Albany Carriage-makers.—The editor of *The Knickerbocker* thus eulogizes an Albany mechanic, to the no small disparagement of some of our New York "big institutions" in the same line of business. We hope they will survive this onslaught.

"The reputation of Albany mechanics abroad is far ahead of that of workmen of other cities. New York is a big city. It has many big manufacturing establishments. Among its artists rank some of the smartest men in the country. Still, with all these facilities and all that ability, there is not a man or an establishment in the great metropolis that can to-day build a light pleasure wagon to suit the taste of Commodore Vanderbilt. The Commodore heard of the reputation of Hugh McDonald, the well-known carriage-builder of this city. He therefore came here, and after an investigation made to his satisfaction, he left his order with "Mac" to make him up a pleasure-wagon. When the wagon is completed, an establishment may be expected that will be an honor to Albany mechanics, creditable to Mr. Vanderbilt, and something that Central Park will find it difficult to excel.

Home Circle.

A SUMMER AT THE SEA-SIDE.

(*Continued from page* 25.)

"By the Great Mogul!" broke out Claude, "this is too much. She must be a sorceress! She has certainly bewitched you, sir!"

"Doubtless," I returned quietly, "but suffer me to proceed. As to the tender melancholy and delicate languor you speak of, your vision, rendered acute by sympathy with the tender loves of the love-stricken, may discern."

"Uncle John, forbear!" cried Claude, rising and striking a theatrical attitude, "I shall turn consoler at once. By Venus! I feel benevolent—the office suits me."

And the office did suit him, as it soon began to appear. Never were two people more charmingly adapted to each other than Claude Rivers and the Garden Queen. They were not trammeled by any false views of etiquette. Oh, no! Two days acquaintanceship served to place them on the most intimate footing. They became inseparable companions. They walked together, rode together, romped together; together they chased butterflies, caged humming-birds, and played tricks upon every member of the household. In various ways they combined their forces to create confusion, to perpetrate mischief. Their united voices sent peals of joyous laughter through the house; they shocked the propriety of their elders; they ruffled Miss Imogen's dignity; and, worse than all, they delighted in bringing to light the sly flirtations of the little widow and Mr. Green. A more rollicking, joyous, noisy, mischief-loving pair never put to flight the gravity of a household!

I happened to be seated in the hall one morning, glancing over the paper that had just come in, when my attention was attracted by a series of little shrieks uttered by Mrs. Howard. I looked up to ascertain the cause of the disturbance, and saw the lady flying down the garden-walk in great alarm, with the evident intention of rescuing the little Mira from a perilous situation, in which she had been placed by my nephew Claude. That young gentleman had been standing beside a spirited pair of horses, waiting at the gate to bear himself and Miss Rose on their customary equestrian excursion, when the child came running up and asking for a ride. He instantly clapped her on Miss Rose's saddle, and was about giving her a lesson in horsemanship, when the terrified Mamma interfered. The little lady was screaming with delight, and Claude, warmly sympathizing with her enjoyment, continued to lead the pony up and down, utterly heedless of Mrs. Howard's frantic adjurations. At length she turned an appealing look toward Mr. Green, who had followed her out with a look of great concern. That was sufficient; he instantly opened the gate, and advanced gallantly to the rescue. Not deigning to bestow a glance on Claude, he took the child from her seat, and after embracing her with great fervor, as though she had escaped some imminent peril, he bore her triumphantly to her grateful parent. This feat accomplished, the delighted pair returned to the house, alternately bestowing caresses on the rescued darling. At the door they encountered Rose, who, equipped for her ride, had been observing the pretty farce.

"What an admirable papa you would make," said she, with a saucy laugh; you have quite the air of a "pater familias." And gathering up the folds of her long riding dress, she nodded a good morning and swept past.

Imogen had been sitting by the door with her needle-work. During all this time she had not once raised her head to observe what was passing. Now she rose very quietly and went up-stairs.

Mr. Green observed the movement and looked slightly disconcerted; but his embarrassment was momentary, for the syren by his side was weaving her brightest spells, and she soon succeeded in rendering him oblivious to all things but herself. Miss Imogen did not appear again until dinner time. On leaving the dining-room, she at once directed her steps to the foot of the stairs; there she was met by Mr. Green, who, taking her hand, which she suffered to remain in his for a moment, entreated her not to deprive the party of her charming presence; as she persisted in her intention, however, he proposed taking a drive during the afternoon, and politely solicited her to accompany him.

"Thank you, Mr. Green, I would rather not ride to-day." This was said in her customary tone, and without the slightest affectation of hauteur; but Mr. Green chose to feel himself injured. Assuming an air of high displeasure, he drew back with a formal bow, and permitted her to pass on.

When the sun was low in the western heaven, Mr. Green's dashing turn-out drew up at the garden-gate, and Mrs. Howard, arrayed in her brightest smiles, tripped like a sylph down the stairs, and was gallantly handed in by the princely proprietor and whirled away.

Vivian was engaged in the practice of the law, and was frequently obliged to spend a few days in the city, business requiring him to be at his office. He had just returned after one of these temporary periods of absence, and I was conversing with him in the hall, when Mrs. Howard passed. He addressed her with a greater show of courtesy than I had ever observed in his manner toward her before. I believe he was glad in his heart to see her divesting herself of the last semblance of modesty, and appearing in her true colors.

I confess I now became somewhat curious to see Miss Chalmers; I wished to know how she would bear herself under this new exhibition of insolence on the part of her professed lover. I had not long to wait, scarcely had the sound of the horses' hoofs died away, when she came down. With her customary serene and stately demeanor she extended her hand to Vivian, and expressed her delight at seeing him back. His greeting was warm, kindly—a genuine out-gushing of the heart, as it seemed to me. He placed a chair for her in her favorite place near the door; and while standing before her uttering some common-place expression, he availed himself of the opportunity to scrutinize her countenance closely. When he had no longer an excuse for remaining there, he returned to the sofa and resumed the book he had thrown aside on her appearance.

"What have you there, anything new?" she asked.

"Jane Eyre," he replied, "I picked it up this morning to read on the boat. You have read it, I suppose."

"Yes," she answered simply.

"And like it, of course; it seems to be in great favor."

"Not altogether," she returned, "I like the little heroine, to be sure. She takes your heart by storm, and

you follow her with a loving sympathy to the end of her sad story; but Rochester is detestable—a wretched compound of wickedness and brutality."

Vivian smiled; it was not often that Miss Chalmers expressed herself with so much warmth.

"He is not conventional, certainly, or he would not have centered his affections on a little unknown girl, poor and plebian, that sought food and shelter at his hands as the reward of honest labor. He is a stout country gentleman—this Rochester—one of a class of which we have no type among our finical aristocracy on this side the water. I think the author has made him just what he intended—a man, not bred in the most rigid school of morals, but of a great heart, and of the most noble impulses."

It will be remembered that for some time after the publication of Jane Eyre, the authorship was a secret. Currer Bell was generally supposed to be a man.

Miss Chalmers did not seem inclined to continue the argument, her head was bent over her needle-work; and Vivian, resuming his book, glanced over the concluding pages. After a while he said, "Perhaps St. John is more to your taste."

"Yes, rather," was the reply; "he is at least a gentleman."

"See how our opinions of character are fettered by false standards," said Vivian. "Now, here is a man of ice—a monstrous contradiction of all that is gentle and humane in our nature, who, through a morose and bitter bigotry, ignores human affections and sympathies, despises the amenities of life, and renounces home and kindred, in the insane belief that in so doing he is rendering an acceptable service to God. Yet this man, because he has classical features and gentlemanly apparel, and violates none of the established laws of society, seems to you a gentleman, and excites your admiration, rather than the warm, generous, true-hearted Rochester!"

"Mr. Neville!"

"Am I rude, Miss Imogen?" said Vivian, rising hastily and approaching her; "if I am, pray excuse me; but tell me," he continued, laughingly, "what is your ideal of perfect manhood?"

Now had Vivian gone and done it! Such a blush as overspread the face of Imogen Chalmers! It was painful to behold. Vivian went out and took a few turns on the piazza, probably to air his wits.

This chance shot was a barbed arrow; it seemed to pierce the very heart of the lady to whom it was addressed. She folded the strip of muslin at which she had wrought so industriously, and deposited it in the tiny work-basket with a perturbation entirely at variance with her accustomed manner; then her hands dropped listlessly in her lap, and her eyes looked far out into the blue ether with that peculiar gaze that neither sought nor distinguished an object. After a while Vivian came back. He stood with his back against the door-post just opposite her, contemplating her still face. Oh! how earnestly, tenderly, lovingly! Minutes passed by, and they moved not—neither Vivian nor Imogen. At length some strange magnetism caused her to feel his gaze, and like one awaking to consciousness after a long dream, she slowly turned her large blue eyes from their far-reaching gaze, and suffered them to turn to him.

One glance—it was electrical! Again the crimson tide suffused cheek, and brow, and bosom. Instantly she rose; Vivian sprang forward, glowing and impassioned, he seemed about to clasp her to his heart, but she moved proudly away; he seemed to recollect himself, and walked close by her side down the long hall. When she left him a tear trembled on her cheek; and there he stood with his arm resting on the bannister supporting his bowed head—stood as though bereft of the power of motion.

A countenance more steeped in woe it has never been my lot to look upon. At length I rose and went to him. I had conceived a warm affection for him, and he knew it, and confided in me fully.

"Come, my dear fellow, this will not do." And taking his hand, I drew his arm within my own, and we went forth into the open air.

Weeks sped away. Love and song and romance gilded the hours where youth and beauty sported through a summer holiday. There was no shadow visible to the common eye above our little household; among its joyous inmates all went "merry as a marriage bell." But the little cloud no bigger than a man's hand had revealed itself to me, and I knew that beneath at least one proud bosom there throbbed an aching heart.

The widow had thrown aside all disguise, and defiantly and audaciously displayed her power over Mr. Green; while he, poor man, was not unfrequently a victim to the most ludicrous perplexity. Truly his position was trying—betrothed to one lady, and madly enamored of another, and both residing under the same roof. In presence of the family, Miss Chalmers received his polite attentions with her wonted unmoved demeanor; but if at any time he attempted to avail himself of any of the privileges of an accepted suitor, she repulsed him with a stern severity that sent him from her with the air of a whipped school-boy.

As for my nephew, Claude, I had more than once intimated to him that it was quite time for him to return to the counting-house; but the saucy fellow uniformly declared to me, on such occasions, that he really had not the heart to leave me—that among these gay young people, with whom I had no companionship, I must be exceedingly dull; and that, in short, he had better stop a little longer. It seemed to my unsophisticated understanding, however, that he was not exactly fulfilling the benevolent intention for which he claimed credit. I scarcely saw him an hour through the day. If I invited him to accompany me in a walk, he was sorry, really, very sorry, but he was just going out with Miss Rose—probably she was waiting for him at this moment. He managed to be constantly in attendance upon that young lady; sometimes they were going down to the woods, where they filled little baskets with acorns and pine-cones, which were wanted for the architecture of some fancy fabric; then they strolled on the beach; then they read romances, both from the same books. These and the like pretty diversions seemed fully to occupy their time.

(*To be concluded next month.*)

Power of Art.—The influence of art is truly wonderful. It is said that Alexander the Great trembled and paled on seeing a picture representing Palamedes betrayed to death by his friends, as it brought to his remembrance an acute recollection of his treatment of Aristonicus. Portia could bear with unshaken constancy the filial separation from Brutus, but when she saw, some hours afterwards, a picture of the parting of Hector and Andromache, she burst into tears. Such has often been the effect of painting.

Pen Illustrations of the Drafts.

SIX-SEAT ROCKAWAY.
Illustrated on Plate IX.

Our patrons have, in this design, another evidence of the original genius of our artist. We pronounce it a really superb design, and think it will meet the taste of the most fastidious mechanic. This carriage should have a shifting glass front, separating the driver from the inside passengers, when it is desirable. The low wheels we have put to it are antagonistic to ruling fashions, but in accordance with the greater facilities for turning in narrow streets.

DOG-CART PHAETON.
Illustrated on Plate X.

This drawing is another "original" emanating from this office. As a sporting vehicle it is eminently calculated to meet the wants of a gentleman's household, or the special wants of the *pater familias*, in his more selfish gratifications in hunting. Perhaps it is, if anything, better adapted to this last purpose than to the former. In the construction are embodied the best points of the latest European fashions, combining in the whole beauty, elegance, and convenience.

STANDING TOP OR JENNY LIND BUGGY.
Illustrated on Plate XI.

We have slightly altered this design from a sketch furnished us by Mr. J. B. Peek, of Columbus, Ohio. It makes a very desirable buggy for summer uses, and is of a kind becoming more and more fashionable every day. To have it stand the joltings to which it will be subjected, requires that great care be taken to stay the standing-posts with iron and to have them likewise of the best of timber. The top curves are covered with leather, without panneling, in imitation of a bow-top, and seamed up, which makes it much lighter.

FANCY ROAD BUGGY.
Illustrated on Plate XII.

Another novelty, we imagine we hear some carriage-maker say; and, yes! we emphatically respond; this buggy is a novelty of which we are very proud. Indeed, we think it will be hard to beat it. If our readers think otherwise, let them "try their hand," and send on the draft for our next number.

English Judgment of Lightness.—A writer in *All the Year Round*, in describing the "Humors of Havana," tells us that the volantes,—a favorite pleasure-carriage with the Cuban ladies,—are so light and springy, that "they would scarcely crush the legs of a fly if the wheels should pass over them." The same judgment defines our light buggy-wheels as having "spider-leg spokes" in them.

Sparks from the Anvil.

CARRIAGE-SPRINGS.—I.

Frequently have we been asked: When were carriage-springs first invented? Believing that on no other subject could we more profitably use the space we shall take in discussing a matter deeply interesting to all, we have decided to look at this question in the light of history.

When we examine the representations of ancient chariots Time has spared to us, we find no indications of anything answering as springs, although we have abundant evidence that iron was discovered at a very early day in the world's history. Probably this is owing to the fact that the production of steel was a much later invention. Wooden springs have been long used, and the *springing* of tree branches was suggestive of their employment, doubtless, as such. Even Greece and Rome, famous as they were as promoters of art, were nevertheless ignorant of the luxury and ease imparted to modern vehicles by the advancement of modern invention; for steel springs are but of modern date. Imagine—if you can—how such old conquerors as Alexander and Cæsar in their marchings must have suffered from the *royal* joltings their invincible majesties were forced to endure, in springless chariots, over rough and undefined roads! Surrounded as the ancients evidently were with many things unsurpassed in luxuriance by us, still they never experienced the pleasure imparted by our modern appendages to traveling machines.

In a note to Lady Hervey's Letters, published in 1774, we are informed that light-bodied chariots were advertised in London, "fit either for town or country," carriages on springs beginning then to supersede the wagon-like coaches of former days. Previously the spring, or more properly the arrangement serving that purpose, was simply the C-shaped irons over which was stretched the thorough-brace, examples of which are still extant in our chaises and Western mail coaches. Some carriages were even more rudely formed. A good example of the better class of carriages, in which the mode of suspension is well shown, has already been given in our Fourth Volume. The springing properties are produced by setting up two standards, from which two braces of leather are stretched, supporting the coach body. It is difficult to say, from looking at the drawings (N. Y. Coach-maker's Magazine, Figures 10 and 11, page 44, Vol. IV.), how these coaches were braced, something being absolutely required between the axles and body to preserve an equilibrium.

The Phaeton from which our modern vehicle of that name has sprung originally came into use in 1760, and was then very popular with the sporting men and "high-flyers" of that age. Very probably the term "high-flyer" was suggested by the *high* position taken by the passenger in these phaetons. An improvement will be found in the cut on page 80, Volume Three of this Magazine. These, originally called an S-spring, were the prototype of the later C-springs, as we intend to show hereafter. Felton describes them thus:

"Fig. 1. The usual form of springs used to carry the body of a coach or chariot. This is called an S-spring: it is made with a stay *a*, which is riveted within the hoop *b*, and clips at bottom the fore and

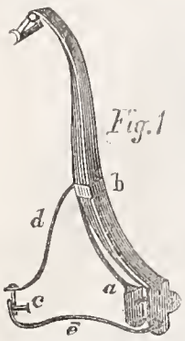


Fig. 1

hind transom, and is there fixed by this bolt *c*, and is supported at the hoop by a stay *d*, which rests on the hind axletree bed, or budget-bar; a stay *e* also clips or bolts through the spring at bottom, and clips or unites in a cup with the other; to oppose the pressure, it has a shackle *f*, bolted loosely on the top, for the weight to hang by."

Fig. 2. "This spring carries the weight, and is fixed in the same manner as the others; the form is frequently used for the above purposes. It is here represented only as a gig or curricle hind spring, having a jack at the bottom *b*, and a double-loop shackle at the top *i*, for the brace, which is fixed in it, and extends to the body-loop, from which it returns through the upper-loop, and down the back of the spring, and is secured in the jack at the bottom; this requires no stay at the bottom part, it being fixed on the bar near the shaft, which answers the same purpose."

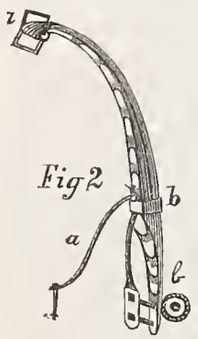


Fig 2

Fig. 3 was termed a long-tailed phaeton spring. "This spring has a flap *k*, and is supported on carved blocks, to raise and ornament them, on which blocks they are fixed by bolts which pass through them and the cross-framed timbers. These springs are obliged to be stayed on the inside at the middle and top, to prevent twisting sideways; they are supported at the hoop in the same manner as the rest, by a stay, which takes its bearings on the block." This interesting subject will receive further consideration in succeeding numbers, accompanying which we shall give additional illustrations.

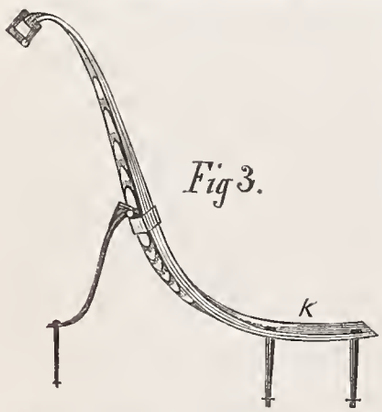


Fig 3.

WHY DO AXLES STICK?

Attica, N. Y., July 10th, 1866.

Mr. E. M. Stratton, *Dear Sir;* I take the liberty of addressing you on the subject of, why do carriage-axles stick? There are several reasons given on page 26, which are good, but I have never had any trouble in that line. I have been in business for over thirty years, and have had trouble from two other causes. The first is, not paying sufficient attention to oiling, and the second is caused more by defect on the part of axle-makers than anything else. It is this. Axles are made with so much taper at the shoulder that the box will but just turn with a quarter of an inch leather washer between the end of the box and shoulder. Carriages are used and taken care of by all classes of people, and should be made as near right as possible. Nearly all the better-finished class of axles are fitted so close that when the leather washer is lost, or worn thin, the box will heat and stick, although it may be well oiled. Axles should be made more straight at the shoulder, or loose, so that they will run even when the leather washer is gone.

I had a case of "wheel sticking" on a carriage that had been in use over six years, although it was well oiled at the time. The back washer was lost when the axle was last oiled. As you are so near where axles are made, you may have some influence over them, by giving them a chapter on this subject, if you think my reasons correct.

J. W. B.

[We thank our correspondent for his timely reasons for the "sticking of axles," and hope that, before expressing our own, others will also "show their opinions" on a subject of so much importance to the carriage-manufacturer. It very much needs *ventilation.*]

Paint Room.

NATURE AND QUALITIES OF PAINTS.

(*Continued from page* 28.)

BROWNS.

Colors coming under this head, other than Terra-sienna, are very little used by carriage-makers except it be for the coarser kinds of painting, such as business wagons, and the more hidden portions of pleasure carriages. For this Spanish, and some of the composite browns are employed. If a light brown is needed, it may be compounded by using two parts drop-black, with one part white-lead, and another part Indian-red. For the darker brown use one part Prussian-blue (omitting the white-lead), one part vermillion and two parts black. For the ground-work of clarets, use one part Indian-red, two parts Lamp-black; this possessing sufficient body to need only one coat of claret to cover in many cases, unless the job be uncommonly fine. The other preparations are Terra-sienna (sienna-earth), either raw or burned, and brown of Prussian-blue.

Terra-sienna, either in its natural or roasted state, although transparent and solid, darkens by age, after being spread. This disadvantage becomes more apparent and more immediate, when allied with white or other metallic colors. Prussian-blue brown (according to Bouvier), is equally transparent with sienna; has not the tendency to darken sienna has, and dries much sooner. This last, however, has never become popular with coach-painters.

Calcined (burnt) sienna, when prepared—remembering its tendency to become darker—is a valuable color, and its power such that however small the quantity one employs in the admixture, it absorbs all those with which it is combined. Its strength is still further seen in the effect it has in adhering to the hands of slovenly painters.

We fancy that the brown of Prussian-blue will be a new article to most of our readers. We shall, however, make a few remarks concerning it for the benefit of the more artistic class of painters. This is a color the painter manufactures for himself, since it cannot be found at the paint-stores. The discovery of this compound is due to M. Toepffer, who made it known to Bouvier, by whom it was made public. In the preparation select Prussian-blue of a moderately dark shade, the most intense not answering, it giving a heavy and opaque color of a brown-

ish red, neither will that of an opposite extreme—too bright a blue—the color made from these being feeble and too yellow. Further than this Bouvier confines our choice to the French Prussian-blue, the English (which *as a blue* he prefers) being only adapted to another brown. The color produced is that of Bistre. Bouvier, giving its qualities somewhat in detail, says: "I cannot commend too highly the use of this charming bistre-tint; it has the advantages united of *asphaltum*, of *mummy*, and of *raw sienna*, without their disadvantages. To prepare the brown of Prussian-blue, put an iron spoon, or other suitable vessel over a bright clear fire, and when the vessel becomes red-hot, throw in some pieces of your blue of the size suited to the quantity you would produce. Almost immediately it will break into scales, or small grains, and in a few minutes become red-hot, when, withdraw the vessel and let the contents cool. If left longer on the fire the best color is lost. When broken up some parts may appear blackish, and others yellowish-brown; this is just as it should be. Grind the whole together and you have a fine soft powder that mixes admirably."

CLARET OR LAKES.

There are several kinds of Lakes, the most expensive of which is prepared from cochineal (an insect), but is too costly for general purposes in coach-painting. That in common use is prepared from madder. Perhaps it may be deemed unnecessary at this late day to fully dilate upon their character, but the design of this series of articles is to make thorough work, and we must therefore be excused for details. There are found at the shops from the palest rose up to deep purple, and when pure may be relied upon for permanence, when used in oil, and their beauty is of the richest kind.

In purchasing the pale rose, or the rose, let no one be deceived by its faint tint, as seen in its dry state, in small irregular grains of the size of a half-grown pear and under. With oil added the color at once is seen in all its primitive luster and intensity. So it is with all kinds of lakes of a deeper tone, rising in price accordingly.

Lakes are frequently adulterated, but their genuineness is easily tested by liquid ammonia or caustic potash, which will not affect the madder, but will dissolve the coloring matter of cochineal-lakes. The French label madder-lakes *Smyrne*, because the purest and best madder come from Smyrna. This idea is now worth very little in a commercial point of view.

Laying lakes well tests the qualifications of the workman to the fullest extent. To do it successfully,—as it is a very difficult thing to manage, and apt to run into streaks, being lighter or heavier in places,—shows an expert at once. Of itself the body is light, so the ground-work of a job must be prepared, as before mentioned under the head of "browns;" if to be a bright color paint the ground-work a dark brown; if to be of a darker shade use Prussian-blue, taking care to lay all on evenly and smooth. Some affirm that a little varnish in the preparatory coats is a sure preventive of any streaked appearance in spreading it on. In all cases care should be taken to lay as light a coat as possible, or you may fail to produce a desirable and rich color.

(*To be continued.*)

ASPHALTUM, OR JEWS' PITCH.

FRIEND STRATTON,—In looking through some histories the other day, I picked up some of the items I have here indited, together with some information in regard to the same matter that I derived from an uncle of mine who has been an old tar in the service of the United States for the last twenty-five years, so I thought I would put this and that together and mail it, and if you think it will interest the painter, use it. Yours, much interested,

JOHN B. PEEK.

ASPHALTUM is a brittle, blackish substance, having a smooth, conchoidal fracture; it melts when heated, and readily burns, giving out a dense black smoke. The Egyptians employed it in embalming their dead, and the sear-clothes of mummies, made with this substance, remain perfectly unaltered to this day. Strabo and Diodorus mention this substance. The former gives an accurate description of its properties, and, in particular, refers its evolution from the earth to the action of subterraneous fire. He quotes Erastosthenes for its use as an ingredient of the mortar with which the walls of Babylon were built. Pliny makes mention of its similar application. He enumerates the places where it is produced, and after describing its medicinal virtues, he states that it is further employed for painting or coloring statues.

The ancients were well aware of its near relation to naptha, and recount some strange stories dependent upon its highly combustible nature. At present, it enters into our black varnishes, being soluble in some oils, and eminently so in rectified petroleum or naptha. Asphaltum is found in Switzerland, and at Aolonia, in Albania. It is abundant on the surface and on the shores of the Dead Sea, in Judea, where these lumps are collected by the Arabs for sale. The most abundant deposits of this substance are in the islands of Barbadoes and Trinidad. In the former, it is found as a highly bituminous earth, but being in a state of great impurity, is only used as coal for fuel. In the latter island is a complete lake of this substance. On one side of the island a cape or headland projects considerably into the sea, and upon this cape, at an elevation of eighty or a hundred feet above the level of the sea, the tar lake, as it is called by the English, is situated. Its strong and disagreeable smoke is perceptible at a considerable distance out at sea, and on a nearer approach the surface appears as smooth as a mirror.

The circumference of the lake is a circuit of about three miles. Its depth is unknown, but in hot weather the surface becomes softened to the depth of an inch so as to preclude the possibility of walking upon it. At other times it is covered with innumerable fissures, which are continually closing in one part, and reopening in some other, so as to render it probable that the whole mass is floating. These fissures are eight or ten feet wide, and contain clear water, abounding with small fish. The bitumen is collected by breaking lumps from the mass with hatchets, and is principally employed, when mixed up with grease, for a coating in place of tar, on the bottoms of ships.

Some portions adjoining the land are scoriareous, and all this part of the island is said to possess strong indications of the agency of fire.

Trimming Room.

MANUFACTURE OF CARRIAGE-LACES.

In our last issue reference was made to the establishment of Messrs. Horstmann & Sons, of Philadelphia. This is a very extensive house, and has the facilities for producing laces, from two to three inches wide, of any design the coach-maker may order, fanciful or plain. They keep on hand three qualities of three-inch lace—silk, worsted, and silk and worsted. Some of the hand-loom laces, which came under our inspection on a late visit, were of a very fine quality. Instead of sending to England, we were told that they furnished our Canadian neighbors with most of the coach-lace they require. Besides laces, holder and all other tassels, tufts, cord—in fact, everything the trimmer may need, can be had there in perfection.

A work entitled "Philadelphia and its Manufactures" has the following remarks: "The establishment of William H. Horstmann & Sons is undoubtedly the most extensive of its kind in the world. The business was established by Wm. H. Horstmann, the father of the present proprietors, in 1815, and is consequently the oldest established of the kind in the city, if not in this country. In the infancy of its career, the manufacture was limited to a few patterns of coach-laces and fringes; at the present time it embraces a wide circle of fabrics—of silks, silk and worsted, mohair, cotton, gold and silver thread; and includes some not made elsewhere in this country, besides every variety of military trimmings."

The manufactory is located on the corner of Fifth and Cherry Street. It has a front of 140 feet on Fifth, and of 100 feet on Cherry Street, being 50 feet wide, and five stories high. The engine-house and machine-shops are in a detached building in the yard. The machinery in operation is much of it original, including one hundred and thirty coach-lace power-looms; sixty power looms making six hundred and fifty strips or rows of goods; three hundred and thirty-six silk spindles and other complete silk machinery, one hundred plaiting or braiding machines, and fifty hand-looms using one hundred and fifty Jacquard machines, ranging from forty to eight hundred needles; besides all the auxiliary machinery necessary in the business.

"Many of the most important machines, and applications of machinery, that are now in use in the manufacture, are indebted to the enterprise of this firm for its introduction into this country, or to their ingenuity for their invention. The plaiting or braiding machinery were first introduced into the United States from Germany, by Mr. Wm. H. Horstmann, in 1824. In the year 1825, the same gentleman introduced the Jacquard machines. Gold laces were made by power in Philadelphia several years before attempting it in the old world; and the use of power for making fringes may be said to have been first generally adopted here. In fact, it may be said that this firm was the first in any country to apply power to the general manufacture."

We might enlarge, but the foregoing is sufficient to prove that this must not only be a reliable, but the most extensive house engaged in the production of trimming to be found anywhere. See their advertisement, and judge for yourself.

OILING LEATHER.

The *Scientific American* says that oils should not be applied to dry leather, as they would invariably injure it. If you wish to oil a harness, wet it over night, cover it with a blanket, and in the morning it will be dry and supple; then apply neat's foot oil in small quantities, and with so much elbow grease as will insure its disseminating itself throughout the leather. A soft, pliant harness is easy to handle, and lasts longer than a neglected one. Never use vegetable oils on leather; and among animal oils, neat's foot is the best.

KINKY TOPS.

What can be done to prevent our tops from *kinking* between the two back bows after a little use is a very important question, never yet properly solved. Some have proposed one plan, and some another. Probably the best yet introduced is that in which the back joint attaches to a prop secured to the *back* bow. This mode, however, has two very serious objections; the one is, it is unsightly; the other is, it is not sufficiently bracing to the top. We therefore repeat, what can be done to *prevent* our top from "kinking"? Can any one devise some mode? We should like to know.

Editor's Work-bench.

NINE DAYS ABROAD.

Having rested a few days after the journey described on page 20 of this volume, we again started on a nine days' tour through some of the towns in Western New York. For this purpose, on the evening of the 19th of June, we took passage on the fine steamer Dean Richmond, and the following morning found ourself alongside of the dock at Albany, having run during the night one hundred and sixty miles up the Hudson River, in eleven hours and a half. Since the termination of our civil war, great progress has been made in the erection of buildings, and many other improvements, in our cities, of which Albany is one. Not the least of these will be the new State Capitol, for which preparation is being made on a grand scale, as it is intended that when completed it shall be an edifice worthy the reputation of the Empire State, in all its adornments and surroundings.

It is not, however, our purpose so much to describe the places through which we traveled as the business and people to whom we undertook this special visit, and therefore we must be excused if we say very little in regard to topography.

An early call upon our friends, Messrs. Long & Silsby, was our first movement. These gentlemen received us with the utmost cordiality, and manifested, as they have always done from the commencement of this Magazine, the warmest interest in its success. Messrs. L. & S. are "live" carriage-makers, and take great pains to study the best means of producing first-class work, the success of

which is seen in the ready sales which they find for their carriages. In a conversation with one of the firm, we obtained some information that may be of use to our readers.

Every carriage-maker of experience knows that it is of the utmost importance to have a good hub to a carriage wheel; but, it is not so well settled as to what particular wood constitutes the best timber necessary for the purpose. Some prefer elm (*ulmus Americana*), others gum (*nissi*), and some locust; but these gentlemen prefer dogwood for several reasons, one of which is that it will not crack, when once properly seasoned. To bring this timber to a desirable condition requires much care, and it has been with them a costly experiment. In order to succeed, it is necessary to have the dogwood hubs turned from the unseasoned log, and, as soon as they are shaped, put for the first year in a damp cellar; the second on a ground floor somewhat drier; and the third in a dry loft, when, at its close, the hubs will be ready for use. In proof of the superiority of dogwood over all other timber for hubs, we were shown a set of very light old wheels which had been run by Hon. Erastus Corning, behind two horses to the buggy, without showing a crack in the hubs or a "starting" of the spokes. These last appeared to be just as firm, although driven in a very diminutive hub, as when first made, after three years of rough usage. One gentleman of the firm has been experimenting with iron-wood for spokes, and found it much stiffer for the purpose than hickory. A weight attached to the end of a hickory spoke, laid horizontally, bent it with 28½ pounds; whereas, it took about 34 pounds to effect the same result with one of iron-wood of like size. This is proof that iron-wood is better than hickory to sustain an end pressure; but, whether it could be as effectually secured as a spoke in a hub, is a question yet undetermined. This firm also use locust—not the thorn, but bean locust—for side spring-bars, axle-beds, &c., as not only much lighter than hickory, but much less liable to "sag" and displace. We noticed at this establishment a novel manner of preventing tops from getting out of shape, by plating with iron the front side of the back bow, from the bottom to the curve above. This stiffens the bow to such a degree that neither the effects of the sun, nor the operations of the joints, are sufficient to injure the form afterwards.

A visit to the remaining shops gave us evidence that trade in Albany is very flourishing this season. During our stay we were the guest of Mr. Johnston, of the firm of Hubbell & Johnston, who very kindly showed us around the city.

On the morning of the 20th, at an early hour, we started for Troy, by horse-car, an hour and a quarter's ride bringing us to that city. In earlier days, Troy figures as a place of some note for carriage-making, but now seems to have lost much of its importance in this respect. Indeed, the exorbitant charges made by the citizens for almost all kinds of the necessities of life are alone sufficient to drive away trade from the place. In this particular they are ahead of all others in the State, or at least so thought to be by travelers.

From Troy we went on to Schenectady, by the N. Y. Central Railroad, and, stopping but a moment with our friends, Messrs. Shaible & Butler, made our next visit to Little Falls. Mr. Charles Benedict, of whom we have spoken in a former number as being a successful carriage-maker, has added to his former building of 30 × 60 a new four-story brick edifice 61 × 80 feet, which he has now occupied about two years. Messrs. Teft Bros., nearly opposite, seem also to have a very flourishing run of business, and received us very cordially. Resisting a kind invitation from our friend Benedict to "lay over" for tea, we hurried on to Utica, which we reached about sundown. The next morning, at an early hour, we "made a raid" among the shops, and persuaded every boss in the city to subscribe to our journal. There are but three shops, at present, of any importance: Messrs. J. W. Bates', W. B. Walling's, and T. A. & W. J. Turner's. In the factory of Mr. Bates we saw "a fixture" which would be of the greatest benefit in any shop where water can not be had from hydraulic pipes. In the topmost story under the roof, from which it is fed by a pipe with rain-water, there is placed a tank, of a cylindrical form and long, holding some two hogsheads, from which, by means of lead pipes, water is conveyed to any portions of the lower stories, as it may be required. Mr. B. has taken the precaution to insert a pipe near the top of the tank to lead off to the outside of the building such waste water as is not needed, so as to prevent the flooding of his premises, and added another at the bottom to carry off in like manner any leakages from the tank. Our inspection showed that Mr. B. has many conveniences about his building not found in any other, but which it would take too much space to detail here.

Three miles south of Utica, New Hartford is located. Thither we went by horse-car to see our ingenious friend, Mr. E. Hallenbeck. This gentleman, although not a practical mechanic, is still a very ingenious man, and has made many improvements in the carriage-business, worthy of a passing notice had we room to enlarge. We must, however, find room to correct a mistake into which we have inadvertently fallen on a former occasion. On Plate xlvi., volume seven, we gave the drawing of a buggy, which we there credited as coming from Hartford, Conn. It should have been acknowledged as coming from Mr. E. Hallenbeck, New Hartford, New York.

There is some carriage-making done in Oneida, our next stopping-place. The most enterprising gentleman is

James Murtry, who appears to be doing a thrifty business.

Our visit to another shop suggested a new way of carrying on business. It is this: make a pretension to keeping a stock of carriage-material for supplying your neighbors should they want, and *should they not want*, in *virtue* thereof, when purchasing, claim a large discount on all goods you buy. The effect will be to stock your factory at the lowest prices, which will enable you to undersell your neighbors, and thereby monopolize trade.

Syracuse next claims our notice. Here we called first upon Messrs. Edwards & Gilman. Mr. Edwards was formerly in partnership with another gentleman in Syracuse, and Mr. Gilman is lately from Skaneateles. These gentlemen, having formed a copartnership, have recently purchased a building and grounds, formerly occupied as a hotel, and remodeled it to suit the purposes of a carriage-shop. Those who know Mr. G. need not be told that good work is turned out of this shop.

The remaining shop we shall notice is that of our friend J. S. Hoyt, Esq. This gentleman told us he had as much business as he could do.

Pursuing our journey westward, we visited Auburn, but had very little business with the craft, trade being at a low ebb there.

In Geneva, we visited the shops of Messrs. David Beard and B. W. Keyes, the only two of importance there. We hope to hear from the former gentleman soon, on a subject of deep interest to our readers.

Our next call was at Canandaigua, the farthest western point of our visit. Here we visited Messrs. Wade and Faber, who have the best shop now in the place. Mr. Witherell, who formerly had a shop here, since our visit in 1860 has died; and Mr. Crandall has retired from a business in which he failed, to practice law in a neighboring city. We have always insisted upon it, that it required more brains to carry on coach-making successfully than to practice law, and this instance confirms the truth of our axiom, for we learn that he is now doing well.

From Canandaigua we went on, by the Northern Central Railroad, to Penn Yan. We found one shop near the station, the "head-center" of which was so far ahead of us in every branch of business, making his own patterns, &c., as he gave us plainly to understand, that we left very suddenly, but with the firm conviction upon our mind that a little improvement in *his* designs could be obtained from perusing our Journal occasionally. When we find a mechanic using such woolly stuff as bass-wood on buggies, for panels, we know at once his *status*. A very pleasant call upon our friend Mr. Parke, who appreciates the value of such a journal as this, and consequently monopolizes the chief trade of the place, closed the day's labor. In the evening we went on to Jefferson, and the next morning to Horseheads and Elmira. In the two first towns the business is at a low ebb; but in Elmira trade is better. This city has very much improved in the past five years, and carriage-making also. Our first call was upon Mr. James Ewing, who occupies the building formerly owned by John Hill, and next to Messrs. Hendricks & Seeley, both of which shops appear to be doing a good business, and gave us a liberal patronage.

A night's rest at Owego, and the next morning we proceeded, by the Cayuga division of the Delaware, Lackawanna and Western Railway, on to Ithaca. For the benefit of posterity we subjoin a brief sketch of carriage-making in Ithaca. In 1829, there was but one shop in the place, that of Mr. A. D. Cowdry, who, in addition to himself, had but one man to assist. The next shop was established by Mr. Wm. S. Hoyt, a live Yankee, from New Canaan, Conn., and he has been followed by Messrs. Barwright, Jas. Hillick, Ira Bowers, Daniel and Henry Young, Luman Trapp, and Mahlon Roe. Mr. Roe subsequently took in a partner (Mr. Gillet), and after six years the firm was dissolved, Mr. R. leaving for Oregon a little over a year since. The establishments at present are those of Mr. Cowdry, son of the gentleman before mentioned, Mr. Wm. S. Hoyt, and the Union Carriage Company.

Leaving the railway station, which is reached by a three-miles circuit around the place, we found our way into Greene Street, at the eastern end of which, on Tioga, immediately in front of him, the visitor may read—William S. Hoyt, Coach-maker. Mr. H. is doing a thrifty business in pleasure and peddler's wagons, and, judging from the demands made upon our carpet-bag by his workmen, has a very intellectual class of employees around him. Mr. H., who has conducted business in this city on his own account since 1829, learned his trade of Mr. James Gould, of Albany. When Mr. H. first settled here, the traveling was all done by stage-coaches, one starting every day from Ithaca for Auburn, and every other day extending the run as far eastward as Skaneateles, a place at that early day of some note as a carriage-building town, the two brothers Hall employing sixty-men, and another shop —J. H. Legg's—doing a good business. Our friend Gilman, now of Syracuse, we believe is a son-in-law of the latter gentleman. At the Union Carriage Factory—formerly Roe & Gillet's—we found an old acquaintance—Mr. Wm. H. Martindale. With him and Mr. Hoyt we managed to pass the day very pleasantly, winding up with a very agreeable ramble around Ithaca Falls. To those, like us, who have seen the far-famed Niagara often, these appear tame, and yet there is much to admire in inspecting the gorge through which the river seems to

have forced its way. The rocky walls of great height which confine the stream to narrow limits are of such brittle material that they often crumble from the effects of the atmosphere, a fine illustration of which we saw in this visit, when an immense body of shale fell into the flood with a thundering noise at our feet, and was echoed along the natural walls of the river. The stream is used to drive several paper-mills, before it finds, in a meandering channel, its way to Seneca Lake, in the distance. A gentleman at Jefferson told us, a day or two before, that this lake "was the greatest in the world;" and said it, too, as though he believed it! Perhaps he had read Percival, who says of the Seneca, among other things:

"How sweet, at set of sun, to view
Thy golden mirror spreading wide,
And see the mist of mantling blue
Float round the distant mountain's side.

"At midnight hour, as shines the moon,
A sheet of silver spreads below,
And swift she cuts at highest noon,
Light clouds, like wreaths of purest snow.

"On thy fair bosom, silver lake,
O! I could ever sweep the oar,
When early birds at morning wake,
And evening tells us toil is o'er."

We presume the Jefferson admirer of the Seneca never traveled far. This lake would probably make a very respectable one for some portions of the old world, but in this land of "big institutions" it is only considered a respectable mill-pond! But we must return to Owego.

Owego, which is a fast-growing town, now boasts of two respectable carriage-shops—Messrs. Moore & Ross' and Harris & Barry's. The former firm are now erecting, in addition to their former buildings, a very imposing one, which, when completed, will not only be one of the finest in the State, but add very much to the beauty of the city. These gentlemen are both young men still, have been in business but a few years, and have made for themselves a name for building first-class work truly enviable. As they have always taken THE NEW YORK COACH-MAKER'S MAGAZINE, we do not wonder so much at their success as we do at the stupidity of others in not availing themselves of a periodical of inealculable value to them. It gives us real pleasure to find that the most of our patrons are successful in trade, and pain to find so many blind to their own interests.

A hasty visit to Binghamton completed our business, when we left for home. This was performed after breaking the piston of one engine, melting the axle and smashing up the second, by taking a third one over the New York & Erie Railway at midnight of the ninth day. This visit, repeated after an interval of five years, has been a very satisfactory one to us individually, and, as we trust, pleasing to our numerous friends in the western sections of the State of New York. During this time great changes have taken place in trade. Some places where it formerly flourished have almost become obsolete as carriage-making towns, and others where very little was done have advanced greatly. Those who have studied their business and availed themselves of improvements, and so produced a good class of work, are now selling it at good prices; whilst others who, with narrow minds and selfish economy, have shut out the light of the age, have their warerooms filled with a homogeneous collection of "old tubs" which finds no sale, and which would be an imposition upon good taste to offer as a gift. This class of "so-called" carriage-makers are so blind to their own interests, that hope must eventually end in ruin and bankruptcy.

SELLING A CUSTOMER.

THE following story was told us of a Philadelphia carriage-maker on our recent visit to that city, which aptly illustrates the peculiarities of many customers with whom we have to deal, and at the same time "adorns a tale" of some interest to our readers. A carriage-maker in that ancient *village*, who must be nameless here, was called upon by one of that numerous family, who scarcely know what they do want, *when they want a thing*, and so leave without purchasing. It appears that the carriage-maker showed his customer a Wood & Co. built carriage, setting the price at $200. His customer rather liked the carriage as a general thing, but concluded, as he was about paying a visit to New York City, that he would call on the firm there before he completed a purchase, and see if he could not suit himself better. Believing, in the language of Sam Patch, that "some things may be done as well as others," and also understanding the fickleness of some minds, our friend the carriage-maker hastily cleaned up and forwarded at once the identical vehicle his customer *rather liked* to the establishment in New York, from whence it had originally come, with a full description of the man, and all the attendant facts connected with the call he had received from him, so that he might be identified, should occasion require.

On his arrival in this city, the gentleman duly called and was shown the identical vehicle he had examined in Philadelphia, which by this time had gone up in price to $300. Being found in the original maker's repository, of course it must be *the genuine*, and besides liking *this* a little better than *that*, he purchased at once, and had it sent on to Philadelphia again, not dreaming that he had been thus ingeniously "sold." On his return home he was so well satisfied with the purchase, that he harnessed up his horses and drove to the carriage shop and enquired of our friend how he liked it, at the same time

remarking that "I liked your carriage very well, but I think I like this a little better." The carriage-maker of course *liked* the vehicle—the hundred dollars extra obtained for it, especially! So both parties were perfectly satisfied in this case—a thing not always accomplished.

The Coach-maker's Letter-box.

Milton, Halifax, N. S., June 20, 1866.

Mr. E. M. Stratton,—*Dear Sir:* I am a subscriber to your Magazine, although I do not get it direct from you, but from Halifax. I wish to know if there is any machine in use that will effectually contract a tire without cutting it, as we have to do here? I see in your list of inventions several mentioned, but have never seen one in use, nor any person that has. If you will let me know by return mail, or as soon as practicable, stating quality, price, &c., you will greatly oblige me, as I have no other way of finding out.

I am at work at the carriage business, and get many valuable hints from the Magazine; in fact, we nearly learn the business from it. We are fighting out, here, the "Battle of the Axles,"—wood or iron; and although I am inclined in favor of iron, still, for heavy draught-wagons, the wood seems to go the easiest, more especially over rough, stony roads, which we have in abundance.

Another matter, too—we have much hard work to convince the people of what we have found out by experience, that a light wheel and tire will stand longer on rough roads than a heavy one. I have never seen any notice of this in your Magazine, and I would like to know if it proves to be the case in other places, as I suppose there are rough roads somewhere else as well as here. Wishing to be excused for trespassing on your valuable time, I remain, yours, &c., Leander S. Ford.

[We publish the above—for which the writer must excuse us—for two purposes. The first is, to intimate to the proprietors of patents that they are daily neglecting their own interests, because they do not avail themselves of so desirable a medium as our columns to advertise their inventions; and the second, to prove to the craft the advantages they may reap from having our journal as a regular visitor. You have in the above letter the unbiased testimony of an entire stranger, who, in all probability, never dreamed of its appearance before the public—merely intended for the Editor's eye only, and therefore weighty. Without here showing our opinion as to the preference of light over heavy wheels, we invite discussion on the subject, from the craft, for our columns.]

Charlton, N. Y., July 2, 1866.

Friend Stratton,—I have a favor to ask of you. I have some difficulty in laying on the color on a body without having the brush-marks show. Can you *set me right* on this point? Is there an article of paint prepared that will flow on the same as varnish, or is the fault all with the painter? If you can enlighten me on this subject, it will be received with kindness from you.

L. T. H.

[We have answered the above in a private letter; but having a desire to hear the opinion of others, we present it for discussion to the public.]

Coach-makers' Trades-Union.

QUARTERLY REPORTS FROM THE TRADES UNIONS.

We take the following news from the official reports as made by the Secretaries of the local unions to the Secretary of the International Coach-makers' Union, and published in their organ for July:

J. E. Hemmel writes from Baltimore, that he takes pride in the success of the cause, but "there are still some black sheep laying around," and that "we hope that by-and-by, the sober second thought will overtake them, and then they will listen to reason and help swell the ranks"—that they have hopes that the next I. U. will be composed of delegates that will "advance the good work by throwing aside all petty jealousy and narrow-minded prejudice by working for the 'greatest good to the greatest number.'" He thinks that the present Constitution can be greatly improved.

Samuel J. Woods, writing from Wilmington, Del., says:

"No. 6 is in a healthy condition. After eighteen months' experience, we have come to the conclusion that there is truth in the maxim, that in "Union there is strength." Since our organization we have contended with the prince of Coach-makers in this place, and vanquished him, although he said to our committee that he was as firm as a rock of Gibraltar, and could not be moved. He found that we also had a solid foundation, firm as the everlasting hills. The occupant of a palatial mansion gave in to the Union, and our triumph over an imposition was complete. Our Union has been successful so far in preventing imposition; it has done more, it has created a good feeling, instead of jealousy and ill feeling, which existed before. The members have become acquainted with each other's good qualities, and have come to the conclusion that brotherhood shall be the watch-word hereafter. The better feeling of our nature has been aroused, benevolence has taken the place of selfishness—brothers in need have been relieved. After toiling to enrich others, and unable to labor on account of sickness, it has afforded us pleasure to contribute a small portion of our earnings for their benefit, and we have received their thanks for our kindness, and we experienced a sadness when we beheld them laid in the silent grave. What we want is confidence and reliance in each other, a unity of action, a respect for ourselves, a respect for each other, and we will be looked upon as men who have the power as well as the right to cast our eyes above and say, we own no master save Him who rules the Universe. As men we will respect our employers, and we want to be treated as men in return. To command that respect, it is only needful to be united, remain firm, and recollect that although we have been bowed down by the many ills of life, we yet are men.

"Union No. 6, through the energy of her members, is destined to be a permanent institution, and we hope the day is not far distant when Unions shall be established in every city and village on the American continent.

Henry Harrison, Troy, N Y., reports:

"Trade has never been better than it is this season in this locality. We have had very little trouble with the employers, and have always carried our points. The members not only believe in self-preservation, but also live up to it. We expected to have a strike last spring, which we notified you of, and take this opportunity of returning our sincere thanks to the International

and all subordinate Unions for their willingness to sustain us in our time of need. Although we did not have to call for assistance, we are just as grateful as though we did."

H. G. Foster, Cincinnati, Ohio, says:

"The carriage business in this city is at present pretty brisk. We hear of no shops of any reputation that are not full of work, and ready to employ more hands where they can secure men of the first class. As far as we can learn, the employers have not reduced the prices of work, and while many customers complain bitterly of the high prices, the demand appears to be rather on the increase.

"The principal topic of conversation among the members is with reference to the beneficial system. Some think that the life of the Union depends on a well-regulated beneficial system, controlled by the I. U. in such a way that the members throughout the country may be cared for in time of sickness or death, or any minor calamity, be they among friends at home or away among strangers. Not having settled on any particular plan, No. 10 will gladly co-operate with other Unions in securing to members everywhere the good that would flow from a well-systematized beneficial organization."

John B. Peek, of Columbus, Ohio, says:

"That the clouds which lowered over us have passed away without doing us any harm, although we have a few members who do not take that interest in the work they owe to themselves and their fellow-workmen. . . . . A great many of our members joined the Union with the impression that we were going immediately on a strike, but we have undeceived them. We feared a general strike at one time, but we considered a strike a dernier resort when all other means failed to secure our rights. Employers are slow to assume the aggressive when they find the trade a unit. In carrying out the measures resolved upon, we have assumed no arrogance on our part, but we have tried with forbearance and calm demeanor to give our employers a good opinion of the Union. We consider that the existence of our Union has been the cause of advancing the price per week $1.50 to $3, although those who have derived the benefit take the least interest in the Union."

H. J. Marshall, from Indianapolis, writes:

"No. 12 flourishes fully up to our most sanguine expectation, having enrolled among our number all the journeymen coach-makers of Indianapolis, with but very few exceptions. This alone would be but poor success—further in the progressive way, we are becoming united in one common feeling of mutual good-will and fellowship, a general diffusion of knowledge, both mechanical and social. Is there a man so absurd as to dispute the good derived from our Institution, not only to the workingman, but to our employers? All whom we are in any way associated with will reap the benefits and rewards of a few brief hours' exertion—not labor—but moments of pleasure; the time is nothing, scarcely, after a long week's toil, while the exercise of the mental faculties and our little business goes a long ways in dispelling and driving away life's dull monotony, to say nothing of the social exchange of varied opinions of a number of men congregated together, all following the same avocation for a livelihood."

F. M. Parker, of New Haven, Conn., says:

"The Legislature of this State has taken action upon the Eight Hour question. The Senate passed the bill by a majority of four; the lower house defeated the bill probably because they had not time to legislate upon the interests of labor on account of being too busy in throwing paper wads and peanuts at each other while in session, and accepting complimentary tickets for steamboat excursions; but we have marked our men, and I feel confident that another year will place the Wooden Nutmeg State in her true position as a defender against oppression in whatever form it may exist. We shall organize in a way to compel our next Legislature to do a little for *Labor* and not all for *Capital*."

Geo. A. Hedenberg, Newark, N. J., writes:

"The Union established here, No. 15, is at present in a flourishing condition, with every prospect of success, although we have a stubborn lot of employers to convince of the fact. At the first meeting held here to establish a Union, the largest shop in the city was well represented, both on the floor of the hall and on the speaker's stand—since then what has become of them? Surely they have not left the city. Some of them said they would think about it. I suppose they have not made up their mind. I would advise them to go and ask their bosses what they had better do. I hope, for the good name of the craft, that they have not been cowed down by one of the firm, who, to speak in plain terms, is a true type of the slave driver. There is another boss here who calls himself a *man*—soon after the Union started, he discharged one of his painters, and a woodworkman, who had been with him for thirteen years, and then he went around to the other shops and told the bosses not to hire them. The painter went into one shop and he was ordered to leave. They have both got better jobs and better wages. I hope that the day is not far distant when we will be able to show these *men* that we have rights and dare maintain them. Gentlemen, come and join us, and be not afraid to do what is right and to your own interest. Now is your time to put your shoulder to the wheel, and give the good cause a lift; if you will do it, we will plane our way out smoothly without injuring any man. Paint out past grievances, trim up all rents in the trade, and weld all the parts together in one grand Union for our own good and the good of our posterity."

D. C. Stiles, of Salem, N. J., reports:

"There is at present a general good feeling among all our members, and it seems to be a pleasure for all to meet, in order to transact our business. Our members are all employed at fair wages. Harmony and good feeling appear to exist between journeymen and employers. Our Union is small, but we have all the journeymen in the place except three, and we hope they will see the folly of their way and turn in with us.

Chas. O'Neil, Jr., Hartford, Conn., says:

"The condition of trade at present is good. All hands are at work at what is considered fair prices. The season thus far has been prosperous. The demand for help has been greater than the supply for painters, more particularly owing to the rushing in of old work to be cleaned up. The business time is about over, but still there is plenty to do. Our Union is progressing as well as could be expected—increasing gradually. We have many prejudices to overcome; many having formerly been connected with local organizations, and are of little faith. But we have awakened an interest in the craft that is working beneficially to us. With a little stronger effort on our part, we will soon include the majority of the journeymen of the city."

C. W. Hughes, of Boston, says:

"We organized with fifteen members; since then we have initiated from ten to fifteen nearly every regular meeting, and now number eighty-seven, which I consider doing pretty fair for Boston. A great many of the oldest workmen hold back, watching to see how we get along first before they join us. Some of them gave us three months to stand, but the time has passed, and they see we are alive yet and getting stronger each week, and before many months I hope to see every journeyman coach-maker's name in the City of Boston on our list, thus proving that we are alive, and that we mean to live."

E. K. Ellis, of Providence, R. I., reports:

"We are growing stronger every day; the Carriage-makers in this city are beginning to see the objects and benefits of the Union, although not having been organized but about three months we number nearly fifty members. Everything, thus far, has gone on smoothly, and I trust will continue so."

From Worcester, Mass., Alex. McLeod informs the Secretary that—

"Trade and prospects are very good.

"We formed with seven members, and we now have seventeen in number, so we are growing as well as can be expected. There are some here that have worked in one shop for twenty-five or thirty years, and it is almost impossible to get them in."

Patent Journal.

AMERICAN INVENTIONS.

May 1. (54,352) Bench-vise.—Harrison P. Hood, Lowell, Mass. :

I claim, in the said improved bench-vise as made with the jaw-carriers A, B, applied to the bar C, as set forth, the arrangement of the clamp-lever on the jaw-carrier B, substantially as specified, the spindle being jointed to the said lever and extended upward through the bar C, and jaw-carrier, as explained.

(54,377) Die for making T-head Bolts.—Wm. J. Lewis, Pittsburgh, Pa.:

I claim, *First*, Constructing the griping dies of bolt-heading machines with a double or single recess in the front, or that part farthest from the header, in addition to the one in which the header works, whereby the bolt-head may be worked into proper shape by submitting it alternately to the action of both sides of the griping-dies. *Second*, The mode herein described for driving the pin off the bolt-head, that is to say, first staving the rod to form the head, and subsequently compressing it laterally so as to throw the flush or pin produced in staving, in a line with the path of the header, so that on submitting the head to the action of the header a second time the pin will be driven into the body of the bolt. *Third*, Parting or separating the griping-dies on one side of a right line drawn longitudinally through the center of the header, so that the cylindrical hole will be deeper in one die than in the other, for the purpose of overlapping and driving off the pin produced on one side of the bolt, by simply turning it one-half way round to bring the opposite side into the deepest recess.

(4,410) Carriage.—Uel Reynolds, New York City :

I claim the pivot *f*, and socket *k*, applied substantially as specified between the axle and head-block, in combination with the brace *m*, and pivot *o*, substantially as and for the purposes specified.

(54,461) Manufacture of Varnish. — Edward Battley, assignor to himself and James Crane, Mount Clair, N. J. Ante-dated April 16, 1866 :

I claim, *First*, A varnish compound in which creosote or carbonic acid is used as the solvent of the gum, such as resin, substantially as set forth. *Second*, The composition of a resin dissolved in carbonic acid with lamp-black, substantially as and for the purpose specified.

(54,464) Brush.—Lemuel P. Faught, Foxboro' Mass., assignor to himself and William T. Cook, Boston, Mass.:

I claim the hollow metallic cone or thimble D, substantially as and for the purpose set forth.

8. (54,485) Coupling for Carriage-fellys.—Haines Austin, East Liberty, Ohio :

I claim the combination and arrangement of the tube or box A, with the conical male screw C, and blocks D D, with semi-circular female screws, marking in said box for the purpose set forth, substantially as described.

(54,529) Securing Boxes in Hubs.—Wm. Greenleaf, Terre Haute, Ind. :

I claim the box B, provided with a screw-thread *a*, at each end, in combination with the thimble E, provided with internal screws *c*, to receive the screw-threads *a*, of the box and connected to the bands C D, substantially as and for the purpose herein set forth.

(54,562) Tuyere.—John Kriegbaum, Milton, Ohio :

I claim, *First*, The piece A, with its pipes *c d*, constructed substantially as described and for the purpose specified. *Second*, The combination of the piece C, with the piece A, substantially as described and for the purposes set forth. *Third*, The part B, with its pipe *f*, and slide *g*, in combination with the piece A, substantially as described and for the purposes specified. *Fourth*, The thimble D, and arm, to support the part C, substantially as described.

(54,574) Attaching Thills to Vehicles.—Francis McCoy, West Philadelphia, Pa. :

I claim the yoke E, with one end curved upward, forming a concave bed E′, for the head A, of the shaft, between the ears B, of the band or clip F, constructed and applied in the manner as and for the purpose specified.

(54,616) Blacking for Harness.—Samuel Sherwood, New York City :

I claim the water-proof blacking composed of the ingredients herein specified, in about the proportions set forth.

(54,638) Machine for Making Carriage-axles.—Calvin Young, Auburn, N. Y. :

I claim forming a solid swell or collar on axles, and giving the bed or arm thereof a "sett," by one and the same operation, by means of a stationary and a movable clamping-die that seize the bar or blank at points remote from its ends, and leave uncontrolled that portion of the bar or blank from which the enlargement is to be made, until the dies are about to meet, when said enlargement is jammed up into the proper form by said dies, substantially in the manner herein described and represented.

(54,639) Machine for Making Carriage-axles.—Calvin Young, Auburn, N. Y.:

I claim forming a solid collar or shoulder on an axle, by griping the bar or blank of which the finished axle is made at two points remote from its ends by griping dies, so as to leave a portion of said bar between the two sets of dies uncontrolled and free to expand laterally by end pressure, applied to one of the griping dies, until near the end of the movement of said dies, when the expanded or swelled metal may be driven into the dies to give it better form and shape, by means substantially as herein described and represented.

15. (54,666) Axle-box Cover.—William M. Auchincloss, New York City :

I claim the arrangement of the square or polygonal-sided bolt *b*, attached to the cover B, and capable of manipulation by means of the bridge C, substantially in the manner described and represented.

(54,747) Dumping Wagon.—A. D. Manley, Washington, Mich.:

I claim the sliding-bar *r*, with its pins *w*, operating in combination with the spring-bars *m*, and the swinging-boxes G H I, for joint or independent action, in the manner and for the purpose herein specified.

(54,750) Machine for Boring Wagon-hubs.—Lawrence Mason, Turin, N. Y.:

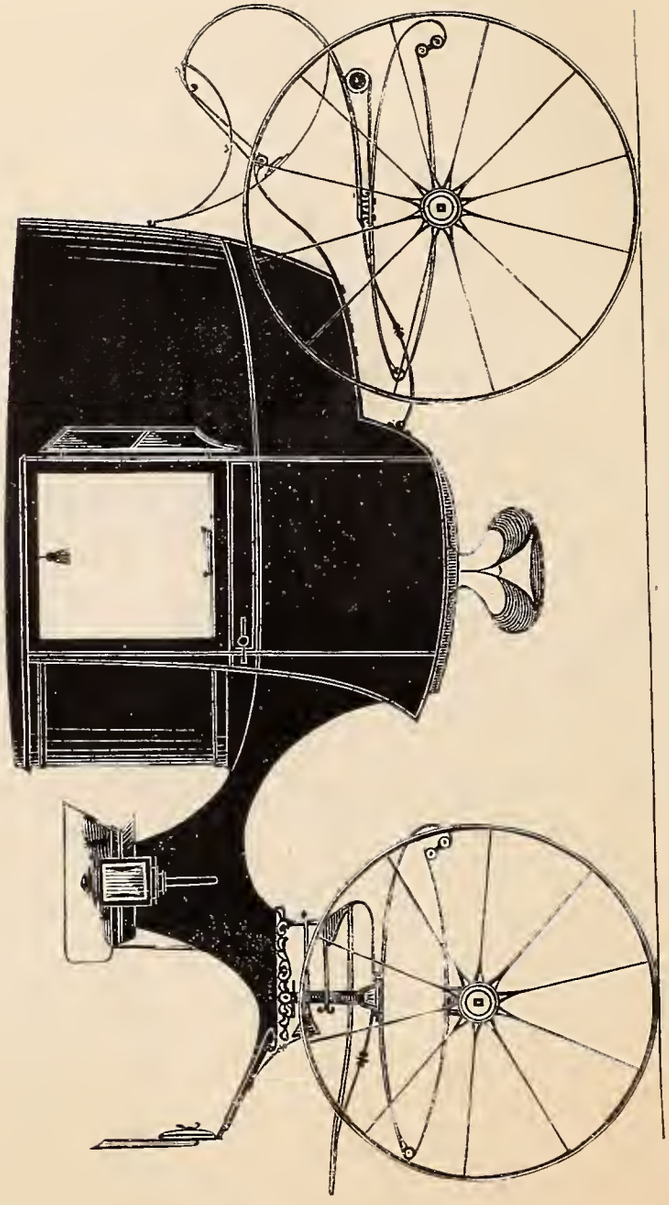
I claim, *First*, The arrangement of the hub-boring machine of the adjustable cutter mandrel B, with its plate S, and set screw T, and clamping and centering plates D D′, with their triangular openings F F′, constructed and operated as described. *Second*, The combination and arrangement of the frame M, arbor K, slotted dog N, arm P, collar Q, disk R, shafts B, and adjustable plates D D′, substantially as and for the purpose described.

(54,753) Axle-box.—Joseph Montgomery, Harrisburg, Pa.:

I claim, *First*, The journal-box C, arranged and constructed substantially as described and for the purpose set forth. *Second*, The lid A, hinged below, and secured by handle B, and jamming-cam *b*, constructed and operating substantially as described and for the purpose set forth. *Third*, The loose or hinged rack-frame, *C′*, inside of box, constructed and operating substantially as described and for the purpose set forth.

(54,755) Carriage Seat.—F. B. Morse, Milwaukee, Wis.:

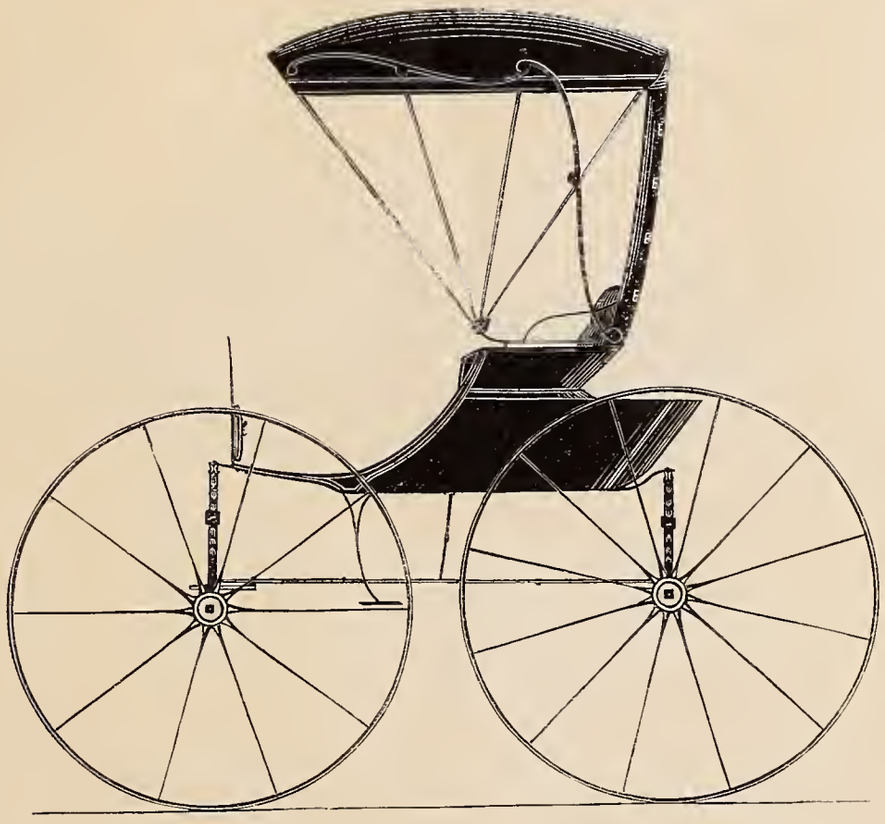
I claim the lever-fastenings G, when used in combination with the seat rail-posts F, for the purpose specified, and arranged and operating substantially as described.



C-SPRING CLARENCE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

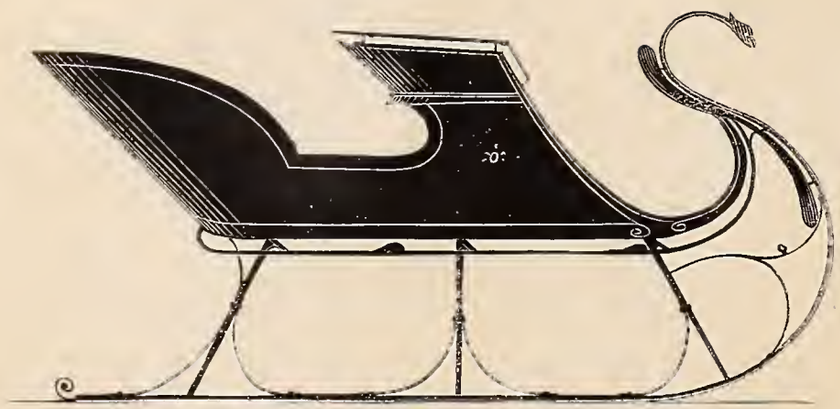
Explained on page 54.



EXCELSIOR COAL-BOX BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 54.



PONY SLEIGH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 54.

CUTTER SLEIGH.—$\frac{3}{4}$ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 54.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, SEPTEMBER, 1866. No. 4.

Mechanical Literature.

SIZE OF CARRIAGE-WHEELS.

BY JOHN B. PEEK.

As plans of improvement are projected, no matter what their magnitude or how bold their character, so that the execution come within the limits of human ability, the means of carrying them into effect seem to be presented. It is true some of them do not deserve consideration, others again possess different claims to merit, and not infrequently the less meritorious, presented under more imposing circumstances, obtain precedence in the public estimation, to the injury of the community and of individuals more immediately concerned.

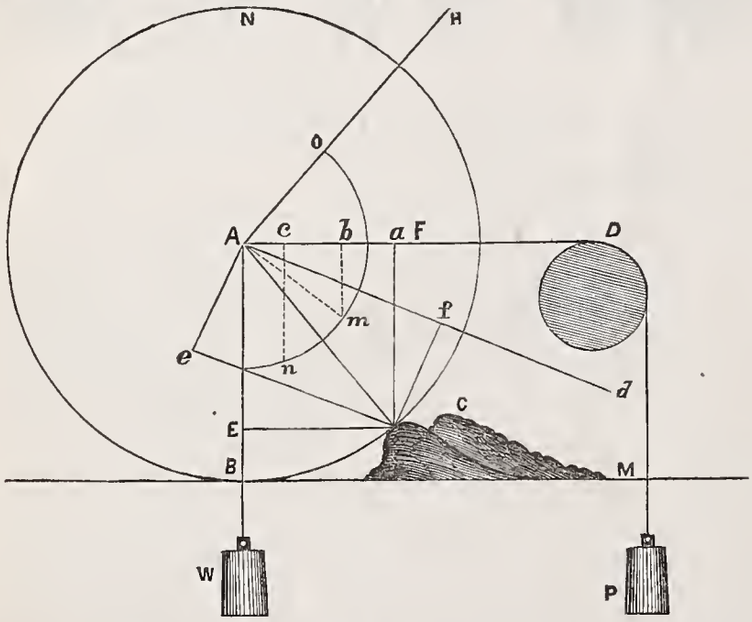
When errors have been once adopted, prejudice and interest tend to continue their currency as truths; and ages, in some instances, pass away before they give place to more correct notions or practice. Many cases to the point could be given in support of this position; but our business is not with the past, it relates to the future, and we would recommend to those to whom the choice of plans may be offered, as a means of correcting the evil, not to adhere too tenaciously to antiquated systems, for human wisdom is progressive, and to say that anything of human devising is perfect is but an acknowledgment of our ignorance or indolence. To be able to devise or adopt with judgment implies a thorough acquaintance with the subject; where this does not exist, we find men plodding successively in the same way, without the thought of variation or increased advantage; but in the reverse, which we rejoice to see becoming fashionable, they substantiate their claim to intelligent beings, by conforming their works to rational principles.

We have been led to these remarks from a knowledge of the means that are now taking to open a more feasible plan, through the pages of THE NEW YORK COACH-MAKER'S MAGAZINE, in hopes that it may induce our coach-makers to conform their works to a more scientific practice than at present prevails amongst many of them.

The very assistance which theory has furnished to the artist, in these cases, has been rendered not only useless but injurious by an erroneous application; and, we may safely affirm, that there is no species of machinery where less science is displayed than in the construction and position of carriage wheels. But to the subject under consideration.

When the wheels of carriages either move upon a level surface or overcome obstacles which impede their progress they act as mechanical powers, and may be reduced to levers of the first kind. Although much has already been said, pro and con, in the pages of this Magazine, I do not think the subject has been exhausted. To elucidate my remarks, let A be the center, and B C N the circumference, of a wheel six feet in diameter, and let the impelling power P act in the horizontal direction A D. Then, if the wheel is not affected by friction, it will be put in motion upon the level surface B M when the power is infinitely small; for, since the whole weight of the wheel rests on the ground at the point B, which is the fulcrum of the lever A B, the distance of the weight from the center of motion will be nothing, and therefore the mechanical energy of the smallest power P, acting at the point A, with a length of lever A B, will be infinitely great when compared with the resistance of the weight to be raised; and this will be the case however small the lever A B, and however great the weight of the wheel. But, as the wheels of carriages are constantly meeting with impediments, let C be an obstacle six inches high which the wheel is to surmount: then the spoke A C will represent the lever, C its fulcrum, A D the direction of the power; and, if the wheel weighs one hundred pounds, we may represent it by a weight W, fixed to the wheel's center A, or to the extremity of the lever C A, and acting in the perpendicular direction A B, in opposition to the power P; now the mechanical energy of the weight W, to pull the lever round its fulcrum, in the direction A E, is represented by E C, while the mechanical energy of an equal weight P to pull it an opposite direction A F is represented by F C; an equilibrium therefore will be produced, if the power is to the weight W as E C to C F, or as the sine is to the co-sine of an angle whose versed sine is equal to the height of the obstacle to be surmounted; for E B, the height of the mound C, is the versed sine of the angle B A C, and E C is the sine and C F the co-sine of the same angle. In the present case, where E B is six inches and A B three

feet, E B, the versed sine, will be one hundred and sixty-six, &c., where A B is one thousand, and consequently the angle B A C will be 30° 33′, and E C will be to E F as 52 to 83, or as 66 to 100. A weight P, therefore, of 66 pounds, acting in a horizontal direction, will balance a wheel six feet in diameter and one hundred pounds in weight upon an obstacle six inches high, and a small additional power will enable it to surmount that obstacle. But if the direction of the power be inclined to the horizon, so that the point D may rise toward H, the line F C,



which represents the mechanical energy of P, will gradually increase till A D has reached the position H A, perpendicular to A C, where its mechanical energy, which is scarce a maximum, is represented by A C, the radius of the wheel; and since E C is to C A as 53 to 100, a little more than 53 pounds will be sufficient for enabling the wheel to overcome the obstacle. Proceeding in this way, it will be found that the power of wheels to surmount eminences increases with their diameters, and is directly proportional to it where the weight remains the same and when the direction of the power is perpendicular to the lever, which acts against the obstacle. Hence, we see the advantages to be derived from high wheels and the disadvantages which attend low ones.

When the radius of the wheel is greater than D M, the height of the pulley or that part of the horse to which the shafts or pole D A is attached, the direction of the power, or the line of traction A D, will be oblique to the horizon A *d*, and the mechanical energy will be only A *e*; whereas, it was represented by A E when the line of traction was in the horizontal line D A. Whenever the radius of the wheels, therefore, exceeds *four feet and a half*, or the height of that part of the horse to which the traces should be attached, the line of traction A D will incline to the horizon, and by declining from the perpendicular A H its mechanical effect will be diminished; and, since the load rests on an inclined plane, the traces or shafts of the carriage will rub against the flanks of the horse, even on level roads, and still more severely on descending ground. Notwithstanding this diminution of force, arising from the unavoidable obliquity of the impelling power, wheels exceeding 4½ feet radius have still the advantage of small ones, but their power to overcome resistance does not increase so fast as before. But when we augment their diameter we add to their weight, thus increasing the load and diminishing their power.

Another disadvantage of large wheels is to increase the risk of overturning the carriage, by the elevation of the center of gravity. The advantages of large wheels are particularly great in soft and boggy soils, and in sandy countries, like New Jersey; and I find that the resistance which in these cases is opposed to the motion of a given wheel may be reduced to one-half by making the wheel broad on the tread. From these remarks we see the superiority of large wheels over small ones, and the particular circumstances which suggest the propriety of making the wheels of carriages less than four and a half feet radius. Even this size is too great, and we may safely assert that wheels ought never to exceed four feet ten inches in diameter, and should never be less than three and a half feet. When the nature of the carriage will permit large wheels should always be preferred, and small ones should never be adopted unless we are compelled to employ them by some unavoidable circumstances in the construction. This maxim, which has been inculcated by every person who has written on the subject, seems to have been strangely neglected by practical mechanics. The fore-wheels of our carriages are still unaccountably small. The workmen indeed will tell us that the wheels are made small for the convenience of turning and for facilitating the loading of the carriage; but how trifling are these advantages when compared with that diminution of the horse's power which necessarily results from the use of small wheels. It has been objected against large fore-wheels that the horses, when going down a declivity, cannot so easily prevent the carriage from running downward; but this very objection is an acknowledgment that large fore-wheels are advantageous, both in horizontal and inclined planes, otherwise their tendency downward would not be greater than that of small ones. Being a carriage-maker, I can speak from experience of the efficacy of the above directions—which I have no doubt, in the hands of an ingenious mechanic, will be hints quite sufficient to enable him to excel in the Art of Coach-making, of which I am a great admirer.

OUR CARRIAGE MUSEUM.—IV.

THE most simple kind of scythe-chariot, doubtless, was that of Cyrus. Zenophon in his "Institution of Cyrus," (lib. vi., cap. 1) says, "Cyrus provided chariots partly from those he had taken in the field, and partly from wherever he could get them; having abolished the old battle-wagons of the kind that had been used at Troy, and such as the Cyrenians still have in use. Cyrus found that although as a rule such wagons had been driven by the bravest men of the army, yet they could only be made available in skirmishing, and did not contribute much to victory. Besides, three hundred chariots required twelve hundred horses, taking away from his army three hundred combatants. Moreover, each warrior chose his own companion for driving the concern,

and this driver, of course, could not participate in the fight."

The foregoing is the reason why Cyrus abolished the use of this chariot and procured others more fitted for war purposes. "On the new ones he ordered the wheels to be made very strong to increase their durability, and the axles very long, because the broader the track the less was the danger of upsetting. The body, which had only to afford room for one man, was made of boards, rounded like a little tower, and not higher than the elbows, so that the driving of the horses might not be impeded. The drivers were clad in armor from head to foot. On the ends of the axles, outside of the wheels, he had fastened horizontal scythes, two yards (ells?) long and cutting forward, and others pointing towards the earth."*

The accompanying engraving represents a chariot of about the description given us in the notes of Zenophon, which I [Ginzrot] have sketched, to give a better idea of

it. Although the ordinary scythe-chariot was only mounted by one man, or driver, there were on those of the leaders, besides the leader himself, a driver, and sometimes another combatant. The shape and finish of these latter chariots did not differ much from the ordinary ones except in the armor of the horses, which were made rich and elaborate, whilst the horses of the ordinary chariots had plain armor.

Zenophon says in his Cyropædia (or Institution of Cyrus, lib. vi., cap. 2) that Abradatas wanted to command in person the battle-wagons [of Cyrus]. His own wagon had four poles, [Spelman translates *four perches*, lib. v., cap. 4] one on the side of the other, and was drawn by eight horses. His wife Panthea had made for him, without his knowledge, a golden coat of armor, a golden helmet, and a golden arm-skin [arm-pieces], the armor of his horses being made of iron. Zenophon expressly says that the bodies of these wagons were closed by a door. "When Abradatas departed from his wife, he entered the body by a door which his 'stable-master' had opened for him, and closed immediately thereafter."†

Cyrus and his suit had the same arms—an iron coat-of-mail, iron helmets, white feathers, and swords. Each had a spear of the wood of the cornelian cherry, and the armor was covered by a purple dress. The horses were provided with breast and side shields, and for the purpose of arousing his men, Cyrus said, "Let us encounter with armored horses [Spelman says chariots] the unarmored." Although the track was very broad and the body closed, we read in another passage that, "during the battle Abradatas and his companions were thrown out of the chariot from the joltings over rough roads and died of their wounds." Thus we learn that Abradatas with others stood *on* the chariot, and probably the other leaders [generals] did the same. Shocking as was the effect of these chariots in battle, yet it was not very difficult to get out of their way, when the soldiers got over the first panic and became more accustomed to their movements. Livy says of the scythe-wagons which Archelaus used against the soldiers of Sylla, that the men easily evaded them by stepping aside and opening a passage to the approaching wagons. At last they got so accustomed to them that they laughed when they saw the wagons coming towards them, and when the next approached, cried out "give us another one!"

When Cæsar was attacked by King Pharnaces, near the town of Ziela, the king, in order to frighten the Romans, had a line of scythe-wagons brought to the front, but the panic-stricken soldiers—the veterans especially—soon recovered themselves, and made an awful slaughter in the ranks of the enemy, gaining a victory for Cæsar. It was for this reason [because it was gained speedily with ease] that Cæsar on his triumphal entrance into Rome [afterwards] had carried before him that famous inscription, "*veni, vidi, vici*," [I came—saw—conquered]. These scythe-wagons used to be drawn up at the beginning of a battle at some distance in front of the enemy. It was too dangerous to let them advance through the ranks of the foot soldiers, and it often happened that the horses got frightened, and running back, caused a great massacre in their own ranks, instead of those of the foe.

Eumenes, to prevent the advance of the chariots of Archelaus, sent a multitude of skirmishers, which strayed all over the plain to meet them, who, by their yells and shower of arrows and stones, frightened the horses, causing them to run back furiously to their own camp, spreading terror, consternation and destruction therein. Flavius Josephus says, "When Ahab engaged the Syrians, a considerable portion of their forces were destroyed in the confusion of their own battle-wagons;" and Diodorus Siculus (lib. xvii.) says, that "Alexander, in order to protect his army against the scythe-wagons, ordered his cavalry to form in close lines, shield to shield, and when the wagons approached, to strike with their spears on the shields and thus frighten the horses (in the wagons) by the noise, and drive them back." Other chieftains had posts driven in the ground to prevent the approach of these scythe-wagons. Tul. Frontinus (lib. ii., cap. 2) tells us that "Julius Cæsar received the scythe-quadrigas with posts and checked their advance."

Besides these four-horse scythe-wagons, that were driven by one man, we find (see an old Author 'De Rebus Bellicis,') that some Asiatic nations had such to which either one or two horses were attached. These wagons consisted of an axle and the wheels only, without a body, and each horse was mounted by a man, who strove to

* The English reader who is curious in such matters may compare the above translation from Zenophon, coming through the German of Ginzrot, with that given on page 19, of the same story, as translated by Spelman immediately from the Greek. It will be seen that the story here given has lost much of its original interest. Our readers will understand that by battle-wagons, in all cases, is meant chariots.—Ed.

† Ginzrot, who is given to speculation, differs from Spelman, in the account he has given us of this story. Spelman translates, "Having said this [in answer to a speech from Panthea], he mounted the chariot by the door of the driver's seat, and after he got up, when the driver shut the door of the seat, Panthea who had no other way to salute him (her husband Abradatas), kissed the seat of the chariot," &c. Quite as much *distinction as difference* in the two relations, which the reader must decide for himself.—Ed.

enter the ranks of the enemy at the highest possible rate of speed. On these vehicles the ends of the axles were provided with scythes the same as in the quadriga, and below the axle several scythes projected the entire length, forming a kind of grate. These wagons were called "*currodrepanus singularis*," man and horse being armored.

If in reality there existed one-horse battle-wagons, the horse must have gone in shafts, for he could not have drawn with a pole. This would be another proof that wagons were used with one horse, which some say was unknown to the ancients. It is a singular fact that we cannot find the least trace on any monument of a scythe-wagon; but I am inclined to think that the vehicle seen on the coin [Ginzrot's, *wagen und Fahrwecke*, Tab. xxv., fig. 3] with other trophies, represents a "currodrepanus." This coin, mentioned in Mr. Vaillant's work, shows a two-wheeled vehicle, on which from the side a scythe projects, toothed like a saw. In front extended forward is a point similar to the spear I spoke of before. The ancients, who never represented a thing on a coin without a meaning, doubtless intended to show one of these diminished scythe-wagons; for it is not a plow and what else can it be. The drivers of these scythe-wagons used iron reins, that is, thin iron or brass chains.

Sirach yet says, (chap. xxviii., v. 24), "His yoke is iron, and his strings are iron." This was because reins of leather or hemp could easily be cut. The drivers had short lashes, sometimes whips with iron points. Zenophon in the Institution of Cyrus (lib. vii., cap. 1) confirms this by saying, "Abradatas advanced, not sparing his horses, but goading them on with the thorn, so that blood flowed down." It may be that his driver was not able to urge forward the eight horses which were in one line and so [Abradatas] assisted him with the point of his lance; for how would it have been possible to reach the eight horses with a spear if they had been attached in pairs—one pair before the other. A whip without a point would have had but little effect on the mailed horses, as they could only be touched through the joints of the armor. It cannot be denied that the battle-wagon of Abradatas with its eight horses, drawing in four poles, was subject to many disadvantages, and for this reason some say that such a mode of harnessing would have been altogether impossible, and therefore conclude that the horses were put to four successive tongues [poles], one pair of the horses before the other. It being stated that four tongues and eight horses were put to this one wagon, I opine that it was more suitable to enter the ranks of an enemy with the eight horses abreast. In this way a large breach was made and that evidently was the design. Were the horses in pairs only, the first pair would open the ranks of the foe, and no matter how many more pairs followed, still, the whole affair did not present so menacing an attitude as even a common quadriga [four-horse chariot], and how was it possible for one man in the confusion of battle to govern with adroitness, four sets [pairs] of horses without an outrider?

Some idea of the destructiveness of these chariots is found in the words of an old poet:

"So the fierce coursers as the chariot rolls,
Tread down whole ranks and crush out heroes' souls,
Dashed from their hoofs, while o'er the dead they fly,
Black, bloody drops the smoking chariot dye;
The spikey wheels through heaps of carnage tore,
And thick the groaning axles dropped with gore."

Home Circle.

A SUMMER AT THE SEA-SIDE.

(*Concluded from page* 38.)

AND now the rosy summer, like a vanquished queen, laid down her flower-crowned coronal, and tripped away, leaving her golden heritage in the lap of Autumn. Morning and evening silvery mists curtained the blue sea; and the far-off line of forest donned its gorgeous vesture of rainbow-tinted hues, flaunting its glories in the sweet autumnal haze; dry leaves strewed the grassy lane, and rustled down the gravel walks of our pleasant little garden. Now and then chill winds swept over from the bleak waste of waters, reminding us of the warm carpets and glowing fires that render our city homes the centers of cheerfulness and comfort in the dreary season upon which we were entering. And—so we must disperse—we, who had gathered like a flock of happy birds under the shelter of a green tree, must now spread our wings and fly, each to his isolated nest far away.

But one day remained to us. We had all arranged to leave at the same time, to gratify the wish of our good hostess, who was in the habit of closing her house immediately on the departure of her summer guests.

The weather was unusually mild, and our last evening at the sea-side was deliciously balmy and bright with the radiance of a full moon. After tea I proposed to Miss Chalmers and Vivian a walk to the beach. The young lady and I had of late become very friendly, and she was frequently in the habit of availing herself of my escort. She took my arm as we left the house, and Vivian walked on the other side. We strolled up and down the beach for many minutes in entire silence; each, as I believe, drinking in the incense of the scene. And what a superb night it was! one to form a bright spot in the memory for a life time. How the sweet breeze fanned our faces; how the silvery sand sparkled in the clear moonlight; and how the great waves, crested with phosphoric light, broke in deep yet gentle murmurs at our feet.

I was loth to leave the spot; yet a thought haunted me. These young people, now about to separate, loved each other truly, and there was no impediment to their union, although Imogen, in her strict integrity, might deem herself fettered by former vows. There should be an understanding between them, and this seemed the fitting moment. I found the air damp—being a valetudinarian no other excuse was needed—and begging my fair charge to accept Vivian's arm, I made good my retreat.

Returning to the house, where not a living soul was visible, I threw myself on the sofa in the hall, and drawing the cushions under my head, composed myself for a temporary slumber. The hall lamp had not been lighted, owing probably to the negligence of servants, and, though the moonlight flooded a space by the open door, my position was in deep shadow.

I mention this to account for having been an unobserved spectator of what afterwards occurred. I beg the reader will not consider me an eaves-dropper or a willing witness of scenes not intended for my eye. My situation was purely accidental, and I could not afterwards move without causing embarrassment to some whom I would rather spare. I slept—how long, I do not know. At length I became aware of the low murmur of voices near

me. Did I dream? no; I was fully awake, and, opening my eyes, I saw Mr. Green and Mrs. Howard standing on the piazza, just without the open door. His arm encircled her waist, and his shoulder lovingly sustained her fair head. They conversed in low and impassioned tones, and occasionally he would brush back the shower of ringlets that fell upon her soft cheek and cover it with rapturous kisses.

After a while the gate opened, quite noiselessly and unperceived by the affectionate pair, and Vivian and Imogen came slowly toward the house. I marked the countenances of both as the moon lighted them up; Vivian's shone with a serene content it had never worn to my eye before; that of his companion was less clouded—there was still an unquiet drooping of the eye, and I could read there as in a book, that love though fully awakened, had not for its shrine a bosom wholly at peace. They reached the piazza and paused for a moment glancing upward and around, as though to bid a long good-night to the sweet scene from which they were about to pass forever. In that position they were within a yard of the pair on the piazza, yet the parties were screened from each other's observation by the thickly-woven vines, not yet divested of foliage, that climbed the trellis between them, and so still had both been, that neither were in the slightest degree aware of the proximity of the other until Mrs. Howard spoke.

"I wonder what Miss Chalmers will say when she has learned all; poor thing—I quite pity her—I dare say she still expects you to fulfill"— The speaker was here interrupted by the appearance of Miss Chalmers, who came forward instantly on hearing her name thus used; she still leaned on Vivian's arm, and they stood face to face with the astonished pair.

"Miss Chalmers expects nothing of Mr. Green," she said, with a look of concentrated scorn, that caused that gentleman to writhe like a whipped cur, "unless it be a renunciation of any claim he may suppose himself to have on her, in consequence of a folly she committed while under a most erroneous impression in regard to his character. In truth, madam," she continued, and her tone softened as she addressed the lady exclusively, toward whom I believe she felt nothing but genuine pity, "Mr. Green is perfectly free, as far as I am concerned, to bestow his affections and his hand wherever it may suit him; the engagement between him and myself having been canceled long ago by the tacit consent of both parties."

She turned from them and entered the house.

"She takes it with a good grace," was the insolent remark of Mrs. Howard, as she addressed herself to the task of consoling her crest-fallen admirer for the mortification he had undergone.

If the words reached the ear for which they were intended, they failed of their effect, for it was bent to lips that whispered tenderly: "And now, my own dear love, is not the last scruple removed?"

"Oh, yes," was the low reply.

And stooping down, Vivian raised her blushing face to his, and pressed upon her lips the fervent kiss that sealed their troth.

On the following morning, amidst the bustle of preparation for our general departure, Mr. Chalmers waited on me in consequence of a proposal for the hand of his youngest daughter, on the part of my nephew, Mr. Rivers. The old gentleman said that the young people were very much attached to each other—that his acquaintance with my nephew, though slight, had impressed him favorably—that he long had found him agreeable and gentlemanly—and for information in regard to his position and prospects he had been referred to me.

Claude was the son of my only sister, who was a widow; he would inherit a trifle from his mother, but that was nothing. He was a likely fellow, sufficiently attentive to business, and for aught I knew, quite free from vice. Since the death of his father he had been my charge, and I regarded him as an adopted son.

All this I explained to my visitor, who, after a few polite speeches, in which he expressed himself as perfectly satisfied, rose, and bowed himself out with the air of a courtier of the Louis XIVth school.

Scarcely had he disappeared, when Claude rushed in from an adjoining room, where he had ensconced himself in the neighborhood of a half-open door to hear the conversation.

"Uncle John, dear Uncle John!" he exclaimed, throwing his arms around my neck, and giving me a hug that nearly throttled me; "You are a trump—a brick"—

"Off! you dog!" I cried, as, with a vigorous effort, I disengaged myself from his bear-like embrace, and sent him reeling across the room. Righting himself up, he struck up a whistle, and commenced performing a fandango to the great discomfiture of the books and boxes and various other light wares that strewed the floor.

"Come, come, young man, moderate your transports," said I, "and go to packing up these books."

He seated himself on a trunk; "Uncle John, why don't you wish me joy. Ain't I the luckiest dog alive? Such a sweet little wife—and all right with the Governor. No more bachelor lodgings, dingy and comfortless. You will live with us, Uncle John, we'll have the cosiest house—"

I broke in upon him again, and recommended him to wait till he had a house before he was so profuse in his offers.

Presently he grew calmer, and went to packing the trunks.

When the holidays came, we had a brace of weddings; and my old heart rejoiced in the happiness that I saw around me. Mr. Chalmers was easily reconciled to the change in his daughter's choice when he had learned all the circumstances that led to it. He appreciated Vivian fully, and was truly delighted to receive him as a son-in-law, feeling that his innate worth and intellectual superiority were infinitely more to be prized than the sordid possessions of his former rival.

I afforded myself the pleasure of purchasing and furnishing a house for our little garden queen and the king consort, and have ever since been one of its most happy inmates. My charming niece, though somewhat subdued by the cares of maternity, is still as blithe as a bird—to me she is all that the most loving daughter could be; kind, attentive to my comfort—always companionable.

Mr. Green and Mrs. Howard were married very soon after the breaking up of our summer party. They celebrated their honeymoon by a tour through Europe. Since their return Mrs. Neville and Mrs. Rivers frequently meet them in society, but their intercourse with the dashing pair is limited to a formal bow. Mr. Green is now not often seen with his wife; he finds his amusements

at the club-room and the billiard saloon and the race-course; while she, with her foot on the topmost round of the ladder of fashion, finds ample compensation for her husband's neglect in the crowd of fashionable butterflies by which she is perpetually surrounded.

Reader, my story has no moral. I am not of those who take a text and illustrate it by a prosy narrative; but I think there is much pith in the saying of my worthy hostess: That young people are not always in love when they fancy they are.

Pen Illustrations of the Drafts.

C-SPRING CLARENCE.

Illustrated on Plate XIII.

THE Clarence Coach, which has recently become so extremely fashionable with the New York aristocracy, had its origin in England several years ago. It is simply, with some improvement in the design, the old Town Chariot of Felton's day. Some idea of its old configuration may be obtained from an inspection of the drawing on page 105, Volume Four. We cannot find this vehicle in "Adams' English Pleasure Carriages," published as late as 1837, nor in any other English author. We more than suspect that we shall provoke the ridicule of our British cousins when we give it any other name than that of a Brougham.

This makes a very fine vehicle, by whatever name it may be called, but the costs preclude its general use as a family carriage.

Our drawing has been designed expressly for this Magazine, and so well tells its own story that we need not go into details in describing it. The combined C and Scroll-spring renders it extremely easy riding; and, when hung on C-springs in front, this is still further increased. In the hope that our effort in this direction may prove generally satisfactory, we present it to the public.

EXCELSIOR COAL-BOX BUGGY.

Illustrated on Plate XIV.

WE give this original design as one of the very best we have yet published. It will be noticed that the front-pillar has considerable rake, adapting the sweep to the rise of the bracket in front, furnishing an easy and graceful curve to the whole. The more usual practice now is to panel the top of the body *behind* the seat, not only to secure the rounded corners, which very much need such a protection from the weather, but on the score of cleanliness where so much flare is given to the back panel.

PONY SLEIGH.

Illustrated on Plate XV.

DESIROUS of seeing some improvement in our sleighs, over the old and stereotyped form, we have tried our hand at designing, and produced this and the following cutter sleigh, with what success our readers must decide. For the leading features, we have adopted those found in the prevailing fashion in our wheeled carriages. We especially recommend this as something new and perfectly practicable; with the remark, however, that as we did not get much snow the past winter, there is still, unsold and on hand, a large stock of made-up sleighs, suggesting caution to those concerned, lest they get "stuck" with "dead stock" for storing another summer.

CUTTER SLEIGH.

Illustrated on Plate XVI.

A GLANCE at the drawing on this plate will readily prove this to be a genuine "cutter." The entire design is so decidedly novel that it will recommend itself to the taste of the most fastidious. We have drawn this to a $\frac{3}{4}$-inch scale for obvious reasons. Scale, however, in sleighs, we consider a small matter, since the practical builder must be perfectly familiar with proportions, without our assistance.

Sparks from the Anvil.

CARRIAGE SPRINGS.—II.

IN a former article the reader was presented with several figures illustrative of the early formation of carriage springs, which, from the shape, were termed an S-spring. This S-spring had afterwards added to it "at the back plate, an additional spring, which turned the reverse way, to carry separate things with the body, such as the budget before, or platform behind; having a double shackle at *g*, the one to carry the body, and the other the boot or platform, the reverse spring has only to carry the hind part of the same boot or platform. The stays and loops marked *a, b, c, d, e, f,* are for the same purpose as the former, the bottom stay being only differently formed; the former clips, and this caps on the bed or bar."

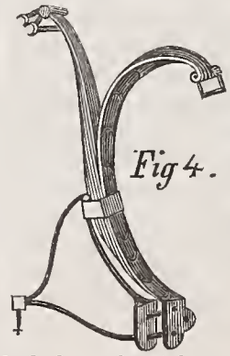


Fig 4.

The "reverse" spring above alluded to furnishes us with an indisputable clue to the C, or, as it was originally termed, the Scroll-spring. Felton says of it seventy-five years ago (see Fig. 5), "This is a peculiarly formed spring for ease, and is used for various kinds of carriages. It rests, and is fixed on a long block for phaetons, or on the two bars only for coaches, &c., at the bearings, *m m;* the bottom is sometimes turned up in a scroll form, for ornament only in imitation of the upper part; the brace is hung by a shackle, or placed around the spring, and passing through a loop, *n*, is fixed in a jack at the bottom." This was technically known as a "spring-jack," and its use was to lengthen or shorten the "thorough braces." The C-spring has continued, with very

Fig. 5.

little modification, through a period of eighty years, as it came from our forefathers.

Even in our times, a Massachusetts patentee, whose Letters Patent expire in December next, tells us that the advantages of C-springs, when applied to a buggy, are simplicity and less cost in construction, lightness, durability, superior steadiness of motion, does not rattle, and is graceful in appearance; which he does very well to impress upon the public mind, in the absence of more convincing proof, when studying self-interest.

With a certain class of customers this improvement has taken very well; but there is no originality displayed in this case, unless it be its application to a buggy. This is but another "accommodation" for which the carriage-maker has reason to censure officials in our Patent Office.

The cradle, or, as it was originally called, a "grass-hopper, or double-elbow spring," is about as old as the C-spring of which we have treated above; and was, as now, principally used for two-wheeled vehicles, and fixed to the axle by a Jew's-harp staple, "supporting the weight at each end by one or two loops which are fixed at the bottom of the shafts; it is mostly fixed at the one end, but has room to play at the other. "Those springs," continues Felton, "most generally have only one hoop at the hind end in which it is fixed, and the other end bears on a thin plate fixed to the bottom of the shafts."

From this "double-elbow" sprang "the single-elbow spring," an engraving of which (Fig. 6) is here annexed, from which idea, twenty years afterwards, was produced the elliptic spring, the fruitful progenitor of a numerous family of *idiotic* "off-springs," which we intend to examine hereafter for the amusement of our readers Meanwhile, we give an old author's description of "the single-elbow spring:"

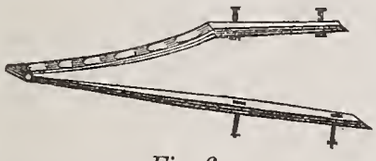


Fig. 6.

"A pair of single elbow-springs, uniting together at the extremities by looping one on the other, and are there confined by a small round bolt; they sometimes have no hoops, but the plates are confined by a small rivet, and the two bolts which fix them to the bearing places; those are mostly designed for phaeton or gig fore-ends; frequently one of them only is used, having a loop in place of a double spring."

The "Loop" and the "French-horn" springs, being now almost unknown, we pass them by, intending, in another article, to say something more respecting the "elliptic" spring and its *deformed* family of children.

IMPOSTERS AND SHIFTING-RAILS.

Our readers should be cautious how they listen to the itinerant vagabonds, who, since business has revived, are scouring the country in search of carriage-makers out of whom they may "chisel" a few hundred dollars, under the false-pretense claim that their rights have been infringed upon by making shifting-rails. We are led to this caution from hearing that some parties have been visited by these *shysters*, claiming that they or somebody else for whom they profess to be agents, some years ago patented the rail with solid bolts dropping into eyes and secured there by nuts; in a word, in the old way, for it is now over 30 years old. Even the Hibbard claim, so copiously shown up in our Second Volume, is now over 14 years old. This, however, is of so little value that no one is likely to infringe upon it. It is only by "muddling matters," and taking advantage of men's ignorance, that these fellows ever succeed. Those who are visited will do well to put off their tormentors until they have consulted us, when we will post them. Of course these remarks do not apply to those patents advertised in this journal. It is understood that we never intend to advertise any patent that has no valid claim and that we cannot confidently recommend as such. No one must infer from this that we indorse all that is said in our advertising pages, for *we* do not. We expect every man can judge for himself, as to the value of a patent, as well as ourself. It is only with the *false claims* that we make war.

Paint Room.

NATURE AND QUALITIES OF PAINTS.

(*Continued from page* 41.)

DRAB OR BUFF.

This shade may be obtained by mixing white lead with yellow ochre. Should a darker shade be required, add a little Prussian blue; if a still darker shade is wanted than Prussian blue will make, then substitute in place thereof, drop-black. As this is a color seldom called for by the coach-painter, we need not extend our remarks in relation to it. See an article on Cheap Drab Colored Paint, in Volume Four, page 51.

CHROME-GREEN.

To prepare chrome-green, two colors, chrome-yellow and Prussian-blue, are compounded, the tints produced being darker or lighter, according to the proportions used. This color is comparatively very little used at present in coach-painting. Forty years ago it was the prevailing color for nearly all the finer class of carriage bodies, and many a long day has the writer been forced to *grind* with the "muller," on a stone, this compound. It was a tedious operation in which the blue was forcibly to be ground first or else the proper fineness could not be obtained.

We have said that comparatively very little chrome-green is used now. There are, however, some who still prefer this to any other green, as it possesses a good "body," and is easily laid, so as to cover well, although it is poisonous to use, partaking much of the nature of verdigris. Especially is it deleterious to health when being ground, and no doubt in many instances has it brought on "the painter's cholic," from inhalation into the stomach. This color is very apt to fade and turn yellowish from age, although, as is generally the case, it has the most liberal covering of varnish for its protection.

There is an article found at the shops which is called *chrome-green*—the oxide of chrome. It is but little used and is rather dear. *Cobalt-green*, a fine color and highly prized, said to be unchangeable and to unite well with other colors, even with carnations, and finds much favor with artists, but is little known among carriage-painters.

OTHER GREENS.

Many greens have for their bases chrome-yellow and Prussian-blue, or drop-black, according to taste. When a deep-olive is required, Prussian-blue should be added. Any shade of green may be obtained by adding to chrome-yellow certain quantities of blue. A favorite green color

with some painters is prepared as follows: Take two parts drop-black, one part chrome-yellow, and one part Prussian-blue, well ground together, and should it be required for heavy work, add a little vermillion, which will impart to the color a sort of yellow shade; indeed, it is wonderful how many beautiful shades, in the hands of an experienced painter, may be obtained by the judicious admixture of different pigments.

Green paints are more or less poisonous, especially so is verdigris. Luckily for the carriage-painter this last is not used by him. He, however, finds enough to sicken him among the greens of other shades, without it. For this and other reasons the carriage-painter ought to be very careful and not eat his food with unwashed or painty hands. A little indifference in this particular may terminate in death. Why is it that we see so many sickly looking men in the paint shop? We answer because they are slovenly about their business, being confined in a close room no other result can reasonably be expected.

VISIT TO THE TURPENTINE COUNTRY.

BY RANKIN.

I ARRIVED in Wilmington, North Carolina, about sunrise. It is an uninviting, dirty town, but is doing a large business. The harbor is good and the wharves are crowded with shipping. Beside having easy access from the ocean, it has also connection with the inland towns by the river and three railroads—one running north, one south, and the other north-west. It is the greatest turpentine and rosin depot in the country. From Goldsboro to Wilmington, a distance of eighty miles, the country is one continual pine forest. Then along the Southern railroad, until you enter South Carolina, is all a turpentine country. At every station we stopped, on the Charleston and Manchester road, I saw vast numbers of barrels of turpentine and rosin, both in its crude and prepared state. In fact, each station or village seemed to consist of only a few unpainted houses and a turpentine still.

THE TURPENTINE PRODUCTION.

The method of obtaining this turpentine is very simple. During January and February the trees are prepared for the purpose. This is done by means of cutting a small box near the trunk of a tree. This box is cut out by an ax, and is generally made to hold one quart of crude turpentine. It is necessary that the boxes should be cut during the Winter, and before the sap commences to run. During the month of March, or just before the sap appears, the workman begins to peel the bark from the tree, commencing at the upper end of the box, and making it cover the full width about ten inches. As soon as this bark is taken off, the sap runs down into the receptacle. It takes from five to seven weeks for a box to fill. As soon as the box fills, the turpentine is scooped out and put into a bucket. Each laborer has a bucket and goes around to the different trees until his bucket is full, and then he empties into barrels for the purpose. About September the sap stops running, and the season is over. During a year, or season, a good tree will yield at least six quarts of turpentine. During each season the bark is pealed off to a distance up the tree of about two feet. From twenty to thirty feet is as high up the tree as they can go. So a tree will yield from ten to fifteen years. After the turpentine is taken from the boxes and put in barrels, it is ready for the still.

HOW TURPENTINE IS MADE.

The following will give you an idea of the construction of the turpentine still: There is a large boiler built in a brick furnace. The exact capacities of these boilers I don't know, but I should judge they would hold from six to ten barrels. The brick-work is built to the height of about ten feet. On the top is a platform, and the crude material is hoisted from the ground to this platform and then emptied into the boiler. From this boiler there is an iron pipe about a foot in diameter, leading to a large wooden vat, standing alongside the still proper. This vat is more than half filled with water, which is necessary in case of fire. Connecting with the pipe from the boiler is another one constructed in a zigzag manner and extending down to the bottom of the vat. As soon as the boiler is filled with the crude turpentine the fire is started in the furnace and the liquid commences to boil. The turpentine arises in steam from this crude material. The steam rises and extends through one pipe to the vat, and thence through the pipe into the vat. The water being heavier than the turpentine the two will not mix, and the water goes to the bottom while the turpentine remains at the top. At the bottom of the vat is a spiggot and a trough. After the water is run off the turpentine desceuds and passes through to barrels placed underneath. The fluid is then ready for market. After boiling the crude turpentine until the steam ceases to ascend, the material in the bottom is called rosin. As soon as the turpentine ceases running, the steam pipes are taken off and the boiling rosin skimmed by means of a wire net attached to a long handle. This skimming is done for the purpose of taking all the dirt that collects with the turpentine while in the boxes of the trees. As soon as it is skimmed it is let off from the boiler by means of a small pipe to a large trough where, after it cools, it is placed in barrels and is ready for market also. This distillation of turpentine is very simple, but requires extreme care. Fire is the great danger.

TURPENTINE TREES—PITCH AND TAR.

After a pine tree ceases to yield turpentine, it is cut down, and the fat knots burned into tar or pitch. These fat portions are split into pieces varying in size. Pitch and tar are made by a number of these pieces being placed together in such a manner that when they are set on fire the fat descends to a hole dug in the ground, and thence runs through a trough and becomes tar. These pieces, after being fired, are covered over with dirt, and great care must be taken not to let them blaze while burning. If allowed to blaze, the tar would all be consumed. These trees also make the best kind of timber. Here it is called "light-wood," because it makes such a brilliant light while burning. Those who own pine woods near a railroad, after using the trees for turpentine, cut them down and make railroad ties. There is as much speculation going on in lumber as there is in cotton. Cotton has been considered king for so long a time that people are apt to forget other royal staples. On the train I met an agent of some circular saw company in New York, who was going to Hilton Head to erect the machinery of two saw mills. He told me that his firm was doing an immense business in sending saw-mill machinery to North and South Carolina and Florida.

TROUBLE WITH VARNISH.

La Porte, Ind., Aug. 6, 1866.

Mr. Editor: *Dear Sir*,—I meet with a difficulty in varnishing, which troubles me very much; it is this, let me be ever so careful in spreading there will be more or less specks on the body, and how to varnish a body without these appearing on the panel is just what I would like to know. Where they come from puzzles me. I have the best badger hair brushes. If they come from the brush how can the brush be cleaned? I have tried cleaning the brush and still they come; tried new brushes but still they are there. Will some one of the craft be so kind as to let me and others, who are troubled in the same way, just know how to proceed and finish a job after having rubbed it down on the varnish? What is the best mode of cleaning off the pumice, how to clean the brush, what to keep it in, and how to keep it clean? This last question is asked because some say, wash the brush before and after using it, and others, don't wash it at all. If some one will answer these questions he will confer a great favor, not only on me but others who have like troubles. Yours, respectfully,

A Subscriber.

Trimming Room.

PATENT HOODS, DASHES, AND APRONS.

C. F. Russell, of Montpelier Square, London, has lately invented and patented, in England, an article of silk to be used for the hoods, dashes, and aprons of carriages, which, he says, will be found not only sufficiently waterproof to exclude rain, but will also form a very light and elegant appearance to the hood of a carriage. The hinge, or jointed skeleton iron frame of the hood will also be made much lighter, and thus the weight of the carriage or vehicle will be considerably reduced. Is not this *invention* a plagiarism on our *old* carriage hood?

LININGS AND INSIDE FURNITURE OF CARRIAGE BODIES IN OLDEN TIMES.

In a previous article (see page 107, vol. vii.) we endeavored to give our readers some idea of the mode of trimming carriages as practiced in the latter end of the last century, which, as we learn from Felton, was done with a very coarse material and plain manipulation. Twenty-five years afterward—in 1805—he thus writes:

"The linings of carriage bodies are much altered in fashion, being for the most part made up with squabs, and every way contrived to be as soft and pleasant as possible. The stuffing is of loose hair; is full, soft, and elastic; the cushions are very deep, and are made concave in the middle; the seats on which they are placed are made of cane-work; the trimmings are of the richest sort; the colors of the cloth are of the brightest kind, such as scarlets, yellows, &c.

"Venetian blinds and spring curtains are mostly both added, and lace, velvet, glass frames, seldom omitted. The squabs are either made of morocco or silk, and sometimes of both, and so large as to cover nearly the whole of the inside of the body, from the seats upward, under which in some the cloth is not used, being superfluous, as the squabs are fixed. The steps are so short as to admit them to be let in the door under the rest for the glass, and when the door is shut is level with it, taking up no room inside."

After telling us that the prices for carriage trimmings had advanced fifteen per cent. in the past twenty-five years, he says:—"Hammercloths, being composed of the same materials as the linings, are advanced exactly the same, viz., 15 per cent. The cloth has risen, as also is the lining, the lace, and the making; and these are, in general, made so full, and the trimmings so rich, that they are very costly things, often exceeding 50 or 60*l.* price; however, it has been the rule to charge one guinea for each breadth of cloth; it is now to charge 24 shillings, including only a narrow binding lace for the top and bottom; when this way done it is used as a cover instead an oil-skin, and the rule is made to charge from it, adding to the cloth this way finished whatever trimmings is desired to enrich it.

"Bear skins are much used for hammer-cloths, sometimes ornamented with metal claws at the bottom corners to keep them down; they look well for the winter's use, but are very expensive, being from 15 to 20 or 30*l.* each, according to the quality of the skins. Oil-skin hammercloths, though the best for resisting the wet, are not much used on account of their slender texture."

Cassimeres for Linings.—Cassimere (Spanish, *casimira*) of various textures and colors is now used in trimming the heavier class of carriages. We saw, the other day, a carriage trimmed with this article standing in one of our leading shops which very much met our fancy, it being a light slate color relieved with dark shading. For a summer carriage it is decidedly apropos.

Editor's Work-bench.

OBSERVATIONS IN THE CENTRAL PARK.

Come with us, gentle reader, on this pleasant afternoon, to our Central Park, where we shall have a good opportunity to study fashion and become acquainted with the *beau monde* of metropolitan life. Although you may not think this the most profitable manner of spending time, still it will give us a fine opportunity for criticising some of the vehicles which roll along the macadamized drives, and noting the changes which twenty years have wrought in the construction of "works of art" included in that interesting department of mechanics. If nothing better, this review may answer the ends of some future historian in "pointing a moral and adorning a tale," perhaps.

Do you see that "old trap," yonder, moving leisurely along as if going to a funeral? That kind of a coach (see Vol. IV., Plate 5) is the modern intruder upon "the old institution," against which the Water poet, Taylor, hurled his diatribes nearly three hundred years ago, stigmatizing it as "a great hippocrite," under the cover of which was perpetrated every kind of wickedness; his ex-

hibition of moral virtue, the meanwhile, having a no higher motive than accomplishing the ends of self-interest. Being a waterman on the Thames himself, he foresaw that these "new fangled" coaches would eventually come in direct collision with his fares, and thus endanger the craft, not dreaming that

> "Madam, forsooth, in her coach must wheele,
> Although she wear her hose out at the heele!"

for a great many years since, until custom has made riding so fashionable that

> "Were they of state, or were they lame,
> To ride in coach they need not shame."

That old invalid just behind represents a respectable class of coaches as they existed in former times, but now chiefly doomed to perform the labor of haekney-coaches, the term "hackney" being suggestive of everything bad, in our day. That round-bodied, neatly-painted, shining "hippocrite," with a driver in livery of the colored persuasion just behind, like its owner, represents a family whose kindred are nearly all gone, and which soon, in all probability, will itself be among the things that were.

But here comes a low, squatty looking "old fossil" in its track, called by our amiable cotemporary the *Mercuré Universel, de Ponies*, and by our English cousins, a Pony Phaeton, with its Juggernaut-looking wheels, John Bull-like, cutting a pompous figure and seeming intent on pushing everything legitimate off the traek—while professing to be "a neutral." Clothed in its old-world ugliness, a lady in front and the driver on the hind seat, it reminds us of the *ci-devant* Southern Confederaey, with the British Government behind, driving on in conjunction for the overthrow of Liberty in the New World. The bloody color of the under-carriage gives an intensified coloring to this idea. Will it ever be Americanized?

Look! There comes dashing along, behind two dappled-greys, an aristocratic looking "dog-cart,"—Query, A cart with four wheels?—seemingly proud of its suecess in having nearly crowded its more peaceful and Quaker-like predecessor, the Roekaway, off the traek with no good reason, this last being in every sense the more "respectable" of the two. But taste ehanges, and there is no accounting for this change, exeept by defining it as "manifest destiny." A rival, the Germantown, still maintains a respectable hold upon the public mind, but this too has but a preearious existence, and may soon drop off.

What is that? ejaculates a friend at our elbow. That, sir! That "world on wheels" is called a coupé-coaeh, and a lordly equipage it is. At present it *covers* the infirmities of half the aristocratic portion of Gotham. We say "infirmities," beeause, in our land, all pretensions to aristocracy only exhibit a weakness on the part of him who aspires thereto—a degree of snobbishness decidedly disgusting to a true-born American. We have often thought that did these lordly fools only "see themselves as others see them," they would change their manners instantly. But they don't!

Moving along in all its stateliness approaches a turnout decidedly lordly. It is called a Landau, very common in Europe, and becoming more popular here every day. Sinee it is a very eostly equipage, it no doubt will maintain its hold upon the affections of the "upper ten" for a long time.

But here comes dashing along the drive our little French visitor, the Coupé; and, being French, of course it must be "all right"—so think our aristocratic lady visitors to Stewart's, *et id omne genus*, in their shopping excursions. In the Park it looks "like a cuekoo's egg in a hedge-sparrow's nest," seemingly out of place and obtrusive. We half suspeet that the occupants are of the class known as "codfish aristocracy," and if the truth were told would find out that this single coupé comprised the whole establishment the owner eould afford to keep—a *green* codfish, he, of whieh we have already too many.

Among the more moderate pretenders to "style" we may elass those who "turn out" in their buggies, and these are by far the larger proportion of travelers on all our public drives.. The buggy family is "too numerous to mention;" but the reader may judge for himself of the variety by turning over the leaves of this Magazine. To a stranger's eye—particularly should he be an imported one—this class of vehicles look as if they were too fragile to be safe, and—it is wonderful how much they will stand. Some of these are under sixty pounds; and yet they will last, by careful usage, three or four years—whieh is longer than is required by a certain class of purchasers, their practice being to purchase a new one every spring. But we must hold up, or this artiele will run to a greater length than will be agreeable with the reader's patience.

CARRIAGE-MAKING IN NEW YORK CITY.

When we compare the amount of carriage-making now done in this eity, with that of thirty years ago, we find cause to rejoice that those old shanties, then occupied merely as repairing shops, have given place to more substantial edifiees, in some of which carriages of the finest and most beautiful workmanship—equal to any in the world—are built. At the the period we have above referred to, it was a rare thing to find a New York City built equipage, nearly all such being sent in from New Jersey, or the Eastern States; some of them very defective in model, too. For the new impulse given to trade in this eity, the craft are under many obligations to the late Isaac Ford, who, more than any other man of his day, labored to produce a light and at the same time stronger

class of carriages than had previously been made in this or in fact any other country. The history of his efforts, were they properly told, would form one of the most interesting episodes in the history of American carriage-building, and furnish us with a powerful illustration of what one individual can accomplish sometimes. But we are wandering from the matter we had in view.

A few days since we had occasion to introduce a Western friend to some of our New York carriage-builders, and among others we visited the establishment of Messrs. John C. Parker & Co., now located on Twenty-sixth Street. Mr. Parker, although cotemporary with Mr. Ford, and one of the oldest manufacturers until within a few years past, was a resident of Yorkville, not then considered within the city limits. Since that time—we know not for what particular reason—he has purchased and fitted up the premises on Twenty-sixth Street, formerly occupied by the Nunns as a piano manufactory, covering the surface of some six city lots. The buildings, as originally put up, were in the form of the letter U, open at the south. This space Messrs. Parker & Co. have in part filled up with additions, which, with the alterations otherwise made, furnishes a very convenient edifice for the carriage-manufacturing business. Our brief space will not permit of a lengthy detail, and consequently we are fearful that we shall come short in conveying a proper, or even an intelligent, idea of what we saw in our visit, to our country readers.

Under the personal leadership of Mr. Parker, himself a practical carriage-maker, we were shown into the room expressly set apart for the engine, of about twenty horse-power, which, as we noticed, was kept in the neatest order, and ran the stillest we have over observed. This engine—the only one in any carriage shop in New York—blows the fires, does the drilling and turns the grindstones in the smith-shop, grinds the paint, drives the saws, &c., in the other departments; in fact does about all the hard work necessary in carrying on the business. Indeed, when we reflect upon the hard labor we had to go through with in shaping everything by hand, in our youthful days, we can but envy the journeyman's good fortune now-a-days, who comparatively has but an easy time of it, and much better pay.

Our next introduction was to the department devoted to sawing and planing. The body-maker in this shop has all his panels planed up for him by machinery, a very important relief from hard-labor; next to the jobbing department; next to the wheel room, where stood from eighty to ninety sets of wheels, ready made. When a set of wheels are wanted, after some months standing, each wheel in detail is subjected to pressure at the periphery, in one of Reed's machines, and the ends of the spokes afterward cut off, so as to have a solid foundation for the tire, when it is set. Mr. P. has in his body room, at all times, not less than one hundred of all kinds, so that a customer when ordering can select for himself without much trouble. We noticed that Mr. P. never uses anything but pine deals for the roofing of his bodies, an article we have used for years and found to be far preferable to white-wood, as it seldom warps when exposed to a hot sun. The spoke and hub rooms we found abundantly supplied with the best stock of "the ready turned," arranged so as to facilitate the seasoning of the same to the best advantage. We saw here an open covered shed, in which all bodies, after being "filled up," are exposed to the air, and well dried before they are subjected to the "rubbing-down" process. But we cannot enlarge, and must leave our readers to go and see for themselves, as Mr. Parker is a gentleman who takes the greatest pleasure in a visit from a stranger, considering no trouble too great if thereby he can contribute to the happiness of others. There are other establishments in this city which we may have occasion to notice hereafter.

CONGRESSIONAL CHANGE IN THE INTERNAL REVENUE LAWS.

After a vast amount of talking and tinkering, Congress has passed a law, reducing the Internal Revenue taxation so as to be somewhat more favorable to the interests of carriage-makers, although it has not done so much for us as the committee's report, spoken of in our last volume, had led us to expect. The articles now exempt are borax, paints, putty, spokes, hubs, felloes, poles, shafts, bows, wheels when not ironed and finished for carriages, axles, thimble-skeins, and pipe-boxes, springs, bolts and washers, and steel tires. The tax has likewise been taken off of all repairing, which is an item of the greatest importance to carriage-makers. A little reflection will show that the object of the new law has been to relieve us of a very objectionable feature in the old one, that of compound taxation. We hope for a still more favorable reduction from the next session of Congress.

OBITUARY.

Dusenbury.—We are pained to announce that Mr. Daniel J. Dusenbury, a carriage-maker of this city, died very suddenly, after a short illness, on Tuesday, August 7th, in the 38th year of his age. Mr. Dusenbury was for some eighteen years engaged in manufacturing light work, in which he was very successful, enjoying the friendship of a large circle of friends. He was about the first to introduce the double perch into our buggies, as well as the inventor of other important improvements. His fondness for his calling led him early to patronize this Magazine, and could the Editor, without abuse of confidence, say all that the hour dictates, his sorrow

might find relief in a more extended notice of a departed friend.

EDITORIAL CHIPS AND SHAVINGS.

A HORSE CHAUNTER.—A loafer being brought up before one of the London courts, the judge demanded, "What is your trade?" "A horse chaunter, my lord." "A what—a horse chaunter? why, what's that?" "Vy, my lord, aint you up to that ere trade?" "I require you to explain yourself." "Vell, my lord," said he, "I goes round among the livery stables—they all on 'em knows me—and ven I sees a gen'man bargaining for an 'orse, I just steps up like a tee-total stranger, and ses I, vell, that's a rare 'un, I'll be bound, ses I; he's got the beautifullest 'ead and neek as I ever seed, ses I; only look at iz open nostrils—he's got vind like a no-go-motive, I'll be bound; he'll travel a hundred miles a day, and never vunce think on't; them's the legs vat never fails. Vell, this tickles the gen'man, and he ses to 'imself, that 'ere 'onest countryman's a rale judge of a 'orse; so, please you, my lord, he buys 'im and trots off. Vell, then I goes up to the man vat keeps the stable, and I axes 'im, vell, vat are you going to stand for that 'ere chaunt? and he gives me a sovereign. Vell, that's vat I call 'orse chaunting, my lord; there's rale little 'arm in't; there's a good many sorts on us; some chaunts canals and some chaunts railroads."

STEAM OMNIBUSES, &C., IN PARIS.—A steam omnibus company has been organized, and they propose to run a line of omnibuses from the Champs de Mars to the Bastille, making six halts: the first to be at the Champs Elysées; the second at the Madeline; the third near the opera on the Boulevard des Capueines; the fourth near the theatre of the Gymnase; the fifth at the Porte St. Martin, and the sixth at Château d'Eau. The omnibuses drawn by horses take an hour and twenty minutes to perform the distance; the steam company undertake to accomplish it in forty-five minutes, including stoppages. In addition to this, some enterprising Parisian has built an omnibus of gigantic proportions, after a new model, especially for horse-races and other out-door sights. It is so constructed that upwards of fifty persons can be seated on the roof, and so become a kind of traveling "grand stand."

SHARPENING EDGE-TOOLS.—At the end of a business letter, Mr. J. B. Peek says: "I just happen to think of another piece of information for wood-workmen which I ought to have added in my last communication [see on page 178, Volume VII.]. It is this: When knives or any other kind of edge-tools are to be sharpened, it will be found to add much to the quickness of the operation and to the keenness of the edge to sprinkle a little *crocus martis* upon the whet-stone, in addition to the oil or other fluid."

LITERARY NOTICES.

THE Publishers of *Every Saturday* announce that with the number for September 1st, they intend to enlarge the weekly issues from 32 to 40 pages, assuring us that the great success of that Journal justifies and demands such enlargement. The conductors intend hereafter to introduce as a feature serial stories, in compliance with a general desire. "Silicote of Silicotes," by Henry Kingsley, has just been begun, and others will follow shortly. This interesting publication continues to present its readers with a choice selection of stories, essays, sketches and poems from foreign journals and periodicals, forming two large volumes during the year, the charge for which is only $5.

Our Young Folks, of which we have before spoken, commendatory, continues to amuse as well as instruct the juvenile portion of our family. This periodical has such a sugar *plumbish* taste about it, that the most indifferent youth is beguiled into study before he is aware of it. Hereafter, this magazine will furnish its readers with a series of full page illustrations, drawn by the first artists, engraved in the best manner, and printed on fine tinted paper, each number containing one or more of them. The first, entitled "The Wanderers," will be given in the September number.

The Atlantic Monthly for August, has a very interesting collection of original articles from the pens of some of the best writers of the day. This periodical, now in the eighteenth volume, has, with unflagging interest, maintained its popularity, while many others have since been started and died for want of patronage. We have only space to say here, that all of the above periodicals are published by Ticknor & Fields, Boston, Mass.

The Coach-maker's Letter-box.

BLOOMINGTON, ILL., July 13th, 1866.

MR. EDITOR:—There has been of late a great deal of dispute about long and short screw-drivers, which, I think, can be easily settled. A long screw-driver brings the workman's hand nearest to his shoulder (supplying more fulerum), consequently he can exert, in that position, the most power upon it. Also a long controversy about iron and wooden-axle wagons. On a heavy loaded wagon, with iron-axles, the pressure is so heavy that the grease will not lubricate it—it is pushed ahead—and bare iron will run upon bare iron, allowing it too much friction. On the other hand, large axles will exert less pressure on the square inch and let the grease do its duty; hence the great demand for wooden-axle-iron-thimbleskein-wagons.

L. M.

Patent Journal.

AMERICAN INVENTIONS.

May 15. (54,775) AXLE-BOX.—William F. Rippon, Providence, R. I.:

I claim the independent oil reservoir A, provided with a filter *c*, as described, in combination with the journal-bearing D, substantially as specified.

(54,782) ATTACHING PROPS TO CARRIAGE-BOWS.—Leonard Sawyer, South Amesbury, Mass.:

I claim the plate B, provided with the square tubular projection C, and the prop or arm D, provided with a screw to fit into an internal screw-thread in the projection C, in combination with the collar F, having a square interior and fitted on a square portion of the prop or arm, and on the projection C, substantially as and for the purpose specified.

22. (54,840) COUPLING FOR CARRIAGE-THILLS.—C. H. Bassett, Derby, Conn.:

I claim the employment of centers or taper bearings, in com-

bination with the tongue-piece and clip, and a suitable means of holding the parts in adjustment, substantially as set forth.

(54,888) WRENCH.—George P. Ganster, New York, City:

I claim a wrench constructed of the hollow frame or handle A, the movable rack or hammer-bar B, and the volute toothed wheel C, these several parts being combined and arranged in the manner substantially as set forth and operating as described.

(54,893) MACHINE FOR MAKING AUGER-BITS.—W. W. Grier and R. H. Boyd, Hutton, Pa.:

We claim *First*, a machine for twisting augurs, bits, drills, and similar articles, and consisting essentially of the shaft B, and a series of dies, arranged to operate substantially as and for the purpose set forth. *Second*, the rotating and longitudinally moving shaft B, having a hole made longitudinally therein, of proper size and form to receive the blank and hold it while being twisted and drawn out, as shown and described. *Third*, In combination with said shaft B, we claim the tongs L, having their jaws constructed as shown and described. *Fourth*, in combination with the shaft B, we claim the screw C, with its thread, constructed as described, for the purpose of imparting to the shaft an intermittent longitudinal movement, while it has a continuous rotary movement during the operation of twisting the blank, for the purpose of both twisting the blank and setting the lips at one operation.

(54,914) HAY-RACK FOR WAGONS.—Albert Jackson, Clifton Springs, New York:

I claim, *First*, in connection with the frame A, the detachable bars B, constructed of two parts a a, and fitted to the frame in the manner substantially as shown and described. *Second*, The removable wheel-tenders G, attached to the cleats E E' H, on the bars B B B I, substantially as and for the purpose set forth. *Third*, the removable boards F F, placed between the cleats E E, substantially as described. *Fourth*, the combination of the frame A, bars B, tenders G, and ladder or guard L, all arranged substantially as and for the purposes specified.

(54,936) LOADING-ATTACHMENT TO HAY WAGONS.—James Madison Miller, Greenwood Township, Pa.:

I claim the wheel *m m*, attached to the wagon wheel in combination with the wheel N, the lever and bar E E, and the crane P *o o*, when the same are constructed in the aforesaid combination and for the purposes set forth, in the manner described.

(54,958) FIFTH WHEEL FOR VEHICLES.—Uel Reynolds, New York City:

I claim, *First*, a stop-guard for preventing the wheels coming in contact with the body, formed by projections or stops upon the fifth wheel, substantially as set forth. *Second*, the anti-friction rollers, and jaws in combination with the fifth wheel, circles, or arcs, as set forth.

(54,988) TUYERE.—Levi Wilkinson, New Haven, Conn.:

I claim a cast-iron tuyere when constructed, shaped (both inside and outside) and fitted for use substantially as herein described and set forth.

(54,990) SECURING BITS IN BRACES.—William Wimmer, Elizabethport, N. J:

I claim the combination of the entire socket A, the sliding ring C, and the catches B B, each of said catches being formed with a flange *a*, and a nose *b*, to dispense with the customary pivot pins, and all arranged as herein described, so that the torsional strain shall be sustained by a solid socket, and the bit firmly secured within said socket by the noses *b b*, engaging beneath its head.

May 29. (55,112) WHIFFLE-TREE.—Niels Johnson, Ripon, Wis.:

I claim the clevises C C, arranged with the double-tree and whiffle-trees, as and for the purpose herein set forth.

(55,186) TUYERE.—Joseph Weller, Washington, Ohio:

I claim, *First*, The construction of a tuyere of an annular chamber B, surrounding a central throat which communicates with the double conical chamber G, substantially as described. *Second*, The construction of the plunger H, with a head b, cylindricalportions b1, b2, and a reduced stem b3, in combination with the chamber G, substantially as described. *Third*, the conical ring J', applied within the throat of the tuyere in combination with a contrivance for clearing the throat, substantially as described. *Fourth*, The oscillating ring J, provided with wings e e, in combination with the plunger H, substantially as described. *Fifth*, Providing for giving a vertical and also an oscillating movement to the solid or hollow plunger H, by means of a lever K, substantially as described.

(55,191) THILL COUPLING.—A. and G. Woeber, Davenport, Iowa:

We claim, *First*, The construction of a slot a, in the thill irons C, in the rear and obliquely to the bolt and the application of India-rubber a', therein as arranged, whereby the eye of the thill iron is thus made to have a bearing on the clip without any additional device to either one or the other as heretofore, substantially in the manner and for the purpose as herein set forth. *Second*, The application of the key E, and strap D, as arranged in combination with the bolt c, substantially in the manner and for the purpose as herein set forth.

(55,192) THILL COUPLING.—A. and G. Woeber, Davenport, Iowa.:

We claim, *First*, The application of a double-slotted key E, as constructed and applied in combination with the strap g, as constructed and applied in combination with the grooved side f, of the clip B, and bolt F, substantially in the manner and for the purpose as herein set forth. *Second*, The combination of the key E, grooved f, and bolt F, with the adjustable slotted metallic spring D, substantially in the manner and for the purpose as herein set forth.

(55,198.) SHAFT COUPLING.—George L. Baum, assignor to himself and Herman A. Doster, Bethlehem, Pa.:

I claim an improved shaft coupling formed by combining the shell E, key D, and set screws F, with the ends of the shafts to be coupled, substantially as described and for the purpose set forth.

(55,199) MACHINE FOR UPSETTING WAGON TIRES.—Edward Cook, assignor to himself and Bradford Jones, Valparaiso, Ind.:

I claim in combination with the moveable section I, and the immovable section C, united by the long screw H, the inclined clamps K D, and the anvil and clamping-bars M N, the whole arranged to operate as herein described and represented.

(55,203) BLACKING FOR LEATHER HARNESS, ETC.—Thomas James, assignor to himself, John McCrellish, John Rogers, W. H. James, and C. H. White, Medford, Mass.:

I claim the within-described oil blacking for leather, composed of the material specified, mixed in the proportions substantially as set forth.

June 5. (55,222) TUYERE.—Abel T. Atherton, Lowell, Mass.:

I claim the combination of the cistern b, tuyere iron f, pipe c, and packing e, constructed and arranged substantially as set forth.

(55,424) TIRE-BENDING MACHINE.—D. Ballou, Havanna, N. Y.:

I claim the combination of the wheel D, with its holder N, or its equivalent, the rachet G H, lever F, and spring-pressure roller J K L, substantially as described and represented.

(55,255) LAMP FOR VEHICLES.—S. P. Dodge, Boston, Mass.:

I claim, *First*, Supporting the lamp upon springs c, in combination with the posts d, and sockets e, substantially as described. I also claim the perforated cylinder h, extending down into the oil chamber and surrounded with fibrous material, as and for the purpose substantially as set forth.

(55,275) SMITH'S TONGS.—John C. Gardner, Hingham, Mass.:

I claim the combination with a pair of tongs of a segmental strip B, and pawl D, substantially as and for the purpose specified.

(55,295) MACHINE FOR PREPARING AXLE-SKEIN MOLDS.—James G. Holt, Chicago, Ill.:

I claim, *First*, The machine constructed and operating substantially as herein described for cutting, sleeking, and packing the walls of sand-molds for casting axle-skeins, which molds have been previously prepared by patterns, substantially as described. *Second*, The means, substantially as herein described, whereby said molds, which have been prepared by patterns substantially as described, are subject to the operation of rotary and vertically moving and laterally sliding tools, which are adapted for finishing said molds, substantially as set forth. *Third*, Providing the tool F, which finished the molds, with one or more movable cutters, constructed and operated substantially as described. *Fourth*, The combination of molding tools F, with a vertically sliding frame C, and also with devices which will admit of these tools being rotated about their axes for finishing molds, substantially as and for the purpose described.

(55,296) MODE OF PREPARING MOLDS FOR HUB-BOXES.—James G. Holt, Chicago, Ill.:

I claim *First*, making the interior form of a sand-mold for hub-boxes by means substantially as herein described, the said means being constructed and operating substantially as set forth.

Second, The combination of movable plates J, and sliding-plate F, with a tapering tool F, for finishing sand-molds for hub-boxes, substantially as described.

(55,319) CARRIAGE SPRINGS.—G. S. Manning, Springfield, Ill.:

I claim, *First*, The S-shaped springs D, either with or without the strengthening leaf of leaves K, constructed and connected to the axle and to the supporting arm of the carriage-body, substantially as described and for the purpose set forth. *Second*, The connection J, constructed as described in combination with the supporting arms H I, substantially as and for the purpose set forth.

(55,366) RIVET OR BOLT CUTTER.—D. D. Robinson, Niles, Mich.:

I claim, *First*, An improved machine for cutting off bolts or rivets formed by combining and arranging the eccentric levers A B, the jaws C D, and plates E F G J, with each other, substantially as described and for the purpose set forth. *Second*, The combination of the toothed and stop-plates H I, with the eccentric levers A and B, substantially as described and for the purpose set forth.

(55,382) HOLLOW AUGER.—James M. Smith, Seymour, Conn.:

I claim the combination of the hollow shank A, cylinder I, adjusting screws H, and slides, all constructed and arranged substantially as described, so as to adjust the cutters and guides as and for the purpose specified.

(2,271) ATTACHING SPRINGS TO WAGONS.—Charles S. Martin, Milwaukee, Wis.:

I claim a device for suspending and securing India-rubber springs by or under the hind axles of wagons, substantially as and for the purpose set forth.

(2,272) WAGON SPRING.—Charles S. Martin, Milwaukee, Wis.:

I claim the spring-bar A, and rods B B, when used for the purpose of sustaining the load on the hind axle of a wagon, in combination with the India-rubber springs F, substantially in the manner set forth.

June 12. (55,453) BOLSTER FOR WAGONS.—D. L. Babcock, St. Charles, Minn.:

I claim the metal cap, B, constructed substantially as shown, and applied to the bolster of ordinary wagons and similar vehicles, as and for the purpose set forth.

(55,522) SLEIGH-BRAKE.—J. J. Moore, Little York, N. Y.:

I claim the tongue B, working in a slot in the bar C, being provided with the rods b b, and f f, the same connected to join spurs, h, h, when arranged and used substantially as and for the purposes herein set forth.

(55,570) MACHINE FOR SAND-PAPERING WOODWORK.—J. H. Wonderly, Williamsport, Pa.:

I claim, *First*, The combination of the cap d, or equivalent jointed connecting pipes and exhaust fan, operating substantially as described. *Second*, The adjustable table B, provided with the sliding-frame p, having the inclined planes s s, and the regulating screw C, arranged and operated substantially as shown and for the purpose set forth.

(55,572) PAINT-MILL.—George Philip Zindgraf, Philadelphia, Pa.:

I claim, *First*, Rounding the shoulder r, of the part q', of the spindle N, and forming a rounded recess or cup in the top of the rynd q, into which the rounded shoulder r, is received, substantially as and for the purpose herein specified and described. I also claim the extension of the mill-spindle up through the balance-rynd of the lower running stone, so as to attach the feeding-screw thereto, as specified.

(2,281) APPARATUS FOR STRAINING PAINTS AND OTHER MATERIALS.—Luman Bishop and Stephen Brewer, Cortlandville, N. Y., assignees of Luman Bishop:

We claim, *First*, The strainer G, or its equivalent, as and for the purposes herein shown and described. *Second*, The combination of the strainer G, with the tube F, and piston, B, substantially as and for the purpose described. *Third*, The lateral apertures H H H, or their equivalents, in combination with the tube and piston, substantially as and for the purpose herein described.

June 26. (55,829) HAY-RACK FOR WAGONS.—Daniel Dennett, Buxton, Me.:

I claim the stretchers b b b b, cut in two at d d, in the manner and for the purposes specified.

July 3. (55,987) CARRIAGE HINGE.—George W. Beers, Bridgeport, Conn.:

I claim the plates E and G, and the catch F, constructed as described, in combination with the swinging arm of an ordinary concealed carriage door-hinge, substantially as described and for the purpose set forth.

(56,042) CONSTRUCTION OF METAL WHEELS.—Ansee Haines, Pekin, Ill., and John Kirkman, Kickapoo, Ill.:

We claim, *First*, The combination of a wrought-metal felloe ring or rings, formed of angle iron or angle steel of the shape substantially as shown, with wrought-metal spokes formed of angle iron or angle steel, of the shape substantially as shown, the said felloe ring or rings being encircled by a tree, and the said spokes being fastened by their outer ends to the flanch of the felloe ring or rings, and their inner ends cast into the metal hub, all substantially in the manner and for the purpose herein described. *Second*, The manner substantially as herein described of constructing and applying removable thimbles a a, to the cast-metal hub of the wheel, for the purpose set forth.

(56,073) Wagon Spring.—Charles S. Martin, Milwaukee, Wis.:

I claim constructing the springs of vehicles of solid blocks of india-rubber, in the form of the frustrum of a cone or pyramid, or having only an opening sufficient for the passage of a bolt through them.

(56,074) Wagon Spring.—Charles S. Martin, Milwaukee, Wis.:

I claim, 1st, springs, M, inclosed within cylinder, K, substantially as and for the purpose described. 2d, Springs, O, in combination with bolster, C, bar, D, bolts, I, and cups, P, substantially as described.

July 10. (56,207) Coupling for Vehicles.—N. W. Gordon, Waupun, Wis.:

I claim, 1st, The combination of the plate C, with the bolster B. 2d, The combination of the plate D, with the axle A. 3d, The combination of plates C and D, constructed and operating substantially as described and for the purpose set forth.

(56,269) Tire Machine.—George T. Ridings, Shelbyville, Mo.:

I claim the combination of the block A, B, with the eccentric clamp C, when employed as and for the purpose set forth.

FOREIGN INVENTIONS.

Sept. 9, 1865. Opening and Closing Carriage Windows.—J. Pennington, Dulwich:

For these purposes two toothed racks are used to each window, and the lower ends of these racks are pin-jointed, or otherwise attached or fixed to the lower end of the window. The racks move between guides when the window is being opened or closed. Motion is communicated to the two racks simultaneously, by means of a cog or toothed wheels, in the following manner:—On a shaft or axis is fixed a toothed wheel, which actuates a cog-wheel gearing with the teeth of one of the toothed racks. The tooth wheel on the shaft or axis also gears with an intermediate wheel, and this gears with another toothed wheel which gears with the other rack; hence, when the shaft or axis is turned round by means of a handle on a disc, or on a suitable crank fixed to the shaft or axis, the racks, and consequently the window, will be lowered or raised; and by friction it is caused to remain in any position to which it is raised or lowered. *Not proceeded with.*

Oct. 5. Brakes for Carriages.—A. R. Shaw, mariner, St. Leonard's, Sussex:

This improved brake consists of a shaft with a skid or retarder at each extremity to press upon the tires of the wheels. A lever or levers is or are attached to the said shaft, which lever or levers is or are drawn by a strap, chain, rope, cord, wire, or other connection passing along the pole of the carriage or other vehicle, if applied to a pair-horse carriage, or along the shafts of a one-horse carriage or vehicle, through or over a pulley, roller, or crank, at the forward part of the said pole or shafts, and connected with the pole pieces or chains of the breeching of the harness, in such a manner that, when the horse holds back, or is going down hill, or in stopping, the rope, chain, or other connection draws the lever fixed to the brake shaft forward, and brings the retarder or retarders against the wheel or wheels with a pressure varying with the momentum of the carriage or the gradient of the road. The brake can be fixed in the ordinary way to the body of the carriage, the connection depending upon the kind of carriage. In new carriages, the brake may be fixed through the eye of the springs, either at the front or back part, or to the front or back springs, or by strong iron-work to the under part of the carriage, from the axle or otherwise. The brake blocks are taken off the wheels by means of a spring acting on the lever, and fixed at any convenient part of the under-carriage.

11th. Carriages Propelled by Manual Power.—T. Du Boulay, Sandgate, Kent:

For the purposes of this invention, a fore and hind axle are used connected by a framing. The fore axle is governed by the feet of the person using and propelling the carriage. On each axle there are two wheels, the hinder axle being formed with a crank; the seat is on springs similar to what have before been used for like carriages. The carriage is propelled by means of a lever and connecting rod acting on the cranked axle. The lever has its fulcrum at its lower end, such fulcrum being supported by a framing below that which connects the fore and hind axles, and the fulcrum is arranged to be moved to or from the seat, to adjust its position for different persons. The connecting rod is formed with several holes at its end, in order to admit of its being adjusted in attaching it to the lever. The lever is slotted for some length where it receives the end of the connecting rod, and the end of the connecting rod is pin-jointed to the lever, by passing a pin through the lever and through a hole in the end of the connecting rod: there are several holes in the lever, in order to admit of adjusting the connecting rod nearer to or further from its fulcrum. At the upper end of the lever is a cross-head or bar, having handles on the upper end of the lever, so that it may thus be adjusted and retained at any desired height on the lever. To each of the hinder wheels there is a spring brake, which has a tendency to remain at a distance from the wheels till they are acted on, so as to press them against the peripheries of their respective wheels; and this is accomplished by cords, one end of each of which is fixed to the frame of the carriage, and the other end, after having passed partly round a pulley on each of the springs, is attached in a convenient position for the person using the carriage to draw up the cords and so put on the brakes. *Not proceeded with.*

16. Improvement in Wheels, Tires, and Bending Tires.—J. L. Hancock, Tipton:

In this case, the patentee surrounds the hubs of wooden wheels—which may be considerably reduced in consequence of the extra strength which his construction imparts to it—with a ring or plating of iron or other metal, with apertures for the passage of the inner ends of the spokes into the nave. He constructs tires in the form of a shoe, that is, with a flange on each side, within which the felloe is received. He makes these double flanged tires in one or more pieces. When of one piece, he unites the ends by forming apertures in them, and brings them together by a cramp, and secures the ends by pins or keys. Should the tire, after wear, require to be tightened, he then drives larger pins or keys into holes provided for the purpose in the tire. In some cases he forms the tire with one flange only, and bolts on a ring through the felloe and to the flange, the felloe being held between the flange and ring. He secures the outer ends of the spokes to the felloe by forming a longitudinal tenon in the spoke, which enters a corresponding mortise in the direction of the grain of the wood of the felloe. He constructs machinery for the bending of double or single flanged tires, which consists of an expanding and contracting segmental core, on the edge of which the inside of the tire rests, while the flanges overlap on each side; he then applies rollers in sets of three, one for the outer surface and the other two for the flange surface of the tire, or he uses one roller with depending flanges. He imparts rotary motion to the segmental core, or to the rollers. The heated tire is bent round, and the flanges are kept true; the ends are not united. When cool, the core is contracted and the tire is removed.

29. Improvement in Carriage-wheels.—S. R. Rowe, Birmingham:

This invention connects the felloes or rims of carriage-wheels to the spokes of the same, by which improvements great strength and durability in the wheels are obtained, and the use of dowels rendered unnecessary. In connecting or jointing the felloes to the spokes in the ordinary way, two spokes pass through each felloe, and the felloes are jointed together midway between two spokes, the spokes being sprung into the holes. According to this invention, the patentee expands or makes a shoul-

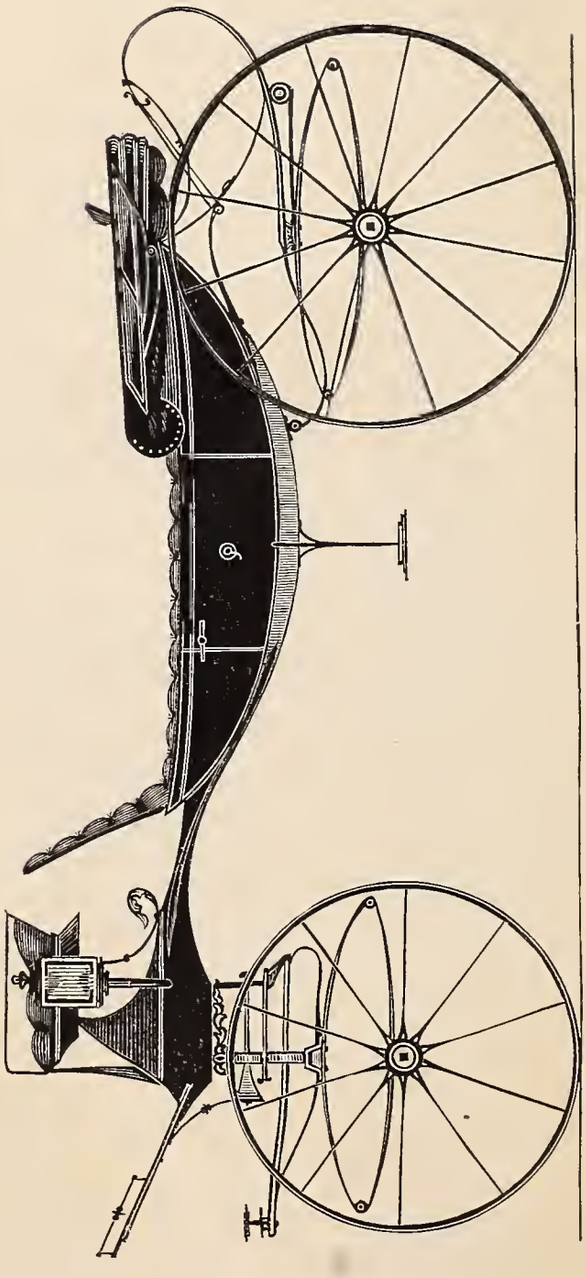
der on the end of each spoke, so as to make the spoke act as support to the felloes, instead of only passing through them, and he joints the felloes on every alternate spoke, instead of between the spokes, as is usual. The joint of the felloes is formed by one-half of the end of the spoke being passed through one felloe, and the other half of the spoke through the other felloe. The expanded end of every alternate spoke of the wheel thus serves as a bearing or support to the joints of the felloes, and renders it impossible for the wheel to lose its circular shape, or for the felloe to be broken by pressure over the joint. After the felloes have been jointed in the manner described they are ready to receive the tire, which is shrunk upon them in the ordinary way.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, August 20, 1866.

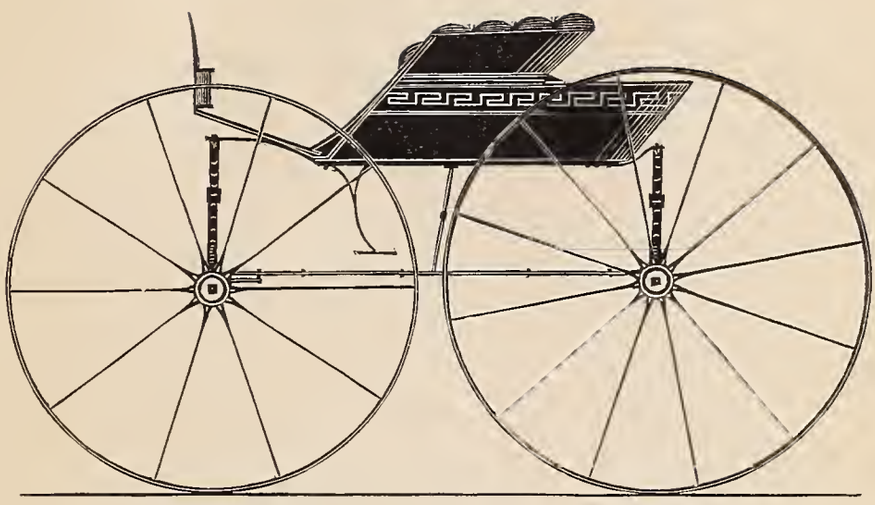
Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10½c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $2.00.
Do. rims, under 1¼ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 90c.; 5–4, 85c.
Do. Ducks, 50 in., $1.15; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.00—coach, mortised $2.00.
Japan, per gallon, $3.25.
Knobs, English, $1.50 *a* $1.65 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 15c. to 20c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 31c.; split do., 18c. *a* 22c.; enameled top, 32c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 28c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 12½c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $2.
Paints. White lead, ext. $17.50, pure $18 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.25.
Screws, gimlet.
☞ Add to manufacturer's printed lists 10 per ct.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.50 *a* $1.65 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 85c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spriug-bars, carved, per pair, $1.75.
Springs, black, 24c.; bright, 25c.; English (tempered), 28c.; Swedes (tempered), 32c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅜ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8' 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10¼.; 3-4, 11c.; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 9c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.45; 30, $1.55; 35, $1.80, gold.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.25; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, $1.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $5.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $10.50 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.



C-SPRING CALECHÈ.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

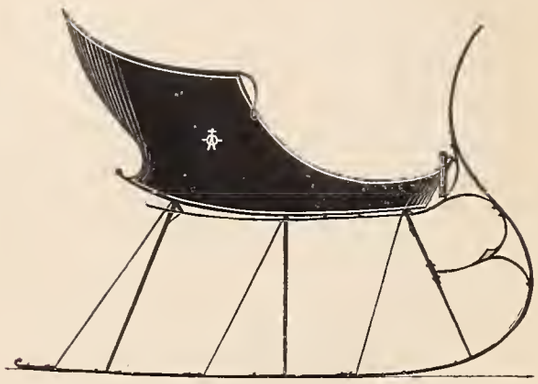
Explained on page 70.



CONGRESS BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

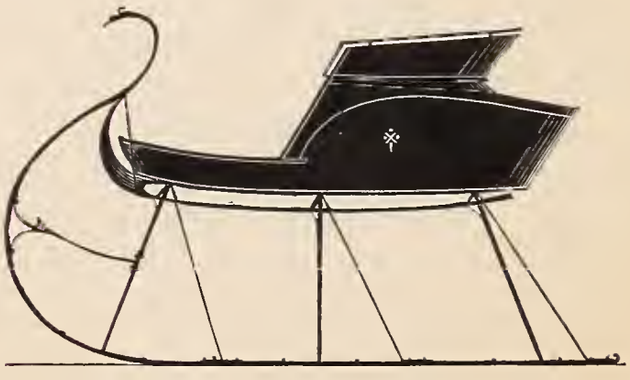
Explained on page 70.



NEW HARTFORD JUMPER.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 70.

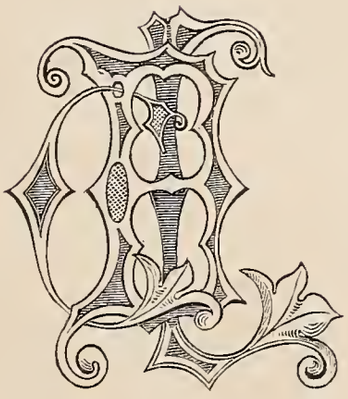


COAL-BOX SLEIGH.—½ IN. SCALE.

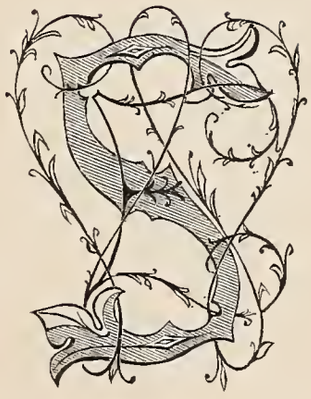
Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 70.

C. E. M.



G. L. B.



E W. S.

ORIGINAL MONOGRAMS.

See remarks on page 73.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, OCTOBER, 1866. No. 5.

Mechanical Literature.

ADVANTAGE OF WHEELS AND SPRINGS TO CARRIAGES.

BY JOHN B. PEEK.

Taking wheels in the abstract, they must be considered as answering two different purposes: *First*, They transfer the friction which would otherwise take place between a sliding body and the comparatively rough and uneven surface over which a carriage moves to the smooth, oiled surfaces of the axle and box, where the friction, as opposing resistance, is also diminished by leverage, in the proportions of the wheel to that of the axle.

Secondly, Wheels possess mechanical advantages for overcoming obstacles in proportion to the square root of their diameters, when the obstacles are relatively small, by increasing the time in that ratio during which the wheel ascends, and they pass over small transverse ruts, hollows, or pits, with an absolute advantage of not sinking proportionate to their diameters, and with a mechanical one, as before, proportionate to the square roots of their diameters; consequently, wheels thus considered cannot be too large, in practice, however much they may be limited by weight, expense, or convenience.

A line of traction is mechanically best disposed when it lies exactly parallel to the direction of motion, and its power is diminished at any inclination from that line, in the proportions of the cosine of the angle to the radius. When obstacles frequently occur, it had better, perhaps, receive a small inclination upwards, for the purpose of acting with more advantage in overcoming them. But it is probable that different horses exert their strength most advantageously in different directions; and, therefore, practice alone can determine what precise inclination of this line is best adapted to horses of different sizes. These considerations are, however, only applicable to horses drawing immediately at the carriage, and the convenience of this draft, as connected with the insertion of the line of traction, which, continued, ought to pass through the axis of the wheels, which fixes a limit to the size.

Springs were, in all likelihood, applied at first to carriages with no other view than to accommodate travelers. They have since been found to answer several important ends. They convert all percussion into mere increase of pressure, that is, the collision of two hard bodies is changed, by the interposition of one that is elastic, into a mere accession of weight. Thus the carriage is preserved from injury, and the materials of the road are not broken; but, in surmounting obstacles, instead of the whole carriage, with its load, being lifted over, the springs allow the wheels to rise, while the weight suspended upon them is scarcely moved from its horizontal level. If the whole of the weight could be supported on the springs, and all other parts relieved, the springs themselves, being very long, and extremely flexible, this consequence would clearly follow—however much it may wear the appearance of a paradox—that such a carriage might be drawn over a road abounding in small obstacles without agitation and without any material addition being made to the moving power or draft. It seems, therefore, probable that, under certain modifications of form and material, springs may be applied to the very heaviest wagons; and, consequently, if any fiscal regulations exist in regard to the public revenue, tending to discourage the use of springs, they should forthwith be removed.

Although the smoothness of roads and the application of springs are beneficial to all carriages, and to all rates of traveling, yet they are eminently so in cases of swift conveyance, since obstacles, when springs are not interposed, require an additional force to surmount them (beyond the regular draft), equal to the weight of the load multiplied by the sine of the angle intercepted, on the periphery of the wheel, between the points in contact with the ground and with the obstacle, and therefore proportionate to the square of its height. A still farther force, many times greater than the former, is required where the velocity is considerable to overcome the inertia; and this is increased with the height of the obstacle, and with the rapidity of the motion squared. But when springs are used, this latter part—by far the most important—almost entirely disappears, and the beneficial effects, in obviating the injuries of percussion, are proportionate also to the velocities squared. The advantages consequent to the draft from suspending heavy luggage on the springs were first generally perceived about eighty years ago, on the introduction of mail coaches. Then the bas-

kets and boots were removed, and the contents piled on top of the coach. This accidental circumstance, however, of the height being thus placed at a considerable elevation, gave occasion for prejudice, and was the cause of innumerable accidents, which has not, up to the present time, entirely lost its influence. A moment's consideration must be sufficient to convince any one that when the body of a carriage is attached to certain given points, no other effect can possibly be produced by raising or by depressing the weights within it than to create a greater or a less tendency to overturn.

The extensive use of wagons suspended on springs, for conveying heavy articles, introduced within forty-five years, will form an epoch in the history of internal land communication, not much inferior, perhaps, in importance, to that when steam cars were first introduced; and the extension of coach-shops to places the most remote from the metropolis induces the hope that, as roads improve, the means of preserving them will improve also, possibly in an equal degree; so that permanence and consequent cheapness, in addition to facility of conveyance, will be the distinguishing features of the macadamizing system.

Being in several instances much indebted to the liberal communications of your correspondents, I take this opportunity of throwing in my mite in return; and shall be most happy, at all times, as circumstances present, to communicate whatever may appear likely to be any way useful, for "good communicated more abundant grows;" where information can be obtained without the turmoil of experience, I think it advisable to avail ourselves of it. With a hope, therefore, that my effort to promote the interests of the coach-making craft will be kindly appreciated, I remain your well wisher.

OUR CARRIAGE MUSEUM.—V.

From the earliest period it seems to have been the practice to publicly exhibit the war-chariots of the vanquished, and from these the ancient nations selected the finest for the returning heroes and saviors of their country, as a mark of gratitude, and these chariots were preserved either in the halls of their temples, in the public squares, on the gates of the city, or in the sepulchers; some remained just as they were captured, others were gilded, ornamented, and filled up with the best arms of the conquered, and to these were attached four horses of wood, marble or iron. Sometimes the victor's coat of arms and usually an inscription on the pedestal was added, showing the name of the hero, and the purpose for which the monument was erected.

The erection of trophies and triumphal arches was practiced among the most ancient nations. At first they were very simple and of common material, arches and arbors of wood being covered with palm twigs, oak and olive boughs, myrtles and laurels, interwoven with flowers. Sometimes a trophy was raised on a pile of stones, made up of the arms of the conquered, or scattered foe, handsomely arranged; or else they hung these arms on a limb of an oak, or the stump of a tree. Thus Virgil (Eneid lib. xi., v. 5) says, "He [Æneas] placed a great oak on a mound, its branches being cut off on each side, and placed upon it shining arms, the spoils of the leader Mezentius, a trophy to thee, O great god of battles! He [likewise] fitted crests dripping with blood, and the broken darts of the hero, and the breast-plate indented and pierced in twice six places, and he binds a shield of brass to his left hand and suspends an ivory [handled] sword from his neck."

Many victorious heroes built monuments for themselves during their lifetime, thereby to perpetuate their names to posterity. Thus did Bacchus after returning a victor from India, hang up as a trophy on the branches of an oak tree the best arms which he had taken; and Romulus, in the eighth Olympiad, in the town of Camerina, had his own statue cast in iron, crowned by victory, and this statue was placed in an iron quadriga which he had captured, together with four iron horses, and sent to Rome where he consecrated them to Vulcan. This is told us by Plutarch.

We learn from the Bible that Jacob set up the stone

on which he slept, as a monument, "pouring oil upon it" (Gen. xxviii., v. 18); and Joshua had twelve stones set up as a memorial of the passage of the Israelites over the Jordan. (Joshua iv., 6.) Only in honor of God, or with some pious intention, was it lawful to set up monuments among the Israelites; all others being strictly prohibited. (Deut. xvi., 22.)

Our figure is an exact copy of a monument in white marble, which was dug up near Rome, and now stands in the museum of the Vatican. The horses are of life size and of the same marble as the chariot. The reins, surcingles and collar-bands, are worked from the solid marble with the horses. One of the horses and a portion of the chariot had to be much repaired, but the whole merits the admiration of the connoisseur as a rare and beautiful antique. The body is very well preserved, and the exterior ornaments rich and tasty. The sides and bottom of the body are of the same piece of marble, about one-and-a-half inches thick. The flowers and foliage are in relief, the inside of the body being ornamented likewise. For this picture [says Ginzrot] I am indebted to an artist of Munich, who copied it in Rome himself. We find a description of this same antique, in the fine work of Pyranesi, and in the "Museo Clementins" of Visconti. The shape of the body is singular, and in front, instead of being rounded, exhibits the form of a heart. The upper rim of the body consists of two thick rounded bars, and the wheels, axle and pole are all of the same marble, and finely finished, the ram's head at the

end of the pole particularly so. The form of the snake-heads to the yoke and the ring on it for the reins are worthy of special notice.

Claudian (Epig. 27) says of these showy chariots—who furnishes innumerable forms of a marble block—"the chariot, its driver, the horses, the yoke, the reins and whip, are all of one stone." When a citizen retired from business, he used to dedicate to the gods, some choice selection of implements—sometimes made of silver—and hang them on the arches of the temple. Gladiators, retiring from the arena forever, consecrated their armor to Hercules. Justinius says (Lib. vi., cap. 9) that Gordius devoted his farm-wagon to the gods, he having been offered, while riding in it, an empire, and put it in the temple of Jupiter. A racer, or driver, relinquishing the business, devoted his Biga, the yoke, reins, or bridle-bit to some temple, generally to that of Neptune. Catullus exclaims, "O my ship, I consecrate thee to Castor and Pollux." The beautiful Lais, when old, dedicated her mirror to the temple of Venus. Timon exclaims in Lucian, "Thou, my dear leather jacket and pick-axe, I devote you to Pan." Longas says of Daphnis, "to Dionysio he consecrated pouch and fur, to Pan the lyre and flute, to the nymphs his shepherd's crook." Carion, in Aristophanes, dedicates his old overcoat, and old shoes, which he wore in his poverty, to Pluto.

EFFECTS WHICH DIFFERENT SHAPED RIMS (TIRES) HAVE ON ROADS.

BY ALEXANDER CUMMINGS, ESQ., F. R. S.

(*Concluded from page* 23.)

Or when the wheels roll on two narrow parts, at the opposite extremities of their rim (as in experiment 6th).

29. *Second.*—That the same variety of circumstances which occasioned a difference of five weights (or degrees of power) with conical wheels (as in experiments 1st, 2d, and 3d), did not, by the number of weights, show any such difference with the cylindrical wheels (as appears by experiments 4th, 5th, and 6th).

30. *Third.*—But although no difference of resistance appears by the number of weights that were required to put the loaded carriage on cylindrical wheels in motion, it appears, by the number of spaces which the carriage advances in each experiment, after the descending weight had ceased to act, as before shown, that the *resistance* to the progress of the carriage was the least when the bearing of the wheels was the broadest, as will appear more fully when the use of the scale of acceleration is explained.*

The following experiments are intended to show the very different effects which the conical and the cylindrical wheels have on roads, and are particularly recommended to the notice of the trustees of the turnpike roads, as well as to those who are interested in the use of broad wheels.

31. The same carriages that were used in the former experiments are used in the following also, but they are now drawn upon a pathway that is composed of narrow wooden bars, of the whole length of the frame, supported on *friction rollers* (13), which bars being *set at liberty*, remove nearly the whole friction from the circumference of the wheels, and when the *bars are fixed* the friction at the rim is again restored.

N. B.—The breadth of each wheel covers seven friction bars, and presses equally on each.

Experiment Seventh.

32. The loaded carriage, with *conical wheels*, their whole breadth bearing equally on the friction bars (13) (now *at liberty*), and the friction by that means being removed from the rim, was drawn by six weights.

Observation on the Seventh Experiment.

33. In this experiment each of the narrow bars over which the wheels are drawn, is moved with ease on the friction rollers, and each bar complying with the motion of that part of the wheel which pressed upon it, the difference of the velocities of the several parts of the wheel is thus transferred to the bars, and the relative motions of the bars represent the difference of the velocities of the parts of the rim that pressed upon each. It exhibits also the manner in which the materials of the roads are disunited and broken by every conical wheel wherever it rolls, and as often as it rolls in the same place. This experiment also proves, past all dispute, that the increased resistance with the *broad conical wheel* arises from the different velocities of the several parts of the rim, and the dragging and rubbing occasioned thereby (as fully explained in the essay on this subject), for when this friction or dragging is removed (by setting the friction bars at liberty), the conical wheel is drawn nearly with the same facility as the cylindrical (see experiments fourth and seventh). But when the dragging on the rim is again introduced (by fixing the friction bars), the resistance becomes as great as when the conical wheel rolls on the whole breadth of its rim, on one solid bar (as in experiment first).

Experiment Eighth.

34. The loaded carriage, with the *cylindrical wheels* placed upon the same friction bars, was drawn by six weights.

Observations.

35. *First.*—But no motion of the friction bars took place (although they were quite at liberty to be moved), because the motion of every part of the cylindrical rim was the same. Each had an *equal* tendency with all the rest to advance, and there was no dragging, rubbing, or counter action on the rim.

36. *Second.*—By comparing this experiment with No. 7, it appears that when the friction arising from the different velocities of the parts of the *conical rim* was removed, the carriage with the conical wheels was drawn by the same number of weights as with the cylindrical wheel (in experiments 4th, 5th, and 6th). This also shows that the resistance does not depend upon the breadth of the wheel, but upon the unequal velocities of the parts arising from improper shape. For where there is no difference of velocity (as with cylindrical wheels),

* This scale had not been applied to the apparatus, nor thought of when the experiments were made before the Board of Agriculture; and from an attentive comparison of the experiments that have been made with the conical wheels (1st, 2d, and 3d) with those and similar ones that were made with the cylindrical wheels (4th, 5th, and 6th), it will clearly appear that the increased resistance which has hitherto been found to take place with broad wheels, was *not* owing to the *breadth*, but to the *conical shape* of the wheels; and that, by making the rim of carriage wheels of a true cylindrical form, their breadth may be increased, and the whole breadth have an equal flat bearing on the road, without increasing the resistance to the progress of the carriage, but, on the contrary, that the labor of the cattle will be diminished by increasing the breadth of the wheels.

there is no motion of the friction bars, because the wheels roll upon them with more facility than the bars do on the friction rollers.

Experiment Ninth.

37. *The friction bars being fixed*, the carriage with the *conical wheels* was again drawn on the same bars by nine weights, *the same as in the first experiment, when the whole breadth of the wheel had an equal bearing on the road, and the rubbing on its rim took place.*

38. This proves that the *difference* in the result of this experiment and No. 8 arises *solely* from the rubbing at the rim of the conical wheels, all other circumstances being perfectly alike in both experiments.

Experiment Tenth.

39. *The friction bars remaining fixed*, the carriage with the cylindrical wheels was drawn (as in experiment 8th) by six weights.

Observations.

40. *First.*—These two cart experiments tend only to corroborate the seventh and eighth experiments, and prove that the resistance on this path (composed of narrow bars, supported on friction rollers) is exactly the same. When the motion of the bars is stopped, as on solid bar (in experiments 1st and 8th), and by comparing experiments seventh, eighth, and tenth, we see that the *cylindrical wheel* moves with as much facility when the friction bars are fixed, as when they are at liberty, because there is no rubbing or difference of velocity of its rim, to move the bars, as with the conical wheel.

41. *Second.*—It appears, by comparing the first experiment with the fourth, and the ninth with the tenth, that under the similar circumstances of these experiments the increase of resistance at the *conical rim* occasioned by the rubbing which arises from the different velocities of its parts, is equal to three degrees of acting power, or three-tenths of the whole resistance that the loaded carriage meets with on a *level path* (9), covered with a moderate quantity of dust or sludge. But this difference will not be so great with large as with small wheels.

42. *Third.*—In the first six experiments we see how much easier the same load is drawn upon cylindrical than upon conical wheels, and, consequently, how much it is to the advantage of *the wagoner* to prefer the former to the latter, since by that means fewer cattle can draw the same load; or if the same number of cattle be employed, the exertion required of them will be much less.

43. *Fourth.*—The seventh, eighth, ninth, and tenth experiments prove that the increased resistance with the conical wheel arises from the different velocities of the greater and the smaller parts of its rim. They exhibit to our view, also, the destructive effects of the conical wheel in grinding, breaking, and loosening the materials of roads, stated in paragraph thirty-two of the present paper, and this shows how much it is to the interest of the trustees of turnpike roads to discountenance the use of conical wheels.

Explanation of Table of Experiments.

44. In the following TABLE the results of all the experiments are exhibited at one view, but in a different arrangement from that in which they were made, in order that those under similar circumstances with the conical and with the cylindrical wheels might be brought together and more easily compared.

45. The first column in the table (marked A) gives the number of each experiment, according to the order in which the investigations were made, that reference may, if necessary, be made to them.

Then follows a description of the circumstances under which each experiment was made.

46. In the column B is given the number of weights required to draw the carriage under such circumstances, so as just *to begin its motion* without assistance.

The column C shows on the scale of acceleration the number of spaces which the carriage advances (5) after the weights have done acting upon it; and estimating each division on this scale as equal in value to *one-tenth of the weights that draw the carriage* (5), we ascertain how much the resistance to the progress of the carriage is less than the power by which it is drawn, *in decimals of that power.*

TABLE OF EXPERIMENTS.

A. Number of the experiments, according to the order in which they were made.	The circumstances under which the experiments were made with the different sets of wheels.	B. Number of weights required to make the carriage begin its motion.	C. Number of spaces which the carriage advances after the weights have ceased acting.
1st.	The conical wheels bearing on the whole breadth were drawn by.....	9	$0\frac{1}{2}$
4th.	The cylindrical wheels do....	6	$3\frac{1}{2}$
2d.	The conical wheels bearing on a fourth of their breadth on the middle of tire	6	1
5th.	The cylindrical wheels under similar circumstances..	6	2
3d.	The conical wheels bearing on two slips on the extremities of their rims.....	11	0
6th.	The cylindrical wheels under similar circumstances..	6	$2\frac{1}{2}$
7th.	The conical wheels drawn on friction bars that remove the friction at the rim.....	6	$0\frac{1}{4}$
8th.	The cylindrical wheels on do. at liberty, but the friction bars do not move.....	6	1
9th.	The conical wheels on the friction bars (fixed) bearing on their whole breadth.	9	$0\frac{1}{3}$
10th.	The cylindrical wheels under similar circumstances.....	6	$0\frac{2}{3}$

CLEANING HORSES BY MACHINERY.

At the establishment of the Manchester Carriage Company, at Pendleton, there is now in practical operation a novel system of cleaning horses by a steam brushing machine, invented by Mr. Haworth. The idea is derived from the revolving brush which many hair-dressers have had in use. In the lower stableyard at Pendleton there is a large shed, where a dozen horses can be cleaned at one time. Along the center of the roof is a long shaft, from which hang several endless straps. Each strap gives a motion to a horizontal pole, at one end of which is a conical brush that rotates rapidly. On a horse being brought into the stable, after his three hours' work, he is taken to this shed, and a man applies to him the machine brush. In about half an hour the animal is thoroughly cleaned, and only the head requires finishing by hand. The cleaning effected by the machine is much more searching and effectual than the most diligent hand-currying can possibly be, and, to the majority of animals, the greater cleanliness of their skins, as well as the improved circulation of the blood, which is produced by the machine brush, appear to be aceeptable. Most horses undergo the operation quietly and patiently; but, in some animals, timidity is produced by the rattle of the machinery. In a large establishment, the most important result of the adoption of this invention is the economy of labor which results from it. Under the old system, a man was thought to have done a fair day's work if he cleaned ten or a dozen horses; but by the machine, he can clean thirty in the same time, and with considerable less bodily labor. When it is remembered that from Pendleton several hundred horses are daily sent out to work, it will be seen an important saving of money is effected by the employment of this new process.—*Manchester (England) Examiner.*

Home Circle.

ECHOES FROM THE SPIRIT-LAND.

BY MRS. C. B. HOUSEL.

The gentle birds, a choral tribe,
Sit in their shadowy haunts,
And to the opening eyes of morn,
Lift up adoring chaunts.

Soft summer winds sweep o'er the plain,
Where, bursting from the sod,
Fair, tender flowrets lift their cups
To drink the smile of God!

And in the birds' adoring chaunt,
And in the winds' soft breath,
Are echoes of sweet spirit-strains
Borne from the realms of death!

They whisper of the brightest soul
That e'er, in mortal guise,
Abode, to bless and beautify
A home below the skies.

Pure and serene, her earthly life
Was one sweet psalm of praise;
A gentle flow of holy acts,
With beauty crowned her days.

She loved the silvery song of birds,
The music of the breeze;
For, like a harp, her heart-strings thrilled
To nature's harmonies.

And all things fair and lovely, that
The bosom's pulses stir,
Are twined with tender memories
And holy thoughts of her!

Could the wild plaint of breaking-heart,
Or agonizing prayer,
Have barred the portals to the grave,
She had not entered there!

CUTTING ROBBIE'S HAIR.

And so this little household flower of ours must be shorn of some of its superfluous beauties. Even roses and geraniums must be pruned sometimes, and these uncut silken ringlets, with the golden sunshine of three summers entangled in their meshes, must make the acquaintance of scissors at last. Grandpapa says so, and adds that if it is not done shortly the low plum boughs will make another Absalom of Robbie, some time when the blue-eyed gander is in hot pursuit. There is no denying that the curls need trimming; they are too many and too thick, and they make the little head droop uneasily to one side, like a half-blown moss rose-bud under the weight of its own moss, and they straggle sometimes into the mouth and eyes. Yes, they must be cut; but it seems such a pity. Little curls that we have twined around our fingers when all wet from the morning bath; little curls that we have played with while singing the evening lullaby; little curls that our tears have fallen upon when the little baby eyes were shut in sleep. Ah, only mothers know how dear such curls are to mothers' hearts.

Here are the scissors. Robbie must sit very still now while his hair is being cut. Why, sir, why do you smile, and look at me so beamingly with your blue eyes? How do you know that I am not going to cut off that saucy head of yours with these great, sharp, cruel scissors? O, holy faith of childhood! If we could only trust our God as implicitly as babies do their mothers! "Except ye become as little children, ye shall in no wise enter the kingdom of heaven." Be very still now while I comb out these threads of shining floss. The mother is first barber to her boy; no other fingers can perform the sweet office so gently; but when fifteen or twenty years have flown, rougher hands will cut and comb these locks, all bronzed by sun and winds, and clustering above the brow of manhood.

But to think the down of manhood will gather on the cherry upper lip, and on chin and cheek, dimpled as though by the touch of an angel's finger! To think that this round neck of alabaster will be choked up with a man's neck-tie, and those lily-bud feet will wear high-heeled boots—Faugh, I will not think of it. I cannot realize that this fair baby of mine—but three summers out of Paradise, and still smiling in his sleep, remembering what the angels said there—shall ever be so metamorphosed. And yet the boy's babyhood is rapidly fleeting, and the severing of the ringlets seems like cutting the golden thread that links the infancy to his childhood. I can call you baby but little longer. You blue-eyed elf, you are already rebelling at being treated as one. You had rather run, now, after your painted wagon, than lie in your rose-

curtained crib, and hear me sing of baby whose cradle was the tree top and whose nurse was the wind. You will not wear your corals, because grandpapa says they are for babies, not for men; you had rather hunt hens' nests than play bo-peep; and when I hold out my arms to you, as you stand in the doorway, twirling your hat, you turn your head on one side, like a half-tamed bird a-perch on one's finger, while your dancing eyes seem to say, "You'll see, you'll see! I'll soon take flight." Pretty soon you will not believe in the wolf that talked to Red Ridinghood, and will lose faith in Santa Claus. I cannot keep the bud in its sheath; I cannot stay the little bark that slips so rapidly down the hurrying stream of life. Soon the rill will broaden into the river and the realm of roses and sunny skies will be passed. And the gold of those ringlets shall be dimmed by time, and the roses perchance drop from these pretty checks, and sorrow and sin, it may be, cloud the clear blue heaven of those innocent eyes.

There, I am crying. How grandpapa would laugh if he caught me, and say it was because I wanted the curls to stay, and make a girl of his boy. See! there are tears glistening in those sunny clusters of hair, like dew among the golden-blossomed jessamine vines, and your eyes are looking at me with wide-open wonder, and your red lip beginning to quiver with ready sympathy. O Robbie, even if the worst should come, and I should have to lay this bright head, with its locks of undimmed luster, under a coffin lid, and see the grass grow between my darling and the bosom he once slept upon I should still thank God for having given him, for having crowned my life with the holy blessings of motherhood; for it is such little arms as these around our necks, Robbie, that make us feel strong to do and suffer; it is drawing such little heads as these close to our breasts that keeps the hearts of some of us mothers from breaking.

There, that is grandpapa's step upon the stairs—and the task is just completed; the little lamb is shorn. Look at this bright heap of glistening silk, such as Persian looms never wove into richest fabric. Here is a "golden fleece" for you, such as never the lover of Medea sought. You did not know that such a glittering wealth grew on your little head, did you, blue-eyed baby? No you must not clutch it with those destructive fingers. O, grandpapa is calling you; let him see his little man; but leave me these, the first curls cut from my baby's head; I will put them away to remind me, in other days, of his sweet, lost infancy.—*Springfield Republican.*

THE SKY AND THE WEATHER.

The colors of the sky at particular times afford wonderfully good guidance. Not only does a rosy sunset presage fair weather, and a ruddy sunrise bad weather, but there are other tints which speak with equal clearness and accuracy. A bright yellow sky in the evening indicates wind; a pale yellow, wet; a neutral gray color constitutes a favorable sign in the evening, an unfavorable one in the morning. The clouds again are full of meaning in themselves. If their forms are soft, undefined and feathery, the weather will be fair; if the edges are hard, sharp, definite, it will be foul. Generally speaking, any deep, unusual hues betoken wind or rain; while the quiet and delicate tints bespeak fair weather. Simple as these maxims are, the British Board of Trade has thought fit to publish them for the use of seafaring men.

Pen Illustrations of the Drafts.

C-SPRING CALECHÈ.

Illustrated on Plate XVII.

We have no hesitancy in pronouncing this to be the *ne plus ultra* of designs for a Calechè. We recommend it as graceful in sweep, as well as light in construction. It is the first example we have given our readers, where the metropolitan-boot and the C-spring have been in combination with the elliptic. Although very costly to build, this undoubtedly makes the most pleasant as well as easy riding carriage for open-air driving of any in use. For the Central Park it cannot be surpassed.

CONGRESS BUGGY.

Illustrated on Plate XVIII.

Our friends—should they compare this design with those heretofore published in this Magazine—will find that it differs in many respects from them, and shows that—great as the variety is—still we have succeeded in producing something in which new points appear. As all buggies are built pretty much after the same plan, we need not take up space further than to explain, that the figured border which ornaments the upper portion of the body should be done by the painter, *not by moulding.* When properly done—say in deep carmine on a black ground—the effect not only relieves the broad panel, but imparts a pleasing and rich contrast in the finish.

NEW HARTFORD JUMPER, AND COAL-BOX SLEIGHS.

Illustrated on Plate XIX.

Both of these designs have been furnished us by our attentive and ingenious friend, E. Hallenbeck, Esq., of New Hartford, New York. The first—the jumper—in the drawing may have in the judgment of some, an unfavorable appearance, yet we have the assurance of the designer, that it makes a beautiful thing for the purpose intended. We have been supplied with the following details in regard to it: Bottom of the box, 3 x 2 ft. 3 in.; top, 2 ft. 7½ in. across, in front of the seat. The back corners should start at the bottom, perfectly square, and (by inserting large corner blocks) the top may be rounded to the desired fancy. The rest for the arms at the top edge on the side, are formed by a half-inch strip projecting five-eighths of an inch beyond the body, and running out at the back corner. For a very rakish looking job, the top of the dash may be thrown forward three inches, preserving the same crook above the top of the body in front. This—Mr. H. says—is decidedly the finest cutter in use, and will well pay the expense of getting up, because of its ready sale. The price of such a 'jumper' is $125.

The second design is a coal-box sleigh, which can be made and sold for $100. The box at the bottom is 3 ft.

9 in., by 2 ft. 3 in., to which of course the proper flare should be given. The center beam is 4 ft. 8 in. long. The upper panel is routered into the center of the runners, and the lower one rabbeted into the back side. By putting to it a 2½-inch sunken-bottom, the sleigh will look much lighter. The beams should be made to run through this sunken-bottom, the front one being rounded up for a foot-rail.

Sparks from the Anvil.

CARRIAGE-SPRINGS.—III.

In our last article on this subject we promised the reader something of the history of the elliptic spring, and its deformed *off*-spring. We have seen on page 55, that the incipient form of this spring existed in the shape of what is by Felton called the "single elbow spring," seventy years ago. We have no precise knowledge of the time when the elliptic spring arrived at perfection, and as yet only know that about the year 1820 they began to be manufactured in America. Previous to that time we were accustomed to import them ready made from England. The invention evidently dates from some year during the first quarter of the present century. Can any of our readers tell us what year?

The elliptic is thus far the *ne plus ultra* of all other springs. It is a singular fact that every attempt to improve it, for nearly fifty years, has only ended in disappointment and folly. So well-settled is this opinion in the minds of all practical modern carriage-makers that they deem it a waste of time to experiment in that direction; the business being left solely in the hands of non-mechanics, or if mechanics, they are not carriage-makers.

Adams, in his accustomed speculatively manner says "The earliest springs were probably formed of a single piece of steel," but adds that it is "a mode of construction exceedingly defective, and liable to accident where there is no provision to limit its action. And in the mode in which carriages are usually suspended, there is no provision for the rebound—as is the case with a bow, whose strings restrain it by the ends—and a violent concussion would break a single-plated spring. Experience in this matter probably led to the construction of springs of more than one plate, leaving their ends free to play against each other, and describe arcs, each upon its own center, when in motion." But Adams might have saved words, as well as his reputation, had he been better posted. We have shown that springs had been made up of plates long before the invention of the elliptic and therefore we see no reason for his conclusions. It is true such an experiment has since been tried and proved a failure.

Fig. 7.

The writer's intention being to render this series of articles practical as well as historical, we shall here give several forms of the elliptic spring, contrasting the imperfect form with the perfect.

The first engraving (Fig. 7) represents a model, all deviations from which have proved more or less defective. In this form—the plates having a uniform sweep the entire length—they operate evenly and gracefully, answering the purposes of a spring satisfactorily.

A Philadelphia spring-maker gives us (Fig. 8.) *his* perfect model of what a spring should be, making the

Fig. 8.

bottom "ears" at the ends to correspond with those at top, so as to equalize the strength of the parts, and make the heads symmetrical. We have some objection to this as it has too much the form of an are or segment of a circle which when carried to extremes renders a spring comparatively useless. The greater perfection is found in Fig. 7 above shown, in which the curve runs in a true sweep through the entire length, gradually decreasing towards the ends, so as to run out and look graceful at the heads. This shape gives greater elasticity to the spring and easier motion to the carriage. The French "head" which we have given to our model, is comparatively a modern device, rather questionable in the opinion of many. It may look stronger, but who ever saw a properly made ear-joint broken, when made in the old way. The plates generally break in the center, or very near it.

Not content with *a good thing*, a few years ago some "genius" undertook to improve upon "the model" and

Fig. 9.

"went in" for the *cripple*, shown by Fig. 9. This improvement however soon "played out." A critic tells us that "two tin pans attached at the edges, would have just as much elasticity. The lower it sinks [should it sink] the less it is supported." In fact, it ceases to be a spring, as embodied in the word in its best sense. What the intention of the "original" was, in thus shaping his *off-spring*, we have yet to find out. If to improve the elliptic, it *proved* a failure, and himself an ass!

Another "inventor" about the same time, perhaps the same "genius," produced the rickety progeny whose

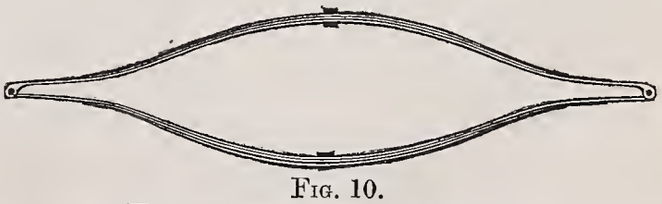


Fig. 10.

portrait (Fig. 10) we have annexed. His purpose evidently was to make a spring equally serviceable for carrying either two or four passengers, a feat which the

genius of man has thus far failed to accomplish, and ever will. It is contrary to all scientific laws in its very nature, and can only end in fallacy. We grant that a spring after this model will ride very easy with two persons, but when four ride on them, bringing them together at the ends, the springing properties are as effectually destroyed or neutralized as though nothing like the spring existed—it is merely jolt, jolt, jolt as the vehicle contends with obstructions in its rapid progress along the road. To accomplish the ends of making a spring answer a two-fold purpose, many expedients have been resorted to. Some of these contrivances are more ridiculous than scientific, and will form the subject for our next article. Meanwhile we advise the reader to take suitable exercise and put his mechanical stomach in the proper state to feast upon a dish of dainties we have in preparation for him hereafter.

BORAX.

The borax of commerce has hitherto been mostly manufactured from boracic acid, obtained in Tuscany. The acid and soda, conjoined and crystalized, has been found in limited quantities in Thibet and China. But the deposit at Clear Lake, in California, is much more abundant, and of remarkable purity. As taken crude from the earth, it is pronounced superior to the best English refined borax. "Borax Lake," as it is termed, is about two miles in circumference, surrounded by high hills, and serving as a reservoir for the water that falls in the rainy season. In summer the lake is quite shallow, and lumps of crystalized borax are taken out of the mud; And, after the crystals are extracted, the mud itself is found, for a depth of several feet, to contain more than eleven per cent. of borax; and so deeply has it penetrated, that when an artesian well had been sunk sixty feet, borax was still found in the mud even at that depth.

Paint Room.

NATURE AND QUALITIES OF PAINTS.

(*Continued from page* 56.)

ROSE PINK.

This color was formerly more generally used than at present. In some combinations it serves an excellent purpose, but for all practical uses is so volatile and subject to fade, that it is comparatively of little value. It is the cheapest as well as the easiest to lay of any of the "clarets," requiring but a very little practice on the part of the operator, seldom needing more than two coats to obtain a good ground-work.

Any person of ordinary ability can prepare this color himself, which is done in a simple manner: Take three ounces of Spanish anotta, and cut the article up as fine as possible, which, having dissolved over a gentle fire, add to it four ounces of *pounded* Brazil-wood. Having boiled the whole some two hours, afterward strain the mixture, and add to it two gallons of pure rain-water. To make the shade lighter, add half a pound of alum; to make it darker, add one and a half ounces of spirits of tin. After well stirring, pour it over twenty pounds of best Spanish white, and cover it over to exclude the air. Having left it in this condition for two days, make it up into small cakes and place them in the sun to dry, which will, if properly made, give you a superior article of rose pink, which must be kept in a damp place from the light to insure it against fading. It will thus be seen that this is a very delicate color, requiring some pains to preserve it in perfection.

RED COLORS.

Indian Red is, undoubtedly, the strongest kind of red in use, having a very solid and substantial body, or, in other words, it has a firm and compact texture and great weight. It is produced by pulverizing the bulbs of the crocus plant, of a saffron-like color, growing on the shores of the inland lakes of the West India Islands, whence its name Indian Red. These bulbs having been well saturated with sub-carbonate of potash, are afterward exposed to the rays of the sun to dry. This color is naturally a slow drier, but answers a good purpose in mixing browns. Although a vegetable paint, chemistry as well as experiment otherwise has proved this article to be very durable.

Red Lead.—This, according to Tully, is a salt composed of one equivalent of dentoxyd of lead, which performs the functions of an acid, and two equivalents of protoxyd of lead, which performs the functions of a base. This paint is little used by the carriage-painter, except in combination with other colors. It is very quick drying, and is so heavy and solid, partaking of the nature of the metal from which it is manufactured, that constant stirring while using is required, or it sinks to the bottom of the cup in a solid mass. It is made by subjecting common lead to a very strong heat in a shallow pan, stirring it continually with an iron rake until it assumes a pale red shade, when it is left to cool gradually. Afterward it is pulverized and heated once more, but not so hot, care being taken to guard against too high a temperature, lest the lead should fuse and become unfit for use.

From its quick drying nature—a very small quantity being sufficient to dry other colors, even when mixed in oils—it is a very difficult color to manage. It will not mix with varnishes, and must be prepared with oil. Varnish causes it to pit very much as that article itself will, if spread over a chilled surface. Perhaps it answers the best purpose as a drier in japans, for it forms an ingredient in all these of whatever kind.

Chinese Vermilion is one of the most brilliant and dazzling of all the red colors known, and is a sulphuret of mercury, consisting of sixteen parts of sulphur and one hundred parts of mercury. Vermilion is sometimes found in the quicksilver mines of Europe in a native state, and is then called cinnabar. This pigment is very durable, when the genuine Chinese article is used, but there are so many adulterations found in the shops, of red-lead and other ingredients, that we hardly know what we purchase—the genuine or its counterfeit. After purchase it may be tested by placing a small quantity on a red-hot iron plate, when, if the article is pure, it will entirely evaporate; if anything remains, it will show either red-lead or whiting, in this last case leaving on the iron a light flesh colored substance. This is so delicate a color that it should be mixed on a clean stone, with oil and sugar of lead as a drier. It is a fine color to spread, a small quantity covering a large surface, and yet it wears well.

American Vermilion is frequently used among us as a substitute for the Chinese, it being much cheaper, although much its inferior. This vermilion is said to be a preparation from the cinnabar before mentioned, by pulverizing and subjecting it to an intense heat, adding thereto two

parts of sulphur to three of ore. When cold, the mixture is again pulverized—as in the case of red-lead—and afterward mixed with about one-half its weight of prepared Spanish white. It has been discovered that sulphur has the effect of neutralizing the poison found in the cinnabar ore. This vermillion is a very good imitation of the Chinese, but inferior to the English in many respects. It should not be mixed before it is wanted as it, too, settles to the bottom of the cup by standing, and cannot afterward be used without re-grinding. Vermillions are considered bad driers, and therefore require artificial helps.

(*To be continued.*)

MORE TURPENTINE.

Our readers have much cause to rejoice, since the prices for one of the most needed articles in painting has been reduced to reasonable figures. In October, 1864, during the war, it was as high as $4.25 per gallon; now, our prices current shows that it can be purchased for 80 cents. As a further encouragement to the coach-maker, it gives us pleasure to state that the British government, in the Bahama Islands, has recently issued a notice, giving permission to any person to box pine trees in the pine forests belonging to the crown in the islands of New Providence, Abaco, Grand Bahama, and Andros, and not already leased, on the payment of a small duty on the crude turpentine and spirits of turpentine exported by them. This, we hope, will contribute towards still further reducing the price.

ORIGINAL MONOGRAMS.

Illustrated on Plate XX.

We have much pleasure in presenting our subscribers this month with the second installment for the year of original designs for monograms. As we have elsewhere hinted, should they not exactly meet the requirements of customers, still they will answer as studies for the painter; and if, as is supposed, obscurity be *a beauty*, in these combinations, then our artist has succeeded to perfection in reaching that point.

Trimming Room.

TULLY'S STAY FOR CARRIAGE-TOPS.

Every carriage-maker of experience knows that carriage tops as commonly set, however careful they may be in doing it, are liable in a short time to pitch forward, —the back bows especially,—caused by the strain put on it by the joints. This not only destroys the mechanical symmetry of the entire vehicle, but is a source of annoyance in various ways to every lover of a neat and trim "turn-out." Many experiments have been made to remedy this, and proved failures, until Mr. Tully—who is himself a carriage-trimmer—took the matter in hand, and invented the plan we shall now endeavor to describe and illustrate.

Fig. 1 represents a side view of an open buggy-top, supposed to be set with mechanical correctness in the common manner, when first made. This top, it will be observed, is set leaning back at the roof, about three inches from a perpendicular. Now while new, this looks well; but soon after the top is exposed to the combined effects of the weather and strain of the joints, the whole assumes the unsightly and annoying shape we have pre

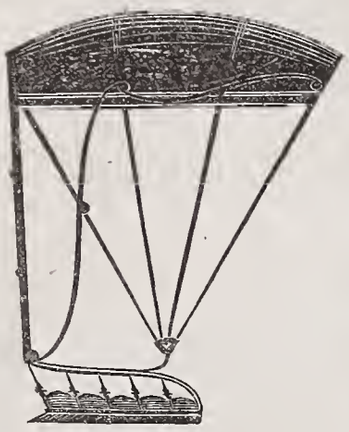


Fig. 1.

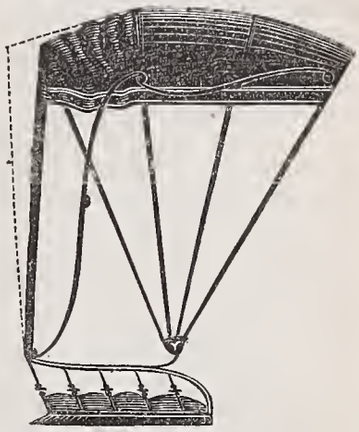


Fig. 2.

sented in Fig. 2. Whether this is due to the stretching of the material composing the valance, or other causes, has not been satisfactorily determined. It is sufficient for us to know that the evil exists, and it ought to bring joy to the carriage-maker's heart, when he finds—as we here tell him—*a remedy has been found.* With the simple remark that the dotted lines in Fig. 2, at the back, are intended to mark the original position of the top and to show how much it has become displaced since from a combination of circumstances, we pass on to Fig. 3, and give a more particular description of the new invention patented by Mr. Tully.

In Fig. 3, at A is inserted, between the leather and inside lining, a narrow strip of thin rolled brass, instead of webbing, extending from the seat-rail to the top of the back bow with a joint in it at C, to facilitate the falling of the top when desirable. The rigid nature of this metallic strip insures the top against the serious defects found in those trimmed in the old way.

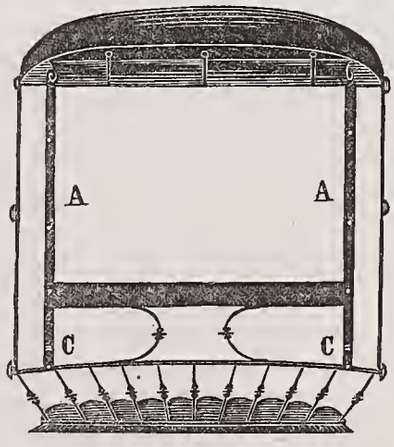


Fig. 3.

This stay is approved by some of the best carriage-builders in New York, and is equally suited to all open carriage-tops of whatever kind. Besides the advantages above named, a saving of from five to ten dollars is made in the trimming of a carriage, and when covered with patent leather it looks both light and neat.

Mr. T., who has been in the employ of Messrs. Adams & Cone for twenty-two years, sends us the following remarks in relation to tops: "Let me introduce to your attention another improvement of mine in the trimming of open top wagons, which I shall call the 'canopy-top,' from the fact that there is nothing more than a roof to

screen the passengers from the sun and rain. Tops can be made much cheaper than the ordinary top, and takes less stock, with my stays (see Fig. 3), dispensing with vallance, webbing and buckles altogether. When the top falls there are no stays to catch the dirt and liable to be torn in shrinking, and when trimming, the workman has only to raise his bows and put the screws in the ends of the stays, without troubling himself in leveling the body, thereby saving much time."

A trial of this stay will convince any one of its advantages over all others. For shop-rights address the patentee, Andrew R. Tully, Harlem, New York.

Editor's Work-bench.

SYSTEMIZED CARRIAGE-MAKING.

There is no business in which systemized labor may be more advantageously employed than in coach-making. It is true this cannot well be done in the smaller shops, for reasons which will appear as we proceed, but may, and has already been adopted in many of the largest and best establishments in this country. This, probably, is one of the secrets of success attending the operations of some of our large shops. By adopting a system in conducting the different departments, many of the losses incidental to the old mode are avoided, and the perplexities and troubles peculiar to it much reduced. Indeed such are the advantages obtained by thorough system, that it is found much easier for the proprietor to conduct business on a large scale than it would be to carry it on in a small way without one.

To carry out a system properly, two things are absolutely necessary, money and brains, the last especially. With these as the motive-power, the remainder is comparatively an easy matter. There must be, should there be more than one boss, one individual to wait upon a customer when he calls, and the more *gas* he possesses, the better is he qualified for this position. To this person may be assigned the correspondence also, *gas* being a portable article. The second proprietor may take the general superintendence of the mechanical departments of the whole establishment, subdivided as hereinafter mentioned. A third "boss" may do *all* the "out-door" business, assisted by a clerk. An expert bookkeeper added to the above completes the office bureau, unless we include therein the services of a competent draftsman.

The mechanical boss, who ought to be a practical workman and thoroughly acquainted with the business in all its details, next proceeds to subdivide his labors with subordinate talent. To do this effectually requires peculiar discrimination, as on his smartness depends the success of the firm. Having selected his men, a wood-workman, a blacksmith, a painter, and a trimmer, distinguished for their superior exhibition of skill in the several branches of trade, he next *farms out* separate departments to them, with condition as follows: To the blaeksmith he gives the ironing of all the new work—certain kinds of vehicles at stipulated prices—who engages to hire his own help, the firm supplying the material only. Should this sub-boss employ unskillful workmen, he can only blame himself for any losses he may incur in consequence thereof, he being the chief sufferer, since the scrap-iron he makes (in loss) bears but a small proportion to the costs of labor. Any deviation from his original instructions in the parts, or defections arising under the laws of a warrantee, are likewise entailed upon him. Practical men, who realize the importance and benefits of good iron-work, need not be told in order to appreciate it, that a system of this nature shifts fully one half of the perplexities attendant upon carriage manufacturing to the shoulders of the contractor. The cares of the proprietors may be summed up in few words; to see that good iron and coal are furnished, that the work is done according to instructions, and pay the contractor for the same; thus escaping "a nest of trials" incurred by drunken journeymen, unskillful mechanics, saying nothing about the bad tempers often engendered among unprincipled men.

The details above given may, with certain modification, be applied to the painting and trimming departments to good advantage. The proprietors not only obtain a superior class of good work generally, but have it in their power to "go into" some peculiarity of finish not attainable by others, since among a number of men there will be discovered superior talent which system manufacturers are sure to detect and find employment for. It is from such results that sham-caning and other "notions" have been obtained.

We all know that the wood work of a carriage is of the greatest importance. On it depends the chief beauty of the entire fabric. Taking this into consideration, and connecting it with the fact that all carriages *originate* in wood, order, strictly carried out, would seem to justify that our remarks on this head should precede those of the iron-work. This, however, is performed under a system somewhat different from the other departments, and makes it necessary that we treat of it here in order to avoid confusion.

There is nothing in the whole range of carriage-making of more importance than that of having a competent foreman—a man not very easily obtained. To a fine taste for art in its due proportions, he needs to be a skillful wood-workman himself, possessed of a character commanding respect. On these qualifications hinge the chances of success or failure. He it is, in many instances, who imparts to the whole establishment that peculiar appearance about a carriage which distinguishes the work of one shop from another. He is expected to draw the working

plans on the black-board in a side elevation, to make the patterns, and to mark out all the "stuff" for the sawyers. The unsystematic way in which this last is done by indiscriminate hands in some shops opens one of the widest leaks in the trade, second only to that of "cutting" in the trimming-shop. It will no more do to trust this business to some hands than it will to trust a dog with our marketing. Both experiments will only end in ruin. The reason why so many carriage-makers fail is the lack of judgment they show in these particulars, and which may receive further attention in another article.

The importance of the wood-work of a carriage requires both the judgment of the mechanical boss and the foreman united. Even this sometimes ends in failure. In a well-conducted shop, besides, carriage-parts and wheels are assigned to different workmen under the general superintendence of a foreman. If a certain individual is kept on one kind of bodies, one kind of carriage-part, or on wheels, he is sure, if he possesses any genius, to make such improvement as can never be attained by workmen on all branches. This is one of the secrets of success in the history of the larger shops. Thought expended on a single branch of trade is sure to find expansion in increased excellence. Excellence is still further advanced by the contact of mind with mind. The effects of this contact of mind with mind is made the more apparent when we compare city-made work with rural manufactures. Disguise it as we will, our country readers who are candid must admit it; yet the fact "sticks out" very prominently, that the most important improvements, and the most elaborate details in beauty, originate in the shops of crowded cities. We may be told that wealthy customers are the promoters of talent. Very well, we grant this; but then wealth cannot alone command talent at will, unless such has been already educated to a requisite status. The truth is, excellence is the growth of time, and must have continued nourishment to bring it to perfection. For our country friends then to say, "We can make as fine a carriage as the best city builder, *if as well paid for it*," is claiming more than circumstances will generally warrant. No reasonable man will dispute this.

This article having already extended to a greater length than we intended that it should, we must defer further remarks to another time.

CARRIAGE-MAKING A FINE ART.

Our noble occupation has, with much propriety, been classed among the fine arts. Very few professions demand a higher grade of skill and taste, in order to succeed, than this. Many who have engaged therein, would have done better as shoemakers or tailors, simply because they have not the requisite talent for conducting, successfully, a business which taxes the highest mechanical skill man has ever shown. Disguise it as we may, still the fact remains, that more than half of those engaged in carriage building, are utterly unfitted for a business so naturally artistic. These have no inclination for studying to improve, and are generally of that class of individuals who are forever complaining about this noble art as being "the meanest business a man ever engaged in."

An English writer, thirty years ago, said that "carriage-builders had not been remarkable as a scientific body," and gives us as a reason for this, that they have been more after "the bread-and-butter" supply than scientific advancement. We think this is not exactly the reason, because it is certain that every man's bread-and-butter success is best secured by the exercise of a higher order of industry and skill than is ordinarily shown. There is no truth more apparent than this, "that it is the most ingenious mind which makes the most money in carriage-building. Indeed, unless industry and skill are combined in the individual who undertakes it, he is pretty sure to drag out an existence of poverty and want. This is emphatically true in our day, since the public mind has become educated to appreciate properly Hogarth's "line of grace and beauty," as applied to carriages. In order to secure the patronage of an educated public, the mechanic is required to add to his natural skill an educated mechanical taste for beauty in outlines. With the best intellects, knowledge is only obtained in small portions at a time, and constant study is necessary if one would be up with the age in which he lives. Sometimes the well-being of an individual is accelerated by some happy discovery, but the old saying is oftener found true, that "necessity is the mother of invention." This ought not so to be. But we set out to show that carriage-making is one of the fine arts.

We have been told by another English writer, that "to produce a well-shaped body," which is the principal part of a carriage—that part, indeed, to which all the other parts are but accessories—requires no small amount of artistic taste, proficiency in drawing, and knowledge of perspective. There must be, firstly, a good outline, composed of easy-flowing curves, so adjusted as to harmonize with each other, while they follow the general directions which the uses of the thing necessitate; and, secondly, there must be a symmetrical rounding of the surfaces of the body; a mere outline on the flat would neither satisfy the eye nor give sufficient room in the vehicle without making it unnecessarily large and heavy." Next to proper admeasurements, a good eye is required to produce well-proportioned outlines, and to construct each portion so as not to mar the general appearance of the finished body. So little care is generally shown in this particular by carriage-makers, that when two workmen, having the same design, undertake to produce two car-

riages just alike, find, when they have finished them, they have scarcely a single point of resemblance.

Some of the productions of ancient Greece and Rome have a living reputation for beauty in outline and excellence in finish. Such, for instance, is the Portland vase that now graces the British Museum. When we look upon the works of art bequeathed to us by ancient skill—notwithstanding our boast of excellence—we find we come far short of what might be reasonably expected of an age so confessedly enlightened as ours. So cheap and plentifully has knowledge and experience been spread before us in these latter days, that, to our shame be it said, we have not made the advancement we ought to have done. Is it not in a great measure owing to "the dollar influence" of the age?

We freely admit that in carriage-making many improvements have been made in our day creditable to art; and yet, when we contrast these improvements with those of ancient times, we are led to conclude that all has not been done that might have been, had we studied more attentively mechanical rules and laws. We cannot better convey an idea of the value of diffused knowledge to the craft, than by taking the reader back to eight years for a starting point. Let him compare the designs in our first with those of the present volume, and see how much this Magazine has done toward advancing art. Say you that this might have been accomplished without books. We doubt it, and although the pride of man forbids his acknowledging the fact, still it is true, notwithstanding—we blush to say it—that carriage-making is now, in America, far in advance of what it would have been in the scale of art, had there been no journal in existence, during the past eight years, especially "devoted to the literary, social, and mechanical interests of the craft." Those who have neglected to avail themselves of its advantages thus far, may from this imagine how much they have lost by their neglect. But we must defer this subject to another time.

VOICE OF THE PUBLIC.

We frequently find our mechanical cotemporaries making extracts from the press in favor of their respective Journals. This we consider but feeble praise, as it generally emanates from writers who are not practical mechanics; therefore, instead of telling our readers what the press says of us, we give a few brief extracts from letters of recent date, received at this office, from coach-makers competent to judge in the matter.

Mr George Scharff, of Logansport, Ind., says, "It is just what every carriage-maker throughout the country ought to have." S. S. Myers, of Grand Rapids, Mich., writes, "Since I left Detroit I have not been able to get your Magazine, and I am completely lost without it." A. W. Ayars, of West Salem, Wis., tells us he has "been in the business about a year and has not had any new styles until he received our Magazine, but would not be deprived of it for twice the amount of subscription." F. A. Fisher & Son, of Beardstown, Ill., writes us, "Your Magazine came in due time, and we are well pleased with it.

We could add a number of other extracts highly flattering; but must close with the compliments of the author of the story we have recently published, entitled "A Summer at the Sea-side:" "I am much gratified to see my little romance so correctly and handsomely printed. The Coach-maker's Magazine is got up in a way that might shame some of the proudest of our literary periodicals." This from a lady, has *stirred up* our vanity and encouraged us very much in our labors to please.

CARRIAGE CHARTS.

We are in the constant receipt of letters making enquiries after the charts we are publishing; some supposing that we give them away to those who subscribe to the Magazine, and others thinking that we publish them periodically. We answer both questions negatively; and here state that when we get out a chart, it is not intended as an appendage to the Magazine but a separate thing, especially adapted to the convenience and ornamentation of the coach-maker's office. Without a fixed time for issuing, we publish as often as the public demand seems to require that we should do so, such approved designs as have already appeared in the Magazine. We may, in the course of another month or two, get out a new one. Meanwhile, we direct attention to our advertisement on the cover, where those already published are described and priced. When ten copies of numbers 3 and 4 are ordered at one time, they will be sold at a discount of 25 per cent.

EDITORIAL CHIPS AND SHAVINGS.

Horse-carts or Wagons.—The *American Agriculturist* says, that, "where the roads are smooth and level, and where but little field work is to be done, the horse-cart is endurable if made light and handy. But, as a general rule, they are the most cruel machines ever made for horse-flesh. For farm-work they must needs be made strong and heavy. The requisite harness weighs from forty to fifty pounds. When the cart moves on level ground, it bears heavily on the horse's back; when on a descent it is still worse; if toiling up hill, it pulls upward on the belly; if one wheel falls into a rut, it whirls the thills suddenly to one side, and tends to upset the horse; and at best strains him. The unwieldiness of a cart is seen in the fact that it is almost impossible to make a horse trot in one. Not so, however, with a four-wheeled wagon. We advise our readers not to invest in horse-carts without thinking the matter over carefully. There are many handy dumping-wagons made now-a-days.

To Start a Balky Horse.—The first work I did with him, a perverse, balky horse after he came into my possession was to draw a load of hay from the meadow. He started a few rods and then stood still, and no amount of urging would induce him to budge an inch. I took the pitchfork and sat down on the fore end of the load and began to prick him about the root of his tail, inserting the tines just through the skin. He kicked, but the load of hay was a complete protection. I kept on, moderately and persistently pricking for about five minutes, when he started for the barn. He never balked but once after, when the mere sight of the pitchfork was sufficient to make him draw.—*Cor. of Rural New Yorker.*

Found at Last.—One Patrick Sheridan, who hails from Woonsocket, Rhode Island, advertises in a New York Daily newspaper, that he has invented and will sell a 'Perpetual Motion Machine,' "That will drive a carriage, buggy or chaise to their full speed, and turn in the narrowest street, all by the motion of the feet." After all Pat, we guess that the *perpetual* depends wholly on "the *motion* of the feet." That will never do, you will have to experiment further.

The Horse's Attachment.—The horse is not an affectionate animal; he does not seem to care much about his master; we have seen him attached to a wagon though.

Stopping at the wrong Station.—A soldier in going from Baltimore to Rock Island, who had met with four accidents, was on the fifth occasion, in a car that completely turned over. Making his way through a window, and gaining an upright position, he looked around him and coolly inquired: "What station is this?" He supposed it was a way they had of stopping.

Dr. Parr, on Conquering Horses.—Sir James McIntosh invited Dr. Parr to take a drive in his gig. The horse became restive. "Gently, Jimmy," said the Doctor, "don't irritate him; always soothe your horse. Jimmy you'll do better without me. Let me down Jimmy." Once on *terra firma* the doctor's view of the case was changed. "Now, Jimmy touch him up. Never let a horse get the better of you. Touch him up, conquer him, dont spare him—I'll walk back."

Modest Request.—A gentleman driving was accosted by a man walking along the road, who begged the favor of him to put his greateoat, which he found very heavy, into his vehicle. "With all my heart," said the gentleman, "but if we should not be traveling to the same place, how will you get your coat?" "Sir," said the man with great readiness, "I shall be in it."

The Apprentice who Ate nothing at Night.—A coach-maker, who was a little over-industrious, having taken a new apprentice, awoke him at a very early hour on the first morning by calling out that the family was sitting down to table. "Thank you," said the boy, as he turned over in bed, to adjust himself for a new nap, "thank you, I never eat anything during the night."

New York Hackmen.—The bad character of hackmen, as a class, is proverbial. To protect the public against imposition, and in some degree provide a remedy for "a great evil," many stringent laws have, from time to time, been enacted, but not always with success, as those transgressing tax their ingenuity to make them a nullity if possible. Sometimes, however, they pay dear for their "experiments." A few days ago Chester Smith was brought before the First District Court, in New York, for having five special coaches standing for hire in front of the St. Nicholas Hotel, in violation of a corporation ordinance. This experiment cost him a fine of $10 each—$50. George W. Archer had to *bleed* $10 worth for having no badge on his hat, and Edward Quigg was fined a like amount for neglecting to post the rates of fare, as fixed by law, on the inside of his coach.

Sheridan *vs.* Pitt.—Of all the political repartees, one of the happiest was that of Sheridan, who, on being reproached by Pitt as forming a drag-chain on the wheels of government, bounded up with reply, "that for once he could compliment the minister on the correctness of his allusions, since the drag-chain was never applied but when the vehicle was going down hill."

Check to Runaway Horses.—A gentleman in Leipzic has invented a check for runaway horses.—A supplemental rein is attached to the outer side of the curb of each horse, and these united, are led along the pole through conductors, and so brought within reach by coming up through a hole in the bottom of the foot-board. When the horses get beyond control with the ordinary reins, this is used, and by pulling it, each horse's head is wrenched outward, and they are both left to waste their strength in pulling against each other.

Patent Journal.

AMERICAN INVENTIONS.

July 10. (56,270) Rotary Tire-heater.—George T. Ridings, Shelbyville, Mo.:

I claim, *First*, The arrangement of the above described tire-holder and drum in a vertical position, the tire-holder turning on a horizontal axis, and the whole operating in combination with a common forge-fire, substantially as set forth. *Second*, The combination as well as the arrangement of the adjustable tire-holder with the drum by means of the pillow-blocks, D2, and pawls *t*, and the adjustable plates *g*, as and for the purpose set forth. *Third*, The combination and arrangement of the epodes *a*1 and *a*3, and the segmental plate, *b*, with the endless screw *c*1, and wheel, *c*2, as and for the purpose set forth.

(56,277) Harness Bell.—Rudolph Schmidt, New York City. Ante-dated, June 26, 1866:

I claim, 1st, Forming the spring for the clapper of flat pieces of metal, in the manner and for the purposes specified. 2d, Constructing the clapper with three or more radiating arms, in combination with the spring carrying such clapper, as specified.

(56,315) Wheel Vehicle.—G. B. Woodward, Boliver, N. Y., and M. L. Smith, Scio, N. Y.:

I claim, *First*, The combination of the box C, cast with the end-pieee *b*, central-piece *a*, end-pieee *b*, and nut B, both end-pieces being provided with a flange *d*, all construeted and operating in the manner and for the purpose specified. *Second*, The spokes C, seeured to the felloes and part *a*, of the hub as shown, when used in eombination with the flanges *d*, at the inner ends of the parts *b*, *b*, substantially as and for the purpose specified.

24. (56,546) Instrument for measuring Tires of Wheels.—Junius Foster, Long Branch, N. J.:

I claim the guide, *h*, fitted as specified in combination with the measuring wheel, *b*, for the purpose and as set forth.

(56,586) Wagon Hub.—Robt. W. McClelland, Springfield, Ill.:

I claim, *First*, Constructing the hubs of vehicles of wood for receiving the tenons of the spokes, and incasing the same by metallic disks, substantially in the manner and for the purpose set forth. *Second*, In combination with the disks, C and C′, I claim the pipe-boxing, D, arranged substantially as and for the purpose set forth. *Third*, In combination with the spindle, E, flanges, C2, and pipe-boxing, D, I claim the cap, I, substantially as set forth. *Fourth*, In combination with the wooden hub, A, and metallic disks, C and C′, I claim the bolts, H, or their equivalents, substantially as and for the purpose set forth.

(56,601) Anti-friction Carriage Axle.—Edmond C. Otis, Voluntown, Conn.:

I claim the combination of the two rolls, B B, fixed to the axle A, so as to operate within the hub, D, substantially as and for the purpose set forth.

(56,606) Shackle for Carriage-tongues.—Frederick R. Pollard, Canaan, N. H.:

I claim a pivoted catch combined with the end of a carriage-tongue, substantially in the manner and for the purpose herein set forth.

(56,681) Carriage-wheel.—Jacob Woodburn, assignor to himself and Thomas Scott, St. Louis, Mo.:

I claim an oval or elliptical-shaped tenon for wheel-spokes, in combination with a round-shaped mortice hole in the wheel-rim therefor, substantially as herein described and for the purposes specified.

August 7. (56,901) Wheel.—Joseph Carlin, Cincinnati, Ohio:

I claim the arrangement of hub, A, having the described concave or disked periphery, C C′, and central collar, B, which supports, on their inner sides, two sets of straddling spokes, F, F′, substantially as and for the purpose set forth.

(56,916) Apparatus for tempering Chisels.—William M. Everitt, Malden, N. Y.:

I claim the combination of the table, B, and rack, D, with the tub or water-bath, A, for the purposes herein set forth.

(56,938) Leather-chamfering Machine.—Charles H. Helm, Poughkeepsie, N. Y.:

I claim, *First*, The cutter-wheel, having a projecting rim with a beveled face, in combination with a cutter arranged in the said rim, substantially as herein-before set forth, for the purpose of chamfering or scarifing pieces of leather. I also claim the combination of a standard composed of two parts, substantially as herein-before set forth, with a guide-plate for the purpose as herein-before described. I also claim the method of chamfering or holding the piece of leather at its back side, and back of the edge of the cutter, substantially as herein-before described, in combination with the cutter-wheel and guide-plate, for the purposes herein-before set forth.

(56,963) Wagon.—Charles S. Martin, Milwaukee, Wis.:

First, In combination with the bars, G, having shoulders resting upon the plates, S, and the plates S, I claim the tapering india-rubber spring, E, substantially as and for the purpose set forth. *Second*, Constructing the hind bolsters of a wagon, with a recess F′, for the purpose of receiving an india-rubber spring, and with or without the strengthening plates and bands, M, substantially as set forth. *Third*, The double cups, I, and the caps, K, in combination with the india-rubber springs in the form of frusta of cones or pyramids, the several parts being constructed and arranged for use, substantially in the manner and for the purposes set forth. *Fourth*, In combination with projections upon the bolster-plate, P, I claim a corresponding depression upon the top of the plate covering the caps, K, substantially as and for the purpose set forth.

(56,977) Axle-box.—M. V. Miller, Manchester, Pa., and George Henry, Steubenville, Ohio:

We claim, *First*, The plate, H, stops, G, in combination with the springs, F, journal-box, B, B′, and case, A, when arranged as in the manner and for the purpose set forth. *Second*, The combination of case, A, journal-box, B, B′, axle or journal, X, springs, F, E, stops, G, and plate, H, constructed and arranged substantially as shown and described, and for the purpose set forth.

(56,980) Wrench for Nuts of Carriage-axles.—Charles N. Morgan, Granby Mass.:

I claim the device for attaching the nut to the wheel, consisting of jaws, *c*, *c*, screw, D, and plate, E, provided with the socket, G, the whole combined and arranged in the manner and for the purpose set forth.

(57,018) Machine for tenoning Spokes.—Oliver Vanorman, Ripton, Wis.:

I claim, *First*, The combinations of the knives, G and I, the lever, C, the spring, F, the adjustable gauge, K, the adjustable face-plate, H, the crane, L, and adjustable presser, M, with each other and with the bed-piece, A, substantially as herein described and for the purpose set forth. *Second*, The combination of the knives, G and I, the lever, C, the spring, F, adjustable gauge, K, the adjustable face-plate, H, and the adjustable side-presser or holder, P, substantially as described and for the purpose set forth.

14. (57,090) Thill-coupling.—George E. Clow, Port Byron, N. Y.:

I claim the socket, C, catch, *d*, and shoulders, *e*, *e*, employed in connection with the thill-iron, A, A, *a*, substantially as and for the purpose specified.

(57,092) Wheel-tire.—Ebenezer Coleman, Woburn, Mass.:

I claim the arrangement and combination of the series of notches, *c*, *c*, *c*, and teeth, *d*, *d*, or their equivalents, and the slot, *e*, with the tire-laps, *a*, *b*, the same being to operate together and with a felloe and confining bolts, substantially as specified.

(57,094) Running-gear of Carriages.—Francis Gzick, Beanesville, Ohio.:

I claim, *First*, The semicircular or horse-shoe springs, D and F, constructed as described, in combination with the axles, D and J, and with the body, A, of the carriage, substantially as described and for the purpose set forth. *Second*, The gearing consisting of the reach, M, the lever, N, the circular arm, K, the horizontal arm, L, and king bolt, I, constructed and arranged as herein described, in combination with the axles, E and J, substantially as described and for the purpose set forth.

(57,099) Machine for turning Wagon-spokes.—T. Derington, Carbondale, Ill.:

I claim, *First*, The feeding and governing pattern, constructed with irregular grooves or threads, substantially as and for the purpose set forth. *Second*, The arrangement of rollers, *b′*, *b′*, straps, *b*, *b*, and horizontally adjustable beam, C2, with rail on its top, in a machine which is constructed and operated substantially as described, for all the purpose set forth. *Third*, The arrangement of the spring, *e′*, with its roller, *f′*, upon the cutter carriage and the rail, *f*, for holding the tooth, *c′*, up to to the patterns, substantially as herein described. *Fourth*. The arrangement with the cutter head of a pulley on both ends of its shaft and applying belts which move with the cutter carriage on both of said pulleys of the head, all for the purpose of driving the cutter with a more regular and steady motion, as herein set forth. *Fifth*, The combination of a cutter head, constructed with right and left auxiliary sets of cutters, S′, S′, and a central main or finishing set of cutters, with a reciprocating carriage and the feeding pattern, constructed as described, so that the

work of roughing and smoothing is performed at one time, and also during the back as well as the forward movement of the cutter-carriage, substantially as herein described.

(57,100) Axle and Journal for Carriages.—Lathrop Dorman, Worcester, Mass.:

I claim, *First*, The combination with the axle, A, and projection, B, of the wrist, G, hollow journal, D, nut, E, and shoulder, C, substantially as set forth. *Second*, The combination with journal, D, of nut, E, and projection, B, substantially as set forth. *Third*, I claim making the journal, D, hollow its entire length, and providing it with a wick, *f*, which passes through hole, *h*, whereby the outer surface of journal, D, is always kept lubricated, and the end, B, if accidentally broken off, can be removed, substantially as set forth.

(57,141) Tire-shrinking Machine.—Gideon Huntington, Almont, Mich.:

I claim the combination of the platform, A, A, movable heads, B, B, wheel, L, with eccentric threads, G, G, segments, H, H, cogs, I, I, and block, E, with the loops or beveled mortises and self-acting keys, when made and used as above described and for the purpose herein set forth.

(57,145) Lathe for turning Wagon Hubs.—Hiram Inman, Hagaman's Mills, N. Y.:

I claim, *First*, The rotary cutters, P, P, and fixed cutters, *e*, *e*, attached to a carriage, L, on the frame, A, of the machine, and arranged in connection with the fixed heads, B, B′, and arbors, C, C′, between which the block, Q, is centered, substantially as and for the purpose set forth. *Second*, The carriage, T, with cutter, W, and stops, *j*, *j*, attached in connection with the arbors, S, S′, in the fixed heads, R, R′, substantially as and for the purpose specified.

(57,179) Carriage-pole.—Henry W. Painter, New Haven, Conn.:

I claim the combination of the bar, B, with the pole inserted in the manner and for the purpose specified.

(57,248) Whiffle-tree.—Philip B. Curtir, assignor to himself and Albert P. Sawyer, Amesburg, Mass.:

I claim the arrangement and combination of the trace attachment straps, B, C′, and bolt *f*, and its holders, *e*, *e*, with the whiffletree, A, and its end loops, *b*, *b*, the whole being substantially as specified. I also claim the combination of the safety-spring with the whiffletree, the bolts, *f*, its holders and the attachment straps, B, C, applied to such whiffletree, as specified.

21. (57,312) Spring for Carriages, etc.—A. B. Greenwalt, Baltimore, Md.:

I claim a spring having the general confirmation represented in Fig. 2, and formed with the curved part, *c*′, substantially as and for the purpose set forth.

(57,379) Pole-iron Socket for Carriages.—Uel Reynolds, New York City.

I claim for the clasp, *d*, fitted as specified, in combination with the socket for the pole of carriages, etc., as and for the purposes set forth.

FOREIGN INVENTIONS.

Dec. 2, 1865. Improvements in Carriages and Endless Tracks on and with which they run.—A. Nicole, Soho Square, London:

For the purpose of this invention, when a carriage is to be drawn by shafts, the body of the carriage is constructed and arranged in a frame which is mounted on wheels of a comparatively small diameter, and it is preferred that there should be three pairs of wheels and three axles. Two pairs of wheels are on axles below the body of the carriage, and one pair of wheels are on axis above or at the upper part of the body of the carriage. The wheels are grooved or have flanges on each side, so as to insure their being retained on the two circular elastic tracks or continuous rails within and on which the carriage wheels move, and the carriage derives all the necessary spring and elasticity from the circular elastic tracks in place of having springs between the axles and the body of the carriage. There are usually two of such elastic circular rings or endless rails or tracks, one on each side of the carriage, and they are of steel. In carriages with long bodies more than three pairs of wheels and more than two circular elastic tracks or endless rails may be employed. The circular elastic tracks or endless rails run on the road in place of the carriage wheels, whilst the carriage wheels run on and within these circular elastic tracks, the object being that the tracks should reduce the draught by acting as wheels of large diameter, and at the same time offer the requisite elasticity or spring to the body of the carriage, and thus admit of the ordinary springs between the axles and body of a carriage being dispensed with. *Not completed.*

12. Naves and Boxes for Carriage-wheels.—L. L. Sovreign, Pentonville Road, London:

The nave of the wheel in this invention is formed of cast metal, having hollows at intervals around it to receive the inner ends of the spokes. At each end of the nave is formed a cavity or hollow chamber to receive the lubricating fluid, the cavity or hollow chamber at the inner end being open at the center for the passage of the axle. The cavity or hollow chamber at the outer end of the nave is open at the center, but when in use, is covered by a cap. The central part of the nave where it receives the axletree within it is bushed with a steel cylinder or tube, and this bush or box, if fixed and held within the nave either by a screw thread formed on its outer surface, which is received into a female screw formed in the interior of the nave; or the steel bush or box is formed with a projecting rib or feather which fits into a groove in the nave; or the arrangement of the rib or feather, which fits into a groove, may be reversed, and if desired, more than one rib or feather may be used. Instead of the bush or box being of steel, it may be of cast-iron, with a screw thread on the outside; and generally the inventor prefers that this form of box or bush should be conical. When the steel bushing or box is screwed outside it is retained from turning when in use by notches formed on the inner end, into which are received projections or holding pieces in the nave, which are kept in position by the end of the axle. The axletree is retained in position within the steel or chill-cast bush or box by a screw nut or nuts at its outer end, together with a pin or pins in the usual manner; and when using ribs or grooves, as above explained, a screw ring or washer is used to retain the bush or box from movement. *Not proceeded with.*

14. Drag for Carriages.—A. E. Dobbs, Lincoln's Inn, London:

This invention consists in attaching skids or drag-shoes to carriages in such a way that they may be slipped under the wheel when wanted and released and carried into place ready for use again without backing or stopping the carriages. A skid is attached to one end of a bar, the said bar having its other end enlarged, there being an opening in the enlarged part through which the axletree passes. The parts are so made and arranged that the skid can be moved round the tire of the wheel at different distances from the tire, the distance being regulated either by the opening aforesaid working as a cam, or by a pin in the bar moving in a cam-shaped groove, or against a curved spring, by passing along which the pin is guided. If necessary, a toothed wheel upon the nave or catch on the above-mentioned bar carries the skid around the wheel into place. When the skid is not in use it is held in front of the wheel by a detent connected with the carriage, and on the said detent being moved it slips under the wheel, and a piece proceeding from it is caught by the same detent and the wheel is locked; on the detent being moved again the skid is released and carried round the wheel into place. *Not proceeded with.*

ANSWERS TO CORRESPONDENTS.

R. S. of Ind. — We send no specimen copies of our Journal until the same is paid for. The sum paid (50 cents) may afterwards be deducted, should you subscribe for a year and name the number already in hand. Ours is not like a common newspaper, only costing two or three pennies, but is an expensive work.

R. C. of N. J.—Our terms of subscriptions are $5 the year, *invariably* in advance. Those who want the Magazine will see the absolute necessity of complying therewith. We also prefer that subscriptions begin with June as long as we can furnish back numbers.

T. W. of Conn. — We keep a stock of Dole's Hub-boring Machines constantly on hand. See our advertisement on the cover.

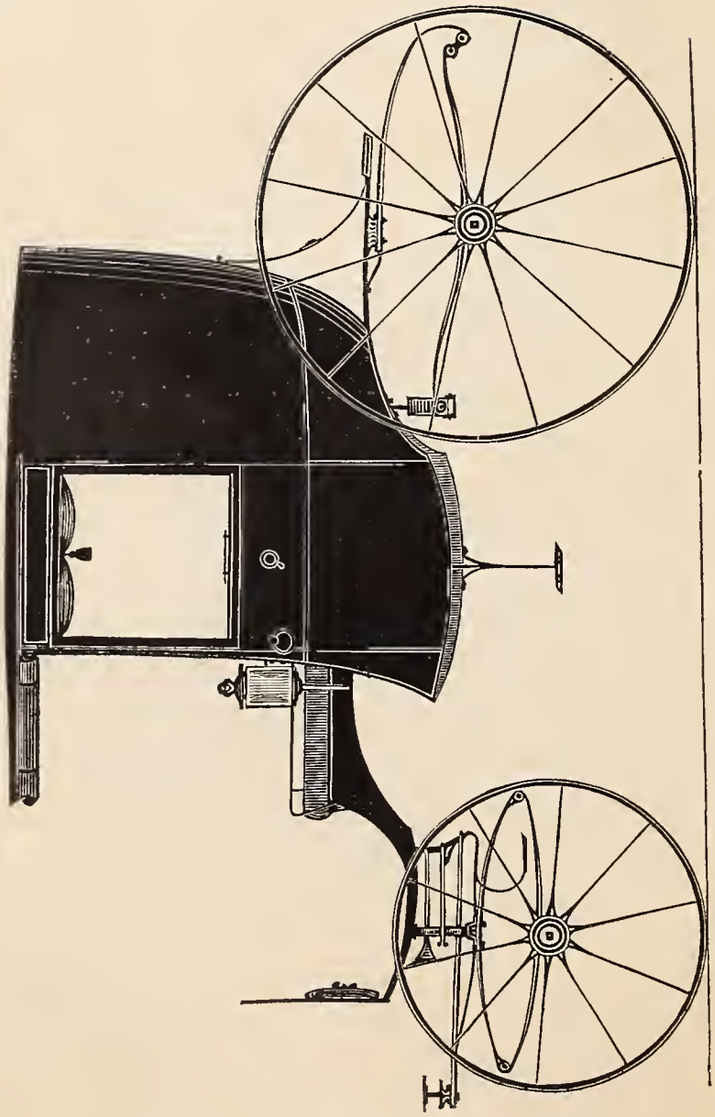
Note.—We are constantly "bored" with questions from non-subscribers, wishing to know the prices of certain kinds of goods and who deals in them. Such will take notice that we can't oblige them.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, September 20, 1866.

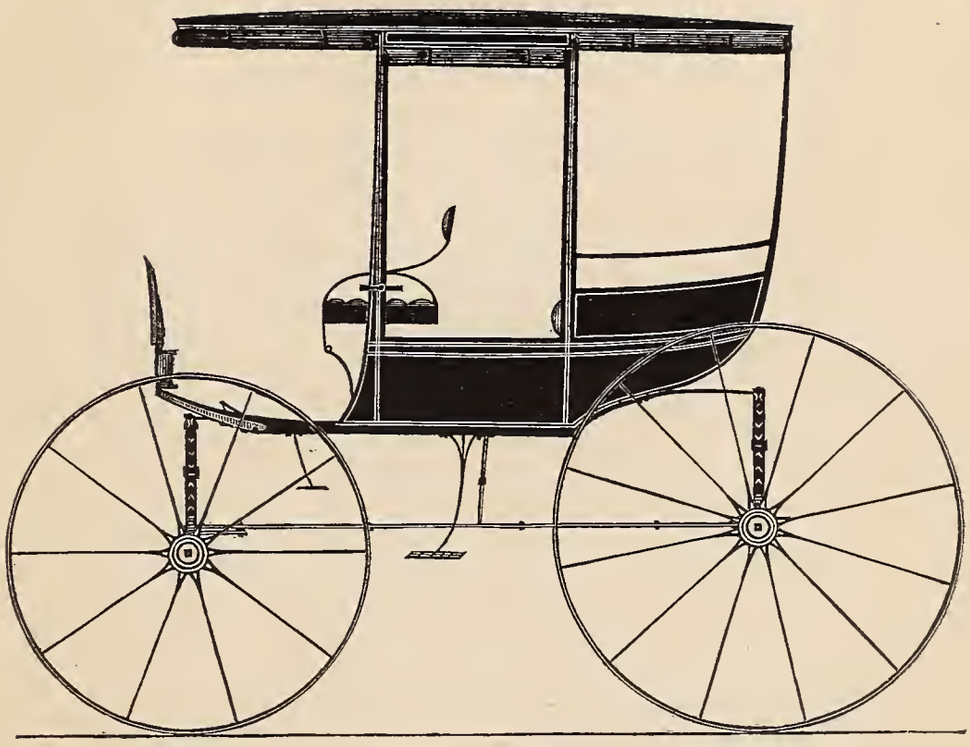
Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10½c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $1.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 90c.; 5–4, 85c.
Do. Ducks, 50 in., $1.15; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $2.88.
Knobs, English, $1.50 *a* $1.65 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 15c. to 20c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 33c.; split do., 18c. *a* 22c.; enameled top, 36c.; enameled Trimming, 33c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 30c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 12½c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $2.
Paints. White lead, ext. $17.50, pure $18 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.25.
Screws, gimlet.
☞ Add to manufacturer's printed lists 10 per ct.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.50 *a* $1.65 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 85c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 23c.; bright, 25c.; English (tempered), 28c.; Swedes (tempered), 32c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8' 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½.; 3-4 x 5-32 a 11 c; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 9c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close plated nuts and rivets, $1.
Thread, linen, No. 25, $1.45; 30, $1.55; 35, $1.80, gold.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.25; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, $1.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $5.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $10.50 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.



COUPÉ ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

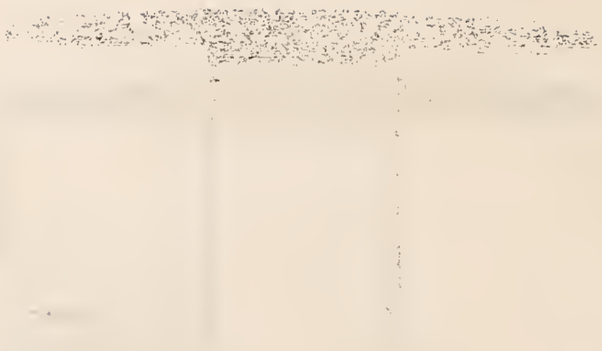
Explained on page 88.



OPEN FRONT TURN-OVER SEAT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

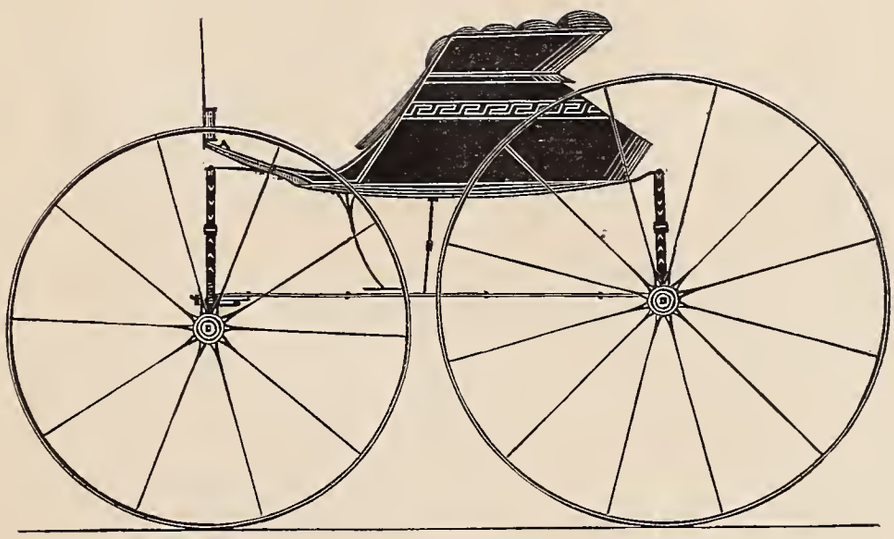
Explained on page 88.



FANCY TOP BUGGY.—½ IN. SCALE.

Designed expressly for the New York Couch-maker's Magazine.

Explained on page 88.



NEW YORK ROAD BUGGY.—½ IN. SCALE.

Engraved expressly for the New York Coach-maker's Magazine.

Explained on page 88.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, NOVEMBER, 1866. No. 6.

Mechanical Literature.

MISERIES OF TRAVELING.—STEAM *vs.* COACH.

Many bitter things have been said against the use of coaches by Taylor, the water poet, and others; but the following tirade against stage-coaches, published a few years since by an advocate of steamboats, is equal in fault-finding to anything we have yet seen.

If the number of persons who have been killed, maimed, and disfigured for life in consequence of stage-coach *mishaps* could be ascertained, since the first establishment of steam-packets in this country (England), and, on the other hand, the number who have been similarly unfortunate by steam-boilers bursting, we should find that the stage-coach proportion would be in the ratio of ten to one! A solitary "blow-up" of a steam-packet is "noised and proclaimed" from the Land's End to the other extremity of the island; while hundreds of coach-accidents, and many of them fatal, occur, which are never heard of beyond the village near to which the casualty takes place, or the neighboring ale-house. These affairs it is to the interests of the proprietors to "hush up," by means of a gratuity to the injured, rather than have their property ruined by an exposure in a court of justice. Should a poor man have a leg or arm broken through the carelessness of a drunken coachman, his poverty prevents his having recourse to law. Justice in these cases, nine times in ten, is entirely out of the question, and an arrangement between him and the proprietors is easily effected; the unfortunate fellow rather receive fifty or a hundred pounds "hush money" than bring his action; when, perhaps, from some technical informality in the proceedings (should he find a lawyer willing to act for him, being *poor*), he would be non-suited, with all the costs of both parties on his own shoulders, and be, moreover, ruined forever, in both purse and person. These remarks were suggested by reading an American work, some time since, on the above subject, from which I have extracted the following stage-coach adventure:

Inside.—Crammed full of passengers—three fat, fussy, old men—a young mother and sick child—a cross old maid—a poll parrot—a bag of red herrings—double barrelled gun (which you are afraid is loaded)—and a snarling lap-dog, in addition to yourself—awakening out of a sound nap, with the cramp in one leg, and the other in a lady's band-box—pay the damage (four or five shillings) for "gallantry's sake"—getting out in the dark, at the half-way house, in the hurry stepping into the return coach, and finding yourself the next morning at the very spot you had started from the evening before—not a breath of air—asthmatic old man, and child with the measles—windows closed in consequence—unpleasant smell—shoes filled with warm water—look up and find it's the child—obliged to bear it—no appeal—shut your eyes and scold the dog and get bit—execrate the child in return—black looks—"no gentleman"—pay the coachman, and drop a piece of gold in the straw—not to be found—fell through a crevice—coachman says "he'll find it"—can't—get out yourself—gone—picked up by the 'ostler—no time for blowing up—coach off for next stage—lose your money—get in—lose your seat—stuck in the middle—get laughed at—lose your temper—turn sulky, and turned over in a horse-pond.

Outside.—Your eye cut by the lash of a clumsy coachman's whip—hat blown off, into a pond, by a sudden gust of wind—seated between two apprehended murderers and a noted sheep-stealer in irons, who are being conveyed to jail—a drunken fellow, half asleep, falls off the coach, and in attempting to save himself, drags you along with him into the mud—musical guard and driver, "horn mad"—turned over—one leg under a bale of cotton, the other under the coach—hands in breeches' pockets—head in a hamper of wine—lots of broken bottles *versus* broken heads—*cut* and run—send for surgeon—wounds dressed—lotion and lint, four dollars—take post-chaise—get home—lay down, and laid up.

Inside and Outside.—Drunken coachman—horse sprawling—wheel off—pole breaking, down hill—axle-tree splitting—coach overturning—winter, and buried in the snow—one eye poked out with an umbrella, the other cut open by the broken window—reins breaking—impudent guard—hurried at meals—imposition of inn-keepers—five minutes and a half to swallow three and sixpenny-worth of vile meat—waiter a rogue—"Like master, like man"—half a bellyfull, and frozen to death—internal grumblings and outward complaints—no redress—walk forward while the horses are changing—take the wrong turning—lose yourself and lose the coach—good-by to

portmanteau—curse your ill-luck—wander about in the dark and find your inn at last—get upon the next coach going the same road—stop at the next inn—brandy and water hot, to keep you in spirits—warm fire—pleasant company—heard the guard say, "All *right?*"—run out just in time to cry, "I'm *left,*" as the coach turns the corner—after it "full tear"—come up with it at the end of a mile—get up "all in a blowze"—catch cold—sore-throat—inflammation—doctor—warm bath—fever—DIE. —*Hone's Table Book*, 1827.

OUR CARRIAGE MUSEUM.—VI.

THE accompanying engraving represents an upset quadriga copied from a very well preserved bass-relief in terra-cotta among the antiques in the imperial collection at Vienna, Austria. In the original this is fifteen inches long and nine inches broad. We have good reason for supposing that this bass-relief is the fragmeut of a frieze from some old sepulchre, although there is no iron on this portion. Perhaps this picture relates to the death of some young man, who was hurried away in the midst of a brilliant career; or to the demise of a popular charioteer, who, while turning around in the race-course, collided with the "meta,"* breaking the bows of the yoke, the effect of the break causing the fall of the horses on the right side of the tongue, those on the left probably running back or off and away.

Among the ancients the corpses of slain warriors were burned. In his description of the army of Aeneas, Virgil (Where?) says: "Arcads hurry to the gate and get funeral torches according to ancient custom. Already the road is illuminated by the long procession with flambeaus, and the light touches the fields in a far distant radiance." "And (Eneid xi., 197) now Aeneas and Tarchon erect funeral piles on the beach, and on them they put each their men, as their forefathers did, and when the black smoky fire ascended, the horizon was obscured by thick darkness. Three times the people, both foot-soldiers and horsemen, marched around the pile, lamentable cries and the sound of trumpets mingling together. Others threw into the flames captured arms, helmets, glittering swords, and rattling wheels."

Homer, in the Iliad (xxxiii., 165), when describing the funeral of Patroclus, says: "They (the mourners) built the pile one hundred feet square, and laid the corpse upon it, and Achilles added the skinned carcasses of sheep and horned-oxen, four living horses, nine house-dogs, and twelve sons of the noblest Trojans, which he had killed with his iron, and then he permitted the flames to speed with imperishable rage."

Nearly all ancient nations entertained the belief that the dead were fond of having around them in the other world their wives, servants, dogs, and wagons, in fact everything to which they were attached during life, and so laid everything upon the funeral-pile for consumption; therefore Virgil, in the Eneid (B. vi., l. 652), speaking of the heroes dwelling in Eliseum, says, "Their notion for wagons, splendid horses and arms, in life, will not leave them even in the fields of the subterranean world."

The foregoing from Homer, through the German, is so unsatisfactory to the English reader, that we shall give an English version of the same story, translated directly from the original Greek: "They (the mourners) formed a pile of a hundred feet this way and that, and laid the body [of Patroclus] on the top of the pile, grieving at heart. Many fat sheep, and stamping-footed, bent-horned oxen, they skinned and dressed before the pile; from all of which magnanimous Achilles, taking the fat, covered over the dead body from head to feet and heaped around the skinned carcasses. Leaning toward the bier, he likewise placed vessels of honey and oil, and sighing deeply, hastily threw upon the pyre four high-necked steeds. There were nine dogs, companions at the table of the king, and slaying two of them, he cast them upon the pile; also twelve gallant sons of the magnanimous Trojans, slaying them with the brass, and he designed evil deeds in his mind. Next he applied to it the iron strength of fire, that it might feed upon it: and then he groaned aloud and addressed his beloved companion by name."

Our readers will naturally ask what has all this to do with carriages? We answer, that in addition to illustrating the customs of the ancients, it shows that the pleasure of carriage riding was a ruling passion, quite as extensive then as now, according to the number of people and the facilities presented for gratifying it. The classic authors are full of conceits going to prove this fact. It is due to this circumstance, doubtless, that we are enabled to trace the history of our craft so far back with absolute certainty. This will further appear in the additions we shall make to "Our Carriage Museum" hereafter.

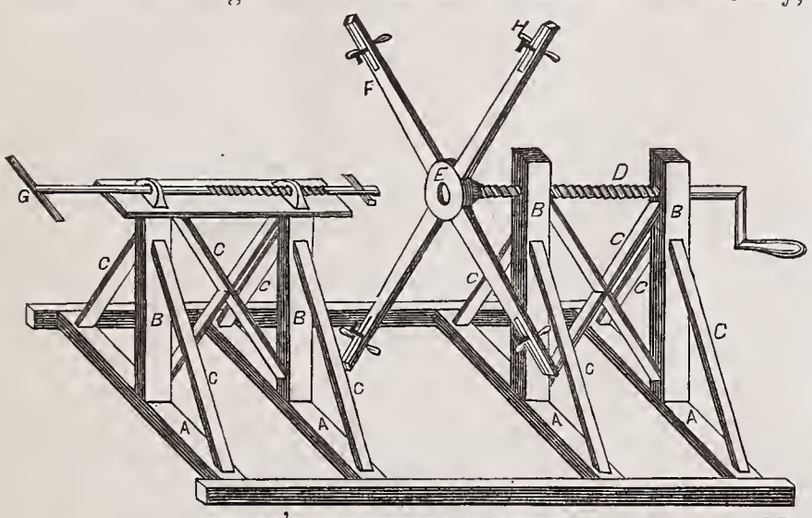
* The ancient circus may be described as an oblong-square, with its ends rounded off; at one end was the *carceres*, or starting post; at the opposite one the *meta*, or pivot, around which the chariots in the race-course turned. The great object of the skillful charioteer was to graze this post as near as possible without touching it. Our picture leads us to believe that on this occasion *the business was overdone*, hence the disastrous condition in which we find matters depicted. That it is a racing subject is evident from the manner in which the reins are placed around an unmailed charioteer.—ED.

BOX-SETTING MACHINE.

WE have received from Messrs. P. A. Fisher & Son, of Beardstown, Illinois, the plan of a Box-Setting Machine, with a description of the same, which they say they do

not intend to patent, and therefore offer it freely to the trade, although it is one of their own invention.

In the drawing, the A's represent four base timbers, the B's the upright posts, and the C's the braces to stiffen them. D represents a shaft, with a heel or flange E, and F the arms attached to flange E, with slots in the ends for a thumb-screw, to which is added a hook at the end by which to clamp a wheel; and G shows the shaft or handle of the boring tool. We use the extension bit for



FISHER'S BOX-SETTING MACHINE.

boring. The flange E has an apperture for the hub of the wheel to set in. The hole in the hub being first plugged and the center found with the compasses, the wheel is afterward placed in the chuck and fastened with the thumb-screw H, and made true. This done, the wheel is next put in motion with the tool G to the centre, and the boring performed. We have bored hubs so correctly, that when the boxes were set in the wheels they were so true that they needed no wedging afterward. The machines that set boxes in the old way are not correct. The hub sometimes verges enough to throw the wheel two inches out of true, while ours sets by the verge which must be correct.

OUR NEW WEIGHTS AND MEASURES.

THE laws of the United States have given us a new set of measures, which are now used in common with France, all the rest of America, except Canada, and more than half the nations of Europe. It is as yet optional with us, but the intention is, within a few years, to make it obligatory. Roughly stated, the measures are simply a long yard, the meter, with its thousandths; a quart larger than the wine quart, the liter; a heavy double-pound, the kilogram; a large square yard, the deciare; and a large cubic yard, the stere. All these are subdivided and multiplied, just as our dollar is from eagles down to mills, but not half the subdivisions will be used. The machinist will work by millimeters, thousandths of a meter; the traveler will estimate his progress by kilometers, large half miles. Coal will be sold, as lumber now is, by the thousand—a little less than the "long ton." The chemist and assayer have long weight by the milligram, of which sixty-seven make one grain. Fields will be estimated by the hectare, a scant half acre. Liquid medicines will be dosed out by the centiliters, one of which, nearly thrice a teaspoonful, we recommend for an ordinary dose of brandy. Things now measured by the bushel will be weighed. Measures of time, angles, and temperature will be left as they are. Now for more exact statements. The new unit, the meter, is, as near as could be ascertained in the last century, a ten millionth part of the distance from the equator to the pole. The liter is a cube of the tenth part of a meter. The kilogram is the weight of a liter of pure water at its greatest density, 39 degs. The divisions above unity are expressed by Greek numerals: deca, ten; hecto, hundred; kilo, thousand; myri, ten thousand. The subdivisions of unity are expressed by Latin numerals: deci, tenth; centi, hundredth; milli, thousandth. Here is the whole system. Below we give the full set of names, putting in small capitals those that are likely to be used; as, "eagle, DOLLAR, dime, CENT, mill;" would show that we reckon by dollars and cents only. As even the United States foot differs slightly from the English, we copy the most careful estimate we know of the American values of the new measures from Holton's "New Granada." They were calculated expressly for that work with the utmost exactitude, under the direction of Prof. Guyot.

Myriameter, 6.214 miles.
KILOMETER, 0.621 "
Hectometer, 19.872 rods.
Decameter, 10.936 yards.
METER, 3.28099 feet.
Decimeter, 3.037 inches.
Centimeter, 0.394 "
MILLIMETER, 0.039 "

MYRIARE, 3.861 of square mile.
Kilare, 24.711 acres.
HECTARE, 2.47 "
Decare, 39.538 square rods.
Are, 11.96027 square yards.
DECIARE, 10.7642406 square feet.
Centiare, 1.076 square feet.
Milliare, 1.5498 square inches.

Myriastere, 39241 cubic yards.
Kilastere, 3924.1 "
Hectostere, 392.41 "
Decastere, 2.76 cords.
STERE, 35.317 cubic feet.
Decistere, 3.532 "
Centistere, 610.278 cubic inches.
Millistere, 61.028 "

Myrialiter, 2641.78 wine gallons.
Kiloliter, 264.178 "
Hectoliter, 26.418 "
Decaliter, 2.642 "
LITER, 61.028 inches, 1.05672 quarts.
Deciliter, 0.85464 gills.
Centiliter, .0855 "
Milliliter, .0085 "

Myriagram, 22.047 lbs. av.
Kilogram, 2.305 lbs.
Hectogram, 3.528 oz. av.
Decagram, 154.332 grains.

Gram, 15.43316 grains.
Decigram, 1.543 "
Centigram, .1543 "
MILLIGRAM, .0154 "

N. B.—It is seen that a millistere and a liter are equal. We would really prefer that *stere*, etc., should rhyme with *player* rather than with *fare*.—*Boston Recorder*.

Coach-makers' Trades-Union.

COACH-MAKERS' INTERNATIONAL UNION.

THROUGH the courtesy of the President, we are put in possession of the Report of the Proceedings of the Journeymen Coach-makers' International Union of North America, which convened in Harmony Hall, New Haven, Conn., July 31st, 1866. The President, having called the meeting to order, appointed a conductor to examine the gentlemen present in the pass-word and collect their credentials, and appointed a committee of three to examine the financial condition of each Union. The meeting was adjourned to 3 o'clock P. M. On re-assembling in the afternoon, after transacting some routine business of little interest to our readers, the President read his annual rep , from which we take the following:

GENTLEMEN—In presenting to you my first report of our rapidly growing organization, I feel deeply impressed with the responsibility devolving upon me; nevertheless it gives me great pleasure to state to you that the Union has progressed during the year to an extent exceeding our most sanguine expectations. At our last session, held in Philadelphia, we had but six Unions in good working order, represented by seven delegates, yet we did not feel discouraged at the smallness of our numbers, but boldly set to work to provide the means of spreading the glorious principles of Union and self-protection, and I am pleased to say that a very large measure of success has attended our efforts; so much so, that we meet at this session with twenty-three Unions in good working order, and you see before you thirty-two delegates, showing an increase in Unions of seventeen, and delegates twenty-five, whilst our membership has also increased from three hundred to one thousand seven hundred. I stated in my closing remarks at the last session that I hoped to meet the next Convention with a representation from twenty Unions. I am pleased to say that wish has been fulfilled, I hope to the satisfaction of all.

I now most respectfully call your attention to the following list of charters granted by the International Union since our last report: No. 3, of Baltimore, Md.; No. 8, of Columbus, Ohio; No. 9, of Springfield, Ohio; No. 10, of Cincinnati, Ohio; No. 11, of Louisville, Ky.; No. 12, of Indianapolis, Ind.; No. 13, of New Haven, Conn.; No. 14, of Bridgeport, Conn.; No. 15, of Newark, N. J.; No. 16, of Salem, N. J.; No. 18, of Hartford, Conn.; No. 19, of Boston, Mass.; No. 20, of Concord, N. H.; No. 21, of Portland, Me.; No. 22, of Providence, R. I.; No. 23, of Worcester, Mass.; No. 24, of Springfield, Mass.; making the total number of Unions for which charters have been granted twenty-three, which are all in good working order at the present time.

Thus we see the present session commencing under auspices of a most cheering nature. Our work for the future is plainly marked out—first to carefully and judiciously examine the structure we now possess, and remove from it all that detracts from its usefulness, stability and growth, and adding such additional functions and advantages as in your judgment will strengthen the bonds of Union, and tend to make the organization a benefit to its members and also community at large. Secondly (but which is no less importance than the first), to provide the means to extend the Unions into every city and village on the continent where our trade is carried on. This work, gentlemen, has by the voice of your various Unions been placed in your hands. To show you the necessity that exists for you to be equal to the responsibility that now devolves upon you, I would remind you that our existence as a Union is now about to commence, and the entire trade throughout the continent is looking forward to the action of this Convention to complete the work so auspiciously begun.

The work of the President during the past year has at times been very heavy. On the adjournment of the last Convention, leaving our worthy Secretary to publish the proceedings of the delegates, and get the other documents printed, I thought my first duty was, if possible, to induce Baltimore to unite with the International Union, as the number had been reserved for her with that view. I proceeded to open a correspondence with Ex-President Richardson, but could get no reply whatever; I then, as a last resource, tried our trusty friend R. K. Webster, who labored with a zeal unsurpassed; and I am pleased to state that through his efforts, in a very short time, the Union there decided by a large majority to take up their charter, and now have their representatives among us, being only another instance of what perseverance will accomplish when rightly directed—my only regret being that I was not able to visit Baltimore to organize the Union. At the time I received the dispatch I had engaged to be in New Haven.

Early in January the ten cent tax, as ordered by the Convention to be collected, having been partially paid in for the use of the Traveling Deputy, and our Secretary having received one or two applications to organize Unions in the West, I gave him authority, as Traveling Deputy, to visit that section of the country, his expenses being paid out of the funds authorized to be collected for that purpose. The result of that visit was the organization of six Unions. In February, New Haven gave signs of life, and by the efforts of two faithful workers, Messrs. Monson and Edwards, a meeting was held, which I attended, and from that meeting has sprung the largest Union of Coach-makers in the United States. I also organized Bridgeport, which met with the most determined opposition from Mr. Wood, who discharged every man that stood by the Union, but I am pleased to say that a noble band of martyrs then stood forth in defense of labor, and boldly sacrificed home and all they held dear that the Union might live, carried it triumphant through every obstacle, and their delegates are with us to day. These heroic men should have the thanks of every coach-maker, and I hope the Convention will take some action on it. In March, Newark was organized, and is doing well. I also organized Rahway, at an expense of $20,

but am sorry to say they have not yet taken up their charter, neither can any reply be got to our communications. I received a communication from Mr. Williams, on the eve of my departure for New England, to visit them, but having made all my arrangements to start, coupled with the fact of being discharged from employment for speaking at an eight-hour meeting in New York, I wrote him a hasty letter that I would visit Rahway on my return. I again notified him that I was now ready to go there, and for him to make arrangements, but could get no reply. I therefore determined to postpone the visit till after this meeting. In April, with the remaining portion of the moneys collected for the Traveling Deputy, I visited the New England States, and organized several Unions. There were other cities anxious for some one to visit them, but the expenses (a full account of which will be laid before you) having exceeded the amount collected, I determined to await the action of this Convention before proceeding any further. My views on employing a Traveling Deputy will be given under that head.

There has been but one grievance to settle during the past year. An attempt was made to reduce the prices in No. 6 in November last, but the International Union rallied to their support, and in three weeks brought them out triumphant; since which time no other attempt at a reduction has been made. No. 7, in March, made a demand for an advance of prices, and the I. U. voted to sustain them, but it was not required, the demand being complied with. Taking the year altogether, it has been a very quiet one in our trade, as regards strikes, &c.; a fact we ought to feel proud of, as showing that wisdom has guided our counsels. In Cincinnati quite a lengthy contest took place before they became united with the International Union, which somewhat demoralized them, but they are now fast building themselves up again. They have our best wishes in doing so.

Having given you a brief account of the progress of the Union, and reminded you of the duties you are here to perform, I shall now proceed to offer a few suggestions on the future, for the consideration of the delegates present, as I consider this to be practically the first Convention we have held (the others being mere conferences). I will first call your attention to the Constitution; that it is defective in many parts no one will deny; it should therefore be thoroughly revised by all the practical wisdom we can bring to bear upon it. The question of taxation is one of the deepest interest to the future of our organization. Whether it should be increased or diminished is a subject for your serious consideration. That a revenue must be had to carry on the work of the Union is a fact so plain that we need not dwell on it. Your duties will therefore be to establish the best mode of collecting it. There is now, in my judgment, too many forms of tax. I would suggest that one be levied semi-annually, sufficient to defray all expenses; by such a method each Union would know exactly what they had to pay, and there would be no extras; I, therefore claim for this subject your most earnest consideration. Every information that it was possible to obtain bearing on the question has been procured, and shall be laid before you, with a view to facilitate your labors on the subject.

The subject of bringing in the Union men in different localities where there is not sufficient to form a Union, is one that should engage your serious consideration, as I know from experience, during my visit to many sections of the country, that men are anxious to assist us in the great work we have on hand. I think it might be accomplished by the Deputy of each Union within a certain radius being authorized to initiate those in outside cities or villages, giving a certificate of membership, and, if necessary, issue a yearly pass-word for the use of such members, so that if they left the locality in which they were residing they might receive all the benefits of the Union wherever they might go. I therefore hope you will take some action on the subject.

There are many other points in our organization that require revision, and it will be necessary to appoint one or more committees for that purpose, who, I hope, will give to the subjects laid before them all the earnest attention that they require. The question of benefits in case of sickness or death, also of giving relief in case of members being thrown out of employment through dullness of trade, has been much discussed during the past year by the various Unions, and some of them have added to their Constitution the relief in sickness and death. I ask of you a careful consideration of these subjects, and say by your voices whether you think it would be to the advantage of our organization to adopt them. They are of great importance, and should, if possible, be settled at this Convention. Without offering any views of my own on the subject, I shall leave them to the wisdom of this Convention, believing, as I do, that you are fully able to deal with the question.

The system of apprenticeship, the very corner-stone of our institution, has not yet received that attention that the subject demands, although it has largely engaged the attention of all right-thinking minds, and some of the trades have already begun to put their houses in order, and are bringing about a better state of things. I am compelled to confess that we have done little or nothing to accomplish so desirable an object; I therefore hope this Convention will take some decided steps in the matter, and I call your special attention to it.

Equalizing the rate of wages so as to be as nearly as possible alike in different localities, would, in my judgment, be highly beneficial, and prevent much of the competition and low rate of wages to which we are now subject. In many cities, with all the efforts of men to raise their wages, they cannot be long maintained without a corresponding increase in other cities adjacent to them, because there is an immediate rush to obtain the higher pay, and all our efforts are neutralized; and while I do not expect that you could legislate to entirely eradicate the evil, still I think you may greatly elevate it. Wages as at present paid is but a barbarous method to compensate labor, being in fact the slavery of wages instead of the person, and it will never be any better till the journeyman receives a portion of the profits his labor creates. Till that system is adopted, the breach between the employer and employee will continue to widen, the one growing richer the other poorer; and the easiest method to bring about such a system is by establishing co-operation in our homes and workshops. We have now to keep a boss who presumes to control us; then we should have a superintendent and control him, which I think you will admit slightly alters the case. I, therefore, if time permits, ask your consideration of these very important subjects.

The question of establishing eight hours as a legal

day's work, is one of great importance, and demand your most serious consideration. The smallness of ou numbers at the last Convention precluded our giving the subject that attention its importanee demanded. We have therefore, as an organization, not been able to take that active part in the agitation of the question during the past year that many other organizations have done; but since the organization of No. 13, through the energy of their President, they have been the means of bringing the subject before their State Legislature, and, although they did not suceeed in carrying it through, they have greatly advanced the cause in that seetion of the country. The subject being one of such vast importance, it is desirable that all labor organizations should work in coneert and aet simultaneously together. I would therefore recommend that you give to your executive officers the power to act in concert with all the other great labor organizations of the country to assist in carrying to a final issue the great question for which we have been so long battling. Many trades, the building ones especially, have obtained the 4 o'elock time on Saturday. I think if this Convention saw fit to recommend it to the subordinate Unions, we might be able to obtain a like privilege; I therefore call your attention to it.

The question of procuring a new design for our eharters, emblematic of our trade (the present one being only temporary), will be brought before you. I ask for it your hearty support and approval, it being mueh needed in all our meeting-rooms. I would also suggest to the Convention the propriety of getting up a certifieate of membership. It would, in my judgment, be purchased largely by the members, and thus become a source of revenue to the International Union.

Having been appointed your Traveling Deputy at the last Convention, I herewith hand in my report of reeeipts and expenditures during the past year, giving a synopsis of the total amounts:

Total expenditure of organizing eleven Unions, including the New England trip, loss of time, postage, stationery, telegraphing, &c.,	$308 70
Cash received by me and paid into the I. U., from Sub. Unions, $56.30; ten charter fees, $100, ...	156 30
Total amount expended by the I. U., for the President's loss of time, postage, stationery, telegraphing, and all ineidental expenses, in the united capaeity of President and Traveling Deputy, for the year, ...	$152 40

The Constitution states that each Union organized should pay the expenses of the Deputy organizing such Union. I desire to say, in the case of forming new Unions, where none existed before, it would be utterly impossible to comply with that seetion of the Constitution, and to attempt to carry it out would destroy the efforts of any Deputy so employed. I give you this as my experience during my travels, for your guidance in making future arrangements. I would now remind you, that one, if not the main object of the meeting of this Convention, is to devise some means to extend the Union; to do that, we must retain all that has proven benefieial in the past, and the most prominent is the employment of a Traveling Deputy. We made scareely any progress until we resorted to that method to extend the Union, but the means at our disposal were quite inadequate to meet the demands made upon us. I would, therefore, recommend that a Traveling Deputy be authorized to visit any section of the continent, so that, if we cannot succeed in organizing Unions anywhere, we may at least make our principles known, which will eventually be productive of good. Once we get the whole eountry organized, our course will be clear, as every additional Union helps to lessen our expenditure by distributing it over a wider surfaee. Would it not, therefore, be a great saving to us in the future to meet the expenditure now? Although it may be heavy, I think we should have no eause to regret the outlay, and our Union would speedily exercise a powerful influence, not only in our own trade, but among the great labor organizations of the eountry. I, therefore, recommend you to take such action as in your judgment may be desirable to carry out to its fullest extent so desirable an object. If the last Convention, with only six Unions represented, could accomplish so much, what may we not hope from the large delegation now present? I, therefore, leave the matter in your hands in the full eonfidenee that you will do justice to it. On the subjeet of disputes, grievances, and our internals workings, I shall, in executive session, give you my views as to what should be donc to make them work harmoniously.

Sinee the last Convention, it has been my fortune to visit many sections of the country, and I desire to testify to the uniform kindness I have invariably reeeived from every one. For my associates in office I have no words but praise, and their kindness will never be forgotten by me. For our worthy Secretary, with whom I have been more immediately eonnected, I desire to say a few words. On visiting him in Philadelphia on official business, I found, as he himself stated, that it was utterly impossible for him to perform all the duties devolving on him without loss of time, and in order that the Union might not suffer from sueh a cause (as I know by experience how impatient men are to get a reply to any communication, no matter how trivial it might be), I gave him authority to take as much time from his labor as might be necessary, feeling assured that this Convention would ratify my aetion. I therefore eall your attention to the subject, so that the duties of a faithful servant may not go unrewarded. Personally, I desire to thank him for his eounsel and advice, which have been of great assistanee to me, and always given with a degrec of cheerfulness that makes it a pleasure to receive it. Nothing whatever has occurred to mar the harmony that has existed between us, and if we have anything to regret, it is in not being able to accomplish more than we have. I must congratulate the Union in having the right man in the right place in the person of our worthy Seeretary, and my advice would be, if possible, to keep him there.

Gentlemen, the year is past; in it much has been accomplished, but a mighty work is still before us, and we must now prepare to meet the future by consulting and drawing wisdom from the past. A new era is about to dawn on those who labor for a living; you will, therefore, weigh well your actions at this Convention. Meeting together as we do, almost entire strangers to each other, may all our deliberations be carried on in friendship and brotherly love, submitting with becoming grace to the will of thc majority, so that when we return to our respective constituents, we shall feel and they perceive that it was good for us to be here. I now beg leave

to resign into your hands the direction of the organization, which during the last year has been entrusted to my care.

From the Secretary's Report we learn that he has written 450 letters during the past year, and received 294. The receipts from all sources were $1,381.22; expenditures, $963.64.

The Committee on the New Charter and Certificate of Membership recommended:

That a new charter be gotten, somewhat larger than the certificate of membership in the United Kingdom Society of Great Britain, with designs of the trade thereon, said certificate to be taken as a basis on which the charter is to be designed.

The Committee on Beneficial System recommended:

That the Committee on Constitution make such laws that members in good standing, who are out of money, can obtain a loan on the deposit of their card, to take them where they can obtain work, which money is to be refunded within three months.

The Committee on Eight Hours reported as follows:

Whereas, believing that a reduction in the hours of labor would be beneficial to the employer as well as to the employé, and the time is not far distant when the day will be equally divided between labor, recreation, and rest, we would therefore recommend the officers and members of our organization, in conjunction with the other labor organizations of the country, to use all honorable means to obtain our object, by the circulation of pamphlets, agitation in the press, and the supporting of such candidates for legislative honors as are pledged to the establishing of an Eight-Hour System of Labor.

The Committee on Apprenticeships reported as follows:

Your Committee, after much patient labor, would recommend that there be a committee appointed in each Union to consult with the bosses in each city, with a view to establish a system of apprenticeship, pledging ourselves that if a fair system, beneficial alike to the apprentice and the employer, be established, we, as members of the Coach-makers' I. U., will use all honorable means to compel all apprentices to remain with their bosses the full term for which they contract.

From the Proceedings we learn that the salaries of the President and Secretary are fixed for the coming year at $1,000 each, exclusive of their expenses.

SPIRIT OF THE TRADES'-UNIONS.

We have prepared the following summary of news from the quarterly reports of the subordinates to the International Union, simply as a matter of information for our readers, not as an indorsement of such combinations against capital.

In New York City the Union has not yet acted upon the recommendation of the International Union for a reduction of the hours of labor on Saturdays, although there is no reasonable ground to suppose that a denial would be the result if a demand was made, as the stores or repositories of the principal carriage-makers on Broadway are closed at three o'clock P. M. on Saturdays, which has been brought about at the request of the "Dry Goods Clerks Early Closing Association." From this circumstance, the Secretary argues that if non-coach-makers "can influence our employers to close their stores two or three hours earlier than their usual time, why should *not we*, who are so closely identified with them, rightfully expect the workshops to be closed also if we but asked for it?" Before this can be done, however, the members of the Union must exhibit more earnestness in matters connected with their own welfare than is now manifest.

In Philadelphia they have "favorable prospects for the future, as all the shops appear to have sufficient work to keep their hands employed," no member of the Union being without work. The organization, although the meetings have not been as well attended as they might have been during the summer, is in a prosperous condition, slowly advancing. "Those that do attend appear to take a lively interest in all subjects calculated to advance the objects of our organization. Mr. Harding, on his return from the Labor Congress at Baltimore, addressed a meeting of our trade in language more forcible than complimentary, and all who heard him and do not follow the advice he gave them are unworthy the name of man, and not fit to work in any coach factory in this or any other country, nor fit to associate with those who are battling to place the working man in the position he is entitled to occupy, but at present deprived of."

In Baltimore, business is tolerably good, and the fall trade *bids fair to be encouraging*. The supply of hands there—so says the Secretary—is ample enough to do all the work, any advertisements of employers to the contrary notwithstanding; from which we infer that the Baltimore bosses are laboring under a delusion of some kind!

In Wilmington, trade is good and prospects fair; but although the members of the Union take an increased interest in its effectiveness, "we have a work to accomplish which will need all our exertions to perform." While striving to elevate labor, they do not intend to grow weary, but do justice to all.

At Troy, they are endeavoring to bring all the journeymen into the Union, and think they will succeed in doing so.

From Springfield, Ohio, the Secretary reports that the membership is on the increase, and prospering finely, the best of feeling prevailing, business good, and wages never better, "and we intend to convince our employers that we are working for their interest as well as our own. It was decided to remit to you our quarterly assessment of sixty cents per member in advance for the year—two dollars and forty cents per member."

In Louisville, Kentucky, trade is not as prosperous as it might be, although the Union flourishes, and hopes are entertained that it "will accomplish its full share in the advancement of the interests of the journeymen, and we look forward to the time when the coach-maker will occupy a different position, both mechanical and social, from that which he has formerly done. Several of the members have been out of employment, but the most of them have succeeded in getting work in the surrounding towns," so there are but two or three members unemployed at present.

At Indianapolis, it is stated that nearly every journeyman in the place is a member of the Union, while at Bridgeport, Conn., "there is a lack among the journeymen in taking hold of the work, but it is hoped that the recent

session of the International Union will have the effect to bring them up to it, and add largely to its membership."

Mr. Hedenberg, of Newark, New Jersey, says: "We are glad that the good cause is so rapidly progressing," and thinks, "with the arrangements that have been made, the day is not far distant when every city and town will be joined together in one grand Union of coach-makers, who will be able to demand a fair compensation for their labor, and not have to take just what the bosses choose to give them, as is now the case. It is a fact, that to take the shops on an average here in Newark, the men do not make over two dollars a day—not the price of a laborer on the streets. Some of the work is done better than before the war, because the most of it went South, and was never heard of afterward. Now it is home trade, and we have to be more particular, with very little advance in prices, considering the times." This writer says there is one boss in Newark who is mean enough to make his men work eleven hours, if he could, for at present he makes his men work ten hours on Saturday, as well as on other days through the week, and that on all holidays, New Years and the Fourth of July excepted, the Newark bosses "shut up shop by pulling down the curtains in the office, and locking the door, while the men are *enjoying* themselves up-stairs at work." [We are not told how the bosses were "enjoying" themselves during this time. We suspect they were out "shinning it" *for their own amusement.*]

The report from Concord, N. H., is that although there has been no accessions to the Union, yet there is an increasing interest among the membership. The Secretary thinks "the employers have had it all their own way about long enough," and the time has now come when carriage-makers can begin to think for themselves, and set a price upon their labor, and wishes the Trades Union enterprise all the success it demands.

In Portland, Maine, the principal shops are expecting a grand sleigh trade the coming winter, since the great fire did not affect carriage-making in the least. Hope is entertained that the journeymen throughout the country will see the benefits of union in the same light as they do in Portland, "although I am sorry to say that we have some '*black sheep*' among us."

From Providence, we learn that harmony and good feeling prevail among the members of the Union. But "before our Union was organized, it was hard to tell who was a coach-maker. If you went into a shop for a job, or to look around, they would let you walk around and find out for yourself. Now they extend the right hand of fellowship, and welcome you. Coach-makers are men that are looked upon by *some* as inferior to other beings, and are to be bossed and kicked about like dogs. (!) Why is this so? Because the trade [the journeymen] never knew the good of a Union; and now that we are united, we will show such men that we have rights, and mean to stand up for them. That old motto is true—'In union there is strength.'" As the result of union in effort, they have succeeded in reducing labor to nine hours on Saturday.

In Worcester, Mass., the prospects are cheering, although they have had much to contend with there. "The Painters are most numerous among us, and the Trimmers come next, but we are in hopes that the day is not far distant when all the branches will be fully represented. Some excuse themselves on the ground that they will not belong to an association that some other person does. How trifling and child-like, especially when the interest of one's self, their family, and their fellow-workmen is at stake." The report closes with the hope that all will come up to the work of elevating the mechanic to the position he ought to occupy in life.

Pen Illustrations of the Drafts.

COUPÉ ROCKAWAY.

Illustrated on Plate XXI.

The drawing we here introduce has been made with special reference to the wants of a portion of our patrons. In it is seen the French Coupé and the American Rockaway happily combined; this combination imparting to the entire design a feature decidedly American. If our taste and judgment are allowed, we decide this to be a far prettier vehicle than any coupé we have ever seen.

For the satisfaction of that class of carriage-makers who are constantly calling upon us for details, we add a few particulars for their special gratification. Height of wheels front, 3 feet; back, 4 feet 4 inches; hubs, 5 by $7\frac{1}{2}$ inches; spokes, $1\frac{1}{4}$ inches; fellys, $1\frac{1}{4}$ by $1\frac{1}{4}$ inches.

OPEN FRONT TURN-OVER-SEAT ROCKAWAY.

Illustrated on Plate XXII.

Although this design possesses some features similar to others before given in this Magazine, still, we think there is sufficient novelty in the combination to warrant our terming it "original." Probably the fastidious critic will find occasion to condemn some of the points in the drawing, but, on the whole, the public generally calls for just such carriages as this, since they are well-contrived for either ingress or egress, and may be built exceedingly light, a desideratum of much weight with Americans.

FANCY-TOP BUGGY.

Illustrated on Plate XXIII.

This design has been drawn with the object of showing some of the latest and most novel points in the Parisian fashionable carriages. The sham-bottom and fancy mouldings are all shown in colors with paint, intended to relieve the side panel from any clumsy appearance it may possess. The dimensions of buggies are too well known to practical mechanics to require lengthy detail.

NEW YORK ROAD-BUGGY.

Illustrated on Plate XXIV.

Novelty, in this instance, chiefly consists in painting a border across the upper portion of the side-panel. As a general thing, we do not admire fancy ornamentation when carried thus far, but in this instance it imparts to the buggy a novel and pleasing feature that will find favor with many.

Sparks from the Anvil.

GAUGE FOR THE PROPER SET OF CARRIAGE AND WAGON AXLES.

Although, as in some other operations, the setting of carriage and wagon axles demand mathematical exactness to insure perfection, yet, strange as this now seems, the business has for years been done after a sort of *guess-rule*, wholly inexplicable and inexcusable. The consequences are seen in our hard-running, axle-cutting, and otherwise defective vehicles, the prolific cause of more trouble both to the manufacturer and consumer than any other connected with this complicated business. Indeed, to use the expressive language of one of our most studious correspondents, "a very large proportion of the carriages and draught-wagons now made, are entirely worthless, compared with what they might be, were the axles so set that none of the motive power was wasted." The same writer estimates the loss of motive power to be at least twenty-five per cent. in nine-tenths of the carriages and wagons in use. This is strong language, and may appear incredulous to many; but is it not warranted by the facts? We can scarcely find any two wagons that run alike—this is certain—a matter which will be remedied by using a gauge such as here shown in the engraving, even by the most common workman, in half the time required in the old way.

BAMBERGER'S GAUGE FOR SETTING AXLES.

The *gauge* may be described as an instrument corresponding in length with the longest axles—it is equally suited to shorter ones—and having at one end, two metal levers, pivoted at a point representing the collar-washer of the axle, the shorter ends of which are slotted to receive bolts, which have thumb-nuts to secure the levers in any desired position. The long arms of the levers, B B, enclosing the gauge, are graduated to inches and fractions thereof. The other end of the gauge is slotted and graduated, having a metal cross-piece, also secured by a bolt and thumb-nut, which can be moved back and forth as required.

The *setting of the gauge* for use is simple, and requires but little instruction to be understood. With the caliper—given with the gauge—the operator first takes the diameter of the small end of his axle-arm. This done, he next finds the diameter at the collar (or larger end of the journal) with the same caliper, which instrument then gives, from its peculiar construction, the whole taper of the arm. Now, supposing the axle to be ten inches, the length is doubled, giving twenty. Opposite figure 20 on the gauge, we move one of the lever arms, B, inward, so that it will rest at a distance from the outer edge corresponding to the whole taper, as already determined by the caliper, but which cannot be further explained here without an engraving. Having found the dish of the wheel by laying a straight-edge across the front, we, in the next place, move the rest at *b*, *out* toward the edge of the gauge, an amount equaling the dish of the wheel. Secure the rest in this position by turning the thumb-nut, and then you will have the correct "set" for the pitch of your axle, indicated by the edge of the lever at A. Now apply the gauge to the arm of the axle to be set, as seen in the illustration, with the rest at *b*, bearing on the other (or opposite arm) at the shoulder, and set your axle so as to correspond on the *top side* with the *under side* of the gauge at A. This will give a correct "set" for the downward pitch.

The above only applies to one side of the gauge. For the "gather" of the wheels, to such as insist upon it, the process is exactly the same with the opposite lever B; except that when the gauge is to be applied to the front of the axle, the lever should be moved *out;* and if to the back, it should be moved *in*. The two levers, A B and A B seen in the diagram, are understood to be—one side for "the pitch," and the other for the "gather" of the axles. The lever for the "gather" being set one-eighth of an inch, will give one-fourth of an inch to the rim of each wheel, bringing the wheels thus set one-half an inch nearer in front than at the back.

These gauges, patented by N. C. Bamberger, Nov. 15, 1859, can be had of Wilson & Dougherty, at 57 Mulberry Street, opposite the market, Newark, N. J., for $15, which includes a shop-right, and full directions for

using. Application made either in person or by letter, to box 623, will receive equal attention.

THE CONVERSION OF IRON INTO STEEL.

G. J. Abbott, our Consul at Sheffield, England, under date of the 27th of August, informs the Secretary of the Treasury that he attended a meeting of the British Association on the 25th of August, on which occasion a paper was read on the subject of converting melted cast-iron into steel by the pneumatic process. The reading of the paper was followed by a discussion in which Mr. Bessemer and other prominent gentlemen in the iron interest participated. The Consul says that he called the attention of Mr. Bessemer to the statements of his opponents, charging as a defect in his method of converting iron into steel, that when large masses of melted iron, from three to twelve tons in weight, are converted into steel it does not become homogeneous. Mr. Bessemer partly admitted the force of the objection by stating that in the works near London an improvement was recently made by which, after the introduction of the *speigel eisen*, the whole is stirred up by arms fitted to a revolving cylinder. He also said that the iron of the United States which he had seen was peculiarly adapted to the manufacture of steel by his process. In England only the very best iron can be used for this process, and that which is most free from foreign substances, especially sulphur and phosphorus. The iron which is chiefly used in the Bessemer works are varieties of red hematite, the best of which is found on Marecambo Bay, near Furness Abbey.

Mr. Abbott concludes by saying:—"Valuable as is the invention of Mr. Bessemer, I cannot recommend it to American manufacturers unless they make use in the process of the very best pig iron, and that which is comparatively free from sulphur, phosphorus and other impurities."

Paint Room.

NATURE AND QUALITIES OF PAINTS.

(*Continued from page* 73.)

PURPLES.

There are several shades of paints obtained by mixing, which may with propriety be classed under this head, but since very little use is made of purples, except in rare cases for striping, we shall not take up room by lengthy remarks on the subject. Probably the most practical color for the coach-painter is that prepared by mixing one part Prussian blue with two of rose pink or lake. Another purple is prepared by mixing white-lead, Prussian blue, and vermilion, with oil and turpentine.

VIOLETS.

Violet is another color of little use to our readers. It may be made one part vermilion, one part Prussian blue, and two parts white-lead, varying the proportions according to the shade wanted. If required to be very dark, substitute lake for the vermilion mentioned above. Another shade of violet will be obtained by mixing vermilion with blue or black and a little white.

WHITE-LEAD.

This paint is unquestionably the most important of all, as it enters into and serves as a foundation for other colors. As a priming, it would be hard to find a substitute anywhere. We find at the shops, ground in oil, No. 1, extra pure, &c., more or less mixed with some foreign substance, calculated to injure its qualities and cheapen its costs. Where such can be obtained, the carriage-maker should use only the pure article, and failing in finding it (although it will be more expensive) the painter had better prepare it himself from the dry article. It is of the utmost importance in body painting that the article be good, since all the coats which follow as the work proceeds, are wholly dependent upon its tenacity for success or failure. Very frequently the prepared lead has a greasy and sticky appearance, never drying right to secure a good job. You may, however, ascertain if the article be pure, by placing a small quantity of it on a shovel over a fire. Should it be pure, the color remains unchanged; if adulterated, it will change to a light yellow, or dark brownish shade, showing that such will not answer our ends, The purity of dry lead may be tested by the same process; if good, it will stand its color unchanged; if whiting or other inferior articles are present, it will crumble and change to a dull grey shade. The following observations, some of which may be useful to the carriage-painter, we take from "The Hand-book of Oil Painting":

"In grinding white-lead of whatever sort, especially with oil, and even in mixing it on the palette, there arises an odor that is unpleasant to many persons, and unwholesome to all. It is as well to avoid leaning too closely over the stone or palette, and to throw up the window during either operation.

"The oxyds of lead are known to blacken under certain influences; as of sulphureted-hydrogen gas, which abounds in the noxious effluvia that at times are generated by certain manufactures, by filth or other causes, in the heart of great cities, and even in more open places. Hence chemistry has employed herself in the discovery of other *whites* which should not be liable to change. From *antimony* and from *zinc* whites have been made which have been said to possess, with sufficient body and great beauty, assured permanence. Of these we say nothing, having, like M. Bouvier, had no occasion to try them; but we add, as it will be observed in every painting that has stood the test of time, that it is *not* the white that is most discolored—otherwise that it is the white that has *stood best* of all the colors—there is no reason for the young artist to have any doubt upon this score, using unhesitatingly the *silver white* as it is prepared for him by any colorman in good repute. Further than this, whatever may be said of the white of *antimony*, later and good authorities tell us that that of *zinc*, as well as those which have been made from *bismuth* and from *tin*, want body and consistence.

"Mr. Field assigns durability to *zinc white*, but denies it to the preparations of bismuth and antimony, to which he adds quicksilver and arsenic, which are of no worth, either in water or oil. *Tin white* wants even less body than *zinc*, though it is 'superior to it in water,' and it drics badly in oil. Thus lead still holds its ancient place of honor, and with little risk of being ousted." Under the head of "Gossip for the Paint Shop," the reader will find in Volumes II. and III. some valuable in-

structions in regard to preparing and laying on lead, the guise of lead-color, which he will find it profitable study.

THE GREAT ANILINE COLOR CASE.

The important case of Simpson and others *v.* Ho day was recently brought up to the House of Lords fr the Court of Chancery, on appeal from the decision of Lord Chancellor, who has given judgment against plaintiffs, Messrs. Simpson, Manly & Nicholson, of L don, in favor of the defendant, T. Holliday, of Hudd field; thus confirming the Lord Chancellor's decision the main issue, that the patent is void and bad in la and so throwing open to the trade those beautiful mage and purple dyes on which so many actions have b instituted and compromised during the past four years

Trimming Room.

TASTE IN TRIMMING CARRIAGES.

There is nothing that sets off a carriage to gre advantage than trimming. The painter may put on a of varnish which wrinkles, but such may be remedied rubbing down and applying a new coat. Not so in t ming it. Should the workman be a sloven and get leather covered with the contents of the paste-kettle other improper articles, no subsequent labor can res it to its original luster; nor can he—if he lets his c get wrinkled and mussy—ever remedy such carelessn It is this worse than carelessness which makes so m of our otherwise well-finished vehicles unsalable. class of men—the slovens—let the material be eve rich, will spoil everything they touch, while anc class—the tidy—will make a good-looking job from paratively common goods. The greatest and most portant requirements in a carriage-trimmer are the servation of his stock as near as possible in its ori perfection, a nice perception in designing his folds, a tasty disposition of his seaming so as to be hidden view. A trimmer who has all these distinctive qual tions, and is industrious, is the most valuable "fixt that can be secured by any carriage-maker who is a tious of getting for his establishment a reputation for work, without which he had much better keep out o business. We have found a few men of the kind w vocate, whose trimming alone would almost invari recommend the carriage, when placed in our sales-ro so highly that it would sell in preference to those tri med by the other class, as soon as done. This we thir must be the invariable experience of all manufacture whose citizenship has obliged them to build the finer cl of carriages.

MORE ABOUT MACHINE THREAD.

In making a remittance for Machine Thread, a c pondent indulges in the following remarks, which serve as an inducement for others to avail themsel the same advantages:

"Allow me to make one remark in regard t thread. It has saved me, through your valuable zine, more than my subscriptions for a number of back have amounted to. Instead of buying silk a

WARRING AGAINST CAPITAL.

WE read of a certain Spanish knight whose ambition him to attack a windmill, from which encounter, as ght have been expected, he came off "second best," ply because he over-estimated his strength. A similar ılt, unless checked by moderation, is likely to follow ıe of the mad schemes lately set on foot in this coun—the offshoot of a spirit long rampant in England—er the imaginary notion that capital is unfriendly to or, and therefore it must be humbled. Strange as it seem, some of the most active partisans in this war raging against employers were, until very recently, loyers themselves; but having "played out" *in that* , they now, like the universal enemy of mankind, are osed to drag the man who is so *unfortunate* as to have tle money down to the same position they themselves py. As one of the most effectual modes of accomıing this end, they set out to dictate what kind of help tal shall call in, and what it shall reject, under threatl penalties for noncompliance with their secret enactts—enactments in which those called upon to comply them have had no voice. This, we opine, is too ageous for reconciliation with the American idea of ty, as embodied in the Federal Constitution of these ed States, and must eventually—professions to the rary notwithstanding—stir up a spirit of hostility h will tell with crushing weight somewhere.

Thus much we have thought it necessary to say before eeding to notice the question propounded to us by a criber, who is anxious to have our views in regard to ades Unions and labor dictations." Now we might iss the subject for the present, by simply stating that tand to-day just where we have stood for the past years, while editing this Magazine, as the advocate qual rights for all classes. We have always studiavoided printing anything which should have a ncy to foster and nourish prejudice in one class of against another, believing that more than one half of ppressions which labor charges against capital are ly imaginary. Conceding that labor has its rights, well as capital, we have tried to steer our course so as do something, if possible, toward correcting erroneous inions, and to thereby promote the peaceful intercourse general prosperity of mankind.

Convinced that "our policy" is the only true one, and uctive of "the greatest good to the greatest number," not intend to suffer ourselves to be drawn into the s of contention now raging between employés and oyers in different localities throughout this country, the fictitious notion that capital is hostile to the ng man. So far is this from the truth, that we con- the capitalist, in most cases, the best friend of the er, who elects to stay where he is, either because he

is imprudent of his earnings, or has so poor an opinion of his own abilities that he will not take the risk of setting up business for himself. Such men as have the "true grit" of business choose to manage their own affairs, whether as journeymen or boss, without being taxed by others for the oversight.

We must not be understood, in what we have said above, as surrendering that independence of thought and action which has ever characterized the conducting of this Magazine from its commencement. On the contrary, we intend to keep in view the literary, social and mechanical interests of the entire craft, uninfluenced by either "fear or affection," administering censure where it is needed, and commending the right wherever it appears.

The following extract from Wilderspin's "Early Discipline" is worthy of consideration by all: "Two things are required on the part of the working classes to adjust themselves to the state of society as one altering and improving—skill, or practical knowledge, and economy, that they may provide against a 'rainy day,' and instead of seeking relief in combination and outrage, have the means of support until the arrival of more favorable times. These qualities will appear only where there has been some training of the head and the heart. Let then the mind be taught to think, and the judgment be fitted for correct decision, and the difference will be manifest, as it is now in cases occasionally witnessed; the intelligent will not be the dupes of demagogues or incendiaries, and the thrifty will discover a higher tone of feeling than their improvident neighbors."

As respects Trades Unions, we can only reiterate what we said in this Magazine years ago: "Any organization which aims to advance the interests of the employed to the neglect of the employer, must, in its very nature, prove a failure. The interests of both parties are so indissolubly united that a divorce on any grounds must terminate disastrously." We do not see any particular objections to Trades Unions, when they keep themselves confined to legitimate duties. We look upon them as specially necessary for the benefit of such as cannot govern themselves, or manage their own affairs, of which class there are already too many among us, but when they interfere with private rights, and undertake to dictate in business matters, they transcend the limits of prudence, and bring upon the organization the contempt of every good citizen.

SPECIAL TO BEGGARS.

Specimen copies fifty cents. Such are our terms, and they are "like unto the laws of the Medes and Persians that altereth not." Having, for a month or two past, received many letters, especially from the West, asking for a specimen copy of our Magazine, unaccompanied with the money wherewith to pay for it, we feel a little tried, and very much inclined to inflict a lecture upon some one—and would, had we the least hope of curing these incorrigible beggars, who appear to think that we are so *greeny*, that we may bite at such miserable bait as "please send me a specimen copy of your interesting Magazine, and if it suits I will subscribe."

Specimen copies fifty cents. Some of our correspondents seem to ignore the fact that since our civil war was inaugurated everything pertaining to book making is very costly, double that of former times, in view of which, the custom of sending specimen numbers is at present confined to newspapers and cheap publications solely. All the higher class of periodicals, without exception, expect the pay for everything they send out, this being the only way they can act with safety to themselves and their paying subscribers.

Specimen copies fifty cents. To encourage our friends, who require *a sight* of this Magazine before they send in the year's subscription, we engage to deduct this amount from the five dollars, if when they remit they name the number for which they have paid, so that we may omit it in making up the mail package designed for them. One cause that has led us to charge for *all* specimen numbers is—we are pained to confess it—in our experience we have detected many unprincipled "patrons," under a difname for each month writing for a specimen copy, generally designating the number, thereby, when we did send, obtaining a complete volume, for only the sum it costs them for stationery and stamps. We do not expect to reach the persons we complain of directly, but give them that our friends may report when inquired of by such as want this work.

EDITORIAL AMUSEMENTS.

Many persons, in reading about "The Editor's Easy Chair" in the monthly magazines of the day, jump at the conclusion that editors must have a nice time of it—and they do, certainly. If you think so, just sit down a moment at your desk, pen in hand, and try the experiment. Why, some of you at least, find it difficult to write a passable letter to a friend, and have to make several attempts before you succeed; what then must be the mental labor of him who is obliged to cater for the public by writing on all subjects?

In these times of general intelligence, it is rather risky for an editor to resort to "scissors" for *his* original matter, as most likely detection would follow the first attempt, and he would lose caste, with the additional danger of losing his most valuable patrons, no person wishing to have false pretense games practiced upon him; and yet something must be prepared, whether the editor feels in a mood for writing or not. The printer's calls for "copy" can-

not be put off. Oh, how many times have editors found it as difficult to string matter together as it would be to "summon spirits from the vasty deep," their minds being almost entirely blocked up, and yet they must write!

It is very true that editing, as well as other business, sometimes has a gleam of sunshine thrown upon it. If the editor is a genuine lover of literature, he takes satisfaction, in thinking that he is contributing something to the general stock calculated to elevate the empire of mind, and perhaps derive some comfort from the reflection—even though it be a faint one—that he may be erecting a monument to his future memory more lasting than one of granite. How many poor fellows there are in the world, who from the too frequent cudgeling of the brain have gone crazy, and are now the hopeless tenants of the madhouse, with no light to cheer or hope to ameliorate their sad condition. With such facts before us, is it not a wonder that so many will follow the same disastrous road? We can only account for this on the principle that it is "the manifest destiny" of some that they must scribble. Unless they do, they will have no peace, and if they do, they have it not, and between the two alternatives an editor's mind is racked, torn and shipwrecked. The wonder is that any ever give the least evidence of sanity after a few years' practice in such trying drudgery. Ought not the public then to have some pity on us, and give us all the encouragement possible?

REVIEW OF TRADE.

SINCE the Fourth of July trade in the Eastern and Middle States has been extremely dull. With a few drawbacks the same may be said of trade in this city. We suppose there is no place in the entire Union where the rise and fall in the premium on gold has so marked an influence on the public mind as here, and consequently on trade. Even the money market, with gold at 149½, is so overstocked that it can be had on call at 3 per cent., showing that very little business is doing. Our foreign exchanges have become merely nominal. Bills at 60 days on London, are quoted at 1.04¾ to 1.05½ for commercial; 1.05¾ to 1.06¼ for bankers, and at short sight, 1.06¾ to 1.07¼; Paris at 60 days, 5.41¼ to 5.31¼, on short sight, 5.33¾ to 5.28¾. The Southern trade, which many carriage-makers at the North have counted on, has thus far been withheld, probably because the South has no means wherewith to buy. Our advices from San Francisco, show a marked improvement in prices over those of last year. Buggies which would not bring $75 then, now sell for $300, but even this price will not pay shippers. It is evident, that the market is so well supplied with home manufactures, that to ship carriages there now seems like folly. We opine that the day for fortunes in that direction has long since passed away, with very slight ground for hope left of its ever returning again. The truth is, the Californians have come to the conclusion to patronize "home manufactures" in preference to buying carriages shipped from the Eastern States. We have the best evidence of this in knowing that carriage-shops are springing up in all the principal towns in the Golden State. Trade there, however, for years will have this disadvantage, nearly all the material must be sent out from the older States, the timber needed not being found in that State.

LITERARY NOTICES.

THE ATLANTIC MONTHLY for October has the usual variety of articles, among which are, "Childhood, a Study;" "Farmer Hill's Diary," gossipy and interesting; "Various Aspects of the Roman Question;" "Passages from Hawthorne's Note Books;" "The Norman Conquest;" "The Usurpation," Reviews, &c., making altogether a very valuable number.

Our Youny Folks for October, maintains its reputation as being the best Magazine of its kind ever published. Although designed principally for the young, this work is not without attractions for the "old folks" too. We are glad to find that its circulation is constantly on the increase.

Every Saturday—which, with the monthlies abovenamed, are issued by Messrs Ticknor & Field, of Boston—has recently been enlarged from 32 to 40 pages weekly, and is now decidedly the cheapest, as well as the best of the Journals in which selections from foreign current literature are republished. For $5, over 2,000 pages a-year, of the choicest reading is obtained. Cheap enough we think, for the most economical reader.

The Coach-maker's Letter-box.

STEAM HORSES TO SUPERSEDE ALL OTHERS.

MR. EDITOR—*Dear Sir:* Why should we confine the advantages of steam to locomotives? Why should not steam horses be constructed? Why should we not have new *Clavilenos*, with pegs for guiding them, and valves for exerting or abating their mettle? Clerks in the Central Park would then no longer from necessity, but choice, sport nags of neither bone nor musele; and braziers would at once supply our dandies with their spurs and copper fillies. The farrier would turn his hand to making horses instead of shoeing them, and the blacksmith's shop would supersede the horse mart. Instead of a horse eating his head off, as is now too often the case, the horse without any imputation on his good qualities, may be as deficient in head as his rider, and the riders who are now too liable to be *smoked* themselves, might be in a capacity to smoke everybody else. Such horses, besides being entirely free from vice, would be as pre-eminent in *metal* as in *fire*. The divine horses celebrated by Homer, or by romance writers, could not with more strict propriety be said to breathe flames. They would besides eat nothing, drink nothing, and want very little grooming. Docking and flogging would become obsolete, and *breaking*, which is now so important a ceremony, would in that case be as much as possible deprecated. A great saving in saddlery

would ensue, as a matter of course, and no horse-jockey in future would be reduced to the disagreeable dilemma of deciding, when on the point of being unhorsed by his too restive Pegasus, between the advantages of grasping the tail, the mane, or the reins.

Other advantages, resulting from this improvement, are too numerous to be recapitulated. Millions of acres, now sown with oats, may then be devoted to the growth of wheat and barley, so that the great abundance of the first may induce the cheap bakers to desist from making their bread of such small sizes, and of alum, potatoes, &c. &c., and the mere cheapness of malt tempt the "genuine malt and hop" brewers to make their beer of it instead of quassie, cocculus indicus, fox-glove, and deadly nightshade.

The Bill for the Punishment of Cruelty to Animals in New York, may be rendered a dead letter by the invention of steam jackasses; the ear would no longer be stunned, and the nose poisoned by the respective cries and exhalations of "dog's meat," and "cat's meat." A clerk might occasionally dine upon sausages for a shilling, in order to save a Sunday's treat with his sweetheart on the Bloomingdale road, or at the Central Park, without fearing a nightmare's vision from the unfortunate animal he had partly emboweled. There would be no further occasion for a patrician to over-exert himself in learning at college how to be a coachman; the noble animals on the race-courses, and in the stage-coaches might be spared the costly exploit of running against time, and all those who now keep a carriage with one horse, might then be enabled to keep one with no horse at all. Why not?

J. B. P.

Patent Journal.

AMERICAN INVENTIONS.

July 17. (57,319) Machine for Boring Wagon Hubs.—Thomas Harper, West Manchester, Pa.:

I claim the use of the bearing A′, for the master-wheel B′, said bearing and wheel being constructed, arranged, and operating with relation to the various parts, as herein described and for the purpose set forth.

(57,410) Tire-shrinking Machine.—Thomas Tully, Litchfield Ill.:

I claim the combination of the curved grooves G G, eccentric dogs H H, eccentric lever D E, and fixed and sliding blocks F and B, when constructed and arranged to operate as and for the purposes herein specified.

(57,417) Wagon Brake.—James Weathers, Greensburg, Ind.:

I claim the arrangement of the bar F, pivoted or bolted to the hind bounds with the rod G, block H H, cord J, shaft R, provided with wheel *a*, and lever L, constructed and operating as and for the purpose herein specified.

Sept. 5. (57,475) Device for Shrinking Tire.—H. W. Caswell, Yarmouth, Maine:

I claim the two parallel bars A A, connected by the screw-rods B B, and provided with the clamps C C, all constructed and arranged to operate in the manner substantially as and for the purposes herein set forth.

(57,478) Hay-loading Wagon.—Angelos M. Clara, Witney's Point, N. Y.:

I claim the shaft G, provided with the pully F, with the ropes L D, attached respectively thereto, in combination with the slide-bar M, applied to the draught-pole N, the upright pole B, with arm C, projecting from it, and the levers H, in which the shaft G is fitted, and having the brake or shoe-bar J attached, all arranged and applied to a wagon, to operate substantially as and for the purpose specified.

(57,497) Whiffle-tree.—D. A. Gorham, Lawrence, Mass.:

I claim, *First*, The revolving trace-hooks D, and rod or bar C, constructed as described in combination with the whiffle-tree A, substantially as described and for the purpose set forth. *Second*, Connecting the whiffle-tree A, to the forward part of the carriage in such a way that the horses can be released from the carriage in an instant whenever necessary, substantially as described and for the purpose set forth. *Third*, The spring-pin H, constructed as described, in combination with the strap F, slotted bar G, and lever E, substantially as and for the purpose set forth.

(57,528) Composition for Putty.—John and Wm. H. Lucas, Philadelphia, Pa.:

We claim the composition of ground marble, whiting, and linseed oil to form a superior putty, substantially in the manner herein-before described.

(57,538) Wagon Brake.—John S. McGlumphy, Wind Ridge, Pa.:

I claim, in combination with the rubbers F, and levers D, the bifurcated bar C, and adjusting nuts E, the same being respectively attached to the lower end of the king-bolt B, and to the brake-levers D, substantially as and for the purpose set forth.

(57,548) Carriage.—J. J. Morris, New Bedford, N. J.:

I claim, *First*, The independent axle C, having the hub and wheel attached permanently thereto, and revolving with the wheel, substantially as set forth. *Second*, The independent axles, constructed as set forth, in combination with the sleeve H, when arranged to operate as shown and described. *Third*, In combination with the axles C, as described, I claim the friction-rollers *a*, arranged and operating as set forth. *Fourth*, The combination of the brace O, hook *h*, and spring *m*, when said parts are arranged in connection with the vehicle as shown and described.

(57,603) Whip-socket.—Theos. Weaver, Harrisburg, Pa. Ante-dated Aug. 13, 1866:

I claim, *First*, The interposition of a rigid disk or disks between the inner walls of a whip-socket tube, so as to lock in it the but of a whip-stock that it cannot be removed without the use of a key or other equivalent instrument, substantially as herein described. *Second*, The construction of the locking thimble, as shown in Figs. 2 and 3, with the crescent B, springs R R R′, and key-hole C; also the construction of the thimble-chamber, as shown in Fig. 6, with the crescent H, the notches X X X X X′, and key-guard O, substantially as herein set forth. *Third*, The combination and arrangement of the subjects of the second claim, when the thimble is so operated by the key, shown in Fig 7, as partially to open or close the gibbous aperture of the tube, substantially in the manner and for the purpose as herein shown and explained.

(57,625) Wagon Brake.—Geo. W. Crowe, assignor to himself and Benjamin Martin, Cincinnati, Ohio:

I claim an improved wagon-brake, formed by combining the lever brake-bars D and E, the connecting-lever I, the connecting-rod or bar J, and the operating lever K, with each other, the said parts being constructed and arranged substantially as herein described and for the purpose set forth.

(57,650) Lumber Wagon.—C. F. Hall, Toronto, C. W.:

I claim the roller A, with perforated projecting ends, the perforated plate E, in combination with the boxes B, of the running gear of the wagon provided at its forward end with rollers G, and bearings H, all constructed and operating substantially as described for the purpose specified.

12. (57,657) AXLE-BOX.—Samuel F. Allen, Chicago, Ill.:

I claim, *First*, Securing oil cellars in place in their boxes by means of removable bottoms, which are constructed and applied substantially as described. *Second*, The combination of the fixed pin *h*, and the jam-nut *g*, with the hinged plates C C, and a suitable cushion, which is interposed between said plates and the bottom of the oil cellar, substantially as described.

(57,806) POLE-EVENER FOR WAGONS, ETC.—Henry F. Wilson, Elyria, Ohio. Ante-dated August 15th, 1866.:

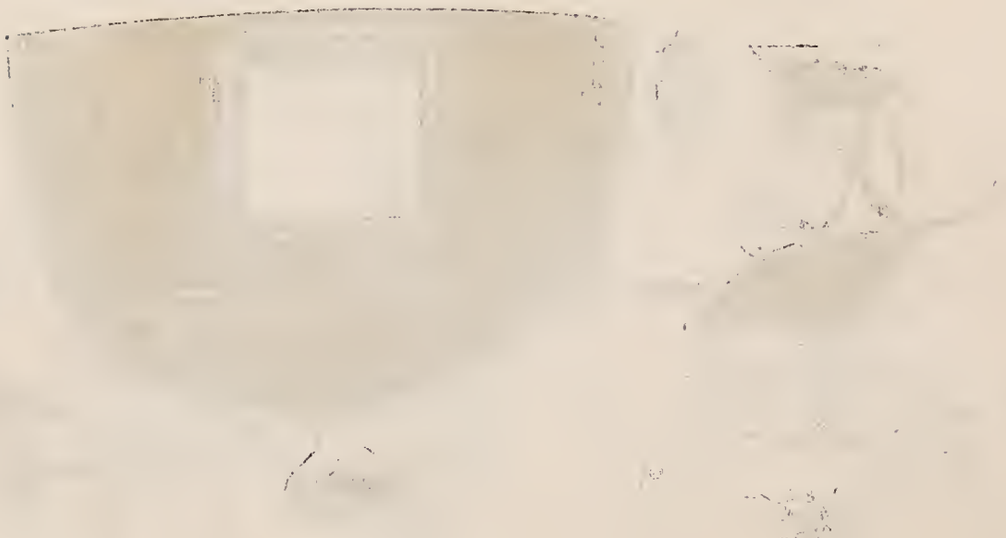
I claim the radial "*c*," and stationary pin or bolt "*b*," in combination with curved slot "*a*," and stationary pin "*d*," the whole being constructed in the manner and for the purpose set forth and described.

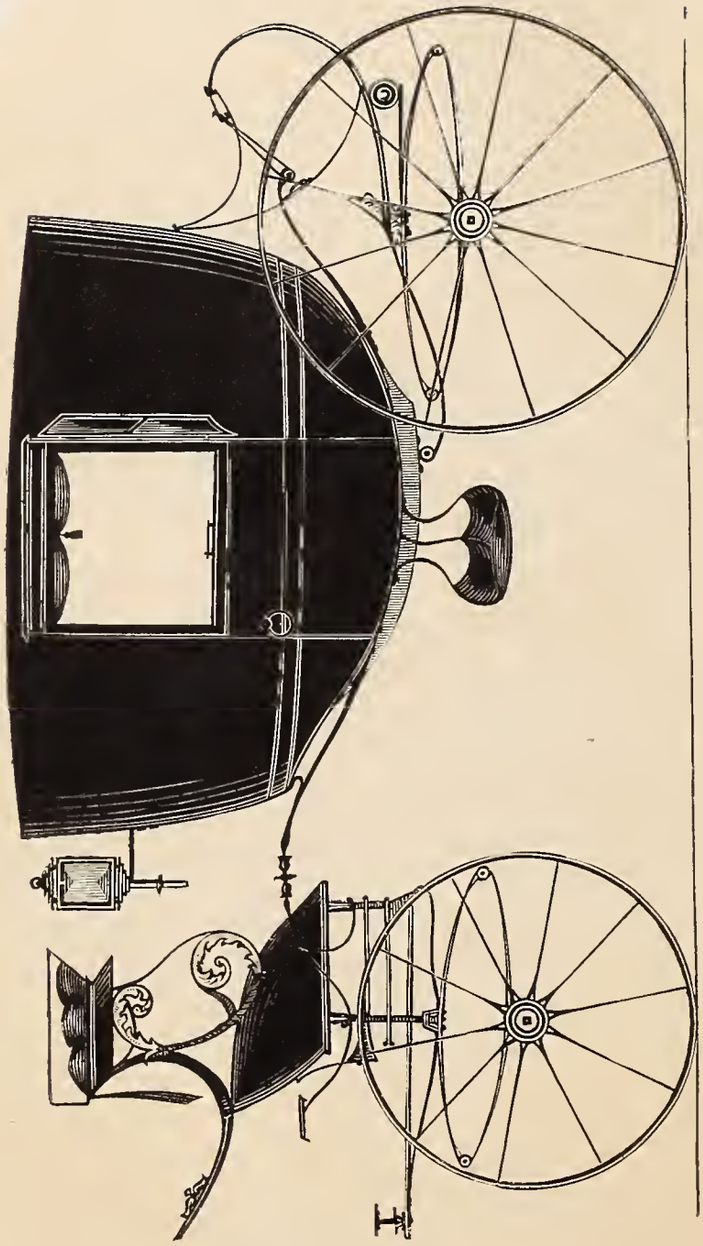
CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, October 18, 1866.

Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per doz., 75c. *a* $1.25.
Axles, common (long stock), per lb, 10½c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $2.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 75c.; 5–4, 85c.
Do. Ducks, 50 in., $1.10; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $3.50.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 15c. to 20c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 33c.; split do., 18c. *a* 22c.; enameled top, 36c.; enameled Trimming, 33c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 30c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 12½c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $1.90.
Paints. White lead, ext. $17, pure $18.50 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.25.
Screws, gimlet.
☞ Add to manufacturer's printed lists 10 per ct.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.50 *a* $1.65 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 21c.; bright, 23c.; English (tempered), 28c.; Swedes (tempered), 32c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½.; 3-4 x 5-32 a 11 c; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 9c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.10; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, 80c.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $5.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $10.50 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.

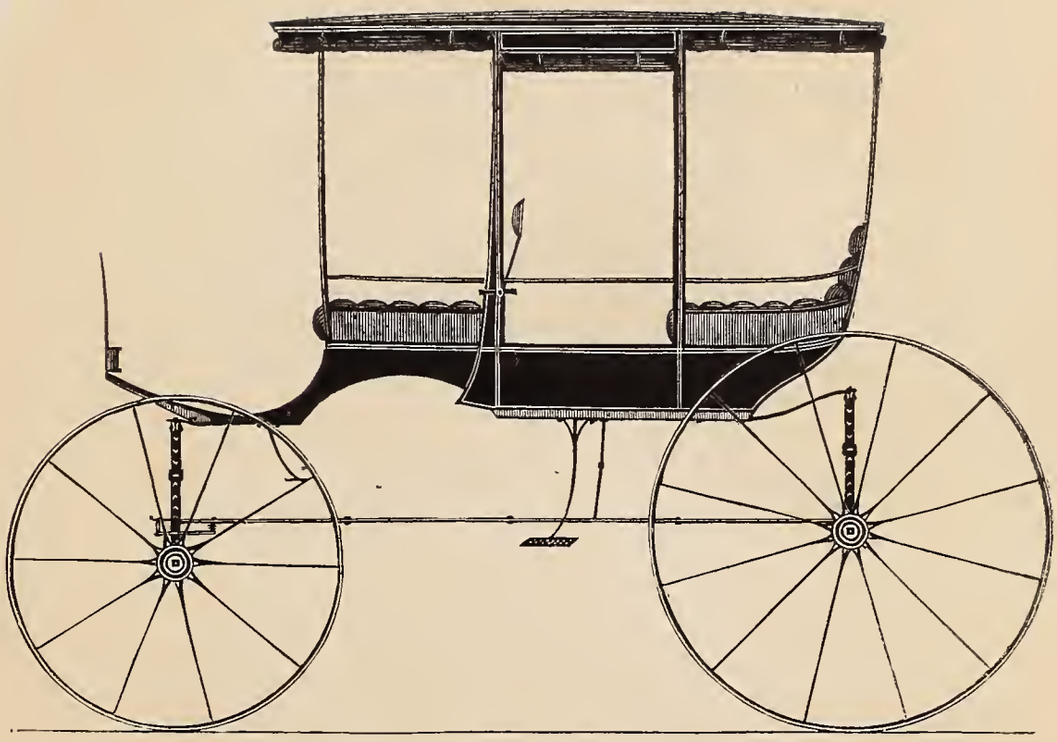




CRANE-NECK C-SPRING COACH.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

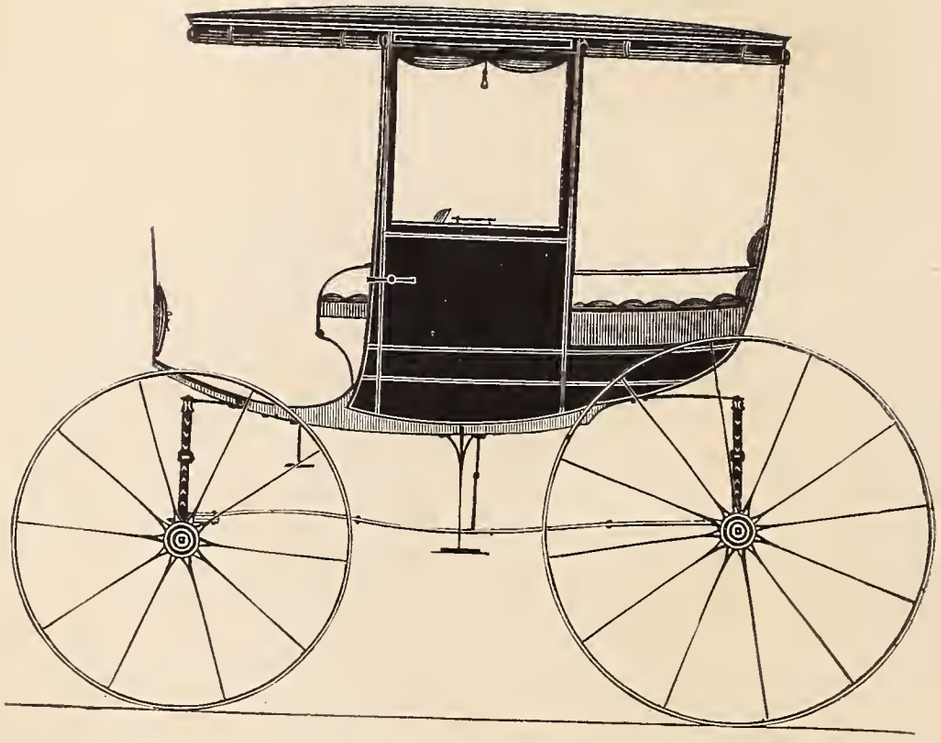
Explained on page 103.



EXCELSIOR COUPÈ-ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 103.



OPEN FRONT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's ***Magazine.***

Explained on page 103.

FANCY COAL-BOX BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 103.

THE NEW YORK
Engineer's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, DECEMBER, 1866. No. 7.

Mechanical Literature.

A MECHANICAL PARADOX.

BY J. B. PEEK.

Gravitation is a power continually acting on matter, and tending to draw distant bodies toward each other. The action of this force never ceases, whether the matter acted upon is large or small, at motion or at rest. Velocity is a property which matter in motion acquires, and which when communicated would forever keep the body in the same equable motion, if it were not arrested by some opposing force. This property of matter for acquiring a velocity, operating in conjunction or at the same time as the constant attraction of gravitation, would cause two bodies, submitted in free space to its action, to be attracted with a motion increasing in proportion to the distance they traversed, *however great*, until they met at a certain point, which, provided they both contained the same quantity of matter, will be that point which was originally equidistant from them both. Therefore, supposing these bodies separated to an infinite distance, and then submitted to this action, they will move with a velocity continually, so as to cause them to acquire an infinite or unlimited velocity.

I have been led to these remarks by study, and I would not have any of my brother correspondents be afraid of giving their opinions now and then for the purpose of giving information. We cannot all be equally wise, but let us follow the advice of Solomon, who says, "Wisdom is the principal thing, therefore get wisdom." (Prov. iv., 7.)

I do not know that I can make my remarks fully applicable to a carriage. But let us now investigate the case of a steam engine, in which all obstructions arising from the friction of its parts, the resistance of the air, &c., are completely laid aside. In this case, as in the former, motion is communicated by two forces acting in conjunction with each other. *First.* The force of steam, which is the prime mover, and which for our purpose we will suppose corresponds with gravitation in the former case. *Second.* Velocity, which has been above defined. Let us now suppose that the steam is urged to the full extent, or—to render the matter more clear—is confined in a generator filled with water, which is constantly kept at one uniform temperature, say a red heat. The first effect arising from the escape of a portion of this water from the generator in the form of steam, will be to communicate a certain velocity (obstructions being laid aside as before stated), which would of itself, without farther impulse, forever keep the wheel in this same equable motion. The next escape of steam adding, as in the case of gravitation, to the already acquired velocity of the wheel, will communicate an accelerated velocity, which will be still farther increased by the next escape; the force of the steam increasing the already acquired velocity of the wheel in the same manner that the force of gravity increases the already acquired velocity of a falling body. But now comes the question to be decided. Is the increasing velocity limited, or is it unlimited? Are there bounds to it in this case, or are there none? That it is limited, and, consequently, that there are bounds to it, will, I trust, be rendered evident by the following consideration. Since the aperture from which the steam issues is always of the same size, and the expansibility or power of the steam to escape is uniform (the generator being always kept at one temperature), the same quantity will issue from the generator at one moment of time as issued or will issue from it at another; that is to say, the escape and the consequent power of the steam is uniform. A uniform and regular power in constant action has a tendency to produce a uniform and regular motion, which would immediately be produced if no obstacle interfered to oppose its effects. The only uniform motion, in the case of the steam engine, is the force necessary to communicate an equal motion to the wheel, or moving parts of the engine, which motion, when once acquired, would by the laws of velocity, as before stated, forever continue without farther impulse. This velocity being communicated by the force of steam, the opposition before mentioned is removed, and the escape of the steam becomes consequently regular; the power of the steam cannot any longer increase the velocity of the wheel, for the wheel having by its velocity acquired the same power, flies before the steam in the same manner as a body moving in the same direction and with the same velocity as the wind, constantly

flies before it and eludes its pursuit. From this period, therefore, the motion of the engine will be uniform.

The above are my humble ideas on the subject, and are at your service. It appears to me plainly that a limited power cannot produce an unlimited velocity, and that the power of steam is limited. We are afraid that some practical men will be disposed to treat these propositions as matter of idle and fruitless speculation. We confess this does not at all abate our confidence in their truth. We know that no useful improvement has ever been introduced without a hard struggle with ignorance and prejudice, which create a species of moral resistance more intractable than the *vis inertiæ* of matter to the mechanician. The most sanguine speculator, in our opinion, is often less offensive and less wrong-headed than your thorough-paced practical man, who is generally an incorrigible dogmatic as to the nostrums, right or wrong, which his own narrow experience has taught him, and stubbornly incredulous as to everything beyond them. We believe, however, it will not be difficult to reconcile the principle we have laid down with the results of everyday experience, as some may suppose. I beg to know if any of your intelligent readers can explain the reasons of the above-mentioned *actions*, there being a diversity of conjectures on the subject, and a desire to promote mechanical research will, I hope, plead my excuse for troubling you.

CARRYING TOOLS IN THE STREETS.

An Englishman lately brought an action in the London Sheriff's Court against a mechanic for carrying tools through the streets, by which he had suffered damage in passing. The plaintiff (Smith) stated that he was walkin the city on a recent occasion, and he met the defendant (Emerton), who was carrying a small plane called a plough. A piece of sharp iron projected over defendant's arm, and caught the sleeve of plaintiff's coat, tearing it so that it was necessary to have a new sleeve. Plaintiff considered that defendant was carrying the plane in a very careless manner. Defendant said he carried the plane as safely as he possibly could. There was a particular way in which he and his fellow-workmen carried the tool, and he thought it was the plaintiff's duty to have avoided it. The sheriff, however, decided that it was the duty of workmen carrying tools in the public streets, especially in a city, to take care that no injury was done to passengers. Defendant should have a bag for his tools as carpenters had, and as he had not done so, plaintiff should have a verdict with costs.

In a subsequent issue of the London *Builder*, from which we condense the foregoing, a correspondent remarks, that there is "a class of men who take advantage of a foul dress or burden, a dangerous-looking implement, or an awkward barrow, to clear for themselves a way through the crowded pedestrian traffic of London, trusting solely to the anxiety of the public to escape out of their way. Slaughter-men, chimney-sweeps, plasterers and millers' men represent one class of offenders, as the defendant in the above case represents another. In spite of legal prohibition it is not uncommon to meet hand-barrows upon the pavement traveling at racing speed, encouraged, perhaps, by the practice of taking out children in perambulators, by which means one child is made to encumber the foot-way of more than half a dozen grown-up people.

"Cabmen and drivers of other vehicles frequently assert their precedence in the use of the road by refusing to draw rein, and even shouting and cutting with the whip (as I saw last night) at foot-passengers who may be crossing their track, clearly thinking, with the defendant in the above case, 'that it was the plaintiff's duty to have avoided it.'

"I shall carry to my grave the marks I received twenty years since from a millwright who was carrying two or three sharp steel chisels, and as he swung his arm cut my hand to the bone. Lately I passed close to a man who was mixing in a crowd, and carrying a small coke stove in a tray upon his shoulder, the blinding heat from which operated with effect upon one of my eyes at a distance of three or four inches.

"Everybody can admire the remark of Napoleon, who seeing a lady too little inclined to yield the path to a heavily-laden workman, checked her with 'respect the burden, madam;' but there is a fair way and a foul way of carrying all things, and it is well that those who are careless of other people's comfort should know that they may have to pay for any mischief they may cause."

CARRIAGE-MAKING IN UPPER CANADA.

That our readers may have some idea of what is going on among our Canadian friends, we have prepared the following article from the columns of an exchange, in which we find the carriages in the Twenty-first Exhibition of the Agricultural Association for Upper Canada, held in Toronto, September, 1866, fully described.

Our friends C. F. Hall & Co., of Toronto, stand first on the list, they having carried off five prizes—for the best two-horse pleasure carriage, a prize of $20; for the best one-horse pleasure carriage, $12; for the best dog-cart, $7; all the foregoing being first prizes, and the second-best prize of $5 for a single-seated buggy, together with a like prize of $4 for a trotting buggy. The style of the work of these vehicles is said to have been much admired, and creditable to the city.

The next successful competitor on the list is J. B. Armstrong, of Guelph, who received two first prizes as follows: for best single-seated buggy, $8; best trotting buggy, $6; and for sleighs, in which he was without a competitor, two prizes; one, for a two-horse sleigh, of $15, and another, for a single-horse, of $10; and although the coloring was rather too gaudy, the workmanship was neat, and the material good.

Emanuel Rocky, of Malahide, obtained the second prize, for a sulky, of $3. For the best pair of unpainted wheels, the best prize, of $4, was given to J. Brechon, of Scarboro, and a second one of $2 to James McMillan & Co., of Galt.

Mr. Gould, of Milton, exhibited a light buggy, fitted with Taylor's springs, which for strength, combined with lightness and easy riding, is claimed to be the greatest invention of the day. It certainly appears (says our reporter) to be a superior article, and if it only acts half as well as it looks, it ought to become extensively patronized; and yet, with this set of improved and highly finished carriage springs on view, the judges awarded no prize at all in the regular list, although there were two entries; and we regret that the merits of the Taylor patent had not been acknowledged by an extra prize, even if it was attached to a vehicle, instead of being exhibited separately.

Moore & Childs, of Buffalo, took the only prize awarded

—being $8—for wrought-iron axles, and a diploma for wrought-iron car axles, both fine examples of workmanship.

The show of carriage and sleigh material is said to have been large and particularly good, and the prizes in the regular list were awarded for bent shafts, carriage-tops, hubs, rims, and spokes, while the extra list was crowded with entries of a similar character, all of the choicest material. Messrs. McKinley & Saunders, of St. Catherines, received the highest extra prize for the best and largest assortment of carriage and sleigh manufactured material, and Messrs. McMillen & Co., of Galt, took the second. The account we published on page 125, volume VII., would seem to indicate that there were fewer exhibitors this year than last, when the exhibition took place in London. The exhibition for 1867 will be held in the city of Kingston.

OUR CARRIAGE MUSEUM.—VI.

Not only did the ancients put horses, mules, asses, oxen, camels, and elephants to their wagons, but even accustomed to the yoke the most ferocious animals. There were to be seen on festival occasions, in the circus, lions, tigers, bears, stags, buffaloes, zebras, and boars, attached by couples or fours, peaceably drawing in a line. But it was not only at the great festivals in the circus, but also on ordinary occasions, when the emperors, high officials, or persons of distinction and rank gave gratuitous exhibitions to the people, that all sorts of beasts appeared on the ground, and were hunted and baited in different ways. Sometimes an immense number of foreign animals would be let loose at a given sign as a spoil or prey to the people. There are still many old coins existing that were given out on such occasions. The emperor Severus, in particular, gave such festivities to the public. Thus writes M. Cœlius to Cicero (lib. V., iii., letter 2), "Should you hear that I am chosen '*sedilis*' [chairman], be so kind as to procure some leopards;" and in his ninth letter, he says: "In almost all of my letters I spoke to you of leopards. Atticus has sent ten to Curio, and it will be a shame if you don't send me a greater number. Curio has made me a present of this ten, and given me, besides, ten more of African origin. If you only would, you could easily do it by procuring them from the Cibyratians [a people of Phrygia], or by writing to Pamphilia, where, I am told, many are captured."

To this Cicero replies (lib. II., Epist. 2): "With regard to the leopards, I enjoined upon the hunters of these animals to be on the look-out, but just now there are but very few of them." Pliny (lib. VI., Epis. 34) praises his friend Maximus for his intention to hold a funeral festival for his deceased wife, on which occasion gladiatorial and prize fights were to take place, and he would be sorry if the panthers he had bought did not arrive in time.

The Greeks were foremost in the art of taming wild beasts, and some of them made this their special profession. Lampridius, in the life of Heliogabulus, calls them *mansuetarii* [tamers]. By great patience and some secret trickery, they after a while were successful. Pliny says (lib. XXV., cap. 2), "that there exist certain plants which when mixed with the water or food of these animals has the effect of taming them." In the same passage he further says, "that neither lions nor panthers will dare to attack a man rubbed with the juice of garlic. It is also said that a lion tied with a silk cord is afraid to bite through it." Lucian says, "they drag me around like a lion in a string," and the pious Chrysostom, addressing the people of Antioch, exclaims, "You often see lions led about the market, tamed like sheep."

The chariot of Cybele, which her priests exhibited through the towns of Phrygia, was drawn by lions, and this was previous to Trojan times. Hyginus, in the fiftieth fable, in speaking of Admetus, says: Many young men, when paying their addresses to Alcestis, the daughter of Peleus, were all refused by her. Pelcus then offered to give her to the one who could drive wild animals in his chariot. Admetus thereupon called on Apollo for help, and he gave him [Admetus] a lion and a boar, with which he succeeded in winning Alcestis for his bride. Pausanius says that the celebrated artist Bathyllus cut this tale on stone for the throne of Amyclas. There are in existence a great number of Bigas [two-wheeled vehicles] drawn by lions and driven by Cupid.

Our illustration shows a Biga drawn by tigers, and is taken from an antique cameo, to be found in the renowned Barberinian Museum. It is known that such Bigas were often driven in the circus by young boys dressed as Cupids or genii. All the Bigas in the festival processions of Ptolemy Philadelphius were drawn by wild animals and driven by boys—so Athenius tells us.

Our second picture represents a Biga drawn by two gazelles, or Egyptian goats, and is taken from a bas-relief in Pentelic marble, preserved in the antique museum in Paris. The original is eighteen inches long, and three inches high, of very fine workmanship. Stags were more frequently used for draught than any other wild beasts. We read in Pausanius, in Achaicus, that "in the procession of Diana, the virgin, as priestess, drives in a wagon drawn by stags," and in the triumphal procession of Ptolemy were seven Bigas with stags. Vopiscus says of the emperor Aurelius, "He drove up to the Capitolinian a wagon drawn by stags." Yet others got the notion to mount [to harness] their wagons [chariots] with goats. Martial says (lib. I., Epig. 52), "Cease, Ædil, to drive goats." It may be that Martial jocosely called the thin, small horses of Ædil "goats." It is nothing uncommon to see in our own day small wagons drawn by goats, and on old monumental stones and pictures we see sheep, foxes, swans, and small animals attached to wagons. It seems that these pictures gave rise to a proverb, which Virgil, in his Third Eclogue, says of somebody, "The same shall yoke the foxes, and milk he-goats." This latter phrase means now-a-days a foolish effort.

Lampridius says of Heliogabulus, who was a great amateur of such outlandish teams, that he had four big dogs attached to his wagon, and drove them inside of his

palace, or as a civilian on his estate. At Rome there is still to be seen an antique bas-relief in marble, picturing a race with dog-bigas; and that this is not merely a humorous idea, but an evident reality, we have above seen.

The following poem is by Martial, who was an eye-witness in the circus of old: "Since panthers wear smooth yokes on spotted necks, and cruel tigers suffer lashings calmly; since stags champ golden bridle-bits; since Libyan bears are ground with the rein, and boars, as big as Calydon is said to have produced, do follow golden halters; since clumsy buffaloes draw along esedes [wains], and elephants do not refuse flexibly dancing to the swarthy master, why should we not think ours a spectacle of the gods?"

SCREW-DRIVERS AGAIN.

MR. STRATTON: I wish to point out a false theory in an article in Volume vii., No. 10, of your Magazine, in regard to long screw-drivers. There is no doubt but that a long screw-driver is better than a short one. The main reason given by Mr. Peek, *why* this is so, is because of the elasticity of the instrument. I think a moment's reflection will convince most people that it is no reason at all. In the case of large and small pulleys, or large and small cog-wheels in machinery, where the acting power travels faster than the resistance, power is gained; but this is different from an elastic screw-driver, because the resistance commences to move the instant the acting power does, and moves in just the same proportion as the acting power. If power is gained in screw-driving by having an elastic screw-driver, then we had better substitute rubber tugs in harness, for leather ones, in order to assist the horse in drawing a vehicle over an obstacle. According to Mr. Peek's theory, we could raise a heavy weight easier in lifting by an elastic strap than we could by lifting with one that is non-elastic.

BODY-MAKER.

PRESERVATION OF TIMBER.—When extending some mining operations recently in Spain, the miners laid open no less than eight wooden wheels that had been erected under ground for the purpose of raising the water by manual labor. The arms and rims are of fir, the axle and its support of oak. Although these wheels are supposed to be some fifteen hundred years old, they are in a high state of preservation, being immersed in water charged with the salts of copper and iron, thus preventing fermentation, which is the process of decay of vegetable matters. From their position and construction, these wheels are supposed to have been worked by men standing on the rim. The water was thus raised, from wheel to wheel, through the eight stages.

Home Circle.

LONG AGO.

BY FRANCES L. KEELER.

IT is graven on my heart
Where life's waters wildly flow;
It is stamped upon each thought—
Long, long ago.

It is whispered by the wind,
By the clouds that come and go;
Yes, they stamp upon my mind
The long ago.

Every vision that is bright
In this transient world below,
Mocking, places in my sight
The long ago.

As I watch the fleeting flowers
And their tender, lovely glow,
Memory recalls the hours
Long, long ago.

Many, many that I loved
With their voices sweet and low,
Plumed their wings for Heaven above,
Long, long ago.

But my life-sun soon will set
In this weary world of woe,
Then I'll never more regret
The long ago.

THE FADED SCROLL.

BY MRS. C. B. HOUSEL.

CHAPTER I.

IT was a delicious June evening. The full-orbed moon shone down from a cloudless sky, touching with a tender radiance the bosom of the noble Hudson, and veiling, in a silvery mist, the fair white walls of a Corinthian villa, and the richly-wooded slope that swept from its broad front to the water's edge. Two persons had, for some time, been pacing up and down the columned portico of the mansion. Now they emerged from its shadows and walked slowly down an embowered pathway winding toward the river.

They were lovers, evidently, for, as they came forth, the gentleman wound his arm around the slender waist of his fair companion, drawing her so closely to his side that the long rich ringlets of her hair floated caressingly about his person. Earnest and impassioned had been their conversation, for as the strong moonlight fell on their faces it revealed traces of deep agitation.

"Yes, Florence," said the young man, in a tone of ill-repressed bitterness, "you will go away, and in the midst of new scenes, and the whirl of gay society, learn to despise the simple pleasures of your past life; old loves will perish from your memory."

"George, George, how unjust and unkind you are to-night! You know not how you pain me." There was a deep pathos in the voice of the young girl as she uttered these words, and it smote her lover to the heart.

"Forgive me, dearest Florence," he hastily exclaimed, "I know not what I say—this blow has fallen upon me so suddenly that I am well-nigh bereft of reason."

The path into which the lovers had strayed terminated at a portion of the grounds where a gentle eminence afforded a sweeping view of the broad, beautiful river. There, amid lofty and clustering evergreens, was an open summer-house; around the slight columns and arches that sustained its roof clambered fragrant vines—clematis and honey-suckle and sweet-brier; down the mossy banks that sloped away from its base bloomed meadow violets and purple and golden pansies, and blue forget-me-nots; and where the sparkling waves kissed the lower slope drooped clusters of stately lilies fair as the virgin snow. This had long been a favorite haunt of the young pair, and here they paused. To this sweet spot, where they had sported together in childhood's happy hours; where, in later years, they had whiled away many a summer day, weaving bright visions of a golden future—to this sweet spot, haunted and hallowed by fondest memories, they had come—George Merton and Florence Vane, to linger side by side for one brief hour, the last, it might be, that they two should spend together on this side the grave.

Leaning against the low balustrade that overhung the river, our lovers contemplated the fair scene before them with the painful interest that attaches itself to objects rendered dear by holy and sweet associations, when such objects are about to fade from the view forever. It was like looking on the face of the dead.

George drew the young girl to a seat, and quietly pillowing her head upon his bosom, he said in low and tender tones, "For a little while, my own darling, rest your head upon this heart with the old sweet confidence—the confidence that has ever made our love so holy, so purely happy—God-implanted, I have ever believed it to be."

"And is it not, dear George? Why else have I loved you, and only you, from my first years? Why, but for the unerring instinct that directs the heart to its true mate, did I, with all the social longings of childhood, turn from all other companionship to cling to you alone? Timid was I ever, and shy; but with you, dear George, I knew not fear."

"Sweet flatterer!" returned the lover, "how my heart thrills at the remembrance of those early days! Florence, when I saw you for the first time, I was a boy of some twelve years. On my way from school I joined a crowd of idle boys and came up the hill to hunt for bird's nests in the thick grove that screens the porter's lodge. I was perched among the sheltering boughs, pursuing my cruel sport, when suddenly from the clustering shrubbery below emerged a tiny creature. Shall I tell you what she was like? The picture is limned upon my heart. A form that seemed to float on air, in fairy robes of gossamer, all gemmed and starred with rare and gorgeous blossoms; yet, so instinct with soul was this fair, lightsome thing; so radiant with the lustre that poured itself through two cerulean, dewy orbs; that one might deem some spirit of the upper air had come and married with the flowers, to give to earth a new and wondrous form of beauty."

"Dear George, I well remember the day. I was deeply pained; for the nests were robbed before I reached the spot, and the poor little creatures were fluttering about in wild distress."

"Yes, my love; and when you spoke, and chid the rude boys, how they cowered before your little majesty. They fled; and I alone remained, my position shielding me from view. Never can I forget the mingled feeling of shame and terror with which I nestled down amidst the dense foliage to escape the detection that seemed inevitable. As I moved, the rustling of the leaves drew your attention to the tree. Your upturned face, suffused with tender pity, shone upon me, and in that moment the passionate heart of the boy prostrated itself before you in a life-long idolatry."

A faint smile struggled through the tears that weighed down her eyelids as Florence replied, "Ah, George, how well you have kept the secret of that wicked adventure."

"Kept it indeed," he returned, "I have never before had the courage to confess it. Ah! my Florence, to the sweet sentiment born in my soul in that hour do I owe all that there is of worth or excellence in my character. It has proved a talisman whose occult influences have shielded my soul in many a dark temptation."

"And that was the last time, dear George, that you made the tree a hiding place," said Florence a little mischievously, for she loved to protract the talk of those sweet early days.

"Ah! my own dear love, you know too well how oft I came, a dreamy boy, and watched, as 'they who watched for the morning,' for one glimpse of my fairy queen. There were long weary hours when the day waned into night, and she came not. Then would I slip from my leafy perch, and wander down the dark lane leading to my home with a heart heavy indeed; but this chanced not often; for in the late afternoon of the summer days you were almost always to be seen sporting with the butterflies and humming-birds among the flowering vines under the great old trees. In time I grew bold, and essayed to win you from your shyness. I gathered flowers, the fairest and most gorgeous children of the radiant summer, and when you came beneath the tree, I showered them on your head. Once more you looked up, not as before, with the face of a sorrowing angel, but with a sweet and pleased bewilderment—and so commenced our acquaintance."

"And our happy, happy days, dear George," murmured Florence.

"Ah! my own love," returned George with a deep sigh, "it affords a brief respite from present woe, to retrace those dear, delightful scenes; but now I feel that I have done with joy forever. Fool! fool! that I have been, through all these years, to wrap myself in this sweet dream, thoughtless of the future."

"Hush! hush! George, no more of this," said the young girl, laying her hand upon her lover's arm. "Must I repeat my assurances that our parting is but for a brief season. My father loves me well, he cannot long remain deaf to my entreaties; meanwhile, we will be patient. Neither time nor absence can diminish our true affection for each other—we will keep our faith."

"Our faith!" exclaimed George, straining the fair girl to his heart with wild fervor; "our faith! bless you for that word, my own beloved. When mine shall fail or falter—may Heaven—"

"No oaths! dear George, we will have no oaths; we who love and trust with our whole hearts—"

At this moment the great steamer rounded a point at

a short distance up the river, and came sweeping rapidly down to the landing-place of the little village that skirted Elmwood. This was the signal for parting. George Merton was compelled to be at his post in a mercantile house in New York on the following morning.

There were brief farewell words uttered amid sobs and tears, and a wild, heart-breaking embrace; then the young man sprang down the bank, and Florence was alone with her grief.

CHAPTER II.

Leroy Vane, the father of our heroine, was an aristocrat to the core. He had no sympathy with republican institutions, nor any respect for the class who, under the fostering influence of such institutions, work their way from indigence to positions of wealth and importance. If Mr. Vane's birth-place had chanced to be in one of the States bordering on the Gulf of Mexico, where among the lordly proprietors of the surf-laden soil he would have found sentiments in harmony with his own, he might have been content to enjoy his ample possessions among the people of his own land. As it was, however, his home did not suit him, and he resided for the most part abroad. His great wealth and high connections procured him ready admission into the best circles of European society, where he doubtless found the polished ease that so well accorded with his elegant tastes. Early in life he formed a thoroughly congenial marriage with a young American lady, whom he met in Paris. After some three years spent amid the gayeties of that splendid capital, the young pair returned to their own land, intending to reside permanently at Elmwood, Mr. Vane's beautiful place on the Hudson. In a brief half year after they had entered upon the pleasant domestic life to which they had looked with such sweet anticipations, the young wife became a mother, and ere the dawn of another day naught remained of the lovely and accomplished Mrs. Vane but a form that lay like sculptured marble beneath the folds of a snowy sheet. We will not dwell upon the grief of the young husband, who welcomed a daughter under such mournful circumstances, notwithstanding the hardness of heart which it is proverbial that great pride engenders. Leroy Vane loved and admired his wife fervently, and was stricken to the earth by the terrible event. For some years he lived in the seclusion of his country home, concentrating his hopes and cares upon the tiny creature thus committed to his sole guardianship; but at length the old relish for society revived, and, leaving his daughter in the care of a widowed aunt, who had been induced to take up her abode under his roof, he returned to the pleasant dissipations of the French capital. Rarely has a child deprived of parental care advanced toward womanhood under more benign auspices than did Florence Vane. Aunt Grace Milwood, who came with ready kindness to assume the care of the lovely little girl, was a grief-stricken and solitary woman. Cultivated and elegant, she had withdrawn from the circles to which her presence ever lent an added charm, at a time when, oppressed by affliction, her heart sought its solace elsewhere than in the gay world. All the tender sympathies of her sweet, chastened nature were concentrated upon her motherless little niece, and to the cultivation of her mind and heart the good lady devoted herself with untiring assiduity.

How shall we portray the beauties of Elmwood? The princely villa that lifted

> "Its marble walls
> From out a glossy bower of coolest foliage,"

crowned a wide eminence, at the southern base of which a pleasant village, like the tributary of some old feudal barony, lay extended. Save the rector of the village church, and the good doctor, whose healing skill is in requisition among the highest as well as the lowest in the land, few visitors ever invaded the aristocratic seclusion of the place. Its solemn grandeur inspired the villagers and simple country folks with a kind of awe; and the child, whose father was far away over the seas, and whose mother slept in the old family vault, who dwelt up there like an enchanted princess in a giant's castle, furnished a theme for gossip through all the country round.

In time, Florence found a companion in George Merton. The acquaintance was made in the manner described in our first chapter. It met the approval of good Aunt Grace, for she descried noble qualities in the boy, and learned to love him almost as well as her niece.

As years went by, the tender friendship of the children ripened into love, the deeper and holier from the isolation in which they lived. George, a book-loving boy, quiet and reserved, mingled with none around him. Florence was his world—

> "The ocean to the river of his thoughts,
> That terminated all."

But the time came when he must tear himself from the sweet scenes of his boyhood to toil for the competence without which he could not hope to win the object of his heart's desire. He selected a commercial life as the most speedy means of attaining this end, and, entering a mercantile house in New York, he devoted himself with his characteristic energy to the work before him.

Florence had nearly attained her eighteenth year when death again entered the stately dwelling of the Vanes, and now dear Aunt Grace went to join her beloved in the mansions of the blest. News of the event was speedily conveyed to Mr. Vane, and he at once embarked for home. Great were the surprise and delight with which he beheld his daughter quite grown to womanhood, exquisitely beautiful, rivaling in her unaffected grace and native refinement the most admired of those with whom he had recently mingled in the gay salóns of Paris.

(*To be concluded next month.*)

THE DIET OF THE FRENCH WORKMAN.

He is up at dawn. In fact everybody rises early in France. There is more business done before ten o'clock in Paris than there is in London before eleven. There are two places where breakfast may be had—the *cremerie* and the soup shop. Some excellent coffee, with milk, costs less than one and a quarter pence, and the bread, with butter, one penny. For dinner the soup will cost one and a half pence; the plate of meat two pence; half a bottle of wholesome wine, four pence, or a quarter of a bottle two pence, or a pint of beer or milk two pence, and all of really good quality. In many places they give soup, a piece of mutton or *beef a la mode*, bread, and half a bottle of wine for sixty centimes, or about eleven cents of our money.

Pen Illustrations of the Drafts.

CRANE-NECK C-SPRING COACH.

Illustrated on Plate XXV.

Every point of novelty pertaining to the modern coach will be found in this design. In the front are combined the Salisbury and the Metropolitan boots, connected to the body by the crane-neck. At the back, the body is suspended by a loop-iron to a C-spring, in addition to the elliptic, emphatically entitling it to the designation of "a double-suspension coach." The lower front quarter, too, it will be observed, is so peculiarly shaped, that it gives to the body an extremely light appearance, decidedly unique. Should those curious in such matters compare this design with those on pages 62 and 92, Volume iv., or even with the drawings of the coaches published in our earlier volumes, they will see a striking improvement has been made in the coach of the present day. Our design presents the reader with a picture of the most aristocratic looking vehicle in vogue. The architecture of coaches is amply illustrated by several drawings in our second volume, which may still be had, bound, for $3.50, by express; or by mail, post paid, for $4.

EXCELSIOR COUPÈ-ROCKAWAY.

Illustrated on Plate XXVI.

We claim for this design much originality, and believe that our patrons will join us in pronouncing it something handsome and difficult to excel. The combination of the French coupè with our rockaway is an American idea happily conceived, and, in this case, successfully executed. The French rule, as applicable to this carriage, we shall endeavor to give in the January number of this Magazine, and therefore defer special details for the present.

OPEN FRONT ROCKAWAY.

Illustrated on Plate XXVII.

Perhaps this might with propriety be called a Rockaway-coupè, but we have chosen to give it the old and familiar name of Rockaway. This design is not likely to become popular in New York, but will, doubtless, meet the wants of the rural manufactories. To make a lighter body, it should be paneled, the moulding being done afterward.

FANCY COAL-BOX BUGGY.

Illustrated on Plate XXVIII.

This design furnishes another example of what may be done by simple moulding in giving novelty to the side-panel of a coal-box, which now may be called *the* fashionable buggy in this city. These are generally painted black, with dark-colored broad striping on the carriage-parts.

A Body-maker's Testimony.—A correspondent from the West, who learned the business Eastward, says:—The bodies I have made after the designs you give I admire very much. Many carriage-makers spend more than time enough to pay for a year's subscription studying out some new design, when by taking the Magazine, they would have it furnished to their hand, and probably in a better shape.

When I was an apprentice, I would have given considerable to have been acquainted with the principles of framing illustrated by the "Cant board" in your last December number. I afterward became acquainted with the principle at Bridgeport, known there as the "French Rule," which was then secret, ten dollars being the price for instruction when taught all the details—framing the rails, getting the sweep of the belt-rails, &c.

Sparks from the Anvil.

CARRIAGE SPRINGS.—IV.

In a previous article, we promised the reader something more respecting the "elliptic" spring and its *deformed* family of children. For specimens we turn to the United States' Patent Office Reports, and making a selection, present them to the public, not doubting that, with us, they will wonder how such a progeny ever found any favor with men claiming to be "scientific," such as we suppose those at the Patent Office to be. It is some relief, however, to find that but few of the patentees have any practical knowledge of carriage-making, and that, for the most part, they are simply *adventurers*, "reckoning without the costs." To the craft they will furnish amusement, and we are not without hope that our *dishing out* will nauseate the stomachs of the crowd, who are in mind feeding on the fame they are reaching after in the same unpropitious direction.

The first we shall notice is the elliptic "Tension-bar Steel Spring," which the patentee claims has advantages "over all other elliptic and half elliptic steel spring now in use," such as "great saving in weight, increased strength, and superior action, all of which is now demonstrated by practical use." This spring (Fig. 11) was patented April 26, 1859. The claim reads thus: "The construction of a spring, by confining the ends of the exterior blades *a a*, in bearings in the ends or heads of a tension bar *c*, without rivets, bolts, hinges, pins, or screws, arranged and operating in the manner and for the purposes described;" but in the circular issued to the public this tension-bar is applied to an elliptic spring with common heads and apparently secured at the ends by bolts. In either case this tension-bar, in our judgment, is more injurious than beneficial to the spring.

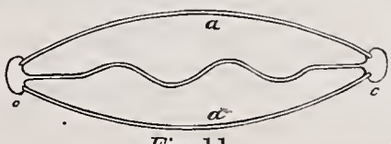


Fig. 11.

In comparing the drawing as patented with the inventor's business circular, we see a wide discrepancy, and

when we are told that such a spring has "superior action, all of which is now demonstrated by practical use," we call for other proofs than those originating in the patentee's brain. We conclude that it will take more than fourteen years to make the public "see" any real benefit to be derived from using the "tension-bar."

In the next example (Fig. 12), we find a contrivance called an improvement on the elliptic spring, equal in

Fig. 12.

absurdity with the foregoing. Here claim is made to "the arrangement and combination of the U-shaped leaves B B, with the elliptical spring A A, as shown and described, so that the extremities of the leaves B B will approach each other, and will be secured to the centers of the springs A A, as specified." What improvement attaches to this fish-mouthed contrivance we cannot see, neither do we believe the inventor can tell us, since he remains silent on the subject. If his sole object was to burlesque our invaluable "elliptic," he certainly has succeeded beyond anything before attempted, and produced something much more *curious* than useful. We shall not waste criticism on this invention.

The next figure (Fig. 13) represents a sort of Siamese-twin affair, patented November 26, 1861. "This invention consists in em-

Fig. 13.

ploying two bearings, both on the upper and lower side of an elliptic spring, near its ends, instead of a single central bearing as usual, for the purpose of attaining a more gentle and easy motion." The claim is, "constructing elliptic springs with double bearings *b b*, and leaving the centers thereof detached from the axle and spring-bar, substantially in the manner and for the purposes shown and described."

Although we cannot discover any improvement in this over the better-shaped common elliptic spring, still, we do not feel disposed to condemn it as strongly as we have those oddities before noticed; nor can we admit that a spring shaped after this pattern possesses "a more gentle and easy motion" than those made in the perfectly elliptical form. It is true there is this advantage in adopting this form of spring—the weight which rests so injuriously upon the center of the axle when a spring assumes an elliptical form, by this invention divides and distributes it on the axle nearer the ends, rendering it less liable to break in the middle. Whether this advantage will compensate for the loss made in its elasticity or not is a matter so entirely dependent upon the duty it has to perform, that we hesitate in our decisions regarding it, and leave the matter with the reader.

PERMEABILITY OF IRON.

The Master of the Mint in England, Mr. Graham, the well-known chemist, has made a very important discovery, which was read at the close of a late meeting of the Royal Society. He has discovered that iron, at a low red heat, absorbs a considerable quantity of carbonic oxide; and that, contrary to long-standing belief, this gas does not act on the surface of the metal only, but permeates its entire substance. Having taken up the gas, the iron will retain it for any length of time, and in this condition it is best adapted for conversion into steel, as by the permeation of the carbonic oxide, the subsequent process of carbonization is largely facilitated. Hence arises the suggestion that the process of acieration would be best accomplished by changes of temperature; a low red heat to fill the iron with carbonic oxide after which it may be put away, if required, to await the final process, at a high temperature, of conversion into steel.

Concerning another form of iron Mr. Graham remarks, that wrought iron, in the course of its preparation, "may be supposed to occlude six or eight times its volume of carbonic acid gas, which is carried about ever after." How the qualities of iron, he asks, "are affected by the presence of such a substance, no way metallic in its character, locked up in so strange a way, but capable of reappearing at any time with the elastic tension of a gas, is a subject which metallurgists may find worthy of investigation."

Paint Room.

NATURE AND QUALITIES OF PAINTS.

(*Continued from page* 91.)

YELLOWS.

Chrome Yellow is more in use by the coach-maker than any other. It is not considered a durable color, but liable to change from the action of air upon it. It is found in beautiful shades generally denominated orange or lemon, to distinguish them from each other. Some of these cover well and work admirably, but as before noted are liable to change, and affect in like manner most other colors when united with them. A writer on the subject tells us: "One may venture to use it for the heightening of certain yellow stuffs, and the brilliant lights of gilding, provided it be employed pure, and the color it be laid on shall have become perfectly dry, touching it with a free pencil. It changes then much less. But mingle with it white or Prussian-blue, and it becomes frightful. Therefore, all things considered, it were better never to make use of it: the ochres are far to be preferred; they never alter."

Yellow ochre is another of the yellows, useful in carriage painting, in mixing, filling up, &c., but as these are for sale at the shops of nearly the same quality, we need not enlarge upon them here.

Naples Yellow, which is indispensable in painting landscapes and flowers, is almost unknown to coach painters. As there are some artistically inclined, who practice more or less in drawing, etc., we extract the following from the "Hand-book of Oil-painting," for their instruction: "It may be employed in other works of the art [than in landscapes and flowers], the painter being careful, however, not to use it in the lights of carnations, yellow ochre being infinitely better. Besides, Naples yellow not only assumes a greenish tint, but attacks certain other colors. But it may be employed very profitably in the reflexes of carnations on the shadow side.

It covers well; and it takes the place of white in those parts which are but little brilliant, with advantage, because it is rather less opaque, heavy and cold. It is a capital color besides for touching the foliage of trees in their broader lights, and yellow metals, as well as for painting flowers and draperies bright yellow. It makes fine bright greens, on mixing it with ultramarine. On account of its composition (the oxides of lead and antimony) great cleanness is requisite in grinding or mixing it, and the use of the steel palette-knife is to be avoided, a horn or ivory spatula being substituted. The mingling of it with native yellow ochre, in order to enliven the latter, as is sometimes practiced with colormen, can hardly, we should think, be accounted judicious, though it may happen to be attended with no ill results.

Bouvier, learned and practically versed in every process of color-making, says that *arsenic* enters largely into its composition, and indeed gives an account of a process for purifying it, which he says is highly dangerous, and may even become mortal, if one expose himself to the arsenious fumes emitted in the operation. He, therefore, considers this yellow as particularly inimical to white-lead and vermilion. Other writers of authority do not mention this objection, still less the cause; and in the multitude of receipts for the manufacture of the pigment which we have examined in various authors, while some of them name ingredients that are not included in others, bismuth, zinc, &c., we have found no intimation of what he mentions. It appears, however, that not only the modes of manufacture are various, but even specimens from the same laboratory may differ, and that being liable to injury from slight causes in the manipulation of the artist, its durability is generally questioned, while its utility as a pigment, even with this drawback, is universally admitted. A few observations on lemon and stone yellow must close this article.

"*Lemon yellow* is of a beautiful light vivid color. In body and opacity it is nearly equal to Naples yellow and masticot, but much more pure and lucid in color and tint, and at the same time not liable to change by damp, sulphurous or impure air, or by the action of light, or by the steel palette-knife, or by mixture with white-lead or other pigments, either in water or oil, in each of which vehicles it works pleasantly, and is a valuable addition to the palette."

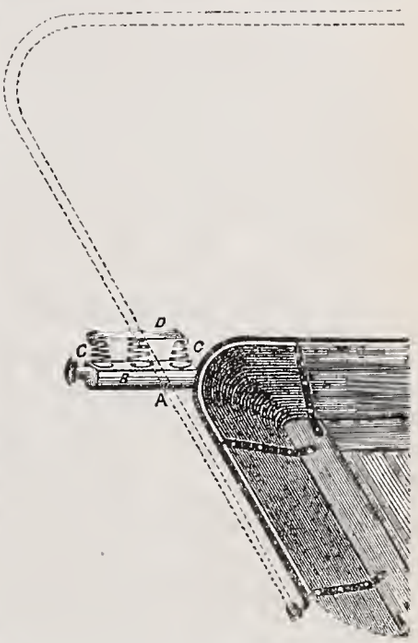
Stone yellow, before mentioned was used in mixing greens in carriage painting to considerable extent a few years ago, but since greens have fallen into disfavor it is seldom called for. Its chief recommendation is, that it has a cleaner tint than yellow ochre.

Trimming Room.

NICKSON'S CARRIAGE-TOP PROTECTOR.

Every carriage-maker of the least experience knows that falling tops constructed in the usual way are liable to injury in the back-bow, when a short time in use, caused by friction created from the constant joltings to which all vehicles are subjected when the top is down. To remedy this serious evil, various devices have been resorted to, such as putting a cushion on the block when trimming, straps on the bows, &c., but with very poor success, as is evident to all who examine our tops, particularly the back-bow, which of all others should remain perfect, in order to retain the symmetrical form of the top. To prevent this cutting away of the bows—other contrivances having all failed—Mr. R. Nickson, who is himself a carriage-trimmer, has recently invented and patented the top protector here illustrated and described.

Our engraving presents the reader with the section of a carriage-seat in perspective, the dotted lines representing the position of a fallen top, resting on the prop-block, at A. This prop-lock, made of wood or other suitable material, is about three and a half inches long, having a transverse groove B, in it, fitting the prop-iron in such a manner that the block and prop are flush on the top, thereby economizing room and furnishing a level bed for the springs C. These springs, three or more in number, of a spiral, conical, or helical form, are secured in a suitable manner by their larger ends to the upper side of the prop, and the smaller ends to the plate D. The whole thing—a skeleton of which is shown in the diagram—is afterward covered with leather or some other suitable material, concealing all from view. The action of these springs is of such a peculiar nature, that they supply a soft bed for the top, and serve as checks against the destructive wear which constant joltings over rough obstructions cause to the vehicle. Arrangements have been made with Messrs. H. D. Smith & Co., of Plantsville, Conn., to manufacture these top-protectors, who will supply the dealers in carriage-materials throughout the country with them, where they can be purchased by the trade.



Editor's Work-bench.

TO OUR SUBSCRIBERS.

On our books we have a large number of subscriptions, beginning with January, 1866, taken because we labored under the impression that we could not supply the back numbers, beginning with June, 1865. We have since come across—stored away and forgotten at the time—several copies, and can now complete the volumes of those who wish to do so with the seven first numbers, at fifty cents each. This offer will present our January subscribers with an opportunity to complete their volumes, which ought not to be neglected, as another chance will never occur. These are also requested to renew their subscriptions for the coming year. All neces-

sary information as to terms, &c., will be found on the cover of this Magazine.

We have but about ten of volume seven unsold, but might make out a few more could we get hold of a few copies of the numbers for January, February and April, 1866. Those, therefore, who do not care to preserve these will greatly oblige us by sending them to us by mail, postage paid, on the receipt of which we will send them such numbers in exchange as they may select, should we have them to spare, otherwise we will pay for them. The fact is, our calls for the Magazine were so much in advance of the edition with which we began the volume, that we were troubled to supply orders. The number for January, 1866, is now very scarce, and worth to us the full price at which we sold it.

CHEAP CARRIAGES.

Some persons, claiming to be smart business men, are in the practice of offering their wares at low figures, under the impression that by so doing they will be able to monopolize all the trade. This system of doing business has been going on for many years—so long, indeed, that some individuals have come to think that when these "cheap Johns" hang out a shingle by the wayside, they are merely setting a spider-like net to catch "the bluebottles" of society, in which they are doubtless successful—no man of sense supposing for a moment that articles of value can be obtained for less than cost. It is not, then, the sensible portion of mankind who suffer from these cheap venders of *worthless* wares, but the poorer classes, who lack intelligence, and have but a limited purse. These, as is well known—the value of the goods considered—pay a higher price for everything they buy than the rich do. This fact is so well understood by the public that we are saved the trouble of proving it by argument, when applied to matters of every-day life.

The foregoing remarks applied to the carriage trade are doubly intensified. The idea of cheapness carries with it large sums for repairs, vexatious losses of use, broken limbs, and death perhaps. So patent is this to the minds of all true mechanics in the trade, that they would no sooner think of selling than of purchasing a cheap carriage. They know full well that the very best carriages to be found in the market, at a fair price, are the cheapest in the end. Men of brains are never tempted by offers to sell twenty per cent. below Broadway prices, nor other absurd baitings, to look for cheap carriages. They value their own lives too highly to trust themselves in these cheap got-up traps, suggestive of spoilt timber, glue and putty. They understand that when a carriage is offered as cheap, that it is because it is poorly made—*cheap indeed!*

Cheapness has not even the merit of novelty attached to it. Cheap carriages have been offered for the last hundred years. Felton informs us that in his day "many persons no way connected with the trade" offered "articles of the most abominable kind, which may properly be termed gingerbread carriages . . . vending their gay printed trash . . . many having bought experience" when buying these vehicles. It is a fact—paradoxical as it may seem—in many cases, both the carriage and the purchaser are "sold" at one and the same time. We have known instances where carriages have been sold from a repository at an advance of only five dollars above the actual costs, and then they proved dear in the end, as the costs of keeping these "shoddy" carriages in repair one year will generally exceed the amount originally paid. Indeed, those who have tried the experiment have discovered that—strange as it may read—*the dearest* purchased have proved *the cheapest* eventually. A modern writer gives such timely advice to such as would have a good carriage that we are induced to transcribe it for the benefit of the public:

"Make the most diligent investigation into the character of the firm with whom you deal; if possible, obtain the opinion of those who have dealt with them previously as to their reliability, and when you are satisfied on this point, do not let any undue suspicion prevent your asking and following their advice, obtaining when you can a full guaranty for at least one year [six months only is the practice in New York city] against all defects or breakages, accidents excepted. Do not hope to buy a good carriage at a very low price. *A dealer who professes to sell at cost is always to be suspected.* A well made carriage is always cheaper than one poorly made at any different price."

The foregoing is both sound and practical advice, which, if followed out by those most deeply interested, would do more to destroy the "vultures" among the craft, and promote art in the business, than any labored exposé which might be written against *cheap* carriages.

POLITICS AND HACKING.

Our readers may consider it a *hackneyed* subject, but we cannot well resist the temptation of referring to a matter of much importance in a city like New York, where the political prejudices of the hackmen, stagemen, expressmen, cartmen, and drivers of street cars, exert so powerful an influence, either for good or evil, in our municipal elections. The greater portion of these, deeming personal interest of greater importance than principle or justice, march up to the polls on an election day, and vote for him who, if elected, is the most likely to permit a free raid upon the pockets of those travelers whose business or pleasure calls may bring them within reach of their rapacious hands. This "solid phalanx of unwashed

nuisances," as a city daily terms them, "vote pretty much as they drive, and men and horses must pay for it," and dearly, too, as our police records amply prove. In our last elective campaign a great number of persons, whose votes were wanted, were induced, by unprincipled partisans, to take out naturalization papers, ante-dated by their licenses, which proved evident perjuring somewhere. To checkmate this mass of corrupt voters, the Metropolitan Police, on the day of election, had a member stationed in each district, whose business it was to look after these ten thousand *freemen*, by comparing the dates of licenses and naturalization in the lists spread before them, so as to challenge and arrest, in the very act, should they attempt to vote. The police records of the next day furnish a living comment on the corruptions of city life, disgraceful to Republican Institutions.

HANGING OFF CARRIAGE BODIES.

Simple as it may appear to some, yet the proper hanging up of a wagon or carriage-body is one of weighty importance. On this depends results which, to the uninitiated, are causes of great vexation and trouble afterward. We will endeavor to give our long experience in this matter for the benefit of our readers.

It cannot have escaped the notice of most carriage-builders that, very soon after having "turned out" a job, the springs are prone to pitch forward from some cause never yet sufficiently accounted for. If not entirely remedied, yet this may be doubly provided against by setting, in the case of elliptics, the back ends inclining, say one-fourth of an inch below a plumb-line, and when on platform springs, with the front ends three-quarters of an inch higher than the backs, measured from a level floor. No one unaccustomed to this rule can have an adequate idea of the success it has in ignoring chains and straps, which only contribute to disfigure the appearance of a vehicle, and serve as "dead weights" wherever such are resorted to. The plan adopted in this article has always been carried out in our drafts, whenever we could beat it into the heads of our artists.

Some useful calculations in determining the proper place for a king-bolt, in bodies hung upon a fore-carriage, to turn short, may be found on page 5, Volume II., of this Magazine, which our practice never to repeat prevents our republishing here.

EXTRAORDINARY PRICES FOR SCARCE BOOKS.

The prices paid for old books, from the library of T. H. Morrell, sold by Bangs, Merwin & Co., at auction, on the 8th and two succeeding days of the past month, would seem to indicate that money is still plenty, notwithstanding business is dull. The prices for which some of these sold, with a description, we append for the gratification of "Book-worms" curious in such matters. Those mentioned relate chiefly to American History.

Vindication of the Captors of Major André, by Egbert Benson (18 inserted plates), 12*mo.*, half green morocco, pub. New York, 1817, $29; Bibliotheca Americana Vetustissima, 4*to.*, uncut, large paper, only 99 copies printed, New York, 1866, $27; The History of Virginia, from its First Settlement to the Present Day, by John Burk, with the continuation, by Skelton Jones and Louis Hue Girardin, 4 vols., 8*vo.*, Petersburg, Va., 1804–'05–'16, $90; An Account of the Late Revolution in New England, Together with the Declaration of the Gentlemen, Merchants, and Inhabitants of Boston, and Country adjacent, April 18, 1689, written by Mr. Nathaniel Byfield, a Merchant of Bristol, in New England, to his Friends in London, small 4*to.*, full calf, London, 1689, $35; An Historical Discourse on the Civil and Religious Affairs of the Colony of Rhode Island and Providence Plantations in N. England, in America, from the First Settlement in 1638 to the End of the First Century, by John Callender, 8*vo.*, morocco, original edition, Boston, 1739, $25; A Demonstration of True Love unto You the Rulers of the Colony of the Massachusets in New England: Shewing to you that are now in Authority the unjust Paths that your Predecessors walked in, and of the Lord's Dealings with them in his severe Judgments, for Persecuting his Saints and Children, etc., written by one who was once in Authority with them, but always testified against their persecuting Spirit, who am call'd William Coddington of Road-Island, small 4*to.*, London, 1674, $40; The History of the Five Indian Nations Depending on the Province of New York, in America, by Cadwallader Golden, 12*mo.*, pp. xviii, 119, morocco, Printed and sold by William Bradford, New York, 1727, $100; Memoirs of Mrs. Coghlan (Daughter of the late Major Moncrieffe), written by Herself, and Dedicated to the British Nation, being interspersed with Anecdotes of the Late American and Present French War: with Remarks, Moral and Political, 12*mo.*, New York, 1795 (illustrated with 30 plates), $28; The Operations of the French Fleet, Under the Count de Grasse in 1781–2, as described in two Contemporaneous Journals, by De Grasse, royal 8*vo.* cloth, uncut, New York, 1864, $35; American Colonial History, an Address made before the Maryland Historical Society, Baltimore, March 29, 1849, by Thomas Donaldson, 8*vo.*, pp. 28, Printed for the Maryland Historical Society, Baltimore, 1849, $65; The Discovery, Settlement, and Present State of Kentucke, and an Essay towards the Topography and Natural History of that important Country, To which is added an Appendix, containing the Adventures of Col. Daniel Boon, one of the First Settlers, comprehending every important Occurence in the Political

History of that Province, etc., etc., by John Folsom, 8*vo.* morocco, gilt, Wilmington, Del., 1784, $25.

Among the volumes in the second day's sale were the following:—The Present State of New England, Being a Narrative of the Troubles with the Indians in New England from the first Planting thereof, in the Year 1807 to this Present Year 1677, but chiefly of the late Troubles in the two Last Years, 1675 to 1676, To which is added a Discourse about the War with the Pequods in the Year 1637, by H. Hubbard, of Ipswich (in New England), small 4*to.*, morocco, gilt, London, 1677, $26. This volume was accompanied with an original marriage certificate and eight lines of autograph by the author. An Account of Two Voyages to New England, Wherein you have the setting out of a Ship, with the charges; The prices of all necessaries for furnishing a Planter and his Family at his first coming; A Description of the Countrey, Natives, and Creatures, with their Merchantil and Physical use; The Government of the Countrey as it is now possessed by the English, etc.; A large Chronological Table of the most remarkable passages from the first discovering of the Continent of America to the Year 1673, by John Josselyn, Gent., 12*mo.*, morocco, gilt, etc., London: Printed for Giles Widdows, at the Green-Dragon in St. Paul's Church-yard, 1674, $32.50. Plain Dealing, or Newes from New England: A Short View of New England's Present Government, both Ecclesiastical and Civil, compared with the anciently-received and established Government of England, in some materiall points, fit for the gravest consideration in these Times—small 4*to*, London, 1642, $45; A Collection of Portraits of Mary Queen of Scots, Together with a Brief Sketch of her Life, with numerous Portraits, New York, 1863, $110; A Brief History of the Pequot War, especially of the Memorable *Taking* of their Fort at Mistick in Connecticut, in 1637, written by Major John Mason, a principal Actor therein, as their Captain and Commander of Connecticut Forces, &c., 8*vo.*, Boston, 1736, $51; Some Historical Remarks on the State of Boston, the *Chief Town of New England*, and of the *English* America, with Some Agreeable Methods for preserving and Promoting the Good State of That, as well as any *other Town*, in the like Circumstances, Humbly offer'd, By a Native of Boston—12*mo.*, pp. 82, Boston: Printed by B. Green & J. Allen, for Samuel Phillips, at the Brick Shop, 1698, $40; A Further Account of the Tryalls of the New England Witches, with the Observations of a Person who was upon the Place several Days when the suspected Witches were first taken into Examination, pp. 10, To which is added Cases of Conscience Concerning Witchcrafts and Evil Spirits Personating Men, by Increase Mather—small 4*to.*, London: Printed for J. Dunton, at the Raven in the Poultrey, 1693, $50; Minutes of Conferences, Held at Lancaster, in August, 1762, with the Sachems and Warriors of Several Tribes of Northern and Western Indians—*Folio*, pp. 36, calf, Philadelphia: Printed and sold by B. Franklin & D. Hall, at the New Printing Office, near the Market, 1763; Joyful Newes out of the Newe Found Worlde, wherein is declared the rare and singular vertues of diverse and sundrie Hearbes, Trees, Oyles, Plantes, and Stones, with the aplications, as well for Phisicke as Chirurgerie, the saied beyng well applied bryngeth suche present remedie for all deseases, as maie seme altogether incredible: notwithstandyng by practize found out, to bee true: Also the portrature of the saied Hearbes, very aptly diseribed: Englished by Jhon Frampton, Marehaunt, Plates, Black-letter, small 4*to.*: Imprinted at London, in Poules Churche-yarde, by Willyam Norton, 1577, $46; New York City During the American Revolution, Being a collection of Original Papers (now first published) from the Manuscripts in the possession of the Mercantile Library Association of New York City,—map, plates, and 6 autographs, 4*to.*, morocco, New York: Privately printed for the Association, 1861, $140; New York Directory (the first ever issued), Containing a Valuable and Well-calculated Almanack, Tables of the different Coins, suitable for any State, and digested in such order as to render an Exchange between any of the United States plain and easy, Likewise the Names of all the Citizens, their Occupations and Places of Abode, etc., by David Franks,—12*mo.* pp. 82, New York: Printed by Shepard Kollock, corner of Wall and Water Streets, 1786, $100. There is only one other copy known to be in existenee, and that is in the N. Y. Historical Library. The purchaser intended to give $200, rather than not seeure it. Monody on Major André, To which is added Letters Addressed to her by Major André, in the year 1769, with an inserted portrait of Miss Seward, an English literary friend of the Spy—small 8*vo.*, New York: Printed by James Rivington, 1781, $46; Advertisements for the Unexperienced Planters of New England, or Anywhere, or The Pathway to erect a Plantation—medium 4*to.*, only 75 copies printed, Boston, 1865, $25; Second Protest, with a List of the Voters against the Bill to Repeal the American Stamp Act of Last Session—8*vo.*, Paris, 1766, $85. This copy formerly belonged to Dr. B. Franklin, in which, in his autograph, among others, is found this note: "My Duty to the King & Justice to my Country, will, I hope, Justify me if I likewise protest, which I do with all Humility, in behalf of myself and of every American, and of our Posterity, against your Declaratory Bill, that the Parliament of Great Britain, hath not, never had, and of Right never can have, without our Consent given before or after, Power to make Laws of sufficient Force to bind the Subjeets in America in any ease whatever, and particularly in Taxation."

Among the volumes sold on the third day were Stile's History of the Judges, 12*mo.*, Hartford, 1794, $20. (We

have a duplicate copy which cost us *only* 42 cents, thirty years ago.) Strength out of Weakness; Or, a Glorious Manifestation Of the further Progresse of the Gospel among the Indians in New England, etc.—small 4*to.*, London, 1652, $30. Historical Memoirs of the Late Fight at Piggawacket, with a Sermon occasioned by the Fall of the Brave Captain Lovewell, and Several of his valiant Company, in the Heavie Action there, Pronounc'd at Bradford, May 16, 1725, by Thomas Symmes, V. D. M., The Second Edition Corrected—12*mo.*, pp. 32, Boston in New England: Printed by B. Green, Jun., for S. Gerrish, near the Brick Meeting House in Cornhill, 1725, $165. The Simple Cobler of Aggawamm in America, Willing to help mend his Native Country, lamentably tattered in the Upper Leather and Sole, with all the honest stitches he can take, And as willing never to be paid for his work, by Old English wonted pay; *It is his trade to patch all the year*, gratis, Therefore, I pray you Gentlemen keep your purses; By Theodore de la Guard (Nathaniel Ward), —small 4*to.*, pp. 89, London, 1647, $26. An illustrated copy of Irving's Washington in 10 volumes, 4*to.*, New York, 1855–9, $2,000. The Bloody Tenent yet More Bloody; By Mr. *Cotton's* endeavor to wash it white in the Blood of the Lambe; Of whose precious Blood, spilt in the Blood of his Servants; and of the Blood of Millions spilt in former and later Wars for Conscience sake; That Most Bloody Tenent of Persecution for cause of Conscience, upon a second Tryal, is found now more apparently and more notoriously guilty; By R. Williams, of Providence in New England; Small 4*to.*, London, 1652, $52.50.

This sale was the most lively and interesting one we have attended in thirty years, and besides the books above named there were many which sold for from $20 to $40 a volume, to enumerate which would take more space than we can devote to this subject. It is said that Mr. Morrell realized a profit of some $9,000 on the sale of the seven hundred volumes of his catalogue, probably the most successful sale of books ever made in New York at auction.

WARRING AGAINST CAPITAL.

Under this heading last month we published an article that seems to have aroused the ire of a cotemporary—who we do not happen to know—which, if not "cooled off," in time may place him in a mad-house. As an antidote against such a misfortune, we assure him that we have no disposition to follow after *his* copy, and indulge in personalities as he has done. He will, therefore, have—as far as we are interested—the entire monopoly of *that* business to himself, which, when his *sober* second thoughts return, may give him *food* for reflection. We would volunteer the suggestion, however, to our friends in the Unions—some of whom we have had a long acquaintance with—that when next they appoint a man, at an expense of one thousand dollars a year, with "incidentals" added, to advocate their interest, that they select *a gentleman* who will not fly into a passion, and abuse others honestly differing from him in opinion when they see fit to make them known.

ENCOURAGEMENT TO TALENT.

Our London correspondent informs us that the Coach and Harness-makers Company, whose very interesting Exhibition was not long since noticed in this Magazine, offer prizes of 3*l.* for excellence in free-hand drawing, and 2*l.* in practical mechanics, to the candidate who, being employed in the coach making trade, obtains the greatest number of marks, with a certificate on those subjects respectively.

LITERARY NOTICES.

The Atlantic Monthly has always been recognized as one of the best exponents of American thought and literature. The Publishers state that its circulation has been steadily on the increase, and to still further deserve the patronage of a discerning public they promise during the coming year, to introduce some new features, not only novel but calculated to afford a rich intellectual feast. The terms of subscription will remain, as now, at $4.

Our Young Folks, for November, is graced with two elegant full-page (one of them in colors), and several smaller, illustrations. This work maintains its early reputation remarkably well.

Patent Journal.

AMERICAN INVENTIONS.

Sept. 12. (57,696) Steam-carriage.—Mathew Fletcher, Louisville, Ky.:

I claim, *First*, The application of a rotary steam-engine to each propelling wheel for stability of carriage, avoiding dead centers and enabling the driver to have at his command with ease, and by the power of steam to back, turn, or advance. *Second*, The arrangement of the engine, piston, and wheel operating (or independently), with the piston and wheel on the opposite side of carriage, for the purpose set forth. *Third*, Suspending the whole weight of carriage and engine to the axle.

(57,736) Machine for Tenoning Spokes.—James Leefeber, Cambridge City, Ind.:

I claim supporting the gear-frames P or *j* upon the movable frame S, and providing for their vertical adjustment thereon, substantially as described. I also claim, in combination with the movable frame S, the gear-frame P, and the carriage D, substantially as described.

(57,745) Carriage-Gearing.—J. R. McAlister, Richville, N. Y.:

I claim *First*, The brace-rods G, G 2, secured to the wagon-body at one end and at their others respectively to the hind axle-tree and the head-block E, of the front spring of the said body, substantially as and for the purpose described. *Second*, The swinging frame-circle *o*, of the front head-block E, in combination with the plate or circle P, fixed to the front axle-tree,

the two being connected together, substantially as described and for the purpose specified.

(57,765) FENDER FOR CARRIAGE WHEELS.—Stephen R. Ramsdell, Providence, R. I.:

I claim, *First*, A rotating fender provided with a projection at one end and a recess at the other for the reception of an adjustable center-pin, in order that said roller may be placed in or removed from its bearings, or adjusted therein with facility, in the manner described. *Second*, A bracket having arms provided with bearings for said rotating fender and set at such an angle with the side of the carriage on which it is placed, that the wheel when in contact with said fender shall present to it as large a portion of the surface of its rim as possible, or in other words shall be nearly or quite at right angles therewith, substantially as set forth.

(57,801) WHIFFLETREE.—George Watt, Richmond, Va.:

I claim, *First*, The construction of a double, single, or treble tree, so that it, by means of one or more of its bent sides, shall form an elastic connection between the draught animals and the object (wagon, plow, etc.), as described. *Second*, The attachment of the double tree by its largest side to the plow-beam, as and for the purpose described.

(57,806) POLE-EVENER FOR WAGONS, ETC.—Henry F. Willson, Elyria, Ohio. Ante-dated August 15, 1866:

I claim the radial *c*, and stationary pin or bolt *b*, in combination with curved slot *a*, and stationary pin *d*, the whole being constructed in the manner and for the purpose set forth and described.

(57,809) CARRIAGE THILL.—Benjamin L. Wood, Taunton, Mass.:

I claim as my invention the improved shaft or pole connection, as made with a hook *c*, and an aperture *d*, therein arranged, with the start-bolt *a*, and to receive a strap, or its equivalent, as specified. I also claim the arrangement of the safety-trap G, to pass through the aperture of the hook, as described. I also claim the combination of a strap, or its equivalent, to go through the eye of the hook, with such hook and the shaft, or its equivalent. I also claim the arrangement and application of the anti-friction strap I, with the shaft, or its equivalent, and the hook *c*, provided with an aperture *d*, as and for the purposes described.

(57,810) WAGON BRAKE.—L. E. Woodard, Cohocton, N. Y.:

I claim the combination of the eccentric L, rod M, pole H, and friction roller with the brake *e*, bars I I, when constructed for the purposes and substantially as herein described.

(57,820) WHIFFLETREE.—W. A. Horrall, assignor to himself and McCrellis Gray, Washington, Ind.:

I claim the combination of the lever H, spring I, arm G, spring K, bar J, hand D, and whiffletree B, with each other, and with the cross-bar *a'* of the thills, when said parts are constructed and arranged substantially as herein described and for the purpose set forth.

(57,844) WHIFFLETREE.—F. A. Balch, Hingham, Wis.:

I claim the combination of the bar A, with the bars C and D, and the springs E and F, substantially as described and for the purpose set forth.

(57,854) THILL-COUPLING.—James J. Brown, Madison, Wis.:

I claim, *First*, The thill-iron D, having its rear end divided and provided with the checks E, one or both which is provided with the notch *n*, for the button to move in, as and for the purpose set forth. *Second*, I claim forming the cavity for the reception of bolt *o*, and its packing *e*, by means of bar B, having its front end bent as shown, and the front leg of the clip C, as herein shown and described. *Third*, The button A, pivoted to the clip C, in combination with the check F, provided with the notch *n*, arranged to operate as and for the purpose set forth. *Fourth*, Securing the button A' by means of the stem *b*, and nut *c*, when used in connection with the packing *e*, surrounding the bolt *o*, as shown, for the purpose of tightening up the packing as shown in Fig. 4.

(57,855) METALLIC HUB.—Henry B. Buch, Litiz, Pa.:

I claim a metallic hub formed by the union of the pipe-box C, with its flange *d*, and prolonged screw-pipe D, together with the flanged nut E *e*, cap F *f*, all held on the pipe-box, in combination with the annular disk G G', headed bolts H, and their nuts *h*, all combined and arranged in the manner and for the purpose specified.

(57,867) WHIFFLETREE.—Frank Clemens, Lafayette, Ind.:

I claim the crank-shaft C, springs G G, and pins F F, in combination with straps I I, and whiffle-tree B, for the purposes and substantially as described.

(57,951) SLED BRAKE.—H. L. Naramore, Cummington Mass.:

I claim the levers L L, rods J J, and elbow-levers I I, in combination with the brake-bars H H, and sled A, substantially as and for the purposes described.

(57,959) SLED.—Frances Peabody, Vevay, Ind.:

I claim, *First*, The eye-bolts J, or their mechanical equivalents, in combination with the raves E F, transverse beams G H, and cross-bars M N, all arranged and operating substantially as herein described and specified. *Second*, In combination with the eye-bolts J, and self-adjusting frame E F G H M N, I claim the flexible diagonal braces T T', for the purposes specified. *Third*, In combination with the elements of the two preceding clauses, I claim the double-ended runners A *a a* B *b b'*, as described and set forth.

(57,972) SELF-ACTING WAGON BRAKE.—Thomas J. Rockey, McElhattan, Pa.:

I claim the arrangement of the strap *h*, chain *g*, rod *c*, springs *b b*, and locking devices *d e f*, constructed and operating substantially as described and represented.

(57,975) WAGON BRAKE.—Daniel Sager, Albany, N. Y.:

I claim, *First*, The arrangement and combination of the pole A, with the lever F, and connections *g h*, directly with the brake-bar in the rear of the wheels, essentially as herein set forth. *Second*, The construction substantially as shown and described, of the pendent shoe H, on the ends of the brake-bar, by reducing their top portions, and so that when the shoes are freely suspended the upper extremities S, of the lower or rubbing portions thereof will be on a level, or thereabouts, with the centers of attachment of the shoes, essentially as and for the purposes herein specified.

(57,987) AXLE-BOX FOR WAGONS.—Alfred E. Smith, Bronxville, N. Y.:

I claim the new manufacture of axle-boxes for wagons and other vehicles, by forming on their butt-ends a raised shoulder having a series of teeth cut therein to engage in the back end of the hub in contradistinction to the use of lugs to secure the boxes in the hub. I also claim the making of the axle-box perfectly cylindrical throughout the length of it, so that by boring the hub with a true center the box will fit it without the necessity of cutting any grooves or channels in the hub, for the purpose hereinbefore set forth.

(58,001) WAGON-TOP.—Andrew R. Tully, New York City.

I claim, *First*, The springs F, and their combination with the hinge *f*, wagon-frame A, rear bow E, and knobs *a*, substantially as herein shown and described and for the purpose set forth. *Second*, The manner of attaching the knobs *a*, by riveting them to a metal strap concealed beneath the leather strap H, substantially as shown and for the purpose specified.

(58,014) Wagon Brake.—Thomas T. Wier, Gallatin, Mo.:

I claim *First*, The combination with the neck yoke K, tongue J, forward bolster F, and brake-bar P, of a rod M, jointed in two places to accommodate it to the movements of the tongue and forward part of the running gear of the wagon, substantially as described and for the purpose set forth. *Second*, The combination of the iron guide-brace T, with the brake-bar P, and with the rear axle C, and bolster E, substantially as described and for the purpose set forth. *Third*, The combination of the lever U, and raek W, with the brake-rod M, and with the tongue J, substantially as described and for the purpose set forth.

(58,016) Carriage Seat.—Luther J. Woodruff, Mohawk, N. Y.:

I claim a carriage seat having metallic corner picces, substantially as and for the purpose described.

(58,030) Carriage-wheel.—Richard Walker, assignor to himself and Peter Broadbrooks, Batavia, N. Y.

I claim, *First*, The eombination of the ferrule E, sleeve G, nut H, screw F, and Band I, with eaeh other, and with the spoke B, and felloes C, substantially as deseribed and for the purpose set forth. *Second*, The combination of the wedge or wedge-shaped nut J, with the felloes C, eap or band I, and screw F, substantially as described and for the purpose set forth.

(58,031) Tempering-spring.—P. Whysall and J. Porrett, Port Jervis, N. Y., assignors to themselves and M. M. Livingston, Brooklyn, N. Y.:

We claim, *First*, The process of tempering springs, wire, etc., substantially as herein described.

26. (58,071) Wagon-shackle.—Lucius M. B. Coleman, Danby, N. Y.:

I claim, *First*, The use of washers or metallic cylinders in the ears of a wagon-shackle, and transfer as far as possible the wear in the shackle-joint to the surfaees made by the periphery of the same and the said ears, when virtually made as described. *Second*, The described beveling of the washers and of the corresponding holes in the ears of the shackle for the purpose of tightening the shackle from time to time, as described. *Third*, The combination of the described device or devices for preventing motion about the iron bolt, but allowing the same about the washers or cylinders, and of washers or cylinders in the eyes of the ears of the shackle with the wearing surfaces in the said ears, the same making a whole as described.

(58,111) Apparatus for Upsetting Tires.—Levi W. Loomis, Homer, N. Y.:

I claim the moveable plate B, provided with the notched strip C, and operated by a shoulder of the lever D, and arms Z Z, to foree said plate against the body A, to upset the tire, when held between cams and ratchets, substantially as herein set forth.

Oct. 4. (58,247) Attaching Hubs to Axles.—Chauncy H. Guard, New York City. Ante-dated September 17th, 1866:

I claim the attachment of a hub to an axle by means of a convexed journal-disk, formed substantially as herein described and eombined with bearing plates secured to the inner end of the hub and embracing said disk, substantially in the manner and for the purposes herein set forth.

(58,280) Hay-rack for Wagons.—Andrew Naramor, Utica, N. Y.:

I claim the adjustable stakes B C, and ladder *e*, in combination with the rack *a* box A, and the pulley or windlass at each end, arranged and operating as and for the purpose substantially as set forth.

(58,292) Body-tops for Carriages.—U. Reynolds, New York City:

I claim the clip body loop, constructed as and for the purposes specified.

(58,353) Shifting Thills of Cutters.—H. L. Taylor, assignor to himself and Charles W. Daniels, Fredonia, N. Y.:

I claim the combination of the rod E, double-acting spring I, or its equivalent, and eye-bolts *a b c* and *d e f*, arranged and operating substantially in the manner and for the purpose herein set forth.

FOREIGN INVENTIONS.

Feb. 9th, 1866. Improvements in Carriages and Wagons with Folding Heads or Coverings, and in Carriage-Springs.—J. Rock, Jr., Hastings.

This invention consists: *First*, In applying springs made of steel, india-rubber, or other suitable material, either separately or in conneetion with hinges or joints to the heads or coverings of landaus and other carriages and wagons made to open and shut (whether such carriages or wagons be used for the conveyance of passengers or goods on common roads or on railroads), for the purpose of raising or closing such heads or coverings, or assisting to raise or close them, and whether such raising or closing be done simply by hand, or with the aid of weights, levers, or other machinery. The patentee places these springs, made of any convenient shape, so that the moving parts of the heads or coverings draw, press, or rest upon them when lowered, the springs thus counterbalancing the weight of those parts, and giving them a tendency to rise when required. The invention consists: *Secondly*, in making carriage-springs of triangular, elliptical, or semi-elliptieal form, in such manner that the strongest part of the spring shall be at the part furthest from the parts of support and of attachment to the weight supported, contrary to the method hitherto supported.

Wheels for Vehicles.—P. F. Runell, Piccadilly, London.

The object of this invention is the construction of wheels with spokes of such a form that their edges at the stock or nave shall register together, their surfaces forming radii of a circle, the outer ends entering the felloes, and having shoulders thereon, thus limiting the extent of their penetration into the felloes and affording a bearing between the shoulder and felloe. The felloes are made each with a projection, and they fasten each other. The tire is grooved or slotted on its internal periphery, in order to receive the corresponding outer surfaces of the felloes, and prevent them from escaping laterally. The principal object of the invention is to make a wheel which may be put together or taken apart in a short space of time. (Feb. 26.)

Feb. 27. Street Cabs, and Harness for the same.—M. Cole.

The inventor builds his cab after the pattern of the Hansom, so far as the outline is concerned, but he divides it longitudinally, or makes it double-bodied, so as to leave a free space under the roof of the cab to receive the horse, the seats for the passengers being thus on either side, instead of, as heretofore, behind the horse. The axle is cranked at its ends, which ends are fitted with wheels of the ordinary diameter. It is also bent at its middle, so as to form an arch over the back of the horse. The cab he provides, both at the back and front, with shoes, a few inches from the ground, the former to prevent the horse from rearing and throwing the cab backwards, and the latter to prevent the horse from falling. This arrangement of cab protects the body of the horse from the weather, but leaves his head, body and legs free for action. This invention comprises certain improvements in harness. *Patent not completed.*

Dated March 2d, 1865. Improvement in Two-wheeled Vehicles.—J. W. Friend.

This invention consists in mounting the under-carriage or framing (to which the body is attached) upon semi-elliptic side openings secured to the axle with their ends extending outwards in contact with the lower surface of the under-framing, in such

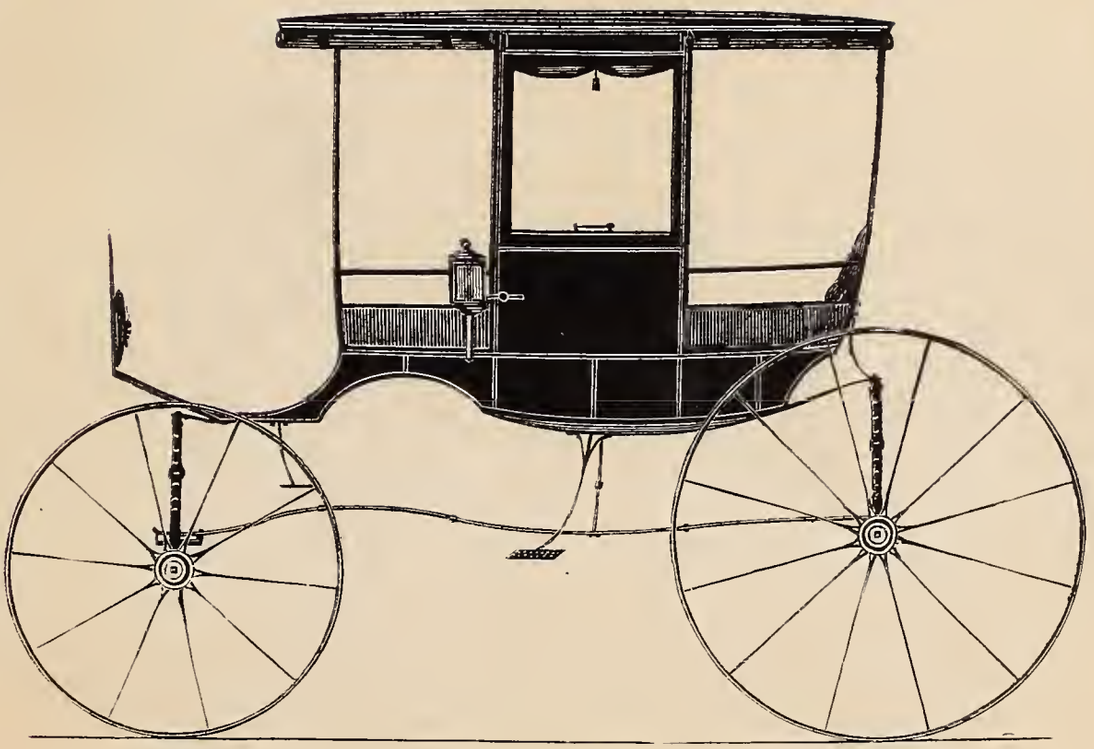
manner that the said ends thereof (fitted with friction rollers) are caused to work freely within channel bearings cut or formed in the same, and arranged so as to expand or slide outwards when actuated by the motion of the carriage, stud pins working within slide slots on each side of the channel grooves, being also employed for confining the ends of the springs in their reacting position upon the friction rollers aforesaid, so that on ascending an incline the body of the cart may be enabled to glide backwards or forwards on the ends of the springs, to the full extent of the slots, thereby obtaining in connection with a draw-bar fixed to the center of the axle and splinter-bar of the carriage, and provided with a screw-nut for regulating and adjusting the balance or set of the cart upon the wheels, an easier and more agreeable running motion on the road than by the employment of scroll irons and couplings, as at present.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, November 19, 1866.

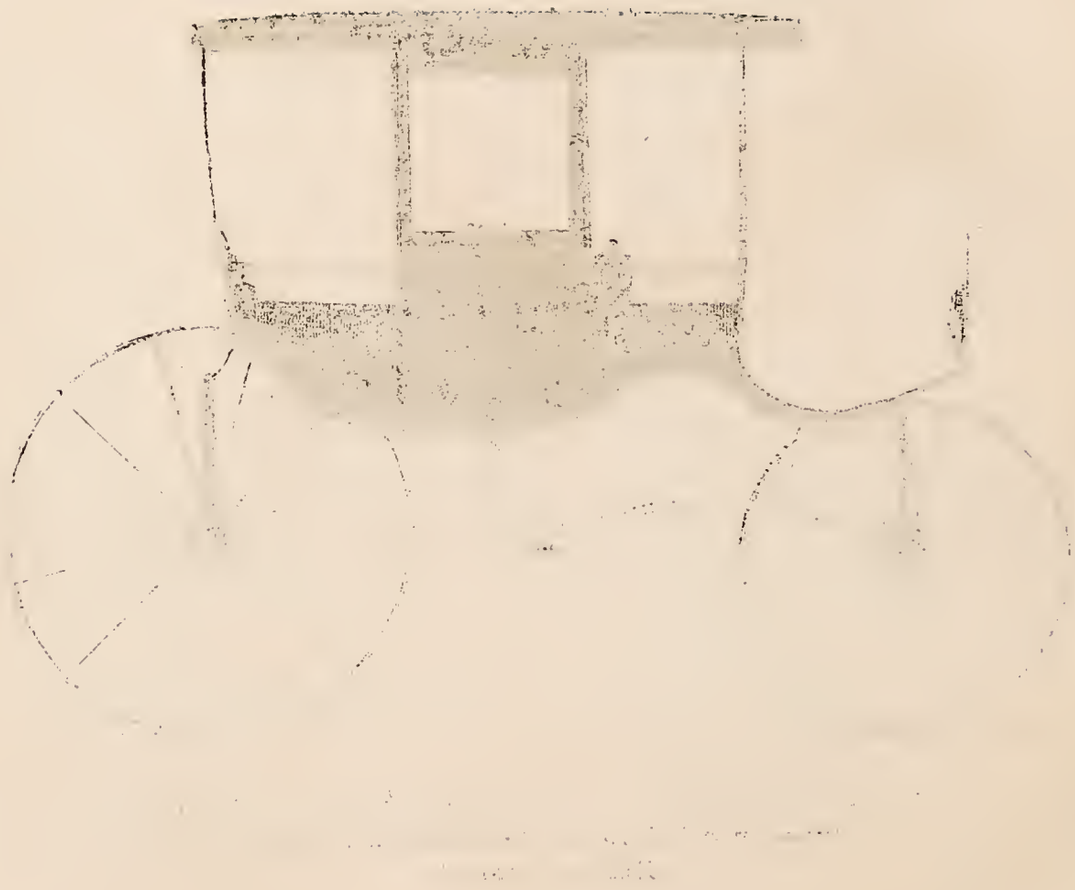
Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10½c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $2.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 75c.; 5–4, 85c.
Do. Ducks, 50 in., $1.10; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $3.50.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 15c. to 20c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 33c.; split do., 18c. *a* 22c.; enameled top, 36c. . extra large (57 feet and over), 36c.; perfect hides under 57 feet, 33c.; No. 2, enameled top, 31c.; enameled Trimming, 33c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 30c.
Moquet, 1¼ yards wide, per yard, $8.50.
Moss, per bale, 12½c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $1.90.
Paints, White lead, ext. $17, pure $18.50 p. 100lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.25.
Screws, gimlet.
☞ Add to manufacturer's printed lists 10 per ct.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.50 *a* $1.65 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 21c.; bright, 23c.; English (tempered), 28c.; Swedes (tempered), 32c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8' 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½.; 3-4 x 5-32 a 11 c; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 9c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.10; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, $1.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $5.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $10.50 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.

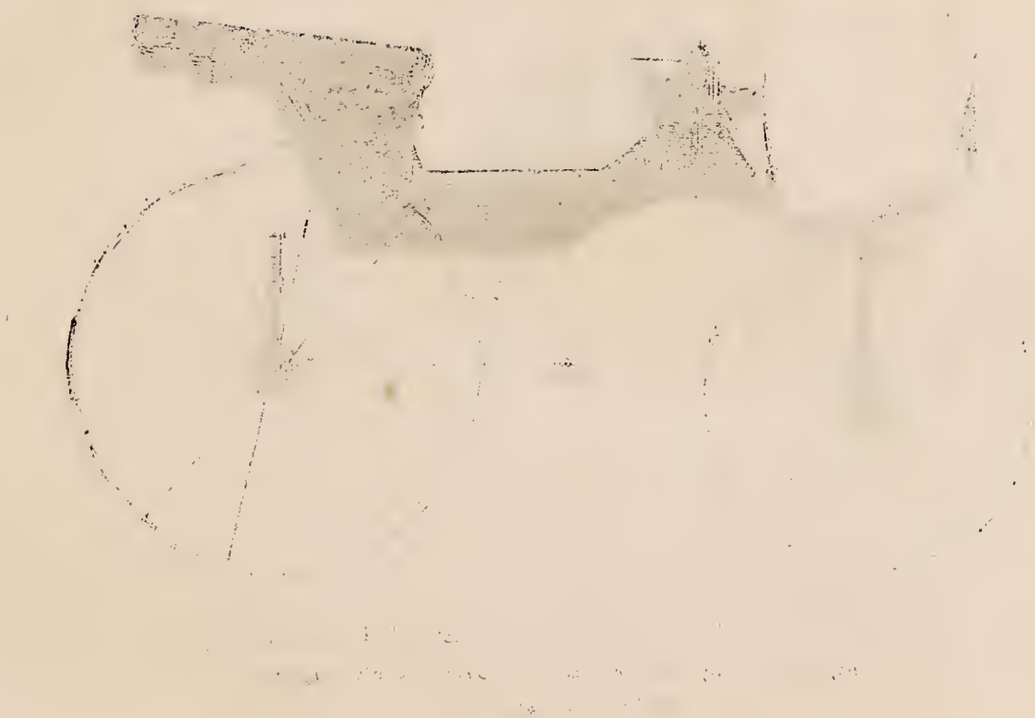


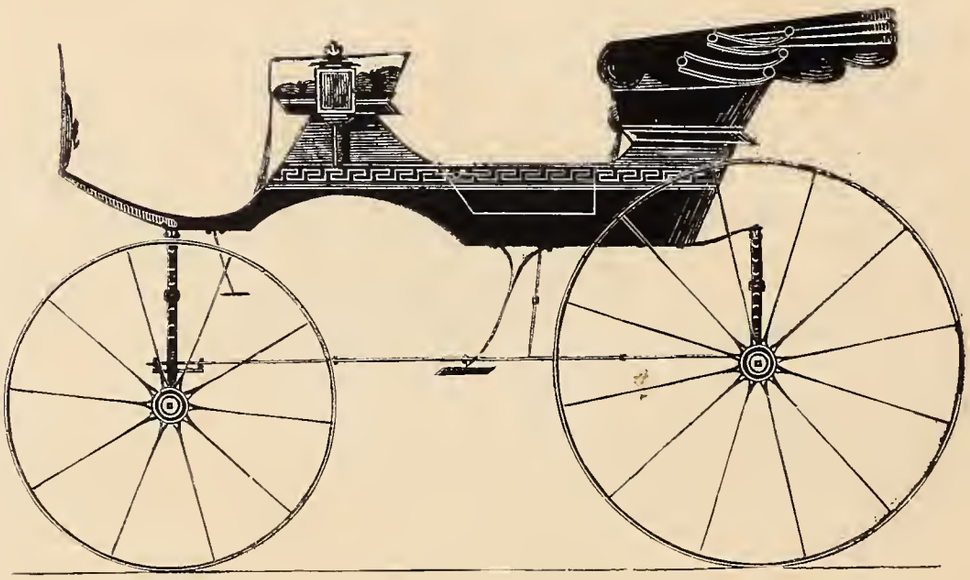
STANDING-TOP ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 120



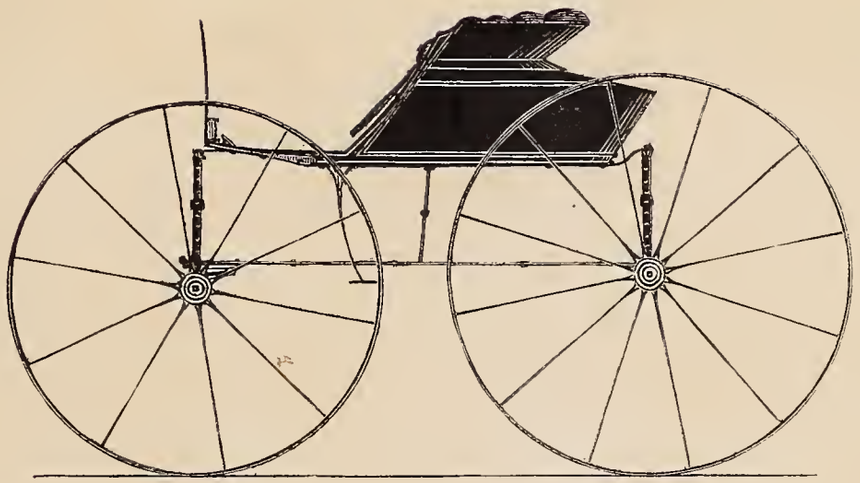




CALASH-TOP ROAD PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 120.



ROAD BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 120.

THE NEW YORK
COACH-MAKER'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, JANUARY, 1867. No. 8

The Coach-Maker's Portrait Gallery.

BIOGRAPHY OF RUFUS M. STIVERS, ESQ.

(WITH PORTRAIT.)

An old proverb says that he who aims at the sun, to be sure, will not reach it, but his arrow will fly much higher than if he had aimed at an object on a horizontal line with his own shoulders. Just so is it in the formation of character. Every man who would be anybody in the world must set his standard high, and struggle to attain an elevated position. To the honor of our country be it said, no one in this land is born with a princely pedigree—all are on an equal footing; and should one rise above another in the social scale, he must do so by his own exertion. Thus much we have judged it proper to say by way of introduction to the biography of our friend which follows.

Rufus M. Stivers, Esq., the story of whose life we are about to narrate, was born in the town of Greenwich, Fairfield county, State of Connecticut, on the 10th of February, 1822, he being the youngest of five children—two girls and three boys. What may appear singular to our readers is the fact that in the ages of these last—they being the youngest—there was just seven years difference. They were named respectively, James E., William, and Rufus.

The father of this family, whose name was James, was, by occupation, a country blacksmith, whose reputation as a good horse-shoer stood high. In addition to this, he held an enviable position in the judgment of his neighbors—he being considered an ingenious plow-maker, a skillful millwright, and handy at country work generally. In his time, wrought-iron plows, with steel-points, were universally in use. The Freeborn & Hitchcock instrument, which has since worked a great revolution in this department of agriculture, had not then been introduced. The two elder sons both followed the occupation of the father; while Rufus, from the day he learned to walk, always hung around the shop, engaged in some mechanical contrivance, when not at school. Although his reputation at this time did not extend beyond the production of imitative water-wheels, juvenile cider-mills, or simple squirrel-cages, and other youthful "conjuring," still, he, by his ingenuity, displayed a natural adaptation of mind to his after-pursuits.

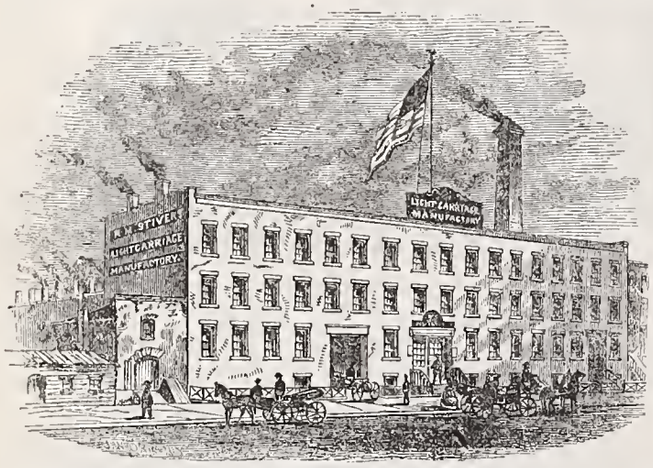
Rufus having lost his father in 1832, when the cholera first swept over this country with great fatality—he being then about ten years of age—was kept at school by his worthy mother (his father having left her in comfortable circumstances) until he became fourteen years of age. He was then apprenticed to a respectable carriage-maker in Horseneck, in his own county. This place, as most of our readers know, is classic ground, having been the scene of one of the most daring exploits of the Revolution—Putnam's Leap. In this shop, every description of work, from a wheelbarrow to a fine carriage, including sleighs, were manufactured. It was the custom then to set a boy at blowing and striking, painting or wood-work, just as suited the convenience of "the boss;" particularly was this the case with candidates for wood-work during the first year. Learning "the wood-work" then embraced a knowledge of making the wheels, carriage-parts and bodies, and very frequently "a few lessons" in painting. The subject of this sketch had for his instructor on wheels "old Major Price," who, in his day, was thought to be one of the best workmen in this country. Perhaps there is not now a man in the business who has a more practical knowledge of it than the subject of this notice.

After he *graduated*, Mr. Stivers worked some years in Bridgeport, where he gained additional experience on heavy work, then considered one of the best schools in this country. In 1852 he removed to this city, where he set up business for himself on a small capital. By industry and judicious management—qualities essentially necessary in a carriage-maker—he has gradually come to be one of the most successful and tasty manufacturers in this country. There may be more extensive shops, but in light work, which is a specialty with him, he holds an enviable reputation second to none.

We give here a view of the new premises on Thirty-first street, near the Third Avenue, in which he has been located now about three years, having by his own merit and untiring ambition built up a good flourishing trade.

Mr. Stivers has the singularly good fortune to be on the best of terms with his fellow-craftsmen in and about

the city. This is due to his obliging manners and lack of selfishness in his business transactions—a trait which is not often found between mechanics in this business.



Mr. S. has the reputation of having invented many new improvements, in light wagons, perhaps, more than any others in the trade. Mr. Stivers' new factory, before noticed, covers five city lots, pleasantly situated, and well adapted for conducting an extensive trade, some idea of which may be gathered from the front elevation above given. S.

Mechanical Literature.

IS A CARRIAGE LIGHTER IN MOTION THAN AT REST?

BY JOHN B. PEEK.

MR. EDITOR,—I suspect that the opinion which makes a carriage lighter in motion than when at rest is something like the puzzle of King Charles, which questions whether or not a vessel of water weighing a pound would be made any heavier by having a live fish of that weight thrust into it.

It is well known that when a body, under the influence of two forces, moves at right angles, each impulse preserves its full effort, when estimated in a line parallel with its former direction. Hence, the tendency of the moon to fall towards the earth in its orbit, though sustained there by the projectile force being withdrawn. On this theory the calculations of the true balance of these powers are made. Should a common ball be projected horizontally with velocity ten feet over a cliff, at the end of the first second it will be found ten feet from the cliff and ten feet below it; at the end of two seconds it will extend twenty feet from the cliff and sixty-four feet below it, and thus it would appear that both powers operate without diminishing each other.

Should any one take the pains to examine thin ice, when breaking under a too heavy pressure, he will discover that it is a progressive and not an instantaneous operation. It bends a great deal at first, but slower as the body of water under it is displaced, receiving additional support thereby. The pressure increasing it begins to crack in lines radiating from the point where the most force is exerted. When these have gone so far as to have accumulated sufficient leverage—notwithstanding the counteracting influences exerted by the width of the pieces—the entire mass separates in a fracture nearly circular. The process goes on with the greater rapidity, proportional to force applied and resistance offered, when the powers are nearly balanced. I have known ice to sustain a weight for one or two seconds which broke in with it afterward. In fact, the process of breaking occupied that time. This is the reason why a man in skating over ice, too thin to sustain his weight at rest, is enabled to do so with impunity while in motion.

Time is a necessary ingredient in all calculations of force. A shot from the gun will cut a piece out of a board, suspended by a string, without scarcely stirring the board. Thus the interwoven fibres of the wood separate without much apparent effort. Attraction is a force which should be measured by the time in which it operates, but is equally effective during every portion of it, and the amount of the whole in a given time is a given sum.

When a carriage, in going over the flat surface of a hay-scale, occupies one second, it distributes as much pressure over the whole as would have been applied to a single point when standing still. Hence, we conceive that by this mode of reasoning the carriage question may be conclusively settled.

Should these remarks, in your opinion, be likely to prove interesting to your numerous readers, you will please give them a place in the Magazine.

OUR CARRIAGE MUSEUM.—VII.

THE racing chariots were light two-wheeled Bigas and Quadrigas containing just room enough for the charioter (*auriga*) to stand in, which never having been designed for any other purpose than to be driven over a smooth race course, the whole thing was built so light that one man could easily carry it on his shoulders. The body was commonly basket work, or consisted of a bottom frame with an iron railing all around covered with leather, the iron railing reaching as high as the knees of the driver, whose movements had to be free and unimpeded by anything on the side. The body was left untrimmed, except in front, where the knees of the driver touched. In all these chariots with railings the lower portions were stuffed, and the top edges of the railings (trimmed) puffed with leather, to secure the driver against injury should he fall from sudden joltings.

The wheels were very low on the racing bigas of the Romans, and like the axle-tree and pole made of wood, and slightly ironed; whilst the Grecian bigas had both the axles and wheels made of iron or brass, all carefully made and extremely light.

In order to prevent the upsetting of these light vehicles the track of all was very broad. There was no profusion of rich ornamentation on the common kind, but such bigas as were used in the circus by Emperors and distinguished princes were remarkable for artistic workmanship and splendor, and were covered over with gold, silver, ivory, and an infinity of precious stones.

The races in the circus were divided into four factions or gangs; viz.: the green, blue, white, and red. These were distinguished from each other by the color of the drivers' jackets and the ribbons tied around the legs of the horses, showing at a distance to which faction the chariot

belonged. Some say that the green signified the earth; the blue, the sea; white, the air; and red, the fire: while others imagine that the green conveys the idea of spring; the fiery red, summer; blue, the hazy autumn; and white, winter. Again, others suppose these colors to be symbolical of the four main periods of life—childhood, youth, manhood, and a ripe old age—all of which are rapidly passing away, like the chariots in a race course. The Greeks once had but two factions, and an old tradition says that Œnomaus,* the father of Hippodamia, when instituting these games, ordered green to represent the earth, and blue the sea.

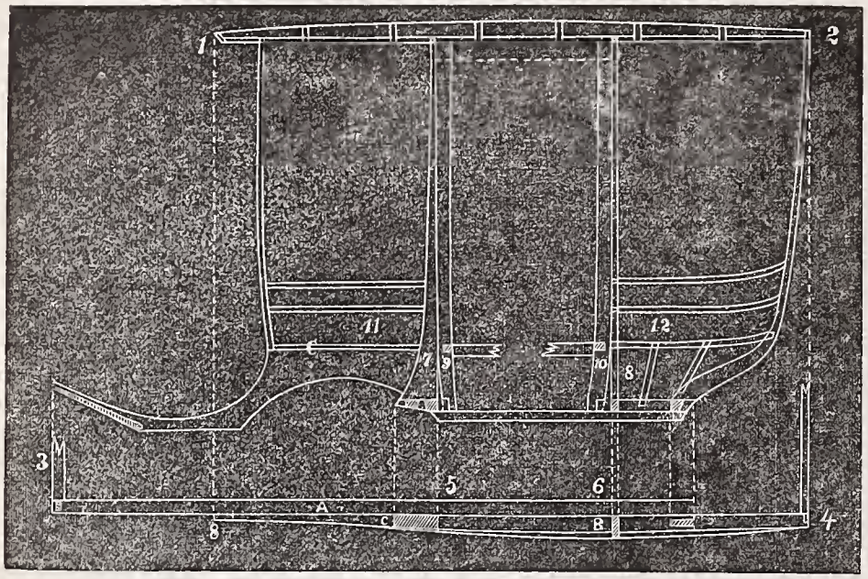
On the twenty-fourth day of March—the day appointed for the races—the peasants invoked the gods to give victory to the green, beliving then a fertile year would ensue. Sailors, in their turn, prayed for a victory to the blue, betokening thereby successful and prosperous navigation. The Romans having adopted the races of the Greeks added thereto the red and white factions, calling the red *factio rosea, rubea, nissata, et coecina;* the white, alba, *candida;* the green *prusina;* and the blue, *veneta.* The overseers of the factions were called *Domoni.* (See Suetonius in Nero, cap. 5.) The Emperor Domitian increased the number of factions by adding two more, the golden and the purple; but both were abolished after his death, some pretending that there was too much confusion where so many chariots racing at one time, turned around the "meta." In ancient times, numbers of chariots used to appear on the Grecian race-courses, and Pindar, in the fifth hymn, chants: "Forty charioteers dashed at thy side, but thou only hast brought back the undamaged wagon (chariot), and drivest back into Lybia's fields, to thy native town." Sophocles tells us that only ten chariots were permitted to start at the same time.

Domitian often prolonged the races to a late hour of the night, accompanied with torchlight illuminations. The most terrible storms of rain could not force him from his seat in the circus. He only changed his overcoat as often as it was soaked through. The same author relates of Nero that this cruel Emperor, when giving festival races to his people, had many captured Christians put in shirts saturated with pitch, and set fire to to serve as lamps to lighten the roads. Originally the Romans at the races employed only slaves, "freedmen," or servants, but sometimes strangers, relying upon the speed and superiority of their horses, challenged others for the race. After a short time had elapsed, these plays increased so much in favor with the public, that the noblest youths, and most distinguished personage—yea, Emperors and Senators—were not ashamed to appear in the circus. So it is related of Caligula, Nero, Vitellius, Verus, Commodus, Caracalla, Heliogabalus, and many other Emperors. Emperors and notables openly declared in favor of the one or other faction, but the people often applauded their favorite in an opposite faction, and this sometimes caused bloodshed in the circus. Caligula one day became so much incensed against the people for opposing the green faction, which he favored, that he ordered his body-guard to use their arms against the assembly, and the Emperor Vittellius considered it a crime against the State to applaud other factions than the blue, which he was in favor of.

The Emperor Nero ordained public overseers and a number of detectives and spies, whose business it was to scan the countenances of the spectators, and if any one happened to look angry, or to fall asleep, it was certain death to him. A person once in the circus could not leave it under any pretext, but was obliged to remain as long as the races continued, sometimes to the latest hour of the night. Vespasian, afterwards Emperor himself, once fell asleep in the circus, and was so roughly used therefor by Phœbus, a freedman of Nero, that he only escaped a certain death by the incessant prayers of himself and friends inducing that servant not to report him. Suetonius relates that frequently women were confined in the circus, and others were suffocated by the crowd. Unable to endure the fatigue any longer, many spectators feigned death, that they might be taken outside; still, the circus was always crowded to excess. Roman citizens on such occasions forgot their own and State affairs, remaining for days in the circus, not caring for anything besides. Suetonius says there was a famine in Rome so distressing that the people went every day to the sea-shore, expecting the arrival of a ship with provisions. At last, a large ship, completely rigged, approached. Every one rejoiced, thanking the gods, but the ship proved to be laden with fine sand from the river Nile, designed for sprinkling over the race-course. Gladiators, being rubbed all over with oil, used to throw this sand at each other, that they might the better hold an adversary.

The accompanying illustration exhibits a racing Quadriga, copied from a tablet in the museum of Cardinal Quirini, in Brescia, Italy. Maffei, a competent connoisseur of art, says in his "Dittico Quirini," (Veroni, 1754), as follows about it: "It is an excellent ancient work of art. The Auriga, or charioteer, holds the reins of the Quadriga in both hands, and, as a precaution, has them slung around his body. He has on gloves of leather, which seem to be overlaid with leather strips, for the greater protection of the hand from the stretched reins. The leather texture on the driver's body is very distinct. Around his legs, also, are wound strips of leather." Maffei, doubtless, has altogether misapprehended matters. What need has the charioteer of arms? The stripes that ornament the driver's costume, as well as those around the horses' legs, are but the colored ribbons intended to show to which faction the "concern" belongs. The bell at the breast of the off-side horse is worthy of notice by the reader, as well as the "hang" of the body, intended to bring the bearing more effectually upon the axletree, to secure it against accidents.

* Ancient writers tell us a romantic story about this Œnomaus, who was King of Elis and Pisa, and offered his daughter in marriage to him who should outrun him in a chariot race, with the proviso that all those who should be beaten by him should suffer death. After thirteen young men had lost their lives in the vain attempt to outrun the King, Pelops, having bribed the King's charioteer to leave one of the wheels unpinned, got the victory and won Hippodamia and the kingdom, the King being killed in the race. This Pelops was the son of Tantalus, who, having slain Pelops, dressed and set the body before the gods, who all refused to taste, except Ceres, who ate a piece of the shoulder. Pelops was afterwards restored to life again, the piece eaten being substituted by iron.—Ed.



EXCELSIOR COUPÊ-ROCKAWAY, WITH CANT-BOARD.—½ IN. SCALE.

GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

PART FOURTEENTH.—BODY CONSTRUCTION.

ACCORDING to the promise made last month, we now give the builder some instructions how to proceed with the Excelsior Coupè-Rockaway found on Plate XXVI. This example is a very simple one, and scarcely deserving of the trouble we have taken with it, yet there are many rural carriage-makers to whom our remarks will be of some interest.

In the first place draw the dotted lines 1 and 2, showing the extreme length of the roof, and 3, the extreme length of the body.

2. Next lay down the cant-rail lines as seen between 3 and 4, and draw dotted lines 5 and 6, showing the width of the door.

3. Determine the amount of turn-under for the standing-pillars 7 and 8, shown between the door-pillars 9 and 10, given in a side view. Our "swell" being small as well as the scale on which this diagram is drawn, this is not as distinctly shown as it otherwise might have been.

4. Draw the two lower lines on the cant showing respectively the longitudinal sweeps for the sides and the roof.

A represents the rocker in an edge view; B the bottom-side; C a piece of timber secured to the upper edge of the rocker at C in the body and extending beyond it from the coupè-pillar in front, to form the sweep of the front quarter properly with the back. The quarters 11 and 12 are enclosed with patent leather outside, and stuffed cushions on the inside of the body.

WIT AMONG CABMEN.

AN article in *Chambers' Journal* illustrates the remarkable wit of London cabmen by the following incidents:

One of the greatest compliments that has ever been paid to the Church of England, at the expense of the dissenting body, was delivered in my hearing (and indeed in the hearing of half a hundred people about to start by the North Express from Euston Square) by one of these Hansom cabmen; and it deserves to be recorded as an evidence of the high opinion which that class entertains for "the Establishment," as well as for its own intrinsic merit. A High Church Rector (at least), with the stiffest of white cravats, M B waistcoat, and upright coat-collar, had just stepped out of this gentlemen's vehicle, and given him what was doubtless his proper fare. More was demanded, but an unmistakable shake of the head was the reply. The ecclesiastic, apprehensive of the storm, began to walk as hastily as dignity permitted towards the booking-office; but he could not escape the winged sarcasm of his late driver.

"Well, if I didn't take him for a Clergyman; and after all, he's nothing better, you see, than a Ranter!"

Surely an admirable stroke of impudence; the expression "you see" too, as though he were secure of the sympathies of all who heard him, struck me as being particularly happy. I have never known this piece of street-humor beaten except in one case, which, although a well-known one, has not, I believe, been chronicled in print. During the period of the Great Exhibition at Kensington, the omnibuses in that district increased their fares from threepence to fourpence. A Frenchman, averse to imposition, and who had been, I suppose, unacquainted with the change in the tariff, proffered a threepenny-piece in payment for the journey.

"Fourpence, mossoo," answered the conductor, wagging his head.

The unfortunate alien, who could not speak a word of English, still tendered the smaller coin.

"One, two, three four—*Four*," cried the other, counting the numbers on his fingers, and roaring at the top of his voice, as though that would render him more intelligible. "*Four! Four!*"

This went on for about five minutes, in the presence of a 'busful of people, who wanted to settle their own little accounts, and enter the building.

"He don't understand nothing," groaned the conductor, when his store of abuse was utterly exhausted. "*Will* any *lady or gentleman* be so good as to oblige me with the French for a blessed fool?"

COMMUNICATIONS WITH DRIVERS OF TRAINS.—The Western (French) Railway Company have just fitted up their first-class carriages with a long-talked-of apparatus, enabling the passengers, in case of extreme need, to communicate with the driver of the train. A series of small double windows enables people to see into every carriage, and through the carriages to the engine. If signs made through these glasses fail to attract attention, it is permissible, according to instructions printed in French, English, and German, to break a pane and pull a ring, which will sound an alarm bell. Warning is given that any person stopping the train without a sufficient cause will be liable to prosecution for a misdemeanor.

Home Circle.

THE FADED SCROLL.

(*Concluded from page* 102.)

CHAPTER III.

Soon after Mr. Vane's return, as he sat, at the close of a summer-day, on the columned portico, enjoying his after-dinner cigar, he descried a group moving on the lawn before him that caused in his bosom a very unpleasant thrill of surprise. The group consisted of two persons—his own daughter and a very handsome and dignified-looking young gentleman, upon whose arm she leaned with loving familiarity. The young pair were too deeply occupied to observe the keen gaze that was fixed upon them; and they continued to stroll up and down under the branching elms in happy unconsciousness of the vivid interest which their movements excited in the parental bosom. Their beaming faces—their eyes, so often bent on each other—their words, now light and laughing, now soft and low as the sighing of the summer-wind—speedily revealed to the observant man of the world the history of their hearts.

Having satisfied himself in regard to the attitude of the parties, Mr. Vane tossed away his cigar, and stepped down from the portico. Florence, perceiving him, instantly drew near, and, without the slighest embarrassment, presented to him her companion, Mr. George Merton. The father, stately and grand, but with perfect politeness, extended his hand to his daughter's guest. After a little commonplace conversation, during which the group remained standing, Mr. Merton took his departure. Scarcely had he disappeared when Mr. Vane, turning to Florence, asked in a cold, dry tone:

"Pray, where have you met this person, daughter, and who may he be?"

"I have known him always, papa—that is, from childhood—and he is George Merton," replied the young lady, with some hesitation.

"From the farm yonder?" again asked Mr. Vane, with a gesture of contempt.

"Yes, papa," was the simple reply; for the speaker had received a shock that nearly deprived her of the power of utterance.

On the following morning, as Mr. Vane sipped his coffee at the breakfast-table, he coolly announced to his daughter his intention of returning immediately to Paris.

"And what shall I do, papa?" asked the young lady.

The father smiled blandly as he replied: "Go with me, of course."

"Oh! oh! papa," exclaimed Florence, whose eyes were instantly suffused with tears. "How can I leave this dear old place that I love so well?"

"Be reasonable, my dear," said Mr. Vane. "Your aunt is no longer here. I prefer Paris to the solitude of this old place, and you are rather young—a trifle too young, I opine—to set up for yourself. Moreover, my sister, Mrs. Pierrepont, has charged me to bring you to her at once. Her house is one of the gayest in Paris. You will be quite happy there, I have no doubt."

Poor Florence! she saw that there was nothing for her but submission. She rose from the table and through blinding tears made her way to the door, and from thence to her room, where she threw herself upon the bed and gave full vent to the agony of her soul.

After a time she calmed herself and rose. George, thought she, will come; he will come by the summer-house; I must meet him there; he must not see my father until I have told him all—told him all—she repeated to herself amidst a fresh burst of tears. It was, indeed, a bitter task.

She bathed her tear-swollen eyes, and smoothed her hair; then, taking her garden-hat, she opened a door leading to the back-stairs. Down these she quietly proceeded to a side-door, through which she passed out, and took her way, under cover of the dense shrubbery, to the beloved trysting-place. She had not long to wait; a bounding step was on the grassy bank, and the next moment her lover was by her side.

What was it that arrested his half-uttered greeting, and caused the warm blood to forsake his cheek? A single glance had revealed to him the anguish of his heart's idol. He sprang toward her, and taking her little hands in both his own, he eagerly exclaimed: "Florence! Florence! my darling, what mean these tears? Oh, my beloved, what has happened to cause this pain?"

She laid her head upon his bosom, and sobbed at first convulsively, then quietly—for she gradually grew calm under the gentle, soothing caresses of her lover; and there, on that dear resting-place, she related all that had passed.

And thus the terrible truth came upon him. And she, his heart's dear, cherished idol—she, whom Heaven had given to his love in her sweet rosy childhood—she, who was entwined with every thought and feeling of his heart—with every fibre of his being—with every purpose of his life—she was to be torn from him—wrenched by one crushing stroke away—leaving his life a blank, his heart a bleeding wreck!

Florence raised her head, for the strong beating of the heart, on which it rested, terrified her. The countenance that met her view was blanched to the hue of death. With the true instinct of her sex she rallied at once, forgetting her own sorrows in the contemplation of the more intense anguish that she witnessed in her beloved.

There was a long and terrible silence. George had turned away. He sat motionless, with his hands clasped tightly over his eyes, and his head drooping low upon his bosom.

"George! George!" said Florence, at length, laying her hand gently upon his arm, "will you not speak to me?"

He slowly unclasped his hands, his form relaxed from its rigid attitude, he turned once more and gazed upon the fair girl by his side; and his face grew soft, and tears slowly gathered in his eyes.

"Oh, Florence!" said he, "I have been mad—mad and blind not to foresee this cruel hour. I have wrapped myself in sweet oblivion, and made my life one dream of you. One solitary hope has warmed and brightened all my days, from infancy to manhood—the hope to clasp you to my heart, and call you mine—mine by the dear, holy name of wife." He rose and paced the floor wildly. Suddenly he paused by the low railing of the summer-house, and gazed down into the dark waters rolling at his feet. "The vision fades," he said, "why should I live? What is it worth this breathing form when the light that warmed it has gone out forever? Why should I not go

down—down into the still depths of this dark, flowing stream—to forgetfulness—to dreamless slumber?"

Again a soft touch was on his arm; and Florence, with mild, pleading eyes looked up into his troubled face.

Oh, wondrous power of aptly-spoken words! like strains of music, sweet and low, they fall upon the aching heart, soothing its wild unrest, and holding in gentle thrall the reins of its tumultuous passions.

Florence, young, undisciplined as she was, rose at once to the requirements of her position. She was, for the first time in her life, a *woman* in aspect and demeanor. She could soothe, persuade, command. Every chord of feeling that vibrated in the breast of the strong, impetuous man became obedient to her magic touch.

Late in the afternoon of that eventful day, George called on Mr. Vane, and in a plain, straightforward way told him the story of his love. That gentleman was on the point of leaving for New York, and in great haste to reach the landing, therefore his reply was compressed into the fewest possible words. In fact, it was vain for George to press the subject; he was no match for the practiced man of the world, and before he had fairly recovered from the embarrassment with which his avowal was made, he found himself standing alone on the door-step of the mansion, completely withered by the well-bred insolence of its master.

Florence, who had witnessed the little scene from the drawing-room window, came forth on the departure of Mr. Vane and joined her lover. They supped together, and passed the charming June evening, as described in our first chapter; and sweet, indeed, would the hours have been, but for the dark shadow of the coming event.

CHAPTER IV.

At the end of one of the long piers of the great commercial city of New York lay the splendid packet-ship *Montana*, bound for Havre. Ere the lapse of another hour she would be cleaving the bright waters of the bay on her way to the wide Atlantic. Through the roaring, crashing crowd of vehicles, horses and men, George Merton pushed his way to a standing-place amidst a pile of merchandise lying near the vessel. With a restless air, and a troubled, gloomy brow, he gazed on the long line of carriages as, one by one, they rolled down the wharf, and deposited each its portion of the living freight, destined to reach the shores of a far land, or find a grave amidst the wild waves of the ocean. Pompous gentlemen and elegant women, gay valets and waiting maids, boxes, bird-cages, and poodle dogs, were all rushed and hurried on board the great ship. Ah, Mr. Merton, what means that sudden rush of blood to your pale, haggard face? The carriage so earnestly looked for has arrived at last. A white face is turned toward the window—eager eyes scan the crowd. The young man darts forward; the door is thrown open, and once more the hand of Florence Vane thrills under the passionate pressure of her lover. Oh, moment sweet and precious! too brief, alas! the next is one of agony, for it is the last—the last!

Mr. Vane drew his daughter's arm within his own and hurried away.

From the deck of the vessel, while separated for a moment from her father, poor Florence turned to the wharf, and again scanned the crowd, in search of her lost lover. He had sprung upon a pile of bales to obtain a last view of her dear form; their eyes met. Hastily tearing a leaf from his pocket-book, he inscribed upon it these words:

"Pride—a false and cruel pride—divides us. Oh, my beloved! we will keep bright our faith; and the good God, who kindled the love within our hearts, will not suffer our hearts to be forever disunited. Adieu, my own dear love! Adieu! Adieu! GEORGE."

He called a boy from the crowd, and, giving him the note, directed him to convey it quickly to the lady on the deck. He saw it delivered and pressed to the lips of the dear girl; then, hastily turning away, he waited only to reward his messenger—this done, he sprang into a carriage, and, giving a hasty direction, was borne rapidly away.

A few words will suffice to chronicle such events of the two or three succeeding years, as relate to our history. For a time George Merton wrote to Florence voluminous letters, into which he poured with burning eloquence the passionate emotions of his soul. These he addressed as directed by the business agent of Mr. Vane; but no word in reply ever reached him, nor any tidings of Florence or her kindred, save such as he gathered from the gossip of the people about Elmwood.

"What great ones do the less will prattle of." The grand family, whose splendid doings had whilom dazzled the simple country-folks of that neighborhood, of course afforded a legitimate subject of discussion. After an absence of some two years, the maid who had accompanied Miss Vane abroad returned to her native village. This woman prated, with the vulgar garrulity of her class, of the wonders she had witnessed in the superb establishment of Mrs. Pierrepont. Miss Vane, she declared, had hosts of suitors, but she smiled on one alone, and to that favored individual she would soon be wed. He was a prince or a count, she could not tell exactly which, but sure she was that he was the handsomest man in all France as well as the richest; and then he had the most *ray-share-say* moustache that she ever set her eyes on.

George was at home on a visit when the rumors thus set afloat flooded the neighborhood. If he had not yet taught his heart to control its wild emotions, he had at least schooled himself to veil them under a composed demeanor; and the curious, who knew his sad story, watched in vain for any sign of suffering.

A little, and as much of the story as related to the marriage was confirmed. Newspapers wafted it over the water, and blazoned it in every circle, high and low, where the aristocratic cognomen of Vane was known. The gossip to which this event gave rise had scarcely died out ere the neighborhood was thrilled by a new sensation. This time it was George Merton who was married. In despite of all the rules of romance, he had followed the example of the faithless idol of his early dreams. His bride was Alice Woodford, only daughter and heiress of the head of the great mercantile house in which he had so long served as clerk.

Of course, he was now on the high road to wealth.

CHAPTER V.

Reader, suffer us to make a great leap. Twenty years have gone by since the memorable morning on which our hero turned with a bursting heart from the

scene of his parting interview with the gentle being who made

"The starlight of his boyhood."

We have briefly glanced at the events immediately succeeding that period, and perchance have experienced a thrill of disgust in view of the heartless inconstancy of our whilom lovers.

Let us now look in upon a little party assembled in the elegant drawing-room of Mr. George Merton's city residence. Mrs. Merton is not there. The fair, delicate lady who bore that name passed away long ago. She sleeps beneath a costly pile of marble, and her fair young daughter presides in the splendid home that once was hers.

At this moment the young lady may be seen in the deep recess of a bay-window; her slight, graceful form, half shaded from the strong light that floods the room by the heavy crimson draperies falling around her. There is a starry luster in her soft drooping eye, and a rosy flush on her delicate cheek, as she drinks in the low, sweet words of the elegant gentleman at her side, whose eyes are bent upon her face with passionate admiration. Mr. De Vigny—for by that name is he called—looks every inch a prince, and he has the unmistakable foreign air so ravishing to the fashionable daughters of our young Republic. Mr. Merton, a middle-aged gentleman, erect and dignified, observes with a stern gravity of countenance the group in the bay-window. A lull in the conversation around him affords an opportunity to catch a stray word, now and then, wafted from that delicious retreat. He does not like it, evidently, for his brow knits darkly, and his face assumes a wrathful expression. At length he becomes restless and abstracted—he can endure it no longer—and, turning from the group with which he has been conversing, he approaches the window, and, touching his daughter on the shoulder, reminds her that her situation is not one best adapted to her rôle as hostess. Scarcely is she out of hearing, ere Mr. Merton, turning to the foreign gentleman, requests the favor of his company in the library, and the two leave the room together.

The interview was short and undoubtedly stormy, for the young guest returned no more to the drawing-room. Humiliated and indignant, he had rushed from the house with an impetuosity of manner that illy accorded with his elegant habits.

Perhaps, thought the vigilant parent, I have acted rashly, but really I could not suffer the thing to proceed. Poor Alice! her fortune is a tempting bait. Every foreign rascal that comes to this country to mend his fortunes pricks up his ears at the report of her wealth, and straightway lays siege. Well, well, I have settled the matter with this one, at least—and thus soliloquizing, he returned to the drawing-room.

On the following morning pretty Miss Alice was a little pale and *distrait* when she appeared at the breakfast table. She had been suspicious on the previous evening, and had taken care to inform herself on the subject of the interview in the library. Too late, too late, thought papa, I fear I have deferred the matter too long; but she shall not marry him. I am determined upon that. A penniless fortune-hunter. I will take her away—travel, change of scene, will effect a cure—she is a mere child, after all. Ah, George Merton! George Merton! Is there no sore spot in your own heart, that you deal so remorselessly with these young passionate natures! Have you no remembrance of one—a child even like this—who clung to you in the dark hour when a haughty parent dragged you asunder with the strong agony of a breaking heart?

They rose from the table and were passing into an adjoining room when Mr. Merton received from a servant a small package that had just been left at the door. He seated himself in an arm-chair, and eyed it with some curiosity; at length he tore off the envelope and a small volume revealed itself. "Curious," murmured the gentleman; "some one soliciting subscriptions, I suppose."

He turned the book about in his hand, and some strange feeling seemed to come over him, for he grew deadly pale.

At this moment, Alice, observing her father's disturbed look, took the book from his hand; and there was an eager curiosity in her manner as she opened it and read aloud from the fly leaf: "Florence Vane from G. M."

"Your own initials, papa," said the young lady; "and here is a note", she continued, taking up a folded paper that had dropped to the floor.

Mr. Merton uttered no word as he took it from her hand; but unfolding it slowly, and with trembling fingers —it was *a faded scroll*, written illegibly and with a pencil, —he read:

"Pride—a false and cruel pride—divides us. Oh! my beloved! we will keep bright our faith, and the good God, who kindled the love within our hearts, will not suffer us to [be forever] disunited. Adieu! my own dear love! Adieu! Adieu! GEORGE."

Ah! how the strong man was shaken! Unconscious of his daughter's puzzled gaze, he sat with his bowed head resting upon his hands, and his eyes riveted to the "Faded Scroll." He saw the old scene—the great ship—the wild wavering crowd—the stately father, with his cold, supercilious face—and, oh! how much more vividly than aught else, the slight form of the fair girl as she stood on the high deck; her long, rich tresses swept back by the breeze; her sweet, angelic face, pale with sorrow and pity, as she waved her sad farewell, and pressed to her lips the incoherent effusion of her heart-broken lover!

At length, roused from his trance-like abstraction, he turned to his daughter, and asked, "My dear, know you aught of the book?"

"No, dear papa; but I will inquire who left it."

She left the room, but returned in a moment with her cheeks covered with blushes.

"Mr. De Vigny called and requested that it should be given to you, papa."

Mr. Merton mused for a moment and then asked:—And this gentleman has parents, where do they reside?"

He has a mother only, and she is living in our street; she is an American lady, I believe, continued Miss Alice, hesitatingly, but has lived much abroad. I am told that she is a superb person, but, owing to some unfortunate train of circumstances, she has been reduced from great affluence to comparative poverty.

"Well, my dear," said Mr. Merton, ringing the bell to order the carriage, "if you like, we will call on this unfortunate lady."

"Dear papa, will you really?" and away ran the delighted girl to prepare herself for the unexpected drive.

Down the broad avenue rolled the carriage containing father and daughter; it turned at length into a less pretentious street and drew up before a small house.

They had not waited long in the tasteful little drawing-room before a lady, elegant and graceful, clad in a simple morning dress of snowy muslin, entered. Mr. Merton rose and met her at the door—in an instant both her hands were clasped in his.

"Florence!"

"George!"

There was a deep silence as they looked into each other's eyes. The long years of their separation were rolled away as a scroll, and they stood face to face, as they had stood of old, in the sweet bower upon the river's brink, without a shadow of distrust in their mutual love.

At length spoke Mr. Merton: "Florence, do you know anything of a great fellow that I turned out of my house last night?"

The lady smiled archly as she opened the door at the far end of the room, and admitted the elegant young gentleman who had created so much disturbance in the mind of Mr. Merton during the last few days.

There was a cordial shaking of hands, and, after some trifling conversation, the father politely requested Mr. De Vigny to take charge of Miss Alice on her way home, adding that he would be under the necessity of proceeding "down town."

The charge was cheerfully undertaken, but whether Mr. Merton actually went "down town" on that day "deponent saith not."

There were two weddings in high life. Mr. and Mrs. George Merton dwelt at Elmwood, that place having passed into the hands of the rich merchant when it was sold by Mr. Vane's executors. Their son and daughter dwelt abroad for the next two years. At the expiration of that time they returned; and the charming place on the Hudson, though not endeared to them by such tender associations as made it to their parents the sweetest spot of earth, was still a kind of Eden to which they turned from gayer scenes with ever-renewed delight.

Pen Illustrations of the Drafts.

STANDING-TOP ROCKAWAY.

Illustrated on Plate XXIX.

THE Rockaway is emphatically an American "institution," and this kind of a one a universal favorite with such as require a tasty and light four-passenger family carriage. The standing-top has advantages over the "calash" which we need not point out here. This design is intended to represent a paneled body in contradistinction to a solid one. The panels of most bodies are now set off with mouldings, but there does not appear to be any very definite or established rule for shaping them. The bottom-side (below the rocker) may be either rounded or left flat, according to the taste or judgment of the workman. Caution is required in plating the rockers of these light vehicles, particularly under the door. Unless this portion be sufficiently stout, there will be trouble about opening and shutting the door soon after the carriage is *turned out*. Such—we are sorry to acknowledge it—is the case with the larger portion of the carriages which leave American shops, to the great annoyance of the public, who—if we may judge from their complaints—have but little charity for the author of such defects. A body before it is trimmed ought to be at least 3 feet wide between joints, on the seat, and the seats 16 and 18 inches wide respectively; wheels, 3 feet 6 inches and 4 feet 4 inches; hubs, 4½ inches; spokes, full inch; rims, 1x¾. Carriages with such light wheels should be shod either with Littlejohn's compound tire, or with the Farist Steel Company's Homogeneous tire—an article too much neglected by the American carriage manufacturer for his interest, as well as that of his customer. See advertisement on the cover of this number.

CALASH-TOP ROAD PHAETON.

Illustrated on Plate XXX.

IN this example our readers are presented with a very fair specimen of an American light road phaeton, technically known as a solid-side body. The seats have a trans-Atlantic look, but such are required to meet the tastes of our aristocratic fellow-citizens. This feature in our vehicles has attracted the notice of our London correspondent, who remarks, in a late letter to us: "We have recently been shown a collection of photographs of carriages issued by Messrs. Wood Brothers, of Broadway, in which we remark that London style seems to be getting more into use in America." There is, however, no other American manufacturer at present who follows European styles so closely as the one mentioned. The Grecian border that ornaments the sides and back quarter is a fitting relief to the otherwise heavy appearance of a flat-sided body.

ROAD BUGGY.

Illustrated on Plate XXXI.

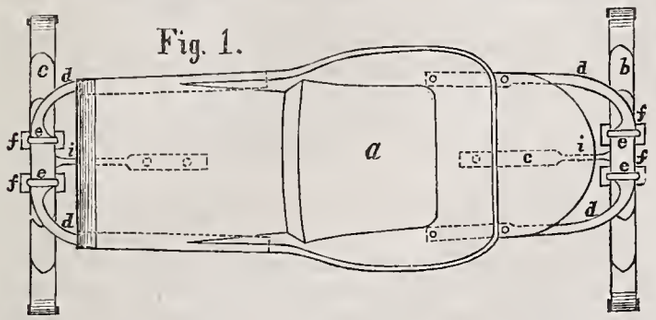
VERY little need be said in explanation of this design, as it differs but in a few points from others previous illustrated in this Magazine. These "three-quarter" seated buggies require a seat 2 feet long and about 5½ inches wide, being intended merely for two passengers. The wheels require a hub 3¼ inches in diameter and 6½ inches long; spokes ¾ inch; rims ⅞ inch, with a tire ⅛x⅝ inch of Farist's Homogeneous Steel; springs, both 32 inches long; 3 plates, No. 4 steel, 1¼ inches wide; or for an extremely light job, springs 30 inches long, 2 plates No. 4 steel, 1¼ wide. Without the shafts this buggy will weigh about 150 lbs., and is sold in New York for about $325 *a* $350.

ANNOUNCEMENT.—We intend, in our next number, to give a coupè in which will be found every recent point of improvement; a Phaeton, and a shifting-seat Buggy, this last forming either a one or two-seated vehicle, at option.

Sparks from the Anvil.

SCHARCH'S IMPROVEMENT IN HANGING CARRIAGE BODIES.

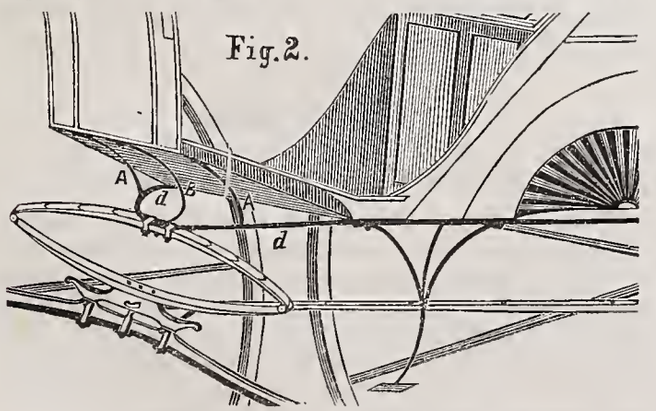
This improvement does away entirely with the wooden spring-bar, which is not only clumsy, but liable to split in use. Instead of these the inventor employs an U or an oval shaped iron, the ends of which rest on two elliptic springs, and on this the body is hung as shown in the bird's-eye view, Fig. 1. In this diagram, *a*



BIRD'S-EYE VIEW OF SCHARCH'S MODE OF HANGING CARRIAGE BODIES.

represents the body, *b* and *c* the back and front springs, *d d d d* represents the U shaped hanging-off irons, secured to the top sides of the elliptic springs by clips *e e e e*, through the couplings *f*, on the ends of the brace-rods *i*, affixed to the center of the body, as shown by the dotted lines. The specification says, "I sometimes contemplate extending the U pieces *d*, under the body and joining them so as to form but one piece, for the purpose of strengthening the parts, and if made of steel, great strength and lightness are effected thereby."

Fig. 2 shows a sectional view of the front of a buggy in perspective, designed to convey a better idea of this in-



SECTIONAL VIEW OF SCHARCH'S MODE OF HANGING CARRIAGE BODIES.

vention. *d d* is the U shaped or front end of the hanging-up iron, A A, two light braces extending from the hanging-up irons or loops, to the brackets of the body; B, one end of the brace-rod turned up for the like purpose. These are all represented by dark lines.

We have inspected some work hung on these irons, and must say that in neatness and efficiency they far surpass the old mode, and with round cornered bodies they are indispensable. This improvement was patented by Henry Scharch, October 23d, 1866, as may be seen in this Magazine. Those wishing to purchase shop rights for this mode of hanging up carriages, should address Menshausen, Corbett & Scharch, Carriage-makers, 124 West Twenty-fifth Street, New York City.

AN ADVENTURER IN CLIP KING-BOLTS.

Eight years ago last September, we published a description, accompanied by an illustration, of the celebrated clip king-bolt, which has since been universally in use wherever this Magazine has circulated, and been highly approved. We then stated that "we are glad to find 'that any man is free to use this principle' without the danger of being sued for infringement of a patent." That article, which may be found on p. 71, Volume I., fell under the notice of the son of the inventor, who informed us—on p. 112 of the same volume—that his father invented it two years before, about 1856. Such being the fact—an undisputable one—we are surprised to find that an adventurer is on the track of the fraternity, as appears from the following letter:

Ithaca, N. Y., Dec. 6th, 1866.

Friend Stratton, *Dear Sir:* I would like to have you inform me, if not too much trouble, who is the inventor of the clip king-bolt [Uel Reynolds, of New York City] now in general use, or whether there is a patent on the same [No]. My reason for inquiring is this: A man by the name of Stearns in this county claims to be the owner of the patent, and is now going about among carriage-makers, compelling them to buy a right to use them, at an exorbitant rate. We have bought the king-bolts ready-made, and supposed we had a right to use them [and so you have], but this man says we must buy a right to do so. He says he has bought out the original patentee, who lives, or did live when he made the invention [we don't believe a word of it] in Wayne County, New York. I have searched the Patent Office Reports of the years 1859, 1860, and 1861, and can find nothing concerning it. I thought I would write to you, as you would be as likely to know the history of it as any one I know of.

W. U. Martindale.

The original inventor awoke to the value of the article after we had sent it abroad in our pages, and then thought he would patent it, but found that the statute of limitations stood in the way, as it had already been invented over two years. This notice, we trust, will help our friends *to settle with any new inventor* who may darken their shop-doors, and send him off—*on their own terms.* Would it not be a saving business for every carriage-maker to provide himself with a complete set of The New York Coach-maker's Magazine, to meet just such speculators with as are here alluded to when they call?

Paint Room.

COMBUSTION IN PAINT SHOPS.

BY JOHN B. PEEK.

In order to prevent fires in coach-shops, it is necessary to be made aware that there are substances which, when warmed to a certain degree of heat, mixed with

oils, will take fire. I have been investigating the subject for some time, and have discovered the following facts: I mixed one pound of lampblack with one and a half pounds of boiled linseed oil, and left it exposed to the air for five hours. I then wrapped it up in a coarse cloth, and laid it in a chest. In sixteen hours it yielded a very offensive smell, like that of boiling oil; it grew warm, and emitted a quantity of watery steam. In two hours more a stinking smoke appeared, and, in some places, took fire, while others were scarcely warm. It was then taken out and laid on a stone-floor, where a slight flame arose from it; and whenever any openings were made in the mass, a vapor was emitted, which soon after took fire. On breaking up the whole mass, a brisk flame arose, which soon ceased; but the matter continued to glimmer for six hours, with much smoke at first, but not afterwards. In eight hours the whole was reduced to five ounces and a half of gray ashes. Another parcel of the same ingredient did not take fire till forty-one hours after the mixture of the oil and lampblack. In general, it was found that the mixture took fire sooner in clear weather than in rainy. One and a half pounds of Russian lampblack mixed with one and a half pounds of unboiled linseed oil, took fire in nine hours. Twelve ounces of fine German lampblack, with twenty-four ounces of boiled linseed oil, did not grow even warm until seventy hours had elapsed, although it then became hot, and emitted a steam for thirty-six hours; it did not take fire, nor were the vapors inflammable. From a number of similar experiments, I found that the mass took fire much sooner when the coarse, heavy, greasy lampblack made in Russia was impregnated with oil, than when the light and fine lampblack of Germany, or Eddy's, was used; and that it is the oils, whether boiled or unboiled, that take fire. The mixture took fire, although the proportion of the lampblack and oil were very different. In some experiments, the oil was only one-tenth of the lampblack; in others it was twice the weight of the color.

Lampblack was not the only substance that took fire of itself. Three pounds of hemp, impregnated with two ounces of tallow and two ounces of linseed oil, began to smoke in about an hour, and in another hour took fire, and burned for five hours with a visible flame. A very dry wind blew the whole time, which might have had some effect. Two pounds of wool, impregnated with half a pound of linseed oil and half a pound of tallow, were heated in a stove-oven, then cooled and sewed up in a mat. At the end of three days, no other alteration had taken place than that the oil and tallow were so thoroughly absorbed with the wool that it was scarcely perceptible. Another half pound of linseed oil was then added, the mass slightly heated, tied up in a coarse cloth, and laid on some wood. In a few hours the packet grew warm, in some places emitted a slight smoke, and in two hours afterwards it took fire; and after burning forty-four hours, left two ounces of very fine ashes. The same taking fire of itself took place in many other experiments—such as steeping curled-hair and wool in oil, and then heating them to a certain point.

Mahogany sawdust roasted brown, and wrapped up while warm, took fire in a quarter of an hour. Two pounds of bass-wood sawdust, being roasted, became—on account of the different size of its particles—partly black and partly white. On being wrapped up it soon lost its heat, but in an hour afterwards it became hot, smoked, and took fire. Some barley coffee roasted till it was brown, being put into a shallow pot and slightly covered, became warm and smoked at the end of fourteen hours. No flame could be seen in the dark, but the mass appeared red. Paper, and even bits of wood, put on the mass, soon took fire, and a knife stuck in it became red hot. In twenty hours time the fire was extinguished.

In 1863 I was employed as Inspector of knapsacks in the Ohio Penitentiary, where they were manufactured and painted by the convicts. The foreman, without thinking of combustion, piled some five thousand in one corner of a room, as they were taken off the drying poles in the dry kiln, where they were placed to bake. These were left in the pile through the night, and the next morning, upon the convicts going into the room to their work, they discovered a slight smoke issuing from the pile. It is needless to say that over three thousand knapsacks were burnt to a crisp, and the contractors were minus so many greenbacks.

These experiments are of great importance, although so little care is taken in the generality of carriage shops, where so much inflamable material is used. We often see painters, in order that they may wash the paint from their hands with more expediency, dip them into the oil cup, rub them off with an old cotton cloth, and throw it up in some corner, where a great quantity has been thrown before. It is not at all singular that we hear and read of carriage shops being burnt down. An instance occurred in Moorestown, New Jersey, a few years since, when a carriage shop took fire in consequence of the bursting of an oil can at the top of the shop. Although it may be doubted whether the oil does not take fire first, in almost every case of a fire the cause is given as the act of an incendiary. My opinion is that the incendiary occupies the shop both day and night, and may be seen by the careful observer, sleeping in some of the oiled rags that lay neglected in some corner.

With a hope that my efforts to promote the interests of the carriage-making fraternity will be kindly appreciated, I will close.

Trimming Room.

PATCHWORK FOR TRIMMERS.

SINCE black is the prevailing color for ladies' dresses now-a-days, according to the theory of a correspondent—given in volume seven of this Magazine—that ought to be the color for carriage linings, but it ain't! Blue-cloth linings for buggies, rockaways, &c., are mostly called for. Occasionally open buggies are trimmed with corduroy for some "fancy duck;" but has, for all practical purposes, in city-made work, been laid aside.

Mentioning corduroy, reminds us that a country carriage-maker wants to know where such can be purchased. For his and the satisfaction of others, we would state that we don't know, but presume that it can be found in almost any respectable dry-goods store in New York; although some of our larger carriage establishments try to mystify the matter by asserting that they have to import it from Europe for this special purpose.

When gold was at a very high premium—say one hundred per cent.—Union cloths could be purchased for $2.25 per yard. Now, when it is down to forty cents on

the dollar, dealers have the assurance to ask us $2.50 per yard—about ten per cent. higher. We do not pretend to know why this is so, and when we inquire we are put off with this *very convenient* answer: "Oh, the cloth we now offer is of a much finer quality than *that* was."

Leather, too, keeps at the same figures it did a year ago, although the raw material is found at our own doors, and is not affected by the premium on gold. Why is this? Probably the tanners will account for it by saying that since the Legislature of this State has prohibited the driving of beef-cattle through our streets in the day-time, the expenses of procuring the necessary supply of green hides has been increased, and they cannot afford to sell any lower. Thus it will be seen that all have some excuse for not coming down, should they choose to frame one.

We are often "saddled" with orders to supply needles for sewing machines, when such have been broken. This, to say the least of it, is asking too much of us. Perhaps the whole bill will not exceed a dollar, and we can get no discount on the article. Why not send these orders direct to the manufacturer of the machine, and save us such vexatious trouble? We are confident this would be the better way, and more expeditious for the customer. Suppose those who need such articles try this plan hereafter.

Editor's Work-bench.

RETROSPECTIVE AND PROSPECTIVE.

Supposing that this number of our Magazine will be in the hands of its readers on the first day of the new year, we seize the opportunity presented by a time-honored custom to offer a few considerations suggested by the season.

Taking a retrospective view of the year just ended, we find much reason to be thankful to the Supreme Ruler over the destinies of individuals as well as men. Among the numberless blessings which His goodness has showered upon us, we may enumerate a plentiful harvest, prosperous commerce, and well-rewarded labor, undisturbed either by civil or foreign war. Added to this is the important fact that Liberty for all has and is making rapid strides, everywhere, in spite of all its enemies. But we have not space to moralize, and must confine our present remarks chiefly to a review of the carriage-making business.

Although the past season did not meet the expectations of all, still, when the Spring fairly opened, a great many carriages were sold at fair prices. The Fall, upon the whole, has been very dull, here and there only a few carriages being sold, and these chiefly of the better class, at moderate prices. From our present stand-point it looks as if business must be quiet this Winter, in view of the fact—as we learn from all quarters—that the repositories are now already crowded with unsold work, which ought not to be the case so early in the season.

There is no truth more apparent than this, that unless the carriage-maker gets up the work in the Winter he cannot expect to do much business in the Spring—his harvest time, if ever; but should he do so on a small capital, and a dull Spring follow, the result must be disastrous. Every carriage-maker ought to reflect upon this, and be cautious. We know that a desire to keep hands employed, so as to have them when business revives, and their product to sell, likewise, are peculiarly strong temptations with the craft to overdo matters; but these are no reasons why they should *undo* themselves by overstrained ambition, where a little foresight may prevent it.

As we have elsewhere observed, there is but little decline in the price of material, notwithstanding that the premium on gold has gone down. We therefore conclude, all things considered, that work made on speculation this Winter must be sold the coming Spring—a dull one, probably—at a loss. We stake our prophetic reputation on these predictions, and hope that they will serve to save some from ruin.

DEATH OF JAMES BREWSTER.

James Brewster, whose very interesting history, accompanied by a portrait, we published in the first volume of this Magazine, died in New Haven, on the 21st of November last, aged 78 years. The disease of which he died was typhoid fever, aggravated by the infirmities of years. He had been ill for some days, though not alarmingly so, and his friends entertained the hope that the elasticity and buoyancy of character which had attended him in his ripened age, would enable him to outlast the ragings of fever and yet live many days. But they have all been disappointed in this respect.

Mr. Brewster had identified himself with so many charities, public and private, during life, that his decease has thrown a gloom over the minds of the community in which he resided. On the evening of the 23d of November, the members of the N. H. Merchants' Exchange held a meeting, at which the Hon Henry Dutton offered the following resolutions, prepared by the Hon. R. I. Ingersoll:

Resolved, That while in common with our whole community we mourn with abiding and sympathizing sorrow at the death of our universally and deservedly respected and beloved fellow-citizen, the late James Brewster, we would, in humble submission to the Divine will, express our deeply felt thanks that one whose exemplary, pure, patriotic, and truly Christian life, identified as it ever has been, since his long residence in our midst, with the best business interests of New Haven, and the most constant, philanthropic, and generous devotion to the wants and comforts of the fatherless and friendless, has been permitted, for so many years, to benefit and bless those among whom his precious life has been passed, and now to leave with those whom he has left a stainless name and a bright example, while he has gone to his heavenly residence.

Resolved, That these proceedings be entered upon the minutes of the Merchants' Exchange of New Haven, and that a copy, duly certified, be presented to the afflicted family of our deceased friend, and a like copy be published in the newspapers of the city.

There were speeches on this occasion from Messrs. Dutton, Babcock, Betts, Noyes, Mayor Sperry and others, but our space will only allow us to present a few of them in a condensed form.

Mr. Babcock thought the resolutions a beautiful tribute to the deceased. As the years roll on, we should see better his many noble qualities. Time would increase the halo of brightness that already surrounds his name.

His sympathies extended among the young, the poor, and the outcast. I have known, he said, many instances of his kindness that many have not known, and others, I presume, have known many that I have not. He had characteristics which made many look upon him unfavorably. It was because he was exact. He always required men to be as exact in business as he was himself. The speaker related a pleasing incident illustrative of this characteristic. He referred, also, to his characteristic of giving largely. The young men of years ago well remember Mr. Brewster and his valuable advice. When I was a boy, from fifteen to twenty, I fell under his instructions, and heard his words on many duties in life. They had their effect upon me, and never have I seen any event in which I saw the hand of Providence but what I saw the image of James Brewster; and I now say before my Maker that I owe it to him the faith I now have. He referred to the efforts of Mr. Brewster in the early history of the Young Men's Institute, when several of its members were under arrest. I owe more to him than to any man living. He has offered me more than I ever was willing to accept. But sir, he has gone. and my heart is touched. We shall no more see his smiling face, reflecting the kindness of his heart; we shall no more see his loved form in our streets and avenues.

Mr. F. J. Betts said: I have not long known intimately our departed friend, but I have known him long. I think there is no exaggeration in what Mr. Babcock has said of what New Haven owes to Mr. Brewster. Mr. Brewster was pointed out to me just as the carriage trade commenced here. He was a pioneer in that business. He has brought to the city a large number of our manufacturers. Mr. Betts related an incident illustrating the business-mind enterprise of Mr. Brewster. He was not an educated man, but he was a man of mind. His address before us was the address of a man of mind. It was an able paper. He was an entirely self-made man. The impression that he has made on this place shows that he was no ordinary man. I visited him a short time ago, and I can say I never saw so remarkable a business man. The example of such a man is invaluable to our city. The people feel his loss, I believe, more than they would the loss of the greatest among us. He referred to Mr. Brewster's efforts in behalf of the Alms-house, paying a high tribute to his labors.

Mr. Benj. Noyes said it was seldom their privilege to speak of so good a man as the deceased. There was a fitness to meet in the hall which his enterprise had built and decorated. As we recount his virtues, we go back thirty years. He well remembered him in his green jacket in Orange street, when the carriage for Gen. Jackson was rolled into the street. He had called on him a short time ago, when he had expressed fears to him that he had become too old a man to go on with his plans. He referred to Mr. Brewster's connection with the Mechanics' Institute. He felt a deep interest in it. Its effect on the young men in that day had been very great. Mr. Brewster had taken great pains to give the influence of the Institute a right direction. He referred to the building up of the new township. He had painted the chimneys of his houses white with the top black, so that this part of the city was dotted with his houses. Some had tried to injure his credit in New York, but the notes of the man with the green jacket were never protested. He referred to his prompt manner of paying all his debts, and the example he set in this matter. He also referred to the system of Mr. Brewster, and his philanthropy for the Alms-house. He spoke of his originating the Franklin Institute. Mr Brewstor had supported it out of his own purse. He put up, he believed, the first steam engine in the city. Mr. Noyes said, in conclusion—I don't know of a man in my acquaintance whose character was more lively.

The members of the craft in New Haven, on Saturday —the day of the funeral—met in the Merchants' Exchange at eleven o'clock A. M. to commemorate the sorrowful event which had overtaken them.

The meeting was called to order by Henry G. Lewis. Edwin Marble was appointed chairman, and James H. Conklin secretary.

Mr. Marble stated briefly the object of the assembly —to testify their regard and esteem for the man who had been for many years identified with every public spirited and good enterprise in New Haven.

Mr. Bradley, of the firm of Lawrence, Bradley & Pardee, offered the following resolutions:

WHEREAS, It has pleased the Ruler of the world to call to Himself in the fullness of honorable years, our friend and fellow-citizen, James Brewster; therefore,

RESOLVED, That while we accept with humility the dispensations of a just and kind Providence, we are deeply smitten with an unusual sorrow, when we reflect that we are never again to listen to the cheerful counsels and encouraging exhortations—no more to receive the practical assistance of one of the ablest, most sincere, pure hearted, and noble minded of men.

RESOLVED, That we, in common with the whole com-

munity, have had very much to be grateful for in times past, by reason of our association with a man who, through the duties of a long life, gave us, by precept and example, so many evidences of the inestimable value of cheerfulness, sobriety, charity, and earnestness of effort in every good undertaking.

Resolved, That, as a mark of our respectful memory of the lamented dead, we will close our respective factories on the day of the funeral, and attend the burial ceremonies in a body.

Resolved, That a copy of these proceedings be furnished to the family of the deceased, and to the press of New Haven for publication.

Remarks of an eulogistic character were made by Henry G. Lewis, James M. Veader, Hon. Mr. Rogers of Milford, Luman W. Cowles, and Henry Killam. The tenor of the few words spoken by these gentlemen was the same. Each of the speakers showed by his manner the depth of his feeling, and all of them bore witness to the late Mr. Brewster's love for his fellow men, his uniform courtesy, his charitable heart, and his fidelity to the Christian virtues.

After the unanimous passage of the resolutions the meeting adjourned.

On the 24th the remains of Mr. Brewster were deposited in the Old Cemetery in the city, followed by an immense crowd of weeping relatives and friends, after an impressive discourse from his pastor, Rev. Dr. Bacon, in the North Congregational Church, of which the deceased was a member. The following extract from it is all we have room for:

"Having occasion to apply for a loan at a bank, two young men, well connected in the city, were there at the same time, and on the same errand, whose notes were taken without any hesitation, but the directors made some difficulty about accommodating this young man [Mr. B.] who was poor, and of whom they knew nothing. Judge Dagget said: 'I'll be responsible. I pass his shop every day, and see his light burning earlier than morning.' His note was paid when it became due, but the notes of the other young men were not. His success arose not alone from industry, but from a rare sagacity, and the source of this sagacity was that he wished his neighbor to prosper as well as himself. He scorned the thought of gaining anything at the expense of his customers or his workmen."

Few men pass from this world with so full a record of nobly directed efforts, and there are few in the world whose career has not led them into public life whose death would be more widely lamented.

At the time of his death Mr. Brewster was not actively engaged in business, though he was a partner in the carriage manufactory of Henry Hooker & Co. Early in life Mr. Brewster married Miss Hequembourg of New Haven, who survives him. His surviving children are Messrs. Benjamin and Henry Brewster, who are carriage-makers in New York, Rev. Joseph Brewster, Rector of Christ Church, New Haven, Mrs. Wm. R. Cone of Hartford, and Mrs. Obadiah Pease of New Haven.

PARIS NEWS.

Miniature Landaus, for one horse, are getting into extensive use in Paris. A new style of window-hinge of aluminum is expected to be ready for the grand exhibition, although as yet the experiments have not completely succeeded. At the exhibition will be also seen a new folding step from a carriage factory at Frankfort-on-the-Main. A method of changing monograms, crests, &c., in the carriage panel has been invented, though not much in use. It is nevertheless said to work well, and has been adopted by quite a number of crest painters, though claimed by one or two as their own invention. A new style of handle is being used in Paris, serving at the same time for pull-to and inside handles. Aluminum mountings for harness are much in use.

TO CORRESPONDENTS.

We sometimes receive letters which, upon the whole, are very amusing, when the present costs of publishing are taken into consideration. We append a specimen here, suppressing names, for the benefit of others.

"I would take one of your dollar charts, if they have an advertisement of *my* shop in it. If they are gotten up in that way please send one."

To print *in* a card to a chart already "struck off," it costs $1.50 additional. To "set up" and print off a single copy to order, about $16. By this statement it is shown how absurd such requests must be considered by us. Again:

"My No. for Dec. did not come to hand. As I want to complete my set, please send me another if you have it. If not, let me know how much it will cost to get me one up."

To get up a single number would cost about $55! So that is impossible. It would take too much space to go into detail here; but the facts would prove the utter ignorance some are in of the costs of the publishing business.

LITERARY NOTICES.

Æsops Fables, beautifully illustrated and printed on tinted paper, bound and gilt, has been sent us by the enterprising publishers, Messrs. Fowler & Wells, 389 Broadway. The wittiest of the ancients is here presented to his admirers in the most attractive form, for the trifling sum of $1. Nothing is more appropriate for the New Year's present. See the Advertisement "Good Books for Presents," on third page of cover to present number.

A late number of *Every Saturday*, published by Messrs. Ticknor & Fields, of Boston, contains Dicken's

Christmas Story—Mugby Junction—complete. Personally, we have no taste for novels, but there are so many good things in this work, of the *solid* kind, that we can recommend it as one of the cheapest as well as the best repositories of modern current literature. For a weekly treat of 32 pages the charge is only $5.

Patent Journal.

AMERICAN INVENTIONS.

October 2, 1866. (58,447) MODE OF ATTACHING TIRES TO WHEELS OF LOCOMOTIVES.—Edward Mellon, Seranton, Pa.:

I claim the wheel with the curved flange upon the inner edge, in combination with a tire with a rounded corner to fit said curved flange, as set forth.

(58,465) CARRIAGE SHACKLE.—John H. J. O'Neill, New Haven, Conn.:

I claim the combination of the base A and the lever C, hinged thereto with a cam F, pivoted to the base A, constructed and arranged to operate substantially in the manner and for the purpose specified.

(58,542) SHIFTING RAIL FOR CARRIAGE SEATS.—John Fellows, assignor to himself and Albert Card, Chicago, Ill.:

I claim: *First*, The braces or supports D, when provided at their upper ends with heads having slots or mortices on the plane of the seat, and fitted to the seat, so as not to project beyond, substantially as and for the purposes specified. *Second*, The arrangement and combination of the braces D with the spurs or projections *e e* and *d d*, with the rail *c*, and carriage-seat, substantially as and for the purposes specified.

9. (58,575) DUMPING WAGON.—Harvey Barton, Black Earth, Wis.:

I claim the combination of the drop A B C, rock-shafts D, pawls E F G, plates H I J, levers *d e f*, and springs *k* L N, substantially as shown and described.

(58,640) AXLE-BOX COVER.—F. K. Hain, Renova, Pa.:

I claim the cover B, trunions *a b*, spring *f*, eyes *d e*, with inner inclined planes, the eye *d* being open and provided with notch *g*, and the box A, combined and arranged substantially as described for the purpose specified.

(58,663) ATTACHING THILLS OR TONGUES TO VEHICLES.—Jonathan S. Miller, Everton Ind.:

I claim the combination of a clip formed in two parts, C and C′, brace G, and bolt E, when said several parts are respectively constructed and arranged for use substantially as set forth.

(58,674) MACHINE FOR FITTING AXLE-SPINDLES TO SKEINS OF WAGONS.—Cornelius L. Campbell, assignor to Washington W. Wheaton, Binghamton, N. Y.:

I claim the manner of fitting the arms or spindles of axle-trees for wagons to cast-iron skeins or thimbles, by means of the revolving slide-cutter J, in combination with the adjustable way or guide-plate L, Fig. 3, the feed-screen E, and the hinged nut K, substantially as and for the purposes described.

16. (58,759) WHIFFLE-TREE.—Alonzo Bell, Washington, D. C.:

I claim, as the distinctive feature of this improvement, the application of a combination swingle-tree and clevis to the center of double whiffle-trees, whereby a direct and equalized strain is brought to bear on the center of the carriage, so that by this application or combination of movement the traces shall have free play, and equal and steady draught imparted to the center of the carriage, and the present continual leverage of one horse against the other obviated.

(58,797) WAGON BRAKE.—H. C. Fairchild, Brooklyn, Pa.:

I claim an improved wagon brake, formed by combining the spring-catch F, slide C, straps G J and H, lever I, hinged brake-bars E, rests K, and stops L, with each other and with the wagon body A, the parts being constructed and arranged substantially as herein described and for the purpose set forth.

(58,835) HEARSE.—Melvin Jincks and F. Altmeyer, Danville, N. Y.:

We claim the combination of roller F, the bar H, board G, the car B, and the rails *c*, the whole constructed and operating in the manner and for the purpose specified.

(58,885) DRESS GUARD FOR CARRIAGES.—George W. Raitt, Cincinnati, Ohio:

I claim an extensible guard or screen for attachment to carriages, substantially as set forth.

(58,897) WAGON-BOW FASTENING.—Amos R. Scott, Bethel, Ohio:

I claim: *First*, The upper fastening E, and the lower fastening F G K H I, when said fastenings are constructed and arranged substantially as described, in combination with the bow of a wagon, for the purpose set forth. *Second*, Tightening the bow upon the wagon body by means of a lever and cam or eccentric, substantially as described and for the purpose set forth.

23. (58,990) HARDENING SPRINGS.—George G. Crowell, Lime Rock, Conn.:

I claim the employment of glue or equivalent glutinous animal matter, either alone or in combination with other material, as a hardening compound, when employed substantially in the manner and for the purpose herein set forth.

(59,008) CARRIAGE JACK.—Joshua F. Hammond, Providence, R. I.:

I claim a carriage jack with a fixed standard B, movable standard C, levers E and G, and link F, constructed and combined substantially as set forth.

(59,014) SHIFTING CARRIAGE-TOP.—A. V. Heyden, Milwaukee, Wis.:

I claim: *First*, Attaching all the supports of carriage-top B to a single metal plate C, and fastening the same to carriage-seat A by means of catches D and E F, substantially as and for the purpose described. *Second*, A carriage-top with all its supports attached to metal plate C, with standards I I passing through seat A, with slots or notches in their lower ends, into which catches F F are locked by means of lever G, and held in position by spring-catch H, together with catch D, to hold the middle of plate C firmly to seat A, all in combination, substantially as and for the purpose described.

(59,056) CARRIAGE-TOP PROTECTOR.—R. Niekson, Akron, Ohio:

I claim a protector for carriage-tops formed of a ground block A, springs C, and plate D, substantially as described.

(59,067) TIRE-SHRINKING MACHINE.—Thomas. Pratt, Valparaiso, Ind.:

I claim the combination of the flanged bed-piece B, vise E, gripe D, and screw C, when said parts are respectively constructed, and the whole arranged substantially in the manner and for the purpose set forth.

(59,081) HANGING CARRIAGE-BODIES.—Henry Scharch, New York City:

I claim the attachment of the springs to the body, as and for the purposes set forth.

30. (59,162) CARRIAGE-AXLE.—Silas Barker, Hartford, Conn.:

I claim a combination of a sleeve *c*, with an axle *a*, when the said sleeve is constructed and arranged so as to be adjusted thereon, substantially in the manner and for the purpose specified.

(59,164) Whiffle-tree.—Lewis Barnes, Waterford, Michigan:

I claim the malleable cast-iron plates B, secured to the front and rear sides of the double tree A, by screws *b*, and the shanks *c*, of the hooks C, and the malleable cast-iron plates E E, secured to the front and rear sides of the whiffle-trees D, by screws *f*, and the shank *g*, of the eye *h*, together with the trace-hooks F, provided with rings or bands *j*, having internal screw-threads to screw upon the ends of the whiffle-trees, substantially as shown and described.

(59,167) Sleigh.—D. J. Bigelow, Barre Center, N. Y.:

I claim the plates *d* and *c*, and bolt *a*, constructed as described, and arrranged with the bars B B, and bolster E, as and for the purpose herein fully set forth.

(59,194) Wheel Vehicle.—James W. Drew, Stockbridge, Mich.:

I claim, *First*, the sliding-boxes *h h*, constructed and operating as and for the purpose herein set forth. *Second*, the tongue support *l*, in combination with spring *m*, constructed and operating substantially as herein specified. *Third*, the spring bars *g g*, boxes *h h*, tongue support *l*, spring *m*, and boxes *h h*, the whole constructed and arranged substantially as herein described.

(59,244) Sleigh Brake.—J. R. McAlister, Richville, N. Y.:

I claim the brake-shoes C, and chains D, connecting them to the pole G, hung to the roller I, turning in the sled frame, when combined and arranged together, substantially in the manner and for the purpose described.

(59,245) Machine for boring Wagon-hubs.—J. R. McAlister, Richville, N. Y.:

I claim the boring machine herein described, the same consisting of the chuck B, shaft I, curved arm M, having slotted end L, and eye N, knife-carrying bar Q, sliding-frame S, adjustable clasps U, arranged and operating substantially as described for the purpose specified.

(59,278) Whip-socket.—Henry Sayler, Saint Paris, Ohio:

I claim a whip-socket provided with the clamping jaws and a lock, when arranged to operate as and for the purpose set forth.

(59,285) Wagon Brake.—T. G. Springer, Conneautville, Pa.:

I claim, *First*, Pivoting eccentrics *g g h*, which are constructed substantially as described to a fixed bar F, and a movable bar F, in combination with brake-shoes *k k*, or their equivalents, substantially as specified. *Second*, The hooded brake shoe *k*, applied to rocking eccentrics or cams *g*, substantially as described. *Third*, Connecting the pivoted eccentrics *g g*, to the sliding brake-bar E, by means of pins passing through slotted portions *h*, substantially as described.

(59,289) Raising and lowering Carriage-tops.—George Stover, Center Hill, Pa.:

I claim combining with the bows of a buggy or carriage-top, the hinged arcs, and rigid arms, with suitable catches for connecting or disconnecttng them, and so arranging them on the inside as that the persons occupying the seat may raise or lower the top at pleasure, and hold it at half or full up, substantially as herein described and represented.

(59,322) Slat-iron for Carriage-tops.—George W. Traphagan, assignor to himself and A. M. Decker, Glen's Falls, N. Y.:

I claim, *First*, Attaching the bows to the hinge by screws substantially in the manner herein shown and described and for the purpose set forth. *Second*, The combination of the straps A, and finger-irons C, within each other, with the bows B, and with the supporting iron or rail D, when the said straps and finger-irons are constructed substantially as herein shown and described and for the purpose set forth.

November 6th. (59,345) Sleigh.—D. A. T. Black, Ray's Hill, Pa.:

I claim the combination and arrangement of the wheel-levers F, with shoulders *c'*, and bars I and J, with the sleigh, whereby they are held in their lowered position for wheeling the sleigh by the forward draught of the sleigh, in the manner described for the purpose specified.

(59,356) Shelving for Wagons.—George R. Cannon, Guildford, Ohio:

I claim, *First*, Securing the cross-beams B, to the top rail of the wagon, substantially as specified. *Second*, The manner of securing the planks C, to the cross-beams B, substantially as described. *Third*, The employment of braces D, for supporting the planks C, between the cross-beams B, substantially as described.

(59,385) Wheel for Vehicles.—Christopher Godden, Paterson, N. J.:

I claim, *First*, The metallic felloe B, furnished with a wooden rim or filling in combination with the tire C, substantially as herein set forth for the purpose specified. *Second*, The shell A, furnished with sockets having inclined bottoms in combination with the collar *e*, substantially as herein set forth for the purpose specified.

(59,398) Whiffle-tree Coupling.—Joseph Hyde, Troy, N. Y.:

I claim, *First*, The connecting of the whiffle-tree B, to the double-tree A, or any other part of a wagon or other vehicle, by means of the ball and socket-joint F E, in the manner and for the purposes substantially as herein described and set forth. *Second*, The employment of the ball and socket-joint F E, in combination with the cylinders, or their equivalents C D, for the purpose of forming a coupling between the whiffle-tree and double-tree, or any other part of a vehicle to which it is desired to attach the same, in the manner and for the purposes substantially as herein described and set forth.

(59,409) Tightening the Tires of Wheels.—D. J. Kirkman and E. K. Gray, Winchester, Ill.:

We claim the tire D, having slots I, near its ends, in combination with the felloes, and operating substantially as described for the purpose specified.

(69,417) Machine for boring Hubs for Wagons.—Stephen Lavenne, Alton, Ill.:

I claim, *First*, The feed-screw working in an eccentric manner in combination with the cutter-guides and revolving cutters, thus securing the smallest possible size of bore, substantially as set forth. *Second*, The combination of the screw F, and chick guide-bar F', or its equivalent, to produce a relative motion of the feed-screw and cutter, and thereby effect the feed motion, substantially as set forth. *Third*, The general combination of the motive-shaft C C', feed-screw F, and guides D C4, and self-adjusting cutter-head E, substantially as and for the purpose set forth.

(59,420) Machine for tenoning Spokes.—Joseph Letteral, Union, Ind.:

I claim a bit and boring apparatus, with shafts P and N, movable frame B, by means of the rack-bar M', lever-handle and wheel, constructed upon a suitable frame A, when arranged in the manner and used as and for the purposes herein described.

(59,445) Mode of securing Wheel-hubs to Axles.—Isaac Osgood, Utica, N. Y.:

I claim the arrangement of the nut F, screw-socket bushing M, collar G, and washers *a b*, in combination with the shouldered box I, of the hub H, and shouldered axle A E, with the screw-thread g, constructed and operating in the manner and for the purpose herein represented and described.

(59,452) Sulky.—Jacob G. Reiff, Farmersville, Pa.:

I claim the arrangement and construction of the elliptic spring K, side sliding guides L, spiral springs M, stays N, and

forked reversible single-tree E, when combined and operating as herein described and for the purposes set forth.

(59,455) THILL COUPLING.—E. O. Rood and S. H. Hackett, Lodi, Ill.:

We claim the combination of the shouldered cover D, and its string F, attached to the thill, with the slot T, of the axle-tree iron, the whole constructed and operating substantially in the manner herein described and specified and forming the thill coupling.

(59,494) HOLD-BACK FOR CARRIAGES.—Edward Wilson, Northbridge, Mass.:

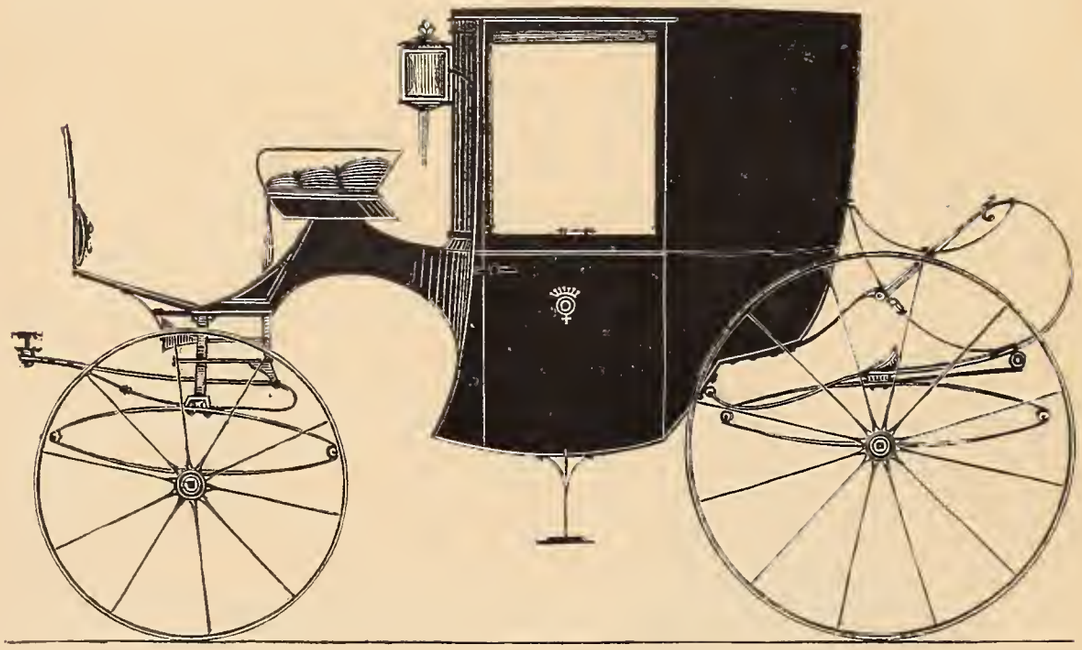
I claim the clasp A, when adjustable, in combination with the hook L, and knob B, when constructed and operating in the manner and for the purposes above set forth and described.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, December 19, 1866.

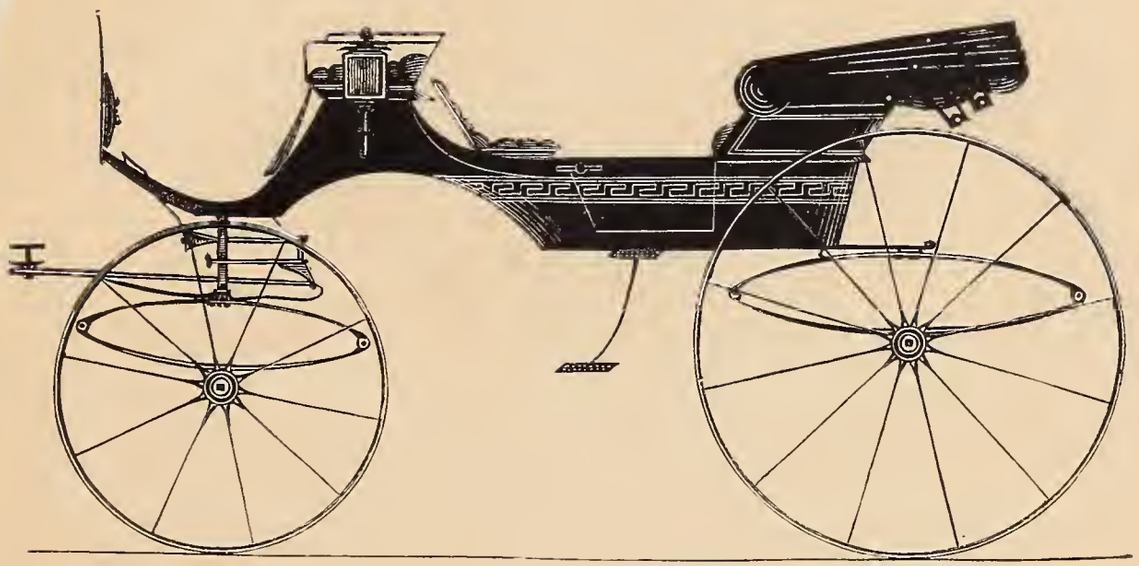
Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $1.50 to $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $2.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 75c.; 5–4, 85c.
Do. Ducks, 50 in., $1.10; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $2.90.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 10c. to 17c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 33c.; split do., 18c. *a* 22c.; No. 1, top, 33c.; extra, 35c.; enameled top, 36c.; extra large (57 feet and over) 36c.; perfect hides under 57 feet, 33c.; No. 2, enameled top, 31c.; enameled Trimming, 33c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 30c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 10c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $1.75.
Paints, White lead, ext. $15, pure $16.00 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.
Screws, gimlet, manufacturer's printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.35 *a* $1.50 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 21c.; bright, 23c.; English (tempered), 28c.; Swedes (tempered), 32c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8' 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½.; 3-4 x 5-32 a 11 c; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 8c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 8, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.10; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, 90c.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $9 to $10 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.



C-SPRING SINGLE-HORSE COUPÈ.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

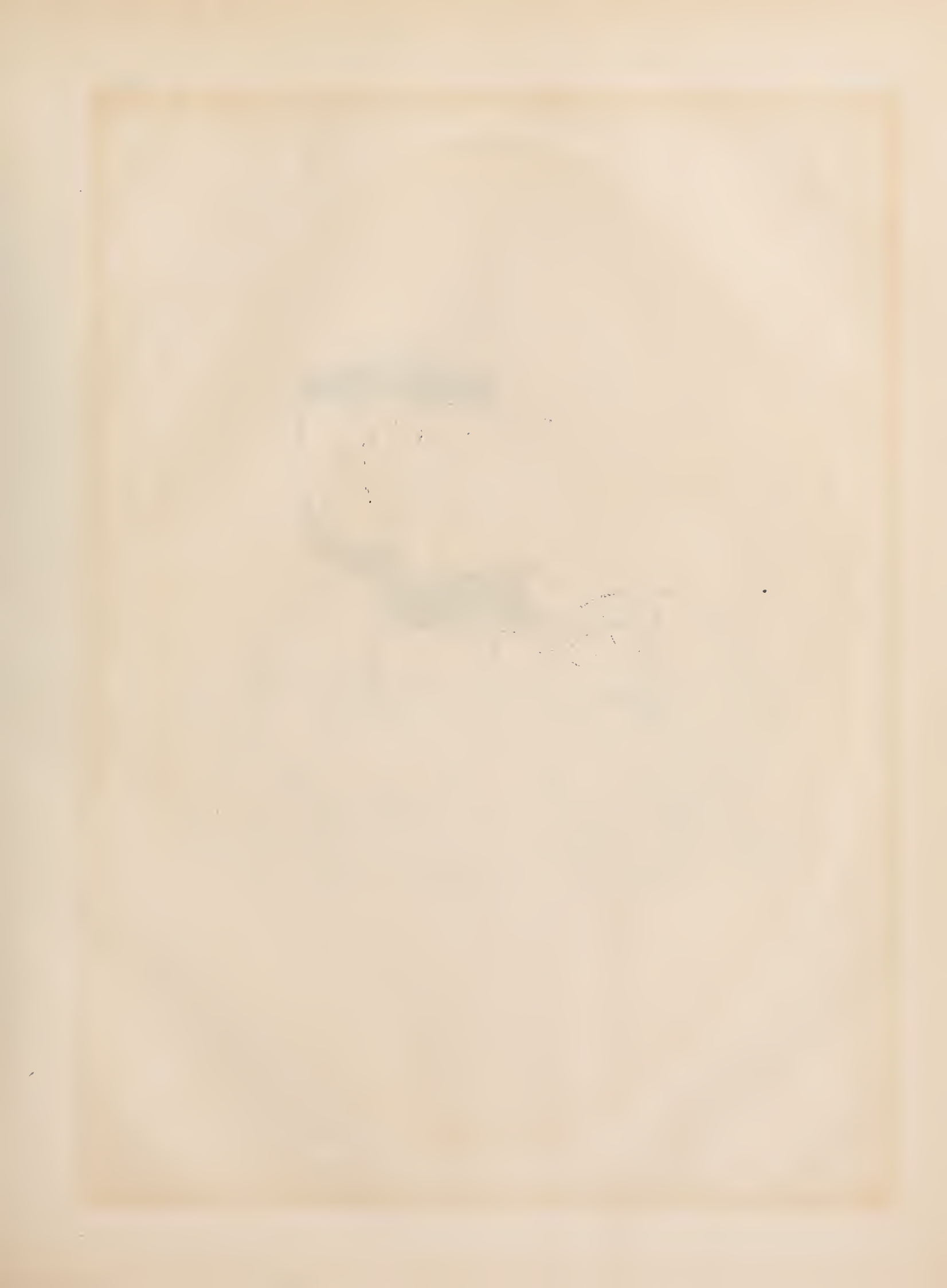
Explained on page 134.

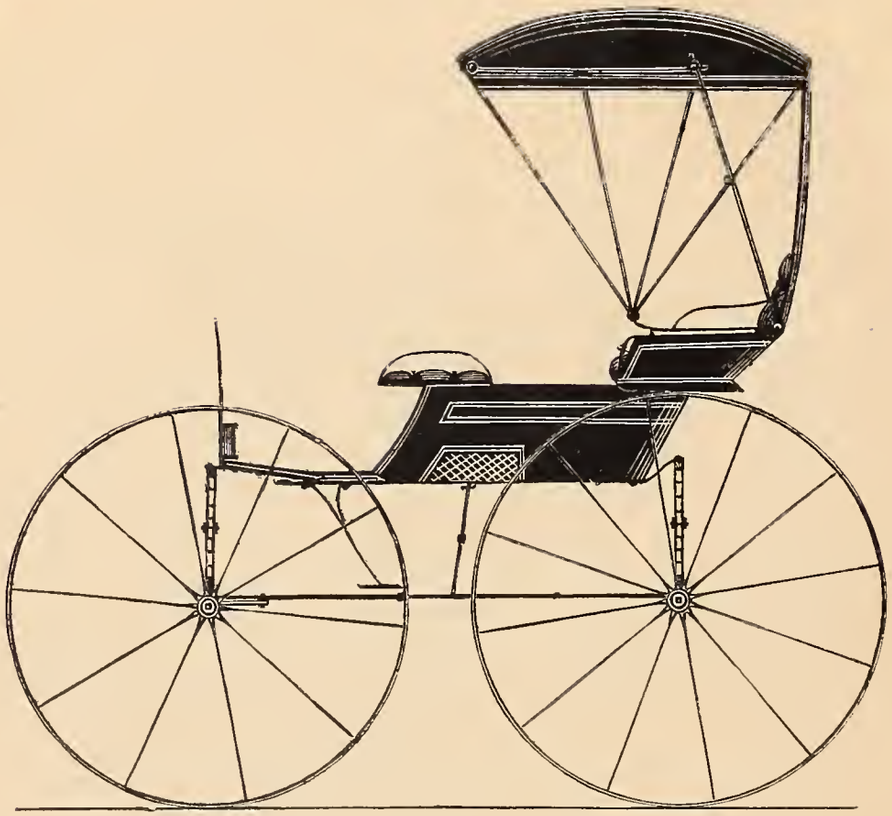


CALASH-TOP ROAD PHAETON.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 135.



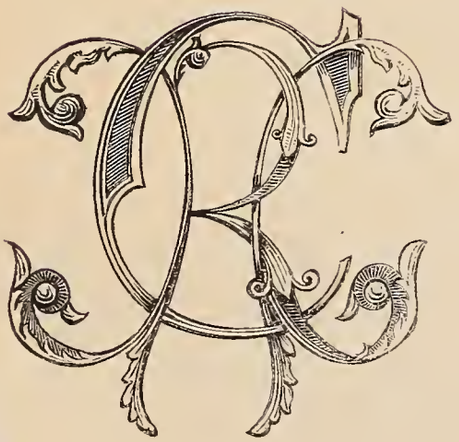


SHIFTING AND TURNING-OUT SEAT BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 135.

W. S.



H. R. C.

T. A. S.

ORIGINAL MONOGRAMS.

See remarks on page 136.

THE NEW YORK
CARRIAGE & MACHINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, FEBRUARY, 1867. No. 9.

Mechanical Literature.

FAMILY EQUIPAGES OF THE PENNSYLVANIANS.

There is scarcely anything in Philadelphia which has undergone so great a change as the increased style and number of our traveling vehicles and equipages. I have seen aged persons who could name the few proprietors of every coach used in the whole province of Pennsylvania—a less number than are now enrolled on the books of some individual establishments among us for the mere hiring of coaches! Even since our war of Independence, there were not more than ten or twelve in the city, and, rare as they were, every man's coach was known at sight by everybody. A hack had not been heard of. Our progenitors did not deem a carriage a necessary appendage of wealth or respectability. Merchants and professional gentlemen were quite content to keep a one-horse chair. These had none of the present trappings of silver plate, nor were the chair-bodies varnished; plain paint alone adorned them, and brass rings and buckles were all the ornaments found on the harness; the chairs were without springs, on leather bands (thorough-braces), such as could now be made for fifty dollars.

James Reed, Esq., an aged gentleman, who died in the fever of 1793, said he could remember when there were only eight four-wheeled carriages kept in all the province.* As he enumerated them, they were set down in the common-place book of my friend, Mrs. D. L., to wit: Coaches—The Governor's [Gordon], Jonathan Dickinson's, Isaac Norris's, Andrew Hamilton's, Anthony Palmer's. Four-wheeled chairs, drawn by two horses—James Logan's—Stenton; David Loyd's, Chester; Lawrence, Growden's, Bucks.

At the earliest period of the city, two or three coaches are incidentally known. Thus William Penn, the founder, in his note to James Logan, of 1700, says: "Let John (his black) have the coach, and horses put in it, for Pennsbury, from the city." In another he speaks of his "calash." He also requests the justices may place bridges over the Pennepack and other waters for his carriage to pass.

I have preserved, on page 172 of my MS. Annals, in the City Library, the general list, with the names of the several owners of every kind of carriage used in Philadelphia in the year 1761. William Allen, the chief justice, the Widow Lawrence, and Widow Martin, were the only owners of coaches. William Peters and Thomas Willing owned the only two landaus. There were eighteen chariots enumerated, of which the Proprietor and the Governor had each of them one. Fifteen chairs concluded the whole enumeration, making a total of thirty-eight vehicles. In the MS. of Dusimitiere [P. du Simitiere], he has preserved an enumeration of the year 1772, making a total of eighty-four carriages.

The rapid progress in this article of luxury, and often of convenience, is still further shown by the list of duties imposed on pleasure carriages, showing that in the year 1794 they were stated thus, to wit: thirty-three coaches, one hundred and fifty-seven coachees, thirty-five chariots, twenty-two phaetons, eighty light wagons, and five hundred and twenty chairs and sulkies.†

The aged T. Matlack, Esq., before named, told me the first coach he remembered to have seen was that of Judge William Allen, who lived in Water Street, on the corner of the first alley below High Street. His coachman, as a great whip, was imported from England. He drove a kind of landau, with four black horses. To show his skill as a driver, he gave the Judge a whirl round the shambles, which then stood where the Jersey Market is since built, and turned with such dashing science as to put the Judge and the spectators in great concern! The top of this carriage fell down front and back, and thus made an open carriage if required.

Mrs. Shoemaker, as aged as 95, told me that pleasure carriages were very rare in her youth [about 1740]. She remembered that her grandfather had one, and that he used to say he was almost ashamed to appear abroad in in it, although it was only a one-horse chair, lest he should

* In "Mears' Picture of Philadelphia," published in 1811, we find that in the year 1752 an accurate list was taken of the names of every citizen who kept a four-wheel chaise of any kind, from which it appeared that thirty-seven was the whole number. Single-horse chairs were numerous. In 1772 there were eighty-eight four-wheeled carriages.—Ed.

† Another account says, in 1794 the record of duties on pleasure carriages made the full return five hundred and twenty chairs, thirty-three sulkies, eighty light wagons, one hundred and thirty-seven coachees, twenty-two phaetons, thirty-five chariots, and thirty-three coaches—total, three hundred and seven four-wheeled carriages. In 1801, when the tax ceased, there were, exclusive of the county, three hundred and six four-wheeled chaises. Mears adds, "At present (1811) there can be no doubt of their being much increased. The increase of hacks also would greatly swell the number."—Ed.

be thought effeminate and proud. She remembered old Richard Wistar had one also. When she was about twenty [in 1760], Mr. Charles Willing, merchant, brought a calash coach with him from England. This and Judge William Allen's were the only ones she had ever seen! This Charles Willing was the father of the late aged Thomas Willing, Esq., President of the first Bank of the United States.

In the year 1728, I perceive by the Gazette, that one Skelton advertises that he has got "a four-wheeled chair, in Chestnut Street, to be hired." His prices are thus appointed: "For four persons to Germantown, 12 shillings and 6 pence; and to Frankford, 10 shillings; and to Gray's Ferry, 7 shillings and 6 pence to 10 shillings."

In the year 1746, Mr. Abram Carpenter, a cooper, in Dock Street, near the Golden Flag, makes his advertisement to hire two chairs and some saddle-horses to this effect, to wit:

"Two handsome chairs,*
With very good geers,
With horses or without,
To carry friends about.
Likewise saddle horses, if gentlemen please,
To carry them handsomely, much at their ease,
Is to be hired by Abram Carpenter, cooper,
Well known as a very good cask-hooper."

In October, 1751, a MS. letter of Doctor William Shippen to John Godman, in London, wrote to discourage him from sending out two chairs or chaises for sale here [in Philadelphia], saying they are dull sale.

The most splendid-looking carriage ever in Philadelphia at that time was that used by General Washington while President. There was in it, at least to my young mind, a greater air of stately grandeur than I have ever seen since. It was very large, so much so as to make four horses an indispensable appendage. It had been previously imported for Governor Richard Penn. It was of a cream color, with much more of gilded carvings in the frame than is since used. Its strongest attractions were the relief ornaments on the panels, they being painted medallion pictures of playing Cupids or naked children.† That carriage I afterward saw, in 1804–5, in my storeyard at New Orleans, where it lay an outcast in the weather!—the result of a bad speculation in a certain Doctor Young, who had bought it at public sale, took it out to New Orleans, and could find none to buy it, where all were content with plain volantes! A far better speculation would have been to have taken it to the Marquis of Landsdown, or other admirers of Washington in England.‡

Even the character of the steeds used and preferred for riding and carriages have undergone the change of fashion. In old time, the horses most valued were pacers —now so odious deemed! To this end the breed was propagated with care, and pace-races were held in preference! The Narraganset racers of Rhode Island were in such repute that they were sent for at much trouble and expense by some few who were choice in their selections. It may amuse the present generation to peruse the history of one such horse, spoken of in the letter of Rip Van Dam of New York, of the year 1811, to Jonathan Dickinson of Philadelphia. It states the fact of the trouble he had taken to procure him a horse. He was shipped from Rhode Island in a sloop, from which he jumped overboard, and swam to his former home! He arrived in New York in fourteen days' passage, much reduced in flesh and spirit. He cost £32, and his freight 50 shillings. From New York he was sent inland to Philadelphia "by the next post, *i. e.* postman. He shows therein that the same post-rider rode through the whole route from city to city! He says of the pacer, he is no beauty, although "so high priced," save in his legs; says, "he always plays and acts; will never stand still; will take a glass of wine, beer or cider, and probably would drink a dram in a cold morning!" This writer, Rip Van Dam, was a great personage, he having been President of the Council in 1731, and on the death of Governor Montgomery, that year, was *ex officio* Governor of New York. His mural monument is in St. Paul's Church in that city.

Doctor William Shippen, in a letter of 1745, which I have seen, thus writes to George Barney (celebrated for procuring good horses), saying, "I want a genteel carriage horse of about fifteen hands high, round bodied, full of courage, close ribbed, dark-chestnut, not a swift pacer, if that must much enhance his price. I much liked the pacer you procured for James Logan."

Formerly livery stables and hacks (things of modern introduction) were not in use. Those who kept horses and vehicles were much restricted to those only whose establishments embraced their own stables. The few who kept their own horses without such appendages placed them at the taverns. They who depended upon hire were accustomed to procure them of such persons as had frequent uses for a horse to labor in their business, who to diminish their expense occasionally hired them in the circle of their acquaintance. In this way many who were merchants (the ancestors of those who have now a horse and gig for almost every son) were fain to get their draymen to exempt a horse from his usual drudgery for the benefit of his employers for a country airing. A drayman who kept two or three such horses for porterage usually kept a plain chair to meet such occasions. If the vehicles were homelier than now, they were sure to be drawn by better horses, and looked in all respects more like the suitable equipments of substantial livers than the hired and glaring fripperies of the livery fineries of the present sumptuous days. The ladies took long walks to the miry grounds of the South Street Theater, without the chance of calling for hacks for their conveyance. There is a slight recollection of a solitary hack which used to stand before the Conestoga Inn, in High Street—an unproductive concern, which could only obtain an occasional call from the strangers visiting the inn, for a ride out of town. To have rode in town would have been regarded as gross affectation—practically reasoning that as our limbs were bestowed before hacks were devised, they should be used and worn out first before the others were encouraged.—*Watson's Annals of Philadelphia.*

* Thon pronounced cheers.—Ed.

† These panels have been preserved in the Patent Office building at Washington, where the curious may have the opportunity of inspecting them.—Ed.

‡ Watson, in a note to the second edition of his Annals, published in 1850, says: "It became in time a kind of outhouse, in which fowls roosted, and in the great battle of New Orleans [in 1815] it stood between the combatants, and was greatly shot-ridden [riddled, probably]. Its gooseneck crane bas been laid aside for me."—Ed.

Interesting to Sinners.—In Paris they sell sixteen tickets in a lot for heaven—one carries you in a palanquin, another in a cart, a third in a "third-class" carriage, and the fourth *on an ass.* We suspect none but *asses* purchase them.

OUR CARRIAGE MUSEUM.—VIII.

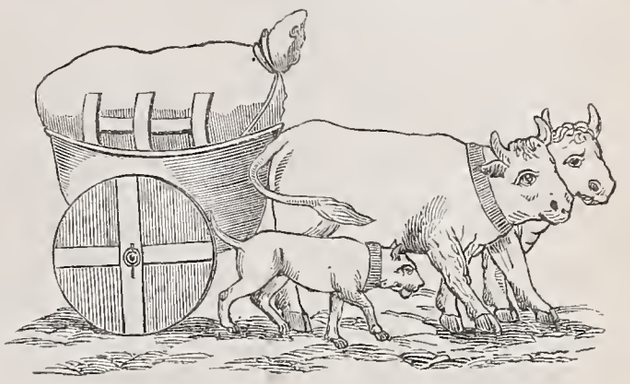
Plaustrum was the name for all kinds of two or four-wheeled farming wagons. In the strict sense of the word, it was among the Romans applied to open carts, consisting merely of pole and axle. At both ends of the latter were "pauc-wheels," or *tympanis*. On the axle, which revolved with the wheels, lay a thick board for carrying freight, and under this board on both sides were fastened the *arbusculæ*, or check-pieces, in which the axle revolved. Nothing could be taken off on these carts, the crooked-pole, axle, board and wheels forming one piece. Such carts, in a primitive form, are still to be seen throughout Italy, and also in Portugal and some parts of Spain. As the wheels of these carts are never greased, the squeaking produced by them can be heard for a mile away. Six oxen or more are often required to set them in motion, where two would do the same work were the carts more properly built. Prejudice overthrows good sense in such countries.

The Plaustrum was always drawn by oxen, and when turned around had to describe a great circle. The Phrygians, therefore, probably invented the four-wheeled wagons, of which Pliny speaks in cap. VII., v. 56, "On the Triumphal Arch of Lucius Sept. Severus are represented many carts having tympanum wheels and drawn by mules or horses." This makes Probus in Virgil's Georgics say, "Plaustri are vehicles (*vehicula*) whose wheels are not spoked, but the tympanum wheels are attached and made fast on the axle, and held together by an iron rim (*canthus*, or strake)." Curtius calls this vehicle *vulgatum usu*, or the commonly used Plaustrum; and Valerius Maximus calls it *Plaustrum sordidum* (a dirty Plaustrum), for this cart was used for carrying manure, stone, wood, hay, oats, and all other things without putting them in a box, but simply laid on the board. For this reason it was dangerous to walk alongside of a loaded Plaustrum. They were frequently piled as full as wood and stone-carts are in our day; yet Juvenal says of them satirically: "If the axle that carries the Ligurian stones upsets and throws a mountain of stones over the crowd, what will remain to be seen of man?" The Emperor Adrian prohibited the driving of such overloaded vehicles through the streets of the city. The Plaustra were accompanied by a dog, whose office was to drive on the oxen.

How great the noise of the Plaustra must have been we may learn in Horace (Satire 6): "He with his loud voice would have surpassed in crying the noise of two hundred Plaustra meeting at these funerals in the market—yea, their funeral-horns and trumpets." We suppose those blowing the trumpets rode on the Plaustrum. Each funeral consisted, therefore, of about seventy Plaustra, probably not all of them for musicians. The main number carried the offerings, and all those things necessary at the funeral ceremonies, viz., the small animals, the tapestry and ornaments of the funeral pile, the salves, fumigating articles, vases, and so forth.

In war, also, the Plaustra were used to remove the wounded. Julius Cæsar had his wounded carried to Adrumetum on Plaustra; and at the time of the fearful pestilence in Rome under Marcus Aurelius, the dead were so removed. Another use of this vehicle was for hunting purposes; the arms, provisions, and equipments of the hunter and the game were carried on it. For certain articles to be loaded on the Plaustrum, baskets were applied; the baskets were not of willow but of rough brushwood, strong reed, or bent grass; and these basket, which could not be used for any other purpose, were fastened either by cords or between four sticks.

Our picture is taken from a *bas-relief*, copied by Luc. Petus, in Rome; it represents a wine-cart. The farmers



ROMAN WINE CART.

put wine and olive-oil for transportation abroad in bags, made of hides, particularly goat-skins, with the hair turned inside. Such bags are used in southern countries to this day.

The bag in our picture rests on an oblong vessel, it may be with the intention of saving the wine should the bag burst. On both sides of the bag are small wooden ladders, to prevent its rolling and falling down. The dog was indispensable with an ox-team.

The other kind of Plaustra in use were the four-wheeled, and in ancient times such served as movable stages before theatres were invented. So says Horace, in Art. Poet., v. 275. "Thespis is said to have invented tragedies (a kind of poetry not known before), and to have passed around these poems riding in a Plaustrum." Thespis, an Athenian, practiced this way of traveling and of delivering poems from his cotemporaries, who, sitting in the Plaustrum, read their works to the people in cities and villages. We conclude that Thespis not only *read* his tragedies, but that others—as many as the base of a Plaustrum could hold—took part in the play. On the other hand, it must be admitted that a tragedy in a basket would not have been very advantageous for the tragedian. The Greeks, besides prize-fights, had other contests for the exercise of better talents—the production of genius—in eloquence, dancing, poetry, music and singing.

The poets benefited themselves particularly at the fête of Bacchus—a time when everybody had a disposition for mirth and fun. Then they rode around in the Plaustra haranguing the crowds of people in merry tones. Suidas says that in Athens was held a festival called "Leræa," when the poets rivaled in poetry, mainly of a jocose nature; and as these poems used to be read in the Plaustra (*Hamaxes*, or moving-carts), Demosthenes called them "*Exhamaxes*."

Dionysius of Halicarnassus (Antiq. VII., cap. 70) says: "It (the Plaustrum) was used at the triumphal festivals of old, when satirical poems were read on the most celebrated men and generals. At Athens, persons riding in the Plaustra, in the festival processions, were allowed to insult the passers-by." No doubt the poets then, imitating the expressions of the farmer-peasants and their style of speaking, scourged persons and things. The answer to

an impertinent talker, "you talk out of the Plaustrum," dates from the use above related. Physicians used to peddle their medicines in the Plaustrum, accompanied by a clown, calling the attention of the public to their sales.

SCREW-DRIVERS ONCE MORE.

Mr. Editor,—No one has a better right to defend an opinion than he who offers it for discussion. I therefore claim the right to be heard in answer to the remarks of a correspondent, who signs himself a Body-maker, in the December number of the Magazine, in criticising an article on page 145, volume seven, which he pronounces to be false in theory. It affords me much pleasure to have the opportunity of replying to him, as I cannot but think he writes from good motives. Morally speaking, human nature admits of no greater perfection than action from conscientious motives. What is done in this spirit ought to be respected. It does not follow, however, that conscientious opinions are always right.

Now I have come to the conclusion that Body-maker is not as rationally right as he is persuaded in his own mind of being, and that the authority he appeals to (most people) is one of numerous others wherein our own misinterpretations are too frequently substituted for mechanical laws. I trust that Body-maker will be convinced that something more rational and becoming was meant by my article alluded to than mere flourish of words at the expense of all mechanical laws.

Body-maker admits "there is no doubt but that a long screw-driver is better than a short one;" but he says, *rather unceremoniously*, that the *main* reason I give is the elasticity of the instrument. If he will refer back to the article he will see that I only claim it as one cause of the increased power. As to the elasticity of a long screw-driver, that needs no refutation, as every mechanic who is in the habit of using a tool of this kind must be aware of Body-maker's erroneous explanation from experience. It will require something more than declamation to convince me, or any one else using them, that elasticity has nothing to do with it. That it is the only reason, or even the main one, I do not claim. It certainly is partly the cause of the increased effect alluded to. The fact is, Body-maker is not sufficiently explicit in the first instance. If he were to ask me the amount of power in a combination of levers of certain lengths, I should have no difficulty in answering him consistently with the established laws of mechanics; but if he were to object to my reply, because the *bending of the levers* would diminish the power I had attributed to them, I should think this an *unfair* objection, because in considering the properties of all machines, simple or compound, we are authorized to suppose that such machines *are perfect;* and in every elementary treatise on mechanics, we are invariably told in the outset, that all imperfections, in the nature of the bodies experimented on, are to be put out of the question, and our calculations are to be conducted precisely as if no imperfections existed. In estimating the power of a number of cog-wheels, I should say that they were effective in proportion to their size, and that their respective powers would be inversely as their velocities, and so on, without any reference to the firmness of the iron of which they were composed.

He also remarks: "If power is gained in screw-driving by having an elastic driver, then we had better substitute rubber tugs in harness for other ones, in order to assist the horse in drawing a vehicle over obstacles." I would say this is a new idea. I think such would not only be advantageous, but really practicable. We all have noticed the vibratory motion of a single-tree on the cross-bar, caused by the motion of the horses' shoulders Now, I claim that if there was a small piece of rubber inserted in the tugs, at each side of the horses, not an extreme quantity—so much as to destroy the power of the tugs—it would be a decided advantage to the animal, as also the buggy and the persons in it. This would convert all percussion into more increase of pressure—that is, the collision of two hard bodies would be changed by the interposition of one that is elastic. Thus the carriage and the shoulders of the horse would be preserved from injury, without any material addition being made to the moving power or draft.

Mr. Editor, I wish Body-maker to enter more fully into this discussion before you think of dismissing the subject *simpliciter*. The case, to my view, remains *in statu quo*. Let him send it to *Avizandum*, and pray let us have another hearing, and we will support it by an *experimentum crucis*. For the present, I affirm that the extra power is produced by elasticity (one cause), the length of the screw-driver giving it leverage (another cause), and the length of the instrument giving it perpendicularity (a third cause); at least such is my opinion.

J. B. Peek.

TO OBTAIN THE CORRECT ANGLES IN MAKING SEATS.

In making board seats, bevel the bottom edge of the sides and back, whatever bevel you want the sides to slant. Next obtain the length on the inside bottom corner, and from this strike an angle of forty-five degrees on the bottom edge. To obtain the angle from the bottom to the top, draw the lines as shown in Fig. 1.

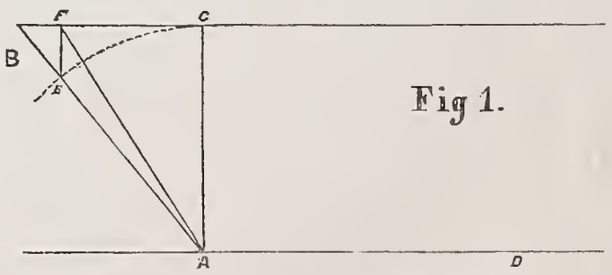


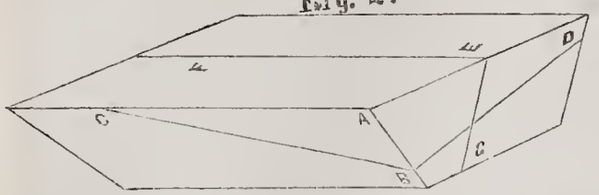
Fig 1.

D A represents the bottom of the seat. Draw the angle D A B the same as you bevel the bottom of the sides. Draw A C at right angles to A D. Place one foot of the compass at A and with the other foot draw C E. Draw E F parallel with A C. Then the angle D A F is the correct angle to cut from the bottom to top of the seat.

In making seats where a corner pillar is required, take any piece of waste stuff lying about the shop: a piece of two inch whitewood is as good as anything: face one side, square one corner, and bevel that corner under, that is the two edges that form the corner the same as you want your seat to slant. You will then have a block from which you can obtain all the angles required in making a seat.

Fig. 2 represents such a block. The lines C B D, drawn at right angles to the corner A B, is the angle of

Fig. 2.



the corner pillar. C A B is the angle of the shoulder. F E G is the angle of the mortise through the seat-frame.

If you make a board seat from this block, the angle F E G is the angle to bevel the bottom of the sides and back. C A B is the angle to cut from top to bottom, and the angle of forty-five degrees is right for the bottom-edge, to get the angle from inside to outside. BODY-MAKER.

BROKEN CARRIAGE-WHEELS.

A FEW mornings since, while going to our office, the horse-car in which we were riding suddenly came to a stop, and "what's the matter?" was the hurried question of every one. As we stepped off the car we saw that the obstruction was caused by the breaking down of a large truck that was loaded with a heavy iron casting. In giving a sideways lurch the weight of the load caused the shoulder of the axle to pass with great force against the hub of the wheel, consequently breaking out nearly all the wheel-spokes; the end of the axle, with the hub alone, resting upon the ground. To all appearance the timber of the spokes and wheel were sound, and ought to have held up the load if no other action, except direct downward pressure, had been brought to bear upon it. But the instant a lateral force was suddenly exerted, the spokes snapped like pipe-stems. Here is an evil, we thought, that surely needs a remedy. We must have some kind of wheel that will withstand this lateral force that is thus exerted upon it. There are many patents upon wheels and upon wheel-hubs, but as yet there is no form of wheel that will "stand up" under a pressure otherwise than that at right angles with the axle.

We thought we saw one evil in the cutting of the square shoulders of the tenons where they were inserted in the hub and in the felly. [We infer the writer would have wheels made after our grandfather's pattern.] This shoulder is perhaps necessary to prevent the spoke driving into the hub, but by so forming or cutting it with a shoulder nearly one-half the strength is taken away. This shoulder, by the pressure of the load, when thrown in a sideways direction, acts like a fulcrum on the hub, and as the ends in the felly represent the end of a lever with the force applied, we see what a leverage or advantage is gained, and we can but wonder that wheels break so seldom as they do.

If wheels can be so made as to safely withstand this lateral pressure when at an angle of about forty-five degrees from their perpendicular, then the evil will be remedied. Perhaps, instead of inserting the spokes at the centre of the hub, we might make them in two rows, one at each end of the hub, and uniting at the felly as usual; we then have them like a series of braces at a certain number of degrees apart, limited by the length of the wheel-hub. Or the spokes might be made in such a manner that a series of iron braces might extend from the hub to the spoke, and insure a more lasting wheel, and detract nothing from its present elegant and light appearance.

This evil of wheel-breaking is a common one, and the inventor who will suggest a remedy will be indeed a benefactor to the public, and particularly to all who use wheeled vehicles. There are but few persons who have not at one time or another been annoyed by a carriage-wheel breaking in the manner we have described, and often serious damage and delays are the consequences. In the army, during its marches, we noticed this evil to be very prevalent, and often with serious results. The breaking of an artillery wheel might cause a battle to be lost, as the gun could not be got into position; the breaking of an ordnance-wagon wheel might be the means of depriving a brigade of infantry of ammunition, and they would be unable to hold the post they then occupied against contending forces.

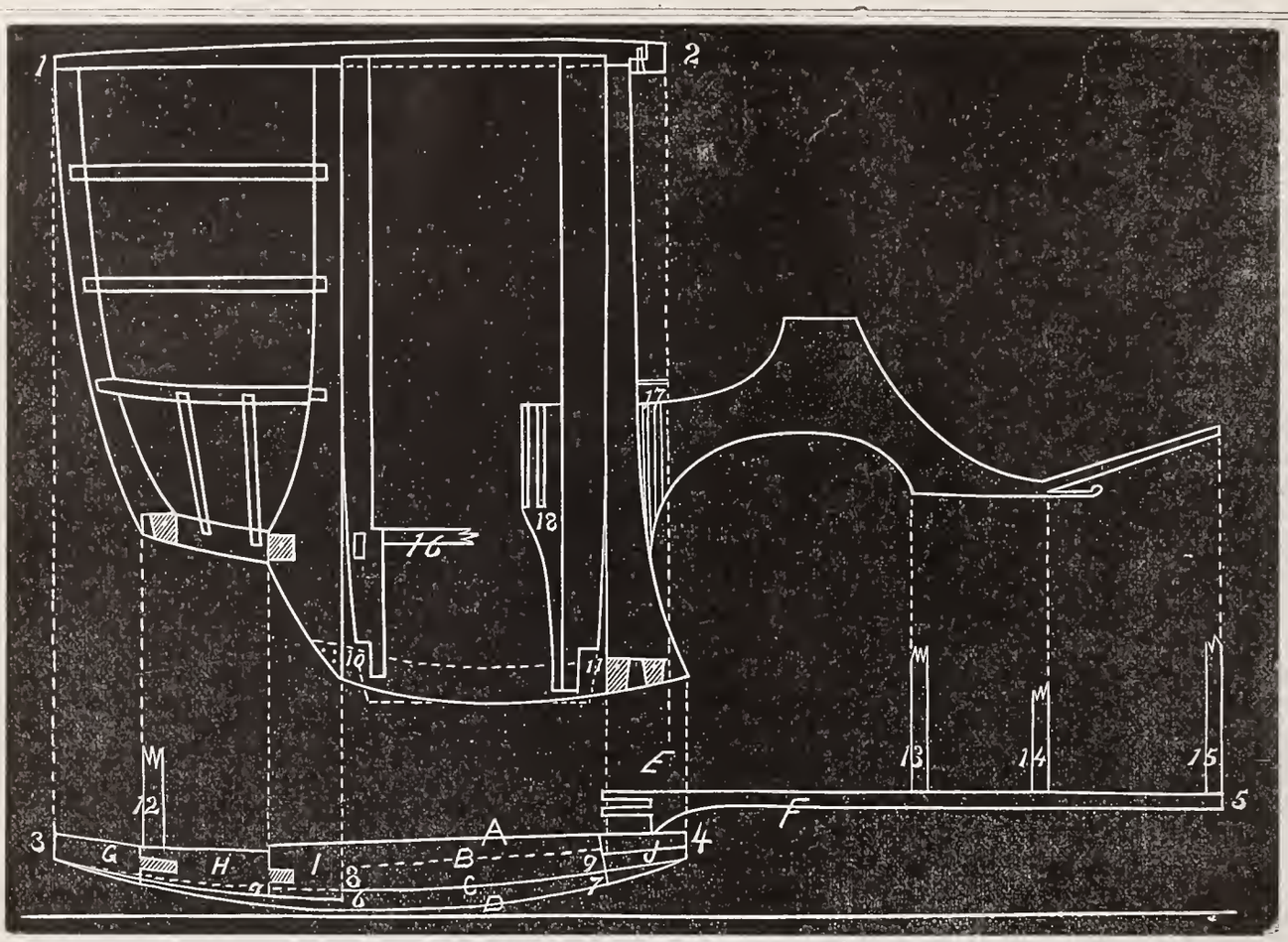
Perhaps the present form of wheel is considered good enough, and therefore no one has attempted to improve upon it, acting upon the maxim "let well enough alone." But the fast age in which we now live will seldom admit of detention, and the breaking down of carriage-wheels is always attended with greater or less delay and vexation. Let our inventors then step forward with a new form of carriage-wheel that will effectually put a check upon this existing evil, and by so doing confer a lasting benefit upon the world.

[We give the above from the *American Artisan* for the consideration of our readers. The suggestions there advanced have long since been tried and abandoned. Will our cotemporary try again?]

HISTORICAL FRAGMENTS.

ABOUT twenty years ago Watson published his "Annals of New York City," in which he repeats much of the matter we have printed on page 129 of this Volume, in giving some account of the equipages of the Pennsylvanians. He takes special pains to tell us all about Washington's and Rip Van Dam's coaches, but gives us very little additional information about other carriages then in use here. He merely says that "Mr. A. B."—that gentleman seems to be a ready witness—"an old gentleman, aged seventy-five, thinks that carriages were very rare [before the American Revolution], can't think there were more than four or five of them, and that men were deemed rich to have kept even a chaise. The Governor had one coach; Walton [whose mansion is still standing in Pearl street, near Peck-slip,] had another; Colden, the Lieutenant-governor [under England], had a coach which was burned before his window by a mob [as detailed in Volume ii, on page 182]. Mrs. Alexander [also] had a coach, and Robert Murray, a Friend, had another, which he called his leather conveniency 'to avoid the scandal of pride and vain glory.'"

There is now preserved in this city an old "heir loom," of the Beckman family, which must have been in use at the time referred to in the Annals, very similar to the one formerly belonging to Gen. George Washington; both of which were made in England in the last century. This Beekman coach we intend to illustrate in our pages soon, accompanied by such letter-press notice as will make the subject interesting.



C-SPRING SINGLE-HORSE COUPÈ AND CANT-BOARD $\frac{3}{4}$ IN. SCALE.

GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

PART FIFTEENTH—BODY CONSTRUCTION.

BEGIN by drawing the dotted lines 1 and 2 on the board, which show the outline of the cant-rail at the top, and the corresponding length on the cant at the bottom of the diagram between 3 and 4. Next, get the width of the door shown between 8 and 9. Now draw line 5, which gives the length of the body, and the remaining dotted lines at the proper distances for pillars, quarter and toe-board.

Find the turn-under of the standing-pillars at 10 and 11, and then strike a perfect sweep from the back pillar at 3, touching the points 6 and 7 successively, and continue on with it until it reaches the extreme point of the front-pillar at 4. Our sweep gives considerable "swell."

The cant for the bottom side is line C. The width of the front-pillar is given between 9 and 4 on the cant. Next strike a line with the compasses, one leg being on the dot under I—from the line at 7 until it intersects the line A—a line drawn straight from one to the other point gives the level of the front-pillar. This done, next lay down the dotted line B, showing the width of the door-bottom. Get the thickness of the bottom-side, also shown on the cant; H is the short bottom-side; G the back-pillar; E the front-boot side; E the sweep of the belt-rail in front of the body at 17. The cross-bars to the body are shown at 12, 13, 14 and 15; the seat-rail at 16, and the posts to receive the tenons of the front-boot side at 18.

To recapulate somewhat on the cant—A line, is the inside of the bottom-side; B, outside of the bottom-side; C, outside of the front-pillar and door bottom; D, the outside of the cant-rail; *a* shows the outside of the short bottom-side H. The upright and cross-pieces in the back quarter represent "strainers." This carriage, completed, will be found on plate XXXII. in this volume.

Pen Illustrations of the Drafts.

C-SPRING SINGLE-HORSE COUPÈ.

Illustrated on Plate XXXII.

IT affords us much satisfaction to be able to furnish our patrons with so fine a design for building a single-horse coupè. Besides its suspension on elliptic and C-springs there are some points decidedly novel about the front-seat which will recommend it to the notice of every tasty mechanic. The slightly-rounded front is another improvement which sets off a faultless design for the body to great advantage. The wheels are 3 feet and 3 feet 6 inches high; hubs, 5x7 inches; spokes, $1\frac{1}{8}$ inches; fellies, $1\frac{1}{4}$x$1\frac{1}{8}$ inches; springs, front elliptic, 3 feet 6 inches

long; back do., 3 feet 8 inches of No. 3 1½ inch steel, 9 inches apart. The C-springs must be regulated by the weight to be put on them, and will require the exercise of experience and judgment in application. Of course there are several articles which modern wants have made necessary, such as a gong and speaking-tube, or pull-cord, facilitating communication with the driver; mirrors, card-cases, &c. The colors in painting and trimming are so much dependent upon the taste of the builder that we shall say nothing about them here. The construction and cant for the body are given on page 134.

CALASH-TOP ROAD PHAETON.

Illustrated on Plate XXXIII.

This design is very similar to the one found on Plate XXIX. That has but two seats; this three. That hangs by a loop-iron; this by a pump-handle, and is for a heavier carriage. That hung on two, this on four springs, without a perch, and is a much more expensive vehicle to build, the fore-carriage being platform, with elliptic springs.

SHIFTING AND TURNING-OUT SEAT BUGGY.

Illustrated on Plate XXXIV.

We are aware of the difficulties which attend all attempts to make one pair of springs answer to carry either two or four persons, and that they can do neither properly. Yet, there are some who will have such at any costs of inconvenience, simply because it is *inconvenient* to keep two carriages. For such we have designed this buggy. The drawing shows a two-seated vehicle. In changing it to one, the front seat is turned over back, and the back seat moved forward, even with the front-pillar. The top-joints, it will be noticed, are straight instead of curving. These have been in use for some time, but we have never adopted them before, as they do not set off a *design* to good advantage. For all practical purposes they are undoubtedly superior to any other pattern.

Sparks from the Anvil.

THE ACID TEST OF IRON.

Although there can be no doubt but that the only way of obtaining accurate information respecting the strength of any particular kind of iron or steel is to subject it to directly applied strain, yet there are many circumstances under which such a test cannot be conveniently carried out, and where any test which does not require special machinery would be extremely useful. One rough test of this kind which is frequently used is that of breaking a sample of the material and judging of its quality by the fracture; and another, which is not so generally known or employed, is the "acid test," which is carried out by subjecting samples to the action of dilute nitric or sulphuric acid, and noticing the result. This acid test is particularly applicable when it is desired to ascertain the capabilities of the material for resisting wear, as, for instance, in the case of railway tires, and we know of at least one railway company by whom the test is used for this purpose with advantage. Thin slices are cut from the tires to be tested, and the surfaces polished, and these samples are then placed in dilute nitric acid for about twelve or fourteen hours. At the end of this time it is found that the structural formation of the tires is very clearly developed, the manner in which the piles were built up being plainly shown in the case of the iron tire, while in the case of those of steel the surface presents a more or less honeycombed appearance, according to the fineness of the grain of the material. We have known samples of Krupp's steel tires only exhibit a frosted appearance on the surface after a whole night's submersion in the dilute acid, whilst some slices of iron tires 3-16 inch thick submitted to precisely the same test were eaten completely through in some places. Speaking generally, it may be said that the power of resisting wear varies very much in the same proportion as the power of resisting the action of the acid; and the latter also shows clearly whether the material is of the same texture throughout, and whether it may therefore be expected to wear equally.

At the meeting of the British Association held at Bath, in 1864, attention was directed by Mr. Sorby to a refinement of the acid test; this consisted in the application of microscopic photography to the corroded surface. Mr. Sorby exhibited a series of photographs, taken by Mr. Hoole, of Shefficld, from various samples of iron and steel which had had their surfaces polished and then acted upon by dilute acid in the manner we have described. The photographs were taken direct from the microscope, and were largely magnified. In the meteoric iron the crystaline nature of the material was clearly exhibited, and in the gray pig crystals of graphitic carbon were shown shooting through the mottled surface of the metal, while in refined cast-iron long lines of hard parts were to be seen arranged in layers. Slightly-hammered bloom showed a confused mixture of iron and slag; Bowling bar-iron, a compact texture, the slag being driven off; and Swedish iron a still closer grain, more resembling steel. The different steels also presented entirely different appearances, the difference between blister and cast-steel being strongly marked. Altogether, it appears that the acid test is an extremely useful one, particularly when assisted by microscopic examination; while the system of taking magnified photographs, as suggested by Mr. Sorby, affords an excellent means of registering the results obtained.—*Mechanics Magazine.*

THE CLIP KING-BOLT ADVENTURER AGAIN.

Since our exposé of the clip king-bolt man in our last number, we are informed that he has visited Skaneateles, N. Y., at the old game—"claiming that he purchased the patent of the inventor, who resides at Red Creek, Wayne County, N. Y.; that the patent was applied for several years ago, but that letters patent were only issued as recently as the 24th of November last. The person claiming to own the patent is a Mr. Stearns, of Kings Ferry, Cayuga County, N. Y."

This man is evidently a speculator, and he who will stop his career will be doing the public a service. Any man who is versed in patent laws knows that no patent can be obtained for an invention after it has been for over

two years publicly in use. Furthermore, our patent record, published in this number, show that no such patent as is above claimed was granted on the 24th of November. As we have elsewhere stated—from personal knowledge—the clip king-bolt was invented by Uel Reynolds, of 182 Suffolk Street, New York, about the year 1856, but never patented. We are informed that S. is the same individual who, some time ago, tried to make the craft pay for infringements on other parts of the carriage. Does he expect better success with the clip king-bolt? Set him at defiance.

Paint Room.

HOW TO CLEAN BRUSHES, AND BOXES TO KEEP THEM IN.

The following article, taken from the *Artists' Handbook of Oil Painting*, will be found useful to the coach-painter: Make it an invariable rule to clean your brushes and pencils at the end of every day's work. This will save trouble in the first place, and aid eventually in keeping them longer in good condition. The established mode of performing this disagreeable part of a painter's labor is as follows—premising the observation, that to save words we shall use what may be called the *generic* term *brush* for both brushes and pencils:

A complete paint-box for oil colors is constructed of hard wood (mahogany or walnut usually), lined with tin. On either side of the interior is a concave division running the whole length of the box, and meant to contain the brushes. Between these are the bladders of colors, and two oval cups, one of which has a metal bar, or a wire covered with tin, that runs across its top, in the form of a foot-scraper at a house door. It is in fact a scraper to cleanse the brushes, and is so called. Putting a portion of poppy or other oil that you are in the habit of using into each of the two vessels, you dip, one at a time, the brushes you would clean into the one that is armed with the scraper, repeatedly but gently aiding the motion with the pressure of your fore-finger, till you have freed the brush of the greater portion of its paint; then passing it between the folds of a soft linen rag (repeating both processes until all the color is released), you dip into the other cup, and, relieving it of the excess of the oil by the aid of the scraper, you deposit the brush in one of the wide divisions first mentioned, where there are two wires that cross the hollow to receive it. All the brushes thus cleaned go into the same place; while the opposite division is reserved for the blenders and other brushes that are kept dry. These, as we have said, are never used with paint, and what they happen to imbibe is shaken off, or wiped off, by passing them backwards and forwards, but very lightly, over a stretched cloth, or the sleeve of your coat. Some use fine sand, which gathers the color of the blender into little balls or grains, that are then easily shaken off. The common straw wrapping-paper used by tradesmen will be found to answer the purpose very well; from its peculiar fabric it has the advantage of making no lint.

It is evident that the use of the scraper just described must wear the pencil. Besides this, to prevent the oil in the brushes from growing too viscid, it must be renewed (where they are not used) every three or four weeks, and even oftener in summer. Yet there is no better process. The objection made to spirit of turpentine, which does the work at once, is that it crisps and turns up the ends of the hairs, making them assume the form of little hooks, and of course spoiling them. This is true; but if a third part only of turpentine be added to the oil in which the brushes are first dipped, while mere oil is kept in the other in which the operation is finished, the process is just as safe, and somewhat facilitated. * * *

With the simple color-box above alluded to, the brushes will require to be dried as well as possible on a soft linen rag, or, still better, a thin white paper that is not sized, before they are deposited in their place.

When from neglect or other cause the state of the brush is such as to need soap, the use of the green soap, prepared for the purpose, and for sale at the color-shops, is recommended. After being cleansed by this detergent, the brush is to be rinsed very carefully in plenty of clean tepid water.

OBSERVATIONS ON STRIPING.

Many correspondents have written us for information in regard to the fashion of stripe for carriages. We are always happy to do all we can for the benefit of our friends, but in a case of this kind—where taste differs widely—we are loth to do so, lest in so doing we subject ourself to ridicule and loss of reputation for good taste. We can easily give our country manufacturers the fashion prevalent in New York, which generally are very *modest* colors; but these will not in all cases please the rural builder, whose customers demand something more gaudy. Under these circumstances we will—without assuming any responsibility ourself—give the following general observations from another author on this subject, viz:

On *black*, stripe with orange, blue, carmine, or green; on *blue*, with black, white, or grey; on *green*, with black, red, or white; on *orange* or *yellow*, with black; on *vermillion*, with black; on *lakes*, with black, carmine, or green.

ORIGINAL MONOGRAMS.

Illustrated on Plate XXXV.

The monograms on this plate have—as in the former cases—all been designed expressly for our Magazine. We take no small degree of satisfaction to ourself in being so well able to recommend them to the attention of our subscribers. To the young painter they will be peculiarly valuable and instructive, and to the manufacturer very convenient as ornaments for carriage panels.

Trimming Room.

THE POOR LEATHER MANUFACTURERS.

In our last issue we stated that the price of leather continued as high then as it did a year preceding, notwithstanding that the premium on gold had declined very much. Not satisfied with this state of affairs, "A Leather Manufacturer" tells us, through the columns of a newspaper, that the tariff question now under consideration by the present Congress is one of vital importance, and that "We [the manufacturers] cannot continue the business and pay all the taxes imposed on industry by the present Internal Revenue laws unless we are afforded a protection

from foreign manufactured goods that will at least place us on an equality, in our own markets, with foreign capitalists. It is well known to the writer of this article that since 1846 the import duty on certain kinds of leather has been increased only five per cent., while since that time there has been imposed on the raw stock and tanning material fully ten per cent.; and during the last five years the cost of labor has increased at least one hundred per cent. Now when you remember that we have to pay an internal revenue tax of five per cent. on the gross amount of our sales, you will see that I have not overstated the matter. We must have protection, or shut up our shops."

On reading the above one is led to exclaim, *poor* fellows! What a pity that these tanners should all be left to starve, when Congress could so easily afford them relief! But let us look at this matter in the light of comparison. In February, 1859, before our civil war was inaugurated, enameled top leather could be bought of the very best quality for 18 cents per foot. To-day we are charged 36 cents for the same article. Now, allowing that labor has advanced one hundred per cent., and that the "raw stock and tanning material has advanced ten per cent.," what then? Why, the four per cent. above the one hundred per cent. advance will very nearly pay the five per cent. tax. We have, after this, seventy-nine per cent. present profit on the "raw stock and tanning material," which ought to satisfy the "Leather Manufacturer," and would had not these tanners so long been accustomed to getting enormous profits that they despise the day of reasonable ones.

Editor's Work-bench.

METROPOLITAN PUBLIC CONVEYANCE COMPANY.

Much has been said in the public prints, for many years, about the cheapness and conveniences of foreign cab systems, and advocating such or similar organizations among us. Although several attempts to establish cabs for short distances in New York have been undertaken within twenty-five years, and have all failed for lack of patronage, the fact has been studiously concealed by these persistent journalists, under a false show of laboring for the public good. If, as they say, the business would pay, why, instead of prating, have they not gone into it themselves, instead of trying to induce others to undertake what, with our street-car facilities, must certainly prove a loss if entered upon? The difference in circumstances between London and New York seems never to have entered into the heads of our public writers, while the "cab fever" deranged their intellectual system, the consequence now is, we are to have a new trial, undertaken by a company entitled the "Metropolitan Public Conveyance Company," chartered by the Legislature of the State of New York as long ago as June, 1865.

To further the objects of this Company, extraordinary power has been bestowed on the corporation by the charter, as will be seen in the extracts made below:

Said Company, when formed as provided for in the first section of this act, shall be at liberty, and they are hereby authorized to keep and employ such conveyance as may be necessary for the accommodation of the public, in conveying passengers, baggage, packages and merchandise to and from any point within said Metropolitan Police District, at a rate not to exceed 25 cents for any distance not exceeding three miles, and 25 cents for every additional mile for each passenger so conveyed; at the same rates for each box, trunk or package of merchandise so conveyed, when said package or article shall weigh more than 20 and not exceeding 200 pounds; except that baggage or packages carried in the hands of passengers shall go free. Should said passenger be under 12 years of age, then said company shall not charge to exceed 15 cents per mile for each person so conveyed; except that for children under five years of age no charge shall be made. The said company are required to keep and run so many carriages and vehicles as may be necessary for the accommodation of the public, in the conveyance of passengers and baggage from all steamboat landings and railway stations, by steam railroads, to any other place in the said Metropolitan Police District, at the rates beforementioned, except that the rate of fare for any number of passengers, not more than four, to Brooklyn and Manhattanville, shall be not more than $3.

The employés and agents of said company shall have the right to enter upon any train of cars or steamboats going from or coming to said district in the transaction of their business as solicitors for or carriers of passengers and their baggage upon paying the usual rate of fare for the distance traveled by them, and may do and perform the business appertaining to their employment without hindrance or molestation on the part of the railroad or steamboat employés, and may, at proper and seasonable hours, enter the public halls or entrances of any hotel, steamboat landings or railroad depots in said district to deliver passengers and baggage, or to solicit the same for carriage, as contemplated by this act. But said agent or employé shall not be permitted to enter any hotel, steamboat or railroad car, or the hallways and public passages of any railroad depot or steamboat landing, for the purpose of soliciting or of delivering passengers or their baggage, within said district, without first being duly licensed and authorized by the Board of Police Commissioners of said district, who are hereby authorized and required to issue such licenses, and grant such authority, on the written application of the President or Secretary of said company, providing said Board shall be satisfied that the applicant for such license is a proper person to exercise the privileges hereby conferred; said licenses shall be charged at the rate of $10 each, and $2.50 annually for the renewal thereof, and may be revoked at any time for misconduct. Said Board shall also designate proper places to be used by said company as stands for their vehicles, and may make such rules and regulations for the government of said agents and vehicles as the comfort, safety and convenience of the traveling public may require. All moneys received for such licenses shall be paid over semi-annually to the Treasurer of the Fire Department Fund of said district, for the benefit thereof. Any person violating any of the provisions of this sec-

tion shall be deemed guilty of a misdemeanor, and upon conviction shall be fined not less than $10 nor more than $50, or imprisonment not less than 5 nor more than 30 days, or by both such fine and imprisonment, in the discretion of the court. The Mayors of New York and Brooklyn are hereby authorized and required, from time to time, to issue licenses under their hands and seals for the carriages and other vehicles of said company upon application of said company, at the same sums as now or may be hereafter required for the license of hackney coaches or carriages and other vehicles; the licenses aforesaid to be renewed annually, and the carriages and other vehicles to be duly numbered in accordance with the ordinances of said cities; baggage and passage-wagon licenses not to exceed that charged for ordinary carts.

Said company or their agents shall not demand or receive any larger sum or sums than specified in this act, under the penalty of $10 for every such offense, to be sued for and recovered from said company, by and for the party aggrieved; such suit may be brought in any Court of Record within the judicial district in which the plaintiff resides, and no motion for a change of venue shall be entertained by the court having cognizance thereof. There shall be fixed in every passenger vehicle when used by them, and in such manner as can be conveniently read by any person in the same, a card containing the rates of fare, name of the company, the street and number of their office, and the number of the license of said vehicle; and there shall be plainly lettered, in a conspicuous place on the outside of each vehicle, the name of said company.

All licenses for carriages, vehicles, and drivers, to expire on the first Monday in June, next after the date thereof; and every license shall state the number of the stage, carriage or vehicle for which the same is granted, and shall be renewed annually, under the penalty of $25 for each offense on a vehicle, and $5 for each offense on the drivers. And the superintendent of hackney-coaches of the cities of New York and Brooklyn, or other persons duly authorized by the Mayors thereof, shall, at all reasonable hours, have access to all vehicles, horses and harness of said company, for inspection; and when either of the same are found unsafe, the same shall be withdrawn, if so directed by said superintendent, or other authorized person, in writing.

Any railroad or steamboat employés who shall refuse to grant any of the employés or agents of said company any of the rights or privileges granted them, by and under the terms and conditions of the foregoing sections of this act, may be sued by the said company in any court of record in the said cities; and, upon judgment for the plaintiff, the amount of damages shall not be exceeding $100 for each and every such refusal.

The names of the officers of the Company, chosen on the 28th of June, 1866, are Daniel D. T. Marshall, Allen Monroe, Charles E. Noble, Spencer K. Green, Wm. C. Martin, E. P. Beach, G. M. Van Hosen, Thomas E. Stewart and Darius Clark were elected for the ensuing year. At a subsequent meeting of the Board D. D. T. Marshall was elected President, Spencer K. Green Vice-President; G. M. Van Hosen Secretary, Wm. C. Martin Treasurer, Wm. H. Allertson, General Superintendent, Darius Clark, Thos. E. Stewart and E. P. Beach Executive Committee.

Preliminary to running off the track everything in the shape of a hack, the Metropolitan Company have started a line of stages to run from the New Haven Railroad station in Twenty-seventh St. through Fifth Avenue and Broadway to the Astor House, for about five cents each passenger—the success of which remains to be told hereafter. It is supposed that the next move of the Company will be to establish carriage stands in the Central Park, in opposition to the hackmen there at present flourishing; the carriages to be of a peculiar and suitable style, elegant in appearance and accessible to all classes at a very moderate charge. If this new "institution" succeeds in breaking up the horde of rascally hackmen which infest this city, without *breaking* the stockholders, we shall rejoice, as well as be greatly—disappointed.

IMPOSTORS AND THEIR VICTIMS.

EVERY few days some one writes us in a hurry to find out whether Bamboozle, or Fizzle, or Squibbs, who has paid them a visit, claiming damages for infringements on some trumped-up invention, is or is not an impostor. When an old customer does so, we *hurry* along an answer; but if he be one of the skinflint class, who has never invested a cent in our Journal, and very likely never will, we take our own time with him. This course, we admit, is not the most charitable one, but perfectly natural. It cannot be expected that we spend our time and money to protect the interests of such as take no interest in us, and for anything they may care would let the Magazine—the most dreaded instrument these swindling rascals fear—die for lack of support. We repeat, we take our own time—often that never comes—to answer such *equivocal* friends, because we judge that a man who thinks that a periodical faithfully and perseveringly devoted to his interests, furnished at five dollars a year, is not worth that trifling sum to him *ought to be bled* for some one's benefit, to convince him to the contrary. These chaps only learn in the school of experience, which is conceded to be costly, but they must be schooled sooner or later, nevertheless. Thus much by way of introduction.

Probably the past season has been one of the most fruitful for impostors in many years. A great many patents have been issued for special inventions, to keep up with which, even in our brief manner, has been extremely perplexing to us, and no doubt to our readers. Of this state of affairs unprincipled adventurers have taken advantage to fleece the craft. They come, as in one instance lately exposed in these page, with a palpable lie in theirs mouth, asserting that some one, some years ago, applied for a patent for a certain improvement—taking care to go back far enough to cover the time it actually came into use—but for some unexplained reason the patent has but just been completed. Such pretensions, we say, have the

evidence of fraud on their face, by which no man of sense need be deceived. Any one acquainted with the law applicable to patents knows that unless applied for within two years from its first invention, application is in vain. In almost all cases where the improvement is worth anything, the letters patent issue within two months after the receipt of models and specifications, rendering such assertions as the clip king-bolt man makes perfectly absurd. Perhaps there is no shorter way to settle with these pirates than to demand a sight of their letters patent. Every honest man will cheerfully do this. Those who refuse to do so may be safely set down as consummate impostors, to silence whom by an arrest will be a public benefit. We think it would not take us long *to fix* them, did they visit us.

Not long since one of these "shysters" whom we have often exposed—now silenced—made us a call, threatening vengeance and the law against us for so doing. We ordered his vile carcass out of our office, which if he had not carried off *instanter* might have been damaged "some if not more." Although he promised us a lawsuit, yet up to this writing, like some others of his make, it has not been redeemed. Could we but persuade the craft to send these vultures off without paying them anything or fear ing a threatened lawsuit, we should soon find them as scarce as musketoes in February. The "pickings" they get from the frightened give them encouragement to pursue the more plucky. In a certain sense then, those who "shell out" to these villains are *particeps criminis* in the business of robbing the public.

EDITORIAL CHIPS AND SHAVINGS.

Patents.—In order to bring up our Patents, and make the list complete, we have been compelled to devote more space than usual to such matter. This must be our excuse for any seeming lack in variety this month.

Farm Wagons Free—On motion of Mr. Trowbridge, Representative in Congress from Michigan, the Committee of Ways and Means was instructed on the 6th of December to inquire into the expediency of placing farm wagons on the free list in the internal revenue law.

Female Tenderness for the Horse.—We saw the other day the driver of a coal cart whip his horse with the lines—an usual thing seldom noticed—when the tenderness for the horse, by an old lady, attracted the attention of the crowd on the sidewalk by her cries of "Stop whipping that horse! Stop whipping that horse!" to the evident merriment of the observers, who thought, doubtless, that this would-be member of the Cruelty-to-Animals Society had better have expended her labor on some more important matter.

Facts in Cutting Timber.—Cut timber from the middle of September to the middle of December, and you cannot get a worm into it. October and November are perhaps the best months, and sure to avoid the worms. You cut from March to June, and you cannot save the timber from the worms or borers. May used to be called peeling time; much was then done in procuring bark for the tanneries, when the sap is up in the trunk and all the pores full of sap; whereas in October these pores are all empty; then is the time to cut, and there will be no worms. When you see an ox-bow with the bark tight, there are no worms, no powder-post, and you cannot separate it from the wood, and what is true in one kind is true in all kinds of timber, and every kind has its peculiar kind of worm. The pine has, I believe, the largest worms; and these worms work for many years. I have found them alive and at work in white-oak spokes that I knew had been in my garret over twelve years, and they were much larger than at first; they do not stop in the sap, but continue in the solid part. I do not think of buying timber unless it is cut in the time above alluded to.

The Costs of a Year's Riding for the City Fathers.—There is no city on this continent, nor probably anywhere on earth, where the people are so systematically robbed as in New York. The costs of carriage hire one year in *toting* the Common Council about in 1866 amounts to eleven thousand dollars. Street Commissioner Cornell's bill is three hundred and twenty-five dollars, and his deputy's nine hundred and thirty-eight more. Van Ranst, who generally has such jobs, ought to be rich by this time.

New York on Wheels.—From the report of the Chief of the Bureau of Permits in the Mayor's office, we learn that 1,372 hacks; 1,748 public carts (6,704 renewals); 21 baggage wagons; 488 express wagons (640 renewals); 20 one-horse, and 160 two-horse cars; 414 venders (peddlers wagons); 88 charcoal wagons; 361 junk carts; and 244 public porters (hand carts), were licensed during 1866. In addition to the above, 1,505 coach-drivers, 1,836 car-drivers, and 626 stage-drivers were furnished with licenses as drivers.

When to Cut Timber.—Experience has shown that the time when trees are felled has much influence upon the condition of the wood. A trial was made with four pieces of oak cut down in December, January, February, and March. A tin ring was fixed at the end of each piece. These rings were filled with water. The January wood, after forty-eight hours, allowed a few drops to pass. During the same time the entire quantity ran through the February wood, while the water passed through the March wood in two hours and a half.

American Carriages in Paris.—The Paris *Moniteur*, in view of the opportunity afforded by the Exposition to take place there the present year, "looks forward to the opportunity of comparing the dashing equipages turned out by Parisian coach and harness-makers with those to be sent over from New Jersey, and considered worthy to shine in the Bois de Boulogne. A correspondent says: And of these Bois de Boulogne equipages, though many are turned out in the best possible style, it is certain that they form the exception to the rule.

The outlay made on them by their cosmopolitan owners is lavish. Carriages of unexceptionable form and exquisite finish; horses the best that England can breed; harness as good as money can obtain; but as regards the greater part of the entire equipages, one is tempted to regret that so much execrable taste should be laid out on so much excellent material. In short the *ensemble* is wanting in harmony, and the general result becomes, in too many cases, flashy, vulgar, and obtrusive.

Patent Journal.

AMERICAN INVENTIONS.

NOVEMBER 6th. (59,459) AMBULANCE.—D. H. Rucker, John E. Allen, and Jacob S. Smith, Washington, D. C.:

We claim, *First*, The within-described ambulance accomodation, consisting of the beds or stretchers *a a' d c g h*, adapted to contain two tiers of recumbent patients, or be converted into one or more backed seats, substantially as and for the purpose described. *Second*, the upper hinged bed or stretchers *g h*, employed in connection with the lower beds or stretchers of an ambulance, so as to constitute seat-backs when the lower beds are converted into seats, substantially as and for the purpose herein set forth.

(59,495) BOX-SETTER FOR CARRIAGE WHEELS.—Wynant Witbeck, Troy, N. Y.:

I claim the combination of the cam-ring D, and radially sliding-bars B B B, having lugs C C C, for griping a wheel by its rim, with fixed hearings A A A, for a side of the rim of the wheel, and central sockets E F, for a rotary, endwise movable boring-spindle, substantially as herein described. I also claim a boring spindle G, mounted in sockets E F, and having its cutter *h*, arranged between those sockets, and fastened in a slot or mortise *i*, in the spindle, by means of a sleeve *l*, screw-nut *j*, and screw *k*, on the spindle, substantially as herein set forth.

(59,525) CARRIAGE.—G. H. and E. Morgan, London, England:

We claim, *First*, Placing the head-joints *b*, or their equivalents inside of the head of a carriage and bid by the lining, substantially as herein shown and described. *Second*, The employment of mechanism connected to the head-joints *b*, or their equivalents, of a carriage in such manner that the head of a carriage, whether in one or more parts, may be capable of being raised or lowered by a person on the driver's seat or other suitable part of a carriage, acting upon a lever or screw, or other equivalent means, in manner substantially as herein shown and described.

(59,526) CARRIAGE.—G. H. and E. Morgan, London, England:

I claim, *First*, The application of a head or cover to a wagonette or other similar vehicle, capable of being raised or lowered as desired, substantially as herein shown and described. *Second*, The application to wagonettes or other similar carriages of means or apparatus for raising and lowering the head or cover thereof, which apparatus is capable of being put in motion from the driver's seat or other suitable part of the carriage, substantially as herein shown and described. *Third*, The mode of applying the mechanism for raising and lowering the heads or covers of wagonettes and other similar vehicles between the cover and the lining of the carriage, substantially as herein shown and described. *Fourth*, The mode of applying side-lights *p*, to the heads or covers of wagonettes constructed according to our invention in such manner that they shall be capable of rising or falling with the heads or covers thereof and be guided in their motion in suitable guides, substantially as herein shown and described. *Fifth*, The mode of giving motion to the upper parts *a' a'*, of the heads or covers of landaus and other similar carriages, substantially as herein shown and described. *Sixth*, The mode of constructing the connecting rods *c c*, and *e e*, when applied to landaus or other carriages, in two parts connected together so as to afford facility for adjustment, substantially as herein shown and described. *Seventh*, The mode of connecting together the connecting-rods *g g*, so as to form a rigid frame by means of rods or bars provided with screws at their ends and fixed to the connecting rods by lock nuts, substantially and as for the purpose herein shown and described. *Eigth*, The mode of supporting and working the screw by which motion is given to the apparatus for raising and lowering the heads of carriages, substantially as herein shown and described. *Ninth*, The mode of communicating motion from the screw *k*, to the connecting rods *g g*, and of limiting the amount of motion in either direction of the nut *i*, substantially as herein shown and described.

(2,387) WHIP-SOCKET FASTENING.—Edwin Chamberlin, Troy, N. Y. *Patented August* 23, 1864:

I claim, *First*, A detachable and removable whip socket fastening attached to the dash or other suitable parts of a land carriage or other vehicle, in the manner and for the purposes substantially as herein described and set forth. *Second*, A whip socket fastening having a clamp or holder B B, for a whip socket combined with the jaws A A, for receiving and griping a bar or rod in a covered dash or other part of a carriage or other vehicle, substantially as herein described and set forth.

19. (59,537) DEVICE FOR ATTACHING THILLS TO CARRIAGES.—M. J. Althouse and P. Reifsnider, Waupun, Wis.:

We claim the thill-iron A, provided with the cross-head *e*, in combination with the clip B, provided with the eyes *b*, one of which has the notch and hinged piece *a*, arranged to operate as set forth.

(59,610) VEHICLE.—William Ashley Jones, Dubuque, Iowa:

I claim: *First*, The combination of the jointed rod or bar K with the tongue J, reach H, and brake-bar N, when said bar K is constructed and arranged substantially as herein described and for the purpose set forth. *Second*, The combination of the bolt or pin V, spring Z, lever W, cord or strap X, and pulley Y with each other, with the tongue J, and with the jointed bar K, substantially as herein described, and for the purpose set forth. *Third*, The combination of the lever T, rack U, connecting-rod S, lever R, and connecting-rods P with each other and with the box I, axle G, and brake-bar N, substantially as herein described and for the purpose set forth. *Fourth*, The combination of the bent bars D', hooked rods C', springs F' and E', cords or straps G', and pulleys H' with each other and with the whiffletrees B', substantially as herein described and for the purpose set forth.

(59,612) MACHINE FOR DRIVING SPOKES IN WAGON WHEELS.—Eli Keith and Dell Bird, Lafontaine, Ind.:

We claim: *First*, The arrangement upon the standard B of the adjustable frame K, and pivoted rest I, operated substantially as described. *Second*, The combination of the adjustable rests I and D, lever G, and mandrel N, constructed and operating substantially as described.

(59,616) AXLE-BOX.—F. Leppens, Hartford, Conn.:

I claim the combination of the sections G H, extension pieces I, and spring L with the axle B, with the ring O shrunk thereon, substantially as described and for the purposes specified.

(59,632) AXLE-BOX.—Caleb M. Oliver, Port Carbon, Pa.:

I claim the bearing B and follower E in combination with the axle-box C, the former being arranged in relation to the latter so as to relieve the box of pressure substantially as described.

(59,642) KING-BOLT FOR CARRIAGES.—James Phelps, Red Creek, N. Y.:

I claim the projecting shoulders or bearings B B, resting on the axle at the fork of the king-bolt, for the purpose herein specified. [Does Stearns operate with this?]

(59,673) BOLT-CUTTER.—Othniel J. Smith, Wauwatosa, Wis.:

I claim the combination of the lever, the eccentric, the adjustable slide moved by a screw, the chisels, one stationary and the other movable, secured by bolts to the respective blocks, one chisel with sharp shoulder near edge, the spring, and the movable chisel-block, all constructed and arranged as described.

(59,679) Elastic Button-hole for Carriage Curtains.—S. C. Talcott, Ashtabula, Ohio:

I claim the tin A, or its equivalent, and the rubber B, as arranged and in combination with the curtain E and lining F, for the purpose and in the manner herein set forth.

(59,683) Whelwright's Machine.—David S. Trout, Arcola, Ill.:

I claim the arrangement of the adjustable reciprocating table D of a wheelwright's boring machine, the plate E, plates *b b*, and segments *g g*, when operated as and for the purposes described.

(59,718) Knob-hole for Carriage Curtains.—Charles W. Holland, assignor to himself and H. L. Taylor, Fredonia, N. Y.:

I claim the application and use of the metallic ring D and strengthening piece C, in combination with knob-holes in carriage trimmings, in the manner and for the purpose substantially as herein set forth.

(59,728) Carriage-shackle.—T. S. Smith, assignor to himself and S. A. Smith and Henry Lines, New Haven, Conn.:

I claim the combination of the ball-and-socket joint provided with a packing E, with a strap H, or its equivalent, and constructed with a plate B, so as to be attached to the axle, substantially as and for the purpose herein set forth.

20. (59,779) Self-lubricating Axle-box for Carriages.—Silas S. Putnam, Dorchester, Mass.:

I claim: *First*, The chamber *a*, with its slots *c*, in combination with the openings *b* at its inner end, constructed and operating substantially as set forth. *Second*, I claim the axle-box A, provided with a flange *e*, and finished with a projection *f*, which forms the outer end of the hub, in combination with the screw-nut F, for confining it lightly in place within the hub, substantially as set forth.

(59,834) Wagon Brake.—Isaac and J. M. Gross, New Galena, Pa.:

We claim the shoe-bar B, in combination with the lever J Q, pulley-blocks K M, rope L, windlass O, lever R, and rod *j*, all arranged and applied to a wagon substantially in the manner as and for the purpose set forth.

(59,835) Axle-nut for Wagons, etc.—John Haggert, New York City:

I claim the combination with the axle-arm *a* and collar *f* of the grooves *c q l*, projections *h*, and cap *o p*, when all are constructed and arranged as herein specified, to form a bayonet joint with a shoulder at right angles to the axis to secure the wheel upon the axle, as explained.

(59,840) Sand-core for Axle-skeins and Hub-boxes—James G. Holt, Chicago, Ill.:

I claim, *First*, A frame which is constructed substantially as described, and adapted for sustaining a series of core-boxes in a fixed position during the operation of making a sand-core. *Second*, The means substantially as explained for making one or many sand-cores upon a sand-bed, so that the axis of the core shall be perpendicular to said bed, thus insuring the proper centering of the cores in the moulds for which they are adapted, substantially as set forth.

(59,920) Shifting Seat for Carriages.—Christian K. Mellinger, Manor Township, Pa.:

I claim the specified combination and arrangement of the top and bottom pieces A B, braces C D, held by pivots P within the boxes or slots *a' a''* and *b' b''*, beveled or constructed and operating in the manner and for the purpose specified.

(59,922) Bolster-plate for Wheeled Vehicles.—Oren E. Miles, assignor to himself and Wm. B. Sigley, Aurora, Ill.:

I claim the projections M N around the bolt-holes near the ends of the plates, and adapted to stand in corresponding holes in the wood-work, and resist both the lateral and the torsional strains, as and for the purpose herein set forth.

27. (59,961) Spring Wagon.—Joseph N. Byington, Stockton, Minn.:

I claim, *First*, Hinging the springs F to the bottom D of the wagon, and connecting them to the side of the bolsters A and B, in such a manner that when not in use they may be turned up out of the way, substantially as herein described and for the purposes set forth. *Second*, The combination and arrangement of the springs F, cross-bars G, links I, bolts J, and catches H with each other, and with the bottom D, and bolsters A and B of the wagon, substantially as herein described, and for the purpose set forth.

(59,970) Attaching Shafts to Sleighs and Carriages.—George Coffin, Boston, Mass.:

I claim the combination of the wedge-shaped keys C, and rods D, with the parts A and B of the shafts, when said parts are constructed with tenons and sockets, substantially in the manner herein described, and for the purpose set forth.

(60,016) Carriage.—Louis Kutcher, New York City:

I claim attaching the box F to the lower part *a* of the fifth wheel, instead of to its upper part as usual, substantially as and for the purpose set forth.

(60,040) Machine for dressing the Fellies of Wagon Wheels.—Andrew P. Odholm, Bridgeport, Conn.:

I claim, *First*, The side D, with adjustable arbor E attached, the rotary cutter D, and the adjustable plate F, provided with the guide-arms I, arranged so as to rotate as shown, or in any other equivalent way, to admit of being removed or adjusted out of the way of the spokes by the action of the spokes themselves in the turning of the wheel, substantially as and for the purpose set forth. *Second*, The swinging pendant K, suspended from the adjustable slide L, having an arm I, attached in connection with the plate O, on slide F, and the cutter D, all arranged to operate substantially in the manner as and for the purpose specified.

(60,049) Device for lubricating Carriage-axle Journals, etc.—George W. Parsons, Harrisburg, Pa.:

I claim the screw-plug or tube D, in combination with the plunger *e*, with its stem, and the cap F, constructed as and for the purpose herein specified.

(60,064) Axle-box.—Henry B. Rowley, Rushville, N. Y.:

I claim, *First*, In combination with the journal-box C D the axle A, constructed with a hardened metal collar B, or collars B *a'*, on its ends, the hardened or chilled metal collar or collars being made separate from the axle, and shrunk or otherwise fastened thereon, and said collar or collars conforming in diameter to the chamber or chambers of the journal-boxes in which they revolve, all substantially as herein described and for the purpose set forth. *Second*, The arrangement of the flexible wipers *e e*, in combination with the journal and journal-box substantially in the manner herein described.

(60,066) Carriage Top.—W. F. Rundell, Genoa, N. Y.:

I claim the top frame for carriages, having its front section or bow secured to the section next adjoining, substantially in the manner described and for the purpose specified.

(60,071) Attaching Carriage Thills.—William C. Sherman, Boston, Mass.:

I claim the hook D, taking a solid bearing on the lower part of the draw-bar, in combination with spring G, shoulder J, and rubber pad C, all constructed, arranged and operating substantially as described.

(60,075) ATTACHING DRAFT-POLES TO AXLES.—E. C. Smith, Birmingham, Conn.:

I claim the bars G, with the eyes F at their rear ends, fitted on the iron bar E of the cross-bar B, within mortises or notches D made therein, and provided with the gib or key H and screw I, all arranged substantially as and for the purpose herein set forth.

(60,093) CARRIAGE.—James D. Van Hoevenbergh, Kingston, N. Y.:

I claim the wrist and sleeve, or equivalent hinge connection, between the side springs and the "third axle," substantially as and for the purpose herein specified. I also claim the yoke M, and king-bolt I, constructed and arranged substantially as described, to connect the forward axle A and the third axle D, for the purpose herein set forth. I also claim the construction of the springs, each composed essentially of the half springs E and G, with the india-rubber spring cushion *o*, between them, substantially as herein specified.

DECEMBER 4th. (60,157) MANUFACTURE OF SPRINGS.—J. F. Dubber, Brooklyn, N. Y.:

I claim tempering steel springs and adjusting their shape by means of the former herein described, and in the manner set forth.

(60,161) WAGON HAY RACK.—Francis M. Evringhan, Lafayette, N. Y.:

I claim the lever A, the drum B, the flanges C, the ratchet D, the catches E E, the winch F, and the rope G, when the same are constructed and operated substantially in the manner and for the purpose specified.

(60,209) WAGON BRAKE.—John J. Look, Farmington, Maine:

I claim the pole C, provided with the tapering enlargement *c'*, as described, in combination with the slotted hounds D, brake-bar E, lateral braces F F, land axle *a*, when the parts are so arranged that by a lateral movement of the pole one of the shoes only is brought to bear on its corresponding wheel, substantially in the manner and for the purpose set forth.

(60,234) EXPRESS WAGON.—W. D. Osborn, Boston, Mass.:

I claim a wagon made with the rear part of its body offset and depending downward below the bottom of the front part thereof, when combined with a bent hinder axle placed directly under the rear part of the body, and when the sides and front end of a body rise above the bottom of that part, all substantially as and for the purpose specified. Also, the construction with such a wagon body and bent hind axle, located as described, of springs *e*, and bifurcated perch *e*, as specified.

(60,271) HAY-RACK FOR WAGONS.—George T. Smith, Plainfield, Ill.:

I claim, *First*, The combination and arrangement of the hooks 1, and eye or eye-bolt 2, with the cross-pieces B, and bed-pieces A, substantially as and for the purposes described. *Second*, The combination and arrangement of the hooks 3, and eyes 7, with the beams C, and bed-pieces A, substantially as and for the purposes set forth. *Third*, The combination and arrangement of the hooks 6, the straps 5, bolts 4, with the beams C, and raves D and E, when constructed and operating substantially as and for the purpose described.

(60,296) ATTACHING THILLS TO CARRIAGES.—Samuel H. Ward, Altoona, Ill.:

I claim, in combination with the thills E, lugs C, and removable bolt F, the employment of the spring G, provided with a lip H, when arranged so as to secure the bolt from slipping out, and also to prevent rattling and wear of the same, as herein set forth.

11. (60,348) SLED BRAKE.—R. B. Dutton, assignor to himself and N. C. White, Iron Hill, Iowa:

I claim the combination and arrangement of the jointed dog G, clasp H, lever F, fulerum-rod E, ratchet-bar I, and spring K, with each other and with the rave D, and runner A, of the sled, the whole being constructed and operated substantially as herein described and for the purpose set forth.

(60,393) BRACE FOR WAGON SPRINGS.—James H. Lockie, Humphrey, N. Y.:

I claim the combination of the short levers C, the connecting rods D and F, and the T-braces E and G, with each other and with the reach A, and box-frame B, of the wagon, substantially as herein shown and described and for the purpose set forth.

(60,403) KNUCKLE-JOINT.—J. H. Mears and C. W. Yale, Oshkosh, Wis.:

I claim pentagonal socket, Fig. 1, in combination with the head, Fig. 2, substantially as set forth.

(60,413) DUMPING WAGON.—J. L. Ordner, Cleveland, Ohio:

I claim the rollers *e*, and frame F, when constructed and arranged in relation to each other as set forth, in combination with the described box A, provided with fastenings N, the whole supported upon the bolsters G, when used conjointly in the manner and for the purpose set forth.

26. (60,489) DUMPING WAGON.—Daniel Dennet, Buxton, Maine:

I claim, *First*, the tail-board D, with its oblique sides, so arranged as to enable the body to tip between the fore and rear axles of the wagon, substantially as described. *Second*, I claim the combination of the tail-board D, with its oblique sides, beams A A, and rod B, all arranged as described for the purpose specified.

(60,495) WAGON WHEEL.—Benjamin M. Esterle, San Francisco, Cal.:

"I claim as my invention and improvement in carriage wheels the use of the plate E, constructed as shown in Fig. 3 of the drawings, so that it may be used on the inside of the front wheels of a wagon and pass or slip over the lock or friction plate fastened to the carriage, for the wheels to rub against in turning the wagon."

(60,608) CARRIAGE CURTAIN EYELET.—C. W. Acker, Watertown, N. Y.:

I claim the toothed struck-up plate C, and notched struck-up plate D, in combination with the slitted elastic plate E, constructed and applied substantially as described for the purpose specified.

(60,634) FIFTH WHEEL.—Joseph Irving, New York City.

I claim the safety clip E, consisting of the part *c*, with the semi-circular recess, and the recessed part *d*, between which the fifth wheel plays in the recesses, having a yielding pressure, and secured and operating in the manner and for the purpose specified.

(60,639) TIGHTENING THE TIRES OF WHEELS.—F. B. Morse, Milwaukee, Wis.:

I claim, *First*, The lips *e e*, at the ends of the tire C, in combination with the keys D, D, E, operated through the medium of screws and one or more removable or adjustable keys F, all arranged substantially as and for the purpose set forth. *Second*, The arms *f f m*, the lips *e*, in combination with the keys E D D, substantially as and for the purpose specified. *Third*, The socket B, provided with the partitions *a a*, to form two end partitions to receive the ends of the fellies, and a central compartment to receive the tire-tightening mechanism, substantially as and for the purpose specified.

January 1, 1867.—PAINT MILL.—Charles Clifton, Jersey City, N. J.:

I claim, *First*, The cylinder, A, in combination with the grinder or pulverizer, O, when arranged together, and opening and operating substantially as and for the purpose described. *Second*, The grinder or pulverizer, O, when made hollow, sub-

stantially as and for the purpose specified. *Third*, The spiral screw-shaft or conveyor, W, or its equivalent, when arranged within the stationary center shaft, C, on which the cylinder, A, revolves or turns, substantially as described for the purpose specified. *Fourth*, Removing the material ground in the cylinder, A, from the same through a pipe or tube, 12, arranged or formed within the center and stationary shaft, C, so as to form a communication between the inside and outside of the cylinder.

(60,705) Safety Attachment to Carriages.—Claude Ducrux, New York city:

I claim, *First*, The combination of a detaching apparatus with the brakes of a vehicle, substantially as herein shown and described. *Second*, The combination of the pins, *c*, with the oscillating cross-bar, D, substantially as and for the purpose herein shown and described. *Third*, The manner of securing the pins, *c*, to the swinging cross-bar, D, by means of plates, *d*, substantially as and for the purpose herein shown and described. *Fourth*, The combination of the brake draw-rod, O, and the strap-rods, F, G, or I, with the oscillating cross-bar, D, substantially as and for the purpose herein shown and described. *Fifth*, The combination of the lever, H, with the cross-bar, D, pins, *c*, and sliding bars, E, F, G, substantially as and for the purpose herein shown and described. *Sixth*, The combination of the sliding bar, I, with the tongue, S, and the oscillating lever, D, substantially as and for the purpose herein shown and described. *Seventh*, The bars, F and G, and upright arms, *g*, *g*, *h*, *h*, or the bar, I, and arms, I, I, combined and operating substantially as and for the purpose herein shown and described. *Eighth*, The manner of operating the sliding bars, E, by means of slotted upright arms, *e*, and pins, *f*, substantially as herein shown and described. *Ninth*, The combination of the spring-fastening, *i*, with the swinging-bar, D, substantially as and for the purpose herein shown and described. *Tenth*, The construction of the disengaging apparatus, snbstantially as herein shown and described, so that by the movement of the lever the braces and all the harness straps are simultaneously relcased, as set forth. *Eleventh*, The construction of the brake, M, substantially as described, so as to act upon the hubs of the wheels, as set forth.

(60,737) Combined Seat and Top for Carriages.—Freegift Jackson, Sparta, Ohio:

I claim, *First*, Attaching a carriage-top to a supplementary seat, B, which may be placed above a permanent seat, A, or removed so as to form a covered or uncovered seat, substantially as described. *Second*, Connecting the frame supporting the carriage-top with a permanent seat, A, by means of slides and grooves, so as to permit the frame and top to be removed or attached by a single movement, substantially in the manner set forth.

(60,752) Wheelwright's Spoke-driving Bench.—F. M. Lemmon, Shelbyville, Ill.:

I claim the bench, B, clamping-rod, D, adjustable rest, C, *c*, and holding rod and lever, G, E, all arranged and operating as and for the purpose herein set forth.

(60,762) Tempering Steel Springs.—Cephas Manning, West Albany, N. Y.:

I claim the use of the combination of linseed oil (raw or boiled, with as much common salt as the oil will take up, in the manner and for the purpose specified.

(60,765) Sleigh.—Wm. M. C. Mathews, Summer Hill, Pa.:

I claim, *First*, Pivoting the bolsters of a bob-sleigh to the hobs, substantially as herein shown and described. *Second*, The combination of the bars, F, iron bar, N, and bar or plank, L, with each other, and with the beams, E, and bolsters, G, of the forward bob of the sleigh, substantially as herein shown and described. *Third*, The combination of the bars, F, and iron bar, N, with each other and with the beams, E, and bolster, H, of the rear bob of the sleigh, substantially as herein shown and described.

(60,782) Spring Bed.—George H. Pool, New York city. Ante-dated Dec. 19, 1866:

I claim the rails, *c*, *c*, resting on the springs, *d*, *d'*, and *f*, *f'*, and attached thereto by means of the pins, *h*, *h'*, passing through the slots, *g*, *g'*, said springs being made of greater or less elasticity by varying their length or the angle at which they are inserted in *a* and *a'*, or by both of these means, as described and arranged.

(60,831) Carriage Spring.—C. H. Butterfield, Sturbridge, Mass., assignor to J. E. Taylor, Sutton, Mass.:

I claim, *First*, The clasp, D, constructed as shown, in combination with a single leaf-spring, C, as described. *Second*, Securing the spring, C, to the bearing, H, B, by means of the close joint, E, in combination with the clasp, D, as and for the purpose set forth.

(60,836) Device for Detaching Runaway Horses.—F. P. Connor, Jeffersonville, Ohio:

I claim the arrangement of cap, E, *e*, G, notch, *c*, detent, F, and cam, H, or their equivalents, constructed and operating as set forth.

(60,876) Axle for Vehicles.—A. W. Gillett, Sparta, Wis.:

I claim the employment of the bands, B, B', in combination with the axle, A, the said bands being constructed of soft metal and confined to the axle in the manner and for the purpose herein set forth.

(60,884) Converting Wheel Carriages into Sleighs.—O. B. Hale, Chickopee, Mass.:

I claim the runner, A, when the same is attached to the wheel by means of the clamps, H, K, and to the frame of the carriage by means of the arrangement of the nut, B, rod, E, and clamp, F, G, combined and operating substantially as herein set forth.

FOREIGN INVENTIONS.

April 7, 1866. Four-wheeled Vehicles for Common Roads.—R. Pickering, Beverly, Yorkshire.

This invention relates to what is known as the "prelock" in four-wheeled vehicles for common roads, and has for its object the shortening of the coupling of the front and hind wheels, and the obtainment of a larger bearing when turned in the lock. In carrying out this invention it is proposed to employ two iron transom-plates, one of which may be faced with hard wood on the ruffing surface to prevent jarring and noise in running. The two front parts of the transom-plates form the ordinary half-circle and the lower plate is provided or formed with a longitudinal slotted bar, a solid bar extending from the crown of the half circle to its centre. In this slot, or along its longitudinal bar, slides a bolt or eye attached to the upper transom-plate. The back part of the lower transom-plate (the form of which constitutes the essential feature in the invention) is shaped so as to form a double reverse curve and is either slotted so as to admit of a bolt or pin attached to the top carriage part or upper plate sliding therein when locking; or it may be made solid, and have a raised lip or rib extending along the upper surface of the bar as far as the outer edge of the "futchels;" and on each side or edge of this plate or bar there is a bolt carried to the upper plate having a laterally projecting lip which underlaps the curved bar of the lower transom plate; the lips of the bolt bear against opposite sides of the raised lip or rib on the bar, and thus guide the lower transom-plate when in the act of locking.

18. Axles and Axle-boxes.—W. J. Edwards, Castle-Street, Falcon-square, London.

In performing this invention, according to one arrangement, the ends of the axles are ribbed, or fluted in the direction of the

length thereof; these fluted or ribbed ends of the axles are placed within boxes which are free to run within the hubs or boxes of the wheels; the interior of these loose boxes is smooth, whilst the extension is ribbed or corrugated, as described with respect to the axles. Or the axles are ribbed or fluted as above described, and may work within the hub or box of the wheel without the interposition of a separate box, as above described.—*Not proceeded with.*

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

NEW YORK, January 18, 1867.

Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅞ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.

Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.

Bent poles, each $1.50 to $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.

Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $2.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 75c.; 5–4, 85c.
Do. Ducks, 50 in., $1.10; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.

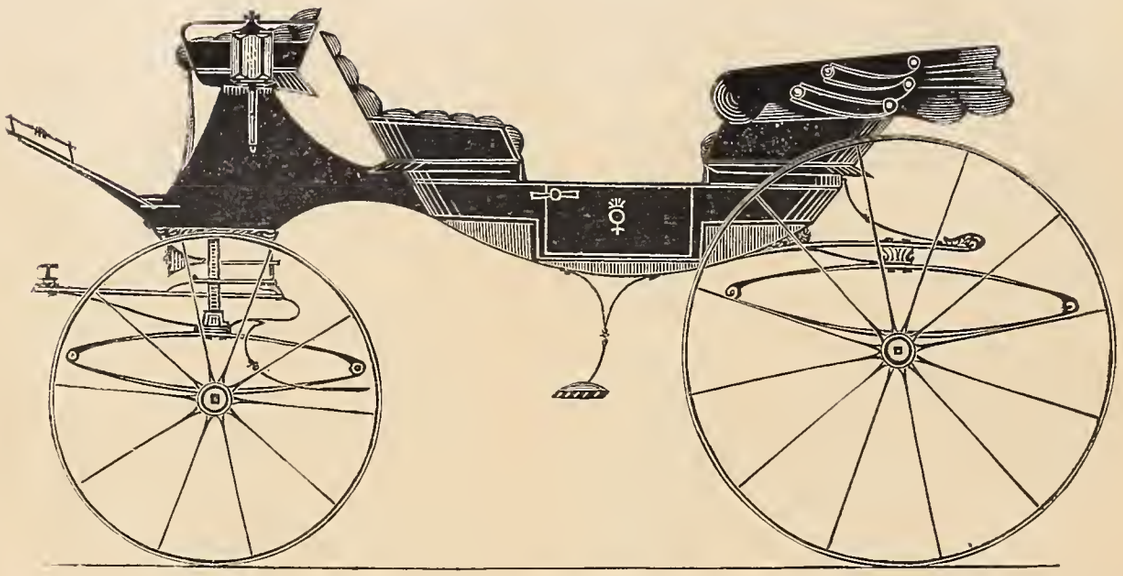
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $2.90.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 10c. to 17c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 33c.; split do., 18c. *a* 22c.; No. 1, top, 33c.; extra, 35c.; enameled top, 36c.; extra large (57 feet and over) 36c.; perfect hides under 57 feet, 33c.; No. 2, enameled top, 31c.; enameled Trimming, 33c.; harness, per lb, 50c.; flap, per foot, 25c. *a* 30c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 10c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.

Oils, boiled, per gallon, $1.75.
Paints. White lead, ext. $15, pure $16.00 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.
Screws, gimlet, manufacturer's printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.35 *a* $1.50 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 19c.; bright, 21c.; English (tempered), 26c.; Swedes (tempered), 30c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.

Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅓ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.

Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8, 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½.; 3-4 x 5-32 a 11 c; heavier sizes, 9½c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.

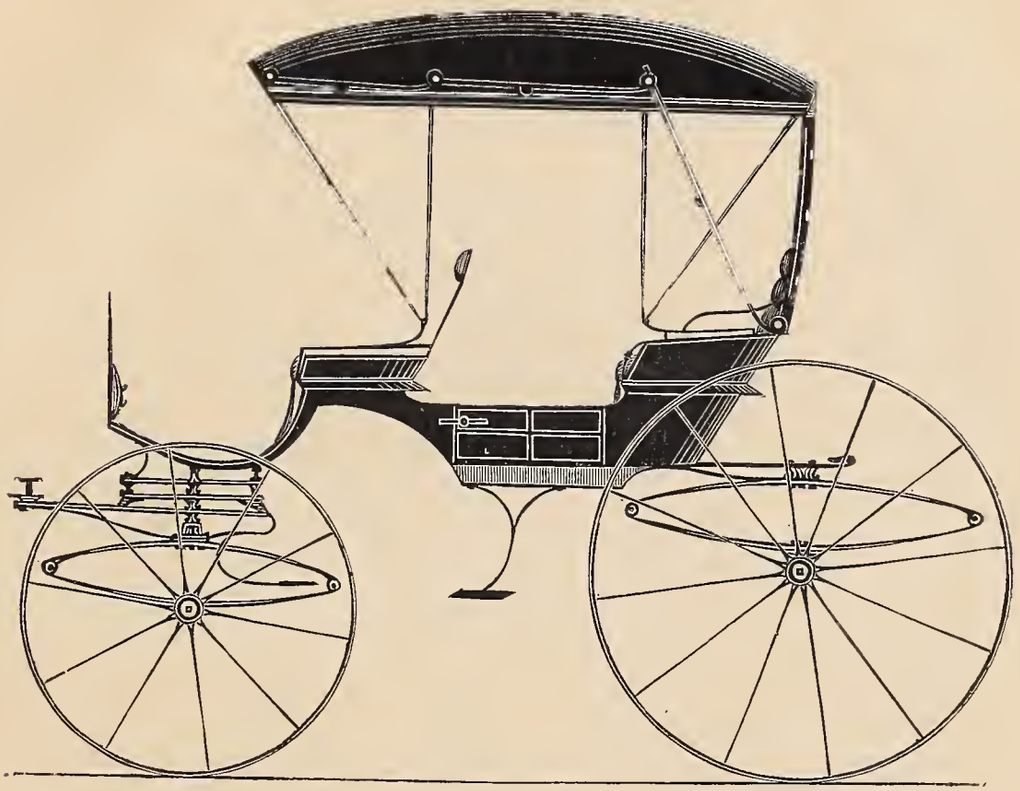
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 8c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.10; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, 90c.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $9 to $10 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.



DRAG-FRONT SOCIABLE.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.



EXTENSION-TOP ROCKAWAY.—½ IN. SCALE.

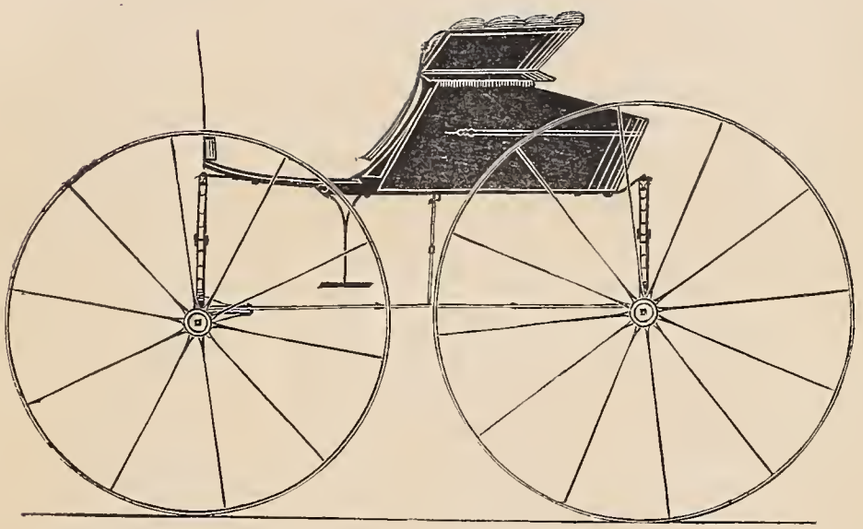
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.

SQUARE BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.



GENTLEMAN'S ROAD-BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 152.

THE NEW YORK
COACHMAN'S MAGAZINE

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, MARCH, 1867. No. 10.

Mechanical Literature.

ENGLISH CARRIAGE-HORSES.

BY CHARLES DICKENS.

When the carriage is launched, the next thing is to horse it properly, and provide the harness and coachman, on which the completeness of the turn-out will depend.

But, before driving away, there is one important point that has been altogether omitted, and that is the best way of paying for our carriages.* There are three well-accepted ways of dealing with a coach-builder. You may buy out and out; you may purchase by three equal, annual installments; or you may hire for a certain term generally three years, with the privilege of having a new carriage at the end of the term; you may also, of course, hire by the month or year. In hiring, or as it is commonly called jobbing a carriage, the builder is liable for all repairs except accidents; hence the reason that the system has grown in favor in London and many large towns.

For those who live near a coach-builder, who have an expensive carriage like a brougham barouche, a sociable, or chariot in constant use, to whom appearance is of importance, who have no time to look into details, and would not understand them if they did, there is no arrangement so comfortable as a first-class "job." A carriage, if not the same carriage, is always at command; it is fresh and in the fashion, and the annoyance of annual coach-builder's bill of incomprehensible items, and an amount settled by the conscience of your coachman, is altogether avoided. Fashionable physicians and ladies of fortune are good specimens of the classes to whom the system is invaluable. The one is protected from trouble and uncertain expense, and the other from certain imposition. It is not infrequent for those who keep only one carriage to arrange to have a close one in winter, and an open one in the summer months.

The prices for jobbing vary according to the customer and the carriage, but broughams may be had at from thirty to fifty pounds a year.

The division of price into three annual payments is in part a system of credit which was brought into extensive practice by the late eccentric Dick Andrews (the friend of the P. and O., the virtual founder of the Southampton Docks), for the benefit of country gentlemen with incomes, and without ready money to spare. He applied the system to all sorts of conveyances, from the smallest pony carriage to the most expensive one. The seller on this system limits the credit he gives; the purchaser has only to take care that what he buys is intended to last, and not tacked together for three years' wear. For those who can keep in check the coachman's propensity for running to the coach-maker whenever a screw is loose, who have a dry, well-ventilated, weather-tight coach-house within reach of frequent inspection, and who only require a carriage for pleasure purposes, or, which comes to the same thing, are not expected to appear in the height of polish, varnish, bloom, and fashion, the cheapest plan is to purchase for cash the work of a conscientious builder, and these are to be found in town and country—men who not only put a carriage together with first-rate wood and ironwork, but spare time for seasoning, and give quality in paint and varnish.

The wear and tear of a well-built brougham or family carriage, if properly taken care of, is, with the exception of the wheels, practically unlimited; and one which is regularly used and regularly cleaned will wear longer than one shut up for months in a close coach-house.

Mr. Starey, of Nottingham, has published a framed set of instructions for the care of a carriage, which should be hung up in every coachman's room.

To horse suitably is much more difficult than to buy a carriage, because horses cannot be made to order. The first point is to know what you want. Suppose it is a brougham promised to be ready in the course of two months. Your first brougham! is it to be ornamental, or useful, or both? Does a lady only require it to take her into the Park, on a round of visits every afternoon in the season, and through a course of shopping? or is it to be a family vehicle to hold all the children, and crawl out on constitutionals as a sort of nursery on wheels? Again, is it intended for country use and long expeditions, to run morning and evening several miles to and from a railway station, or to convey a quartogenarian fox-hunter

* See pages 2 and 20 of the present volume.

fifteen or sixteen miles to cover? Is it a general practitioner going his mill-horse rounds in Peckham or Clapham, or the physician in whom duchess-mothers put their trust? When this point is settled, the choice can be made with more or less difficulty, in proportion to the degree of perfection required. Useful animals, strong, slow, and steady, with no pretensions to beauty, sufficiently sound for all practical purposes, and other useful animals active and fast, but without that action which is in horses what style is in women, are always plentiful, and to be purchased by those who know how to go to market at somewhere between thirty and sixty pounds apiece. For a horse may be serviceable in harness without being sound or even safe in saddle. A one-eyed horse may go very grandly, and a horse touched in the wind will not always make a noise in his trot; besides, harness hides many blemishes and original defects. A pig-eyed coffin head or a rat tail and mangy mane will seriously depress the price of an animal otherwise perfect.

A brougham horse should be long and low, full-barreled, and from fifteen hands two inches to three at most, with a broad chest, lofty crest, a broad back—if rather hollow it is no objection—a flowing mane and full tail well carried, showing altogether a combination of breeding and power, and, above all, with grand, stately, regular, machine-like forward action all round, each foot keeping time as truly as Signor Costa's baton. Not flourishing his fore-legs about in mock movement like the black brutes that draw hearses; but while champing the bit, arching the neck, and bending the knees at seven or eight miles an hour, able to do twelve at a pinch. For although the brougham is not intended, when drawn by one horse, to be rattled along like a hansom cab, there are times when an appointment has to be kept, or a railway train caught, or a dinner-party delayed, and then it is very provoking to have your coachman whipping, and your two-hundred-guinea animal see-sawing like a rocking-horse, up and down, "all action and no go."

A fine brougham horse is worth from a hundred to two hundred guineas; anything beyond being a fancy price, paid either for a very extraordinary animal, or more likely by a very rich man to a great dealer who happens to have the sort of animal he at that moment fancies. It is a great mistake to dwarf a brougham by a too large horse continually pulling the fore wheels off the ground.

Carriage-horses of the highest class, not less than sixteen hands high, well matched in size, shape, color, and action, perfectly broken and seasoned to town, will fetch from three hundred to six hundred guineas, and barouche horses not quite so powerful, and very highly bred, and an inch less, will fetch about the same prices.

Bays, browns, and dark chestnuts are the favorite colors; grays are out of fashion, and scarcely to be found of the first class. Indeed, there are only two gray thorough-bred stud-horses, and the majority of first-class carriage-horses are bred from thorough-bred sires. Gray is generally a jobmaster's not a gentleman's color.

In all expensive harness-horses, the first qualification is action. Without action, the greatest symmetry is of little value; and with perfect action, many defects may be passed over. But this rare and costly quality—which is seen in its highest degree in a select number of pairs returning from a royal Drawing-room, and in Paris, whence a few orders to English dealers come every year, requires for its preservation almost as much care as a tenor singer's voice or a tea-taster's palate. It is essentially an ornamental luxury, which will be entirely spoiled by anything like useful work. To develop it in perfection, the coachman must be a genius in his way, with fingers as delicate and sympathetic as Monsieur Sainton, or whoever is the violinist of the day; so that as his high-couraged horses rush forward, at each step he imperceptibly suspends them in the air. Having, then, the artist in the cauliflower-wig, the instruments must be always in tune, and therefore above their work, stuffed with corn and beans, and just enough exercise to keep down fever. A very short season of steady, regular, day-by-day morning concerts, afternoon visits, and Park drives, will reduce five hundred guinea action down to two hundred. This is a fact it is very difficult to make ladies understand. The best illustration will be found in the system of an Anglo-Hungarian count, who was a few years ago celebrated for the magnificence of his equipages and the beauty and action of his harness-horses. His secret was not only in buying horses of splendid action, that many of greater wealth could do, but in always having his pairs above their work: for that end he had six horses to do the duty of three. The pair that excited murmurs of admiration in the Park or at a Chiswick or Sion House fête one day, rested the next, with one hour's exercise in a break; and if any one horse showed the least symptom of flagging, he was at once sent off to holiday in a loose box at a Willesden farm.

To return to the brougham. Builders have of late years produced carriages light enough for small blood-horses; but, as a rule, for comfortable riding without noise, a very light brougham is a mistake, and power, always with action, should be the characteristic of the singe brougham horse. When a brougham is required to travel long distances and fast, a pair of quick-stepping blood-horses of from fourteen hands two inches to fifteen hands, look best, work best, and need not cost more than one full-sized animal. They are equally suited for a Stanhope phaeton or wagonette in fine weather, and if well chosen, may also be ridden.

In the old times, when carriages were as heavy as vans, and roads a foot deep in clay, it was rightly considered that harness destroyed the true action of saddle-horses, because as they drew they threw themselves forward to add their weight to the power of their muscles, and thus assumed the most objectionable form for a riding-horse. But with a smooth road and a light carriage, a pair of horses find the weight behind them mere play, and trot along with heads proudly carried—rather improved than otherwise, from the steadiness of their pace, and the true action of the reins in the hands of a good coachman. The most difficult task, next to suiting a royal or millionaire duke's state-coach with a team of giants, is to obtain a pair for a lady's Park phaeton. They must match exactly in every respect; they must be beautiful, with thorough-bred heads, flowing manes, and Arab-like flags; they must have high courage and light mouths; they must be indifferent to drums, banners, glancing bayonets, and Punch and niggers they must treat with contempt, yet, boiling over with life, ready to start away at the lightest touch. They must look like fiery dragons and be docile as spaniels; while they seem to glance fire from beneath their flowing fore-locks, they must obey the slightest touch of the lovely and impassive driver's little

hands. This is perfection, and such a pair will command a fabulous price. At the last horse-show at the Agricultural Hall, three hundred guineas were offered and refused for a pair of ponies thirteen hands high.

There are some ladies, and of high position, too, who affect fast trotters of a wiry, useful kind, and others who condescend to large old-fashioned carriage-horses; but these are abuses of the privilege of the sex, and of the Park phaeton, which is essentially a lady's carriage, ruled by a scepter in the shape of a parasol whip, to which nothing stout or masculine should be attached, except a groom or two—very spare, silent, middle-aged, and perfectly dressed. There is one occasion in which ornament and utility may be gracefully combined in the lady's phaeton, that is, when with wheels of a larger diameter than for the Park, and the dragons exchanged for a pair that can "step and go," the lady steers her lord to covert-side, and after leaving him unfolded from a chrysalis of coats in all the glories of scarlet and white, on his hunter, follows the chase along convenient roads, like a good fairy, with an amply stored basket for the refreshment of hungry and thirsty fox-hunters. Such sights and scenes are not among the least charms of hunting in the "Shires."

There is a class of horses which brings immense prices when needed, but are very unsalable at other times. The enormous animals, seventeen to eighteen hands high, used by Royalty on state occasions. Our English Queen requires grandeur without any exhausting pace; but the Emperor of the French is always a customer at four or five hundred guineas for a horse as near eighteen hands high as possible, that can trot about fourteen to sixteen miles an hour, while seeming to do only ten, for drawing state-carriages of monstrous weight said to be bullet-proof.

(*To be continued.*)

SLEIGH-RIDE COURTING.

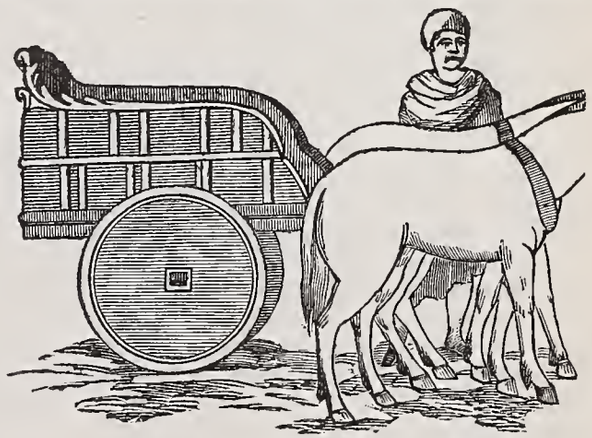
We take the following extract from a letter of an old bachelor of eighty to a young niece about to be married. It will give the reader some idea of courting in the olden times in New York:

The sleigh—the only double one then in town—a vast collection of unpainted boards, capable of containing a modern load of thirty, drawn by a variegated team of six horses, and driven by black Cæsar, of immortal memory, as charioteer—waiter and fiddler—was at the door. Immediately the party, consisting of gentlemen, who, so far as dress was concerned, were *fac similes* of your progenitor, and ladies enveloped in linsey-woolsey cardinals, the hoods of which were of such ample dimensions that their heads looked like so many beer casks, seated themselves in the vehicle. And away they went, animated by the jingle of one or two cow-bells, to take a cup of hot tea and have a dance at Madam T——'s, at H——. Cæsar, on their arrival, tuned his three-stringed fiddle; the gentlemen appeared in their square-toed pumps, and the ladies shook off their *pattens* to display their little feet in peak-toed high-heeled slippers. At it they went, dancing and skipping for dear life, until 8 o'clock, when they hurried to town—for, to be abroad after 9 o'clock on common occasions was then a sure sign of moral depravity.

But, Bess, I have not spun out this long story about the sleigh-ride for nothing. The pith of the matter is to come now. On this eventful evening your grandfather was shot, indeed, by Dan Cupid, or rather by Prudence B——'s eyes. He came home sighing and simpering, and looking very much like a fool. He dreamed all night of that taper arm so closely confined in light-brown silk; of that slender waist, with the broidered stomacher—and oh! more than all, of that sweet "blue een," and that auburn ringlet, which the gipsey had allowed to escape unpowdered. The next day he went about sighing like a blacksmith's bellows. And Sunday after Sunday he traveled down to the North Church [Fulton, corner of William], rigged out in his best attire, with his cornelian brooch, paste buckles, lace frill-worked cravat, and all to get a peep at the blooming Prudence. And verily, I fear that her sylph-like form obtained more of John's attention than Dr. B——'s sermon. Thus he went on until his circumstances would allow him to offer his heart and hand to the fair damsel.

OUR CARRIAGE MUSEUM—IX.

The wagon in which Gordins* drove—whose yoke strings were so singularly tied—when he was chosen King of the Talmisentians, is called by Curtius, and many other writers, Hamaxa or Plaustrum. It has been said in another chapter that not only did slaves or low people drive the Plaustra, but that the citizens also used them. We think that the true representation of such a Plaustrum as was used by the people generally may be seen in the Herculaneum wall pictures, one of which is here presented.



ROMAN PLAUSTRUM.

This vehicle presents no graceful lines, but at a glance we perceive that it was intended to carry passengers, notwithstanding that it has full wheels. The body is long enough for three two-seated benches, or six passengers. The sides of the body are united by wooden slats, open like a ladder, therefore the Romans called it *currus clabularis*—a stave-wagon. Sometimes the inside of the body was lined with leather, or a basket of willow fitted the whole and gave protection from mud. The back of the

* This Gordins, who, it is said, was a Phygian husbandmau, and was made king over the Talmisentians (?), in accordance with an oracle of Apollo, in remembrance of this circumstance, hung the traces, or "yoke strings," up in the Temple of Jupiter; one rope of which he tied so ingeniousiy in a knot, that it was foretold that whosoever untied it should become king of all Asia. This "Gordian Knot," Alexander failing to untie, cut with his sword, and in so doing either fulfilled or frustrated the prophecy. (2 Curt., 3, 1.)—Ed.

box is raised similar to a lazy-back, and covered with foliage. These bodies were made to shift, and could at pleasure be set on or taken down from the wheels. When otherwise made, with the wheels spoked and the box stationary, the vehicle lost the character and name of a Plaustrum, differing according to its size and weight. The original of our illustration, which is in Herculaneum, is, with the exception of the heads of the horses, in good condition, notwithstanding this doomed city lay buried eighteen hundred years beneath the ashes of Vesuvius. The wheels are genuine tympan, or full wheels, and the axles inserted, as distinctly seen, through a square opening. So the axle is under the body, and revolves *with* the wheels.

The team in this wagon, like those to most others, indicate carelessness. The driver, standing behind the horses, seems to wait for his passengers, and he himself no doubt walks, as he is shown, barefooted. It was customary for the driver, when he had to walk, to take off his shoes, because of the heat, or for some other reason. Seneca (Epis. 87), says: "The mule-driver is barefooted, but *not* on account of the heat." When they got tired during a drive they (the drivers) sat on the pole. Virgil (Æneid xii.) says: "He pushes Metiscus (the driver of Turnus) between the reins, and leaves him—fallen from the pole—far behind." The part of the pole on which the driver sat was either the thick end of the pole itself or the front of the Plaustrum. In some instances a small seat was provided in front of the body for the driver, and called *prima sella*, the first seat. But the driver never rode on the middle of the pole, as many savants have translated too verbally. Of this we have conclusive proof.

A Planstrum, like our illustration, it doubtless was in which Lucius Albinus fled with his wife and children from Rome when the Gauls took possession of the city. Livius narrates (Lib. v., cap. 40): "When the Gauls had already occupied Rome, the Vestal virgins, after dividing or hiding the sacred things, fled across the wooden bridge to Tusculum. Here they met on the hill Lucius Albinus, a common citizen of Rome, driving his wife and children in a Plaustrum, every non-combatant leaving the city. But Lucius Albinus knew how to make a distinction between secular and sacred things, and thought it impious that he and his family should be seen riding in a wagon (*in vehiculæ*), while priests and priestesses walked, carrying the sacred things. He therefore ordered his wife and children to get out, and allowed the virgins to sit in the Plaustrum, and drove them to Caria, their destination." Livius says expressly, *in* the Plaustrum, not *on* the same; and that his vehicle had several seats, we conclude from the fact that Albinus, his *wife*, and children could all sit in it, and that the priestesses had their sacred things with them. So it is written "he *drove* them to Caria," and as it was not allowed him to be seated on the side of the virgins, it follows that he walked alongside. A pious man like Albinus would never have seated himself with these virgins and deprived them of the comfort of a large seat room.

Plutarch, who relates the same story, calls the Plaustrum as usual Hamaxa. Livy calls it here "*Vehiculum*"—an expression applicable to any kind of wagon, no matter of what shape or size.

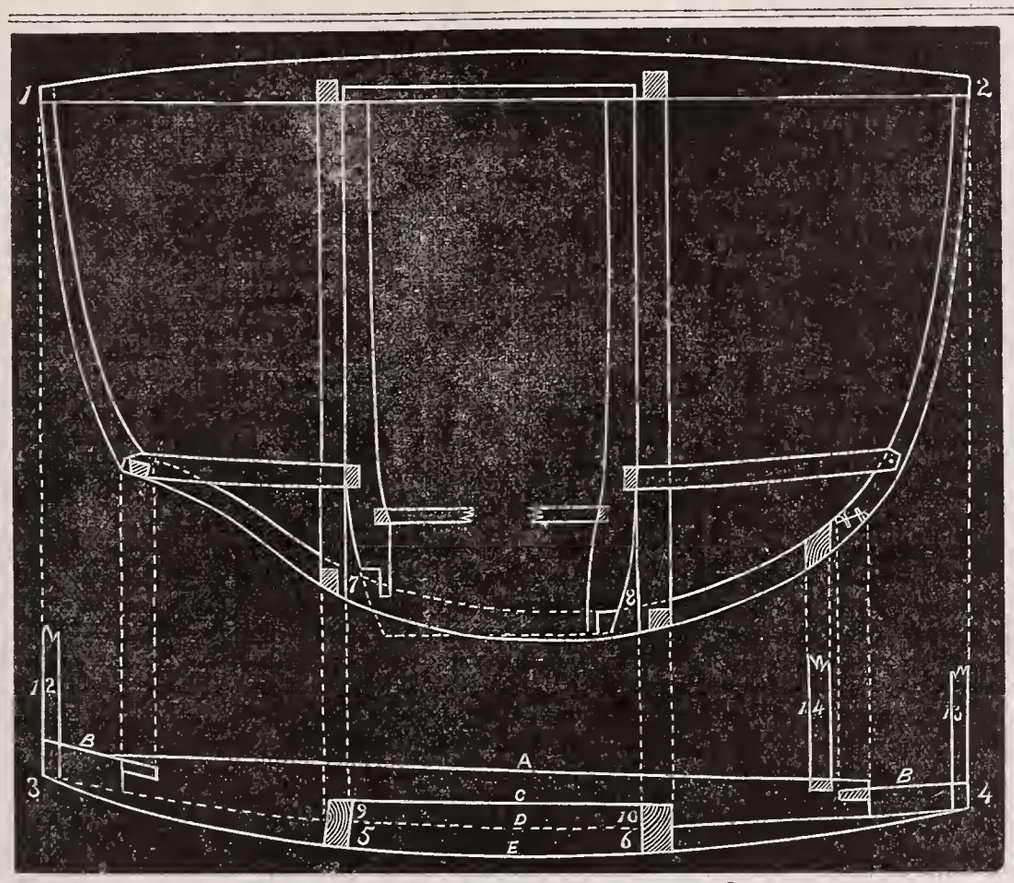
Herodotus says (Lib. i., cap. 31): "When the Argives celebrated the festival of Juno, the priestesses drove them in a Plaustrum (Hamaxa); and the same author tells us (§ 31), that "Cydippa, the priestess of Juno, had to travel to this festival in a Plaustrum, drawn by two oxen; but these oxen, belonging to her sons, did not arrive in time from the province. Then her two sons put the yoke on their shoulders and drew it themselves—the mother sitting in the Plaustrum—to the temple, a distance of forty-five stadia." (A stadium is 600 feet, or 125 geometrical paces.) In after times a monument could be seen in the temple of Apollo, at Argos, representing these two sons—Cleobis and Biton—drawing their mother in a wagon.

In Beger's "*Spicilegium Antiquitatis*," we find a copy of an old marble fragment, which the savants unite in believing to be the wagon of Cydippa, used by her for journeys to the temple. This fragment represents Cydippa *standing* in the wagon, and it is thought therefore that this priestess was not allowed to be seated while driving to the temple. The Athenians (females) drove in the Plaustrum to the secret services at Eleusis.

There was another Plaustrum used which was covered all around with neats, or untanned ox-hides, and called "Teuchabajon." Such a vehicle was no doubt used by Lucius Turius to drive the Vestals to the capitol, and Valerius Maximus says of the same (Lib. i.): "This rural and nasty (*sordidum*) Plaustrum, which was just of the right width, became celebrated as much, or perhaps more, than the triumphal car." The wagon on which Darius was put, when his men took him traitorously prisoner, seems to have been such a Teuchabajon, on a Plaustrum. Curtius writes (Lib. v., cap. 12): "The king, a prisoner of his slaves, is put on a dirty wagon," which was covered with hides all over. Other writers say he was sitting in a covered Harmamaxa, and Justinius says (Lib. xl., v. 15): "And Alexander was here informed that Darius was taken away during the night in a closed wagon (*clauso vehiculo*).

We are satisfied that Curtius would never have called a Harmamaxa a nasty (dirty) wagon, as this kind of vehicle was handsome, comfortable, and often made for ladies' use; then they were not hung out with hides, but trimmed with fine cloth, rich linen, and beautiful tapestry. For the purpose spoken of by Curtius, a Plaustrum was certainly better adapted than the rich Harmamaxa; and even if it was covered with hides, it is possible that these were thrown on Darius himself, and sometimes removed by him when he was unobserved. This Plaustrum must have had four wheels, otherwise Darius could not lay down in it, for it was not provided with a seat.

Next followed another four-wheeled vehicle—*Plaustra Majora*—in which quite a number of people found room. That these people often were not of the quietest class we read in Val. Max., Lib. ii.: "The flute-players, which had emigrated to Tibur, and refused to return to Rome, were brought back to the city in the Plaustra, when wine and want of sleep had made them intoxicated." It will be easily understood that these Plaustra on which the players were brought could not have been open on the sides, but had boxes, and, indeed, Plutarch says distinctly, in *Quaestii Rom.*: "He persuaded the flute-players to mount a Plaustrum *covered all around with hides.*" This, of course, means only the lower part of the box, and not a "top." History tells us that the Scythians, and other nomadic people, used a kind of Plaustra, covered with a top, of hides; but the Romans did not imitate this, as we shall see in another place.



CRANE-NECK C-SPRING COACH, WITH CANT-BOARD—$\frac{3}{4}$ IN. SCALE.

GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

PART SIXTEENTH.—BODY CONSTRUCTION.

In laying down the cant-board for this coach-body—which the reader will find illustrated on Plate XXV., in this volume—we have studiously followed the European plan, as being more simple than some others we have given in the earlier series, and consequently more easily understood by the young practitioner. The mode of framing, too, differs in some respects from that followed among us, but this manner may be changed to suit the judgment of the operative.

Having drawn the dotted lines 1 and 2, at right-angles with the lower edge of the black-board, you have the lengths for both body and cant, as seen in the diagram.

Next, lay down the elbow, or arm line—extending from 3 to 4 at the bottom, touching the points 5 and 6, as shown on the cant-board; these last showing the width of the door.

Now, find the amount of turn-under you wish to give the body, in the standing-pillars 7 and 8, and lay it down on the cant-board as shown by line 9 and 10; which gives the bottom side line and turn-under of the body. 12 and 13 are sections of the two end rails at top; 14 the back cross-bar.

A shows the inside line of the bottom side; B B the corner pillars; C the inside of the door at the bottom; D the out side of bottom side; E the cant-rail line. Our sweeps will give much swell to the body. Those, therefore, who would give less, have only to make them less curving on the cant-board. As a general rule Americans put less "swell" in a body than do Europeans. The "strainers" we have omitted, so as to make our diagram as simple as possible.

WORK AND ITS WORTH.

BY O. H. TIFFANY.

An interesting lecture was delivered in Clinton Hall, New York, recently, in which so much practical good sense abounds, that no excuse is required from us for laying it before our readers. The subject was "Work and its Worth." He had no apology, he said, to offer for his theme, though it had been treated again and again, under various titles until, perhaps, it seemed to, have become trite and commonplace. He ventured the more confidently to present it, because of the peculiar and novel turn in our general affairs which has, of late, so prominently presented the working classes to the public attention. While pride might turn disgusted from the coarse garb and soiled garments of the laborer, and pampered luxury might shudder at the pinched lineaments which bear the marks of famine, and show the traces of want and hunger, a common humanity demanded of us, and it became our duty to consider whether there was anything in the fact of work to necessitate degradation and suffering. There were many who regarded work as a curse, and who reconciled themselves to it, or rather doggedly submitted to it because there is no escape. Even with some of high and noble minds labor was not valued save as the price of rest, and toil was welcome only because it is the forerunner of repose. There were very few who are imbued with the sublime truth that labor is virtue, and who find in the midst of toil, even when hopeless and thankless, that the performance of this great law of our being is its own exceeding great reward. It was his purpose to exhibit, not so much the necessity of labor, as its dignity as a duty and its worth as a virtue, and to show, if possible, that it is a necessary prerequisite to progress, and a fundamental element of God's law of humanity. In the language of an eminent philosopher, labor-work is a virtue which consecrates innumerable unrewarded, unknown toils which are even disdained by the world, though they are a contribution to the general prosperity.

Social distinctions, the lecturer continued, did not rest on intrinsic qualities. They were based on property, which is extrinsic. We might regard society, therefore, in general, as comprehended under three distinct classes—first, the aristocratic, comprising those placed above the necessity of labor by their wealth, inherited or acquired; second, those who are in any degree dependent on their own

exertions, comprising mechanics, merchants and the learned professions; and the third, which may be called the class of paupers, is composed of those whom work does not support, and who are, therefore, dependent on the others. If the first of these classes constituted the golden ornament of life, and the last its deformity and sore, the second formed its strength and its hope. The condition of this class was much more favorable than either of the others, to all the energies, and, therefore, to all the excellencies of humanity, for labor is a condition of progress. Aristocracy and pauperism always exist together. The palace and the hovel are generally found in juxtaposition. Wherever there are lords there are paupers to doff their caps to them. Aristocracy and pauperism have even sometimes united against the working classes; rags and velvet against the labor that produced both. In the working classes alone were we to find all the domestic virtues cherished and exhibited, all the better sentiments developed, patriotism, liberality and intelligence fostered and promoted. From this class sprang nearly all the great philosophers, poets, warriors, statesmen and patriots, of both ancient and modern times, and to it we are to look for the strength of social order and national progress. Under a free Government like ours it was properly the only class. The genealogy of our modern aristocracy was a ledger; their escutcheon a bank bill. We had no aristocracy in the common sense of the word, and hence no pauperism but what we imported. It was only because this was so that we were unparalleled in prosperity. God's great instruments of every age were taken not only from workmen, but from workmen while at work. Work was not only the law of history and the decree of God, but the law of Christianity, for Christianity came to us full of wondrous activities. Its institutions and its duties were not dreams, not sentiments—they were facts. Work was the very warp and woof of our race. The man who had the greatest will and the strongest power for work was master of the rest, and was bound to use it for good. Understanding this truth, we might be able to recognize labor as virtue—indolence as vice. The artificial distinctions of society into what are called high and low callings were merged in the great law of work, and that society profoundly failed in its comprehension of duty, and sadly misinterpreted God's law, which tolerated the senseless clamor that turns upon a poor man because he is a laborer, that looks upon the dust of his garments as pollution, and regards a touch of his hand as a plague. When society shall have shaken off its artificial drapings, and freed itself from the fictitious distinctions of wealth and lineage, then the golden age shall have come—then the true worker will have received the proper meed of praise—then the drops of sweat on the toiler's brow shall be nature's noblest coronet, and then the race, recognizing God's law in all its length and breadth, its majesty and glory, shall rise to a true comprehension of the dignity of labor and the force of truth.

Railway Omnibusses.—The Underground Railway authorities in London have set a-going a series of three-horse omnibusses, with first, second, and third class seats, to convey their passengers to and fro between their Portland-road Station and the Oxford-street Circus. They are said to be handsomely fitted out, and much more commodious than the London omnibusses generally.

Home Circle.

THE GERMAN WOMAN.

BY MRS. C. B. HOUSEL.

"So, that pestiferous Irish woman is here again!" exclaimed Mr. Moore, in a very unamiable tone, as he entered his little dining room on Monday morning.

Mrs. Moore, a comely, good-humored little woman, was busied about a neat and attractive breakfast table, as her husband thus spoke. Having completed her arrangements, she stepped into the passage and rang a bell to assemble the family, then seating herself at the tray, commenced preparing Mr. Moore's cup of coffee.

"Why will you persist in employing that woman, Mary," continued Mr. Moore, for it seemed that he was not to be put off without a reply.

"Why, James," returned his wife, "I cannot very well do the washing myself."

"That is not necessary, my dear," said the husband in a softer tone; "but is there no woman in all this town to be hired except this one? Why not get aunt Betsey's German woman?"

At this question a curious smile flitted across Mrs. Moore's face; but she was prevented from replying by the entrance at this moment of the remaining inmates of her household.

These were aunt Betsey, the lady just alluded to, and George Lawton, a young brother of Mrs. Moore.

Mrs. Betsey Gregg was an aunt of the master of the house; and, being a lady of property, was, of course, a person of some authority. On the death of her husband, having no offspring of her own, she had taken up her abode with the Moores, and the more sagacious of the neighbors had not hesitated to hint, that if these fortunate people humored the old lady, as they should, they would inherit all her fortune.

Scarcely had the new-comers got seated at the table, ere the melodious notes of an Irish ditty attuned to the rich brogue and harsh gutturals of Mistress O'Flanagan came floating to their ears from the adjoining kitchen.

"Dear me!" said aunt Betsey, "if there isn't Judy again!"

"Charming Judy O'Flanagan!" chimed in Master George.

"I thought," continued the good lady, "that you meant to get the German woman?"

An involuntary smile again rippled over the pleasant face of Mrs. Moore, and she and her brother exchanged significant glances.

"Aunt Betsey," said the young gentleman boldly, "I am convinced that the German woman is a myth."

Mrs. Gregg bridled up. "I don't know what you mean, George. She is the best worker I ever saw!"

"Why, I mean, aunt Betsey," returned the saucy youth, "that the German woman is a fabulous personage, like the gods and goddesses of heathen mythology."

"She is no heathen," said the good lady indignantly. "She is an honest Christian woman who minds her work. When she is at the wash-tub she washes, and doesn't roar enough to deafen everybody in the house."

With this little speech aunt Betsey darted a furious

glance toward the kitchen, from whence, louder and louder, swelled the melodious stream:

"T'was on a windy night,
About two o'clock in the mornin'—
When an Irish lad, so tight,
All wind and weather scorning—"

trolled charming Judy, quite unconscious of the disturbance created among the higher powers, by her innocent song.

"Abominable!" exclaimed Mr. Moore, "are we to submit quietly to that woman's insolent clamor?"

"I am sure," persisted aunt Betsey, "it is better to hunt up the German woman. She was the quietest creature in the world; then she did her work so thoroughly and didn't charge more than half as much as this Irish trollop.

"Why, auntie," said Mrs. Moore, "you surely know that George has searched the town from end to end for your German woman. It is a long time since she worked for you; she may not be alive—certainly she is not to be found."

"Pshaw!" rejoined Mrs. Gregg, "he didn't go where I directed him!"

"Aunt Betsey!" exclaimed the irreverent youth, striking a theatrical attitude, "you do me wrong. Did you not tell me to go up Maine Street to Stufenblitz Haughantaughgler's bakery, and then turn to the right?"

Aunt Betsey admitted that she did.

"Wasn't I to go on for about a hundred yards to where, as you further stated, there was a narrow lane?"

"And so there is," quickly responded the old lady, "where Squire Hall and the rest of the gentry have built their stables."

"Well," resumed the young man, "you directed me to keep down the lane till I reached the old brew-house, then to cross the hollow and take the path by the creek and go over the bridge, and up the hill and down the stream on the other side to a certain row of old stone houses; all these ways I traversed with a fond devotion to the cause in which I had embarked."

"And I advised you to inquire for the woman in all the houses," said Mrs. Gregg with great interest, "because I had forgotten in which she lived."

"I pushed my investigations to the topmost floor of every one," returned the young explorer, "but the German woman was nowhere—*non est inventus*—as the learned sheriffs say."

"What is the woman's name?" interposed Mr. Moore.

"Well, really," said aunt Betsey, "I don't know that ever I asked her—she is a German woman—that's enough."

"Probably she hasn't any in particular," said saucy George; "what's in a name?"

"I shall go for the woman myself," said the now irate Mrs. Gregg in a very resolute tone; "I shall find her, I am sure."

The orchestral accompaniment furnished by musical Mistress O'Flanagan to the above interesting discussion, which for the last few minutes had been ebbing off into a few faint trills, now swelled out into fresh ardor, and, with a rich, rollicking breadth of tone, she rolled out the following elegant stave—

"Sure, the shovel and tongs,
To aich other belongs,
And the kettle sings songs
In its family glee!"

This was too much for mortal patience to endure; and Mr. Moore, who—by the way—had finished his breakfast, rose majestically from the table and bore his offended dignity from the house.

"Well, I declare!" exclaimed Mrs. Gregg, and she too beat a hasty retreat.

Mrs. Moore, without intending the slightest disrespect to her husband or aunt, burst into an involuntary fit of laughter, in which she was heartily joined by her graceless brother. The latter, in the exuberance of his fun-loving nature, made a rush for the kitchen-door, through which he popped his head, and broke out in a voice, that completely drowned that of his fair antagonist, into the popular Irish song of Pat Molloy.

"Och! ye spalpeen ye! An it's yerself that can sing beautiful!" exclaimed the delighted washer-woman.

At this point Mrs. Moore deemed it necessary to interfere, and Master George was sent off about his business, while charming Judy's mellifluous notes were hushed by the more substantial enjoyments of the well-supplied breakfast table.

It must not be supposed that the mistress of the family was less annoyed by the peculiarities of her Irish help than were the more demonstrative members of her household. On the whole, it was she who suffered most from them. She had learned from experience, however, that servants sometimes perform *their* duties quite as imperfectly as their better-taught employers; and she had a notion that they were entitled to as large a share of forbearance. It is true, Judy was fond of music, and her vocal powers were extraordinary; she was also an advocate for high prices when labor awaited remuneration—especially her own; then she was subject to paroxysms of maternal tenderness, which found vent in touching allusions to the "poor children at home," when the luscious remains of pie, or pudding, or an unfinished joint came from the dinner-table of her employer; still Mrs. Moore persisted in esteeming her one of the best of helpers. The poor creature had worked for this lady for a long time, and had learned to conform wonderfully well to all her ways; she was honest, faithful, obliging and expert in all the domestic labor which she was called upon to perform. Why then should she be sent adrift to give place to the unknown German woman?

Aunt Betsey denounced her as a beggarly, noisy wretch, unfit to come into a decent house; and Mr. Moore, having no fondness for music, and a high opinion of Mrs. Gregg's sagacity, allied himself with that lady in the effort to oust poor Judy. Amiable Mrs. Moore, quite overborne by the conjunction of these high powers, was forced into an unwilling acquiescence of the measure.

Aunt Betsey made a raid on the famous row of stone houses, and returned triumphant. She had not actually seen the German woman, but orders were left with a neighbor, and Mrs. Moore was assured that she would appear at the required time.

Washing-day arrived, and at an early hour a huge, red-faced woman made her appearance on the domain where honest Judy had so long presided. A German she certainly was—she could not speak a word of English—and the manifold perplexities, resulting from efforts to communicate with her, were enough to turn the brain of any woman less happily constituted than our friend, Mrs. Moore.

It was a terrible day. The creature was stupid to

imbecility; and the amiable martyr who had yielded to the sacrifice of faithful Judy repented the weak concession in dust and ashes. It dragged to a close, however, and as the woman was about to depart, aunt Betsey, who had been out spending the day, appeared on the premises.

"Good gracious!" she exclaimed as she encountered the great creature, "this is not *the German woman.* What in the world does it mean?"

On the following morning as the family were assembling around the breakfast table, Mrs. Moore suddenly rose, saying: "How stupid in me to forget the spoons?"

In a moment she turned from her search in the cupboard looking utterly bewildered. "It is strange," said she, "they are not here."

After looking in every place where, by mistake, they might have been deposited, she came to the conclusion that they had been stolen. A great consternation was caused by this discovery. The breakfast-table was abandoned and the whole family flocked to the cupboards and into the kitchen to learn whether other losses had been sustained.

"Look at the clothes-basket," said Mr. Moore; and in truth the pile seemed very small.

Master George seized the article and turned the contents on the table.

"Dear me," said aunt Betsey, "where is my tucked skirt?"

"And where are my six new linen handkerchiefs?" asked the busy youngster.

"And my new stockings?" said Mr. Moore.

"And my embroidered morning gown!" resumed the old lady.

"And all the towels and table napkins?" chimed in Mrs. Moore.

They were all gone! the fact stood revealed. Suspicion fastened, at once, upon the strange washer-woman. Mr. Moore obtained the aid of a sheriff's officer and went in pursuit of her; but

> "Never again was fair Imogen found,
> Nor the treasure she bore away,"—

as master George said with a pitiless perversion of good poetry, when he related the story of the mythical German woman and aunt Betsey's great mistake.

It is scarcely necessary to add that Mistress O'Flanagan was reinstated; and I believe she holds her post to this day.

The Streets of Rome.—A correspondent of the *London Telegraph* writes: "The filthiest streets of Rome are in the Borgo, and the Borgo is composed of the streets immediately surrounding St. Peter's. '*Tu es Petrus,*' runs the great inscription in mosaic round the drum of the dome, in letters every one of them as tall as a Life-guardsman. '*Tu es Petrus, et super hanc petram redificabo ecclesium meam;*' but underneath the rock of the church priestcraft has built up a dunghill. One loses patience altogether with the splendor of the Roman churches when we contrast that splendor with the squalor by which it is environed. At least among us heretics, consigned by the Romanists to eternal torment, the church goes hand-in-hand with the trim school-house, full of clean and rosy children, with the hospital, the asylum and the reformatory. But here there is but one step from Raphael's pictures and Bernini's statues to Beggar's Bush and the Cadger's Arms. Bramante and Fontana's great façades only screen the nest of hovels behind; and all the loathsome losels of the Roman Alsatia wash their rags in fountains adorned with saints and angels."

Pen Illustrations of the Drafts.

DRAG-FRONT SOCIABLE.

Illustrated on Plate XXXVI.

In this drawing the reader is presented with an original design, which, if followed, will make a very comfortable, as well as fashionable carriage, for summer riding. The form of the body is such, that by carrying the rocker well down, sufficient leg-room is obtained to make it roomy, while, by the peculiar shape of the side elevation, ample depth is given to the doorway, and the quarters rendered very light in appearance. The round corners still further contribute to the same advantage. The wheels, 3 feet 4 inches by 4 feet 2 inches in height, require a hub $4\frac{1}{4} \times 6\frac{1}{4}$ inches; spokes $1\frac{1}{8}$ inches, and felloes $1\frac{1}{8}$ inches deep.

EXTENSION-TOP ROCKAWAY.

Illustrated on Plate XXXVII.

Very little need be said in explanation of this drawing. The door, for variety sake, is molded into squares; the body with this addition looking very light. The joints to the tops are swept after a new pattern, which for this kind of top has a special advantage over the old double-sweep-shape, as will be readily observed by the practical carriage-maker, as it conforms more with the line of the vallance to the side thereof. The wheels in this instance are 3 feet 3 inches, and 4 feet in height; spokes 1 inch; rims $1 \times \frac{3}{4}$ inches; hubs $4\frac{1}{2}$ inches.

SQUARE BUGGY.

Illustrated on Plate XXXVIII.

The public are accustomed to call this a "square" buggy. However appropriate the term may once have been, it is in this case, we admit, somewhat questionable, except as a technicality. As in the foregoing vehicle, the sides of the body are relieved by moldings. The cut-under renders it shorter turning as well as more ornamental. Wheels 4 feet 2 inches and 3 feet 10 inches; hubs 4 inches; spokes $\frac{7}{8}$ inches; rims $\frac{7}{8}$ inches. For the sides of the body black paint is the most chaste of any other color.

GENTLEMAN'S ROAD-BUGGY.

Illustrated on Plate XXXIX.

This design is similar to the one given in our last month's issue, the ornamental addition to the panel being put on in colors, to suit the fancy of the customer, or manufacturer. The dimensions given on page 20 for

Plate XXXI will serve for this also. For trimmings nothing is neater or more appropriate than blue cloth; some pertinent remarks on striping will be found in the Paint-room, on page 140.

Sparks from the Anvil.

THE CLIP KING-BOLT AFFAIR.

Since our last notice of this subject was printed, we find that James Phelps, of Red Creek, N. Y., on the 13th of November last, obtained letters patent for a king-bolt, which patent, it is alleged, has been assigned to J. H. Stearns. This document does not legalize any claim for infringements upon the *old* clip king-bolt illustrated and published in our first volume, and referred to several times since. Some correspondents assure us that claims for damages have been made on the old clip king-bolt. The documents here given, from an official source, will set the matter in its proper light for the guidance of all:

THE UNITED STATES PATENT OFFICE.

To all persons to whom these presents shall come, greeting:

This is to certify, that the annexed is a true copy from the files of this office of the full contents and drawings of the letters patent granted James Phelps, November 13th, 1866, No. 59,642.

In testimony whereof, I, T. C. Theaker, Commissioner of Patents, have caused the seal of the Patent Office to be hereunto affixed, this ninth day of January, in [Seal.] the year of our Lord one thousand eight hundred and sixty-six, and of the Independence of the United States the ninety-first.

T. C. Theaker.

Hand $15, Model, and Roys.

Know all men by these presents that I, James Phillips, of Red Creek, in the County of Wayne, and State of New York, have made, constituted, and appointed, and by these presents do make, constitute, and appoint J. S. Brown, of the City of Washington, in the District of Columbia, my true and lawful attorney for me, and in my name, place and stead, to prepare, present to the Patent Office, and to prosecute to final issue, there or elsewhere, my application for a patent for an improved king-bolt for carriages, giving and granting unto my said attorney full power and authority to do and perform all and every act and thing whatsoever, requisite and necessary to be done in and about the premises, as fully, to all intents and purposes, as I might or could do if personally present, with full power of substitution and revocation, hereby ratifying and confirming all that my said attorney or his substitute shall lawfully do, or cause to be done, by virtue hereof.

50 cts. I. R. Sept. 18, '65. 50 cts.

In witness whereof, I have hereunto set my hand and seal, this eighteenth day of September, one thousand eight hundred and sixty-five.

Signed and sealed in the presence of

James Phelps. [Seal.]

Isaac F. Mosher.
J. D. Covert.

TO THE COMMISSIONER OF PATENTS.

The petition of James Phelps, of Red Creek, in the County of Wayne, and State of New York, respectfully represents that your petitioner has invented an improved king-bolt for carriages, which he verily believes has not been known or used prior to the invention thereof by your petitioner; he therefore prays that letters patent of the United States may be granted to him therefor, vesting in him and his legal representatives, the exclusive right to the same, upon the terms and conditions expressed in the acts of Congress, in such cases made and provided; he having paid the preliminary fee of fifteen dollars into the Treasury to the credit of the patent fund, and complied with the other prerequisites of the said acts.

James Phelps.

County of Wayne, State of New York, } ss.:

On the eighteenth day of September, 1865, before me, the subscriber, a justice of the peace, in and for said county, personally appeared the within-named James Phelps, and made solemn oath that he verily believes himself to be the original and first inventor of the herein-described improved king-bolt for carriages, and that he does not know or believe that the same was ever before known or used; and that he is a citizen of the United States.

5 cts. 5. I. D. C. Sept. 18, '65. 5 cts. 5.

J. D. Covert, *Justice, in and for the County of Wayne.*

To all whom it may concern:

Be it known that I, James Phelps, of Red Creek, in the County of Wayne, and State of New York, have invented an improved king-bolt for carriages, and I do hereby declare that the following is a full and exact description thereof, reference being had to the accompanying drawings, making part of this specification:

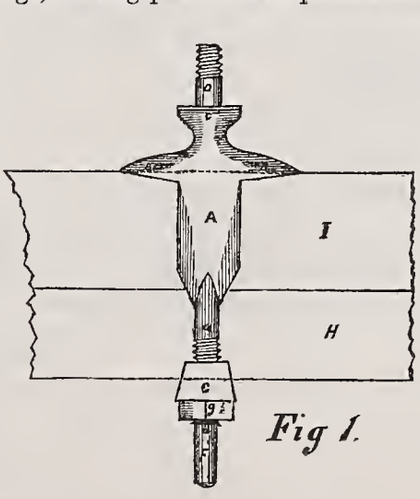


Fig 1.

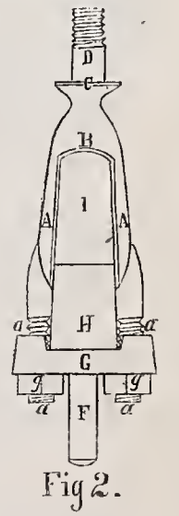


Fig 2.

Fig. 1 being a front-side view of the king-bolt.

Fig. 2 a side view thereof, at right angles to the view in Fig. 1. Like letters designate corresponding parts in both figures.

Instead of passing the shank of the king-bolt through the front axle of the carriage, in the usual manner, I make two shanks A A, which embrace the axle H, and its bed, or bolster, piece I. The shanks terminate with screws *a a*, upon which nuts *g g* are screwed, and tighten across

clasp G, up against the axle, and thus firmly secure the bolt to the axle. This method of making the king-bolt, and attaching it to the axle, renders the axle much stronger than if perforated to receive the bolt. The king-bolt is also much more easily and cheaply made, using malleable iron.

An important feature of this construction is the extended bearings, or shoulders, B B, which rest upon the axle, or bed piece I, which steadies and strengthens the bolt, and prevents the king-bolt from wearing into the wood, as it would without this.

The top D of the king-bolt passes up through the reach-iron, or perch-plate, and is held by a nut screwed upon it, between the perch-plate and head-block, thus avoiding the rock of the head-block and spring.

It has a shoulder *c*, for the weight of the carriage to rest on, thus taking it, in a great measure, from the circles, and obviating much of the wear thereof.

Canceled.

What I claim as my invention, and desire to secure by letters patent, is making the king-bolt so as to embrace the axle and be clasped around it, substantially as and for the purpose herein specified.

I also claim the broad, or extended shoulders, or bearings B B, for the purpose herein specified.

[Amendment "A," Filed March 7, '66.]

("A." "What I claim as my invention and desire to secure by letters patent, is the projecting shoulders, or bearings B B, resting on the axle, at the fork of the king-bolt, for the purpose herein specified.

I also claim the shoulder C, arranged for the purpose herein set forth.

The above specification of my improved king-bolt for carriages signed by me this eighteenth day of September, 1865. James Phelps.

Witnesses: Isaac F. Mosher.
J. D. Covert.

Received and filed Jan. 2, '66. A. M.

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17 United States Patent Office,
Jan. 17, 1866.

Sir: Your application for letters patent for king-bolt for carriages has been examined and rejected.

See patent to Chauncey H. Guard, July 26, 1864.

Yours, &c., Doane.

James Phelps, Esq.,
Care of J. S. Brown, Esq., Present.
Jan. 17, '66.

Washington, D. C.,
Feb. 15, 1866.

Sir: Herewith I return the specification and thin drawings of James Phelps' improved king-bolt for carriages.

The object of Guard's invention is different from Mr. Phelps'; yet he has incidentally, in a degree, arrived at a portion of Mr. Phelps' invention—the clasping arms of the bolt to go around the axle.

But if the examiner shall consider the two inventions to be identical in this respect, since the inventor believes he can prove priority of invention, he would respectfully request that an interference be declared between the two inventions. Respectfully yours,

J. S. Brown, *Atty. for*
James Phelps.

Hon. T. C. Theaker,
Comm'r of Patents.

Rec'd and filed Feb. 16, '66. J. E. F. H.

---

17 United States Patent Office,
Feb. 16, 1866.

Sir: Your letter of Feb. 15th received relating to your application for a patent for king-bolt for carriages. While Mr. Guard shows your device in his patent of July 26, 1864, he does not claim it as a part of his invention. The device claimed by you, and shown by him, has long since become public property, as you will discover by examining The New York Coach-maker's Magazine for 1863–64, vol. 5, page 9; also for 1861–62, vol. 4, page 191, and for 1858–59, vol. 1, page 71. The interference with Mr. Guard's patent is denied. The references show your exact device.

Your application is therefore again rejected.

Yours, &c., Doane.

James Phelps, Esq.,
Care of J. S. Brown, Esq., Present.
Off., Feb. 16, 1866.

Washington, D. C.,
March 7, 1866.

Sir: I hereby amend the specification of James Phelps' improved king-bolt for carriages by striking out the first and last claims.

I also amend by striking out the second claim, and substituting therefor the following:

("A.") "What I claim as my invention, and desire to secure by letters patent, is the projecting shoulders, or bearings B B, resting on the axle, at the fork of the king-bolt, for the purpose herein specified."

Respectfully yours,

J. S. Brown, *Atty. for*
James Phelps.

Hon. T. C. Theaker,
Comm'r of Patents.

Rec'd and filed March 7, '66.

Washington, D. C.,
March 7, 1866.

Sir: Herewith return the case of James Phelps for improved king-bolt, for final consideration of the examiner.

In view of the reference given in the second letter of rejection I have struck out the first and third claim, and have modified the remaining claim, covering the projecting shoulders, or bearings, of the fork of the king-bolt. I do not find this feature in any of the references, and see nothing to prevent the allowance of this limited claim.

Respectfully yours,

J. S. Brown, *Atty. for*
James Phelps.

Hon. T. C. Theaker,
Comm'r of Patents.

Rec'd and filed March 7, '66.

To the Commissioner of Patents:

Sir: In conformity with the second and third sections

of the act of Congress dated March 2, 1861, I hereby make application for an appeal from the decision of the Principal Examiner, in the matter of my application for letters patent for an improved king-bolt for carriages, finally rejected on the 10th day of March, 1866, and respectfully request that the same may be heard by the Examiners-in-Chief, agreeably to the provisions of the said act.

Respectfully yours,
JAMES PHELPS, *per his Atty.*,
J. S. BROWN.

HON. T. C. THEAKER,
Comm'r of Patents.
Appeal James Phelps' king-bolt.
Rec'd and filed March 14, '66. S. B. A.

In the matter of the application of James Phelps for an improved king-bolt for carriages. } *On appeal to the Examiners-in-Chief.*

The claim in this case as now presented is as follows:

"What I claim as my invention, and desire to secure by letters patent, is the projecting shoulders, or bearings B B, resting on the axle of the fork of the king-bolt, for the purpose herein specified."

The object of these shoulders, or long projecting bearings, is to sustain the weight of the carriage body more safely and firmly on the axle, to prevent breaking of the neck of the king-bolt by side throw, and to take wear from the circles in a great measure.

The Examiner had first given a reference to the patent of Chauncey H. Guard, dated July 22d, 1864, as covering this feature, together with others originally claimed. But it was contended that this reference did not meet the extended shoulders claimed by Phelps, but if the Office should still adhere to that opinion, we desire to have an interference with Guard's patent, since Mr. Phelps believed he could prove his invention prior to Guard's.

But the Examiners abandoned Guard as reference, on the ground that he did not claim the feature sought to be protected by my client, and that the feature was old—referring, in support of his assertion, to THE NEW YORK COACH-MAKER'S MAGAZINE for 1863–64, vol. 5, p. 9; also for 1861–62, vol. 4, p. 171, and for 1858–59, vol. 1, p. 71. On examination of these references it was deemed advisable to adhere only to the claim to the shoulders B B, as now presented. But in the official letter dated March 10, the Examiner still adhered to his rejection, not as being shown in any special reference, but that the device is the mere result of mechanical skill," &c.

This is an old argument, resorted to when nothing else remains, to find a reason for rejecting an application. We repudiate the whole reasoning, not only because it is contrary to the spirit, practice, and rules of the Patent Office, which require specific references to support a rejection, but because such reasoning is wrong in fact and in principle.

It is too late now, in the present advanced state of the mechanical arts, to say that any actual improvement in any art is a mere matter of skill, and of obvious application. It is to be supposed—and no one is to contend to the contrary—that all improvements, and forms "of course," and all mere improvements in mechanical skill, have been adopted long ago in all the well-developed arts (one of which is certainly carriage-making), and that all specific improvements made nowadays are neither obvious ones (before made) nor a matter of mechanical skill, but are of a patentable nature; hence the applicant cannot accept any such reasons for rejecting his application. He has rights which no officer in the Patent Office has the right to ignore or trifle with; and it is only specific references, substantially meeting the inventions, that will be accepted or binding. Believing that no reference is given to this point, the Examiners-in-Chief are respectfully asked to reverse the Examiner's decision.

Respectfully yours,
J. S. BROWN, *Atty. for* PHELPS.

HON. COMM'R OF PATENTS.
James Phelps' king-bolt for carriages. Argument on appeal.
Rec'd and filed Aug. 15, '66.

No. 2123. U. S. PATENT OFFICE, Sept. 14, 1866.

On appeal before the Board of Examiners-in-Chief. Application of James Phelps for a patent for an "Improved King-Bolt for Carriages."

The amended claim of the applicant reads as follows: "What I claim as my invention, and desire to secure by letters patent, is the projecting shoulders, or bearings B B, resting on the axle, at the fork of the king-bolt, for the purpose herein specified."

We are of the opinion that the references fail to show that the appellant has been anticipated—or, in other words, that his suggested improvement is not such an invention as brings him within the meaning of the statute, and entitles him to a patent. It may be said to be a very simple invention, but this does not detract from its real value; on the contrary, it may constitute its chief excellence.

Nor will it do to infer from its simplicity that it is the work of the skillful mechanic, not that of the inventor. The object attained by the method, as set forth by the applicant, shows the invention to be "new and useful."

The decision of the Examiner in charge is reversed.

SAM'L C. FESSENDEN,
ELISHA FOOTE,
Examiners-in-Chief.

2123. James Phelps' application for an improved king-bolt for carriages.
Decision of Examiners-in-Chief.

19-17. 1866.
No. 59,642. 2123. DOANE, &c.

James Phelps, assor to self and Isaac F. Mosher, of Red Creek, County of Wayne, State of New York, King-Bolt for Carriages.

Received January 2d, 1866.
Petition " " "
Affidavit " " "
Specification " " "
2 Drawings " " "
Model " " "
Cert. dep.
Cash, $15, Jan. 2d, 1866.
Add'l fee cert.
" " cash, $20, Nov. 2, '66.
Examined Sept. 27, 1866, Ex's-in-Chief.

Issue Am. Stout, Sept. 28, 1866.
Patented Nov. 13, 1866.
Recorded Vol. 209, page 622.
Circular Sept. 29, 1866.
J. S. Brown, Present.
W. B. T. 1866.
1866.
Jan. 17, 1866, rejected.
Spec. and thin drg. to me, Feb. 13th, 1866.
J. S. Brown.
Rej'd Feb. 16, 1866.
Rej. Mar. 10, '66.
Imp't in King-Bolt for Carriages.
1866.

Paint Room.

NEW METHOD OF BLEACHING SPONGES.

To bleach a sponge and render it perfectly white and soft for the use of painters, it is necessary to soak it in cold water; and should it not become soft, it must then be immersed in boiling water. This should if possible, however, be avoided, for it has a bad effect on the sponge, particularly in cooling; which causes it to shrink, and become so tough as to prevent its ever being bleached.

If the sponge is soaked in cold water, and the water be changed three or four times every day, every time that water is changed, or drawn off, the sponge should afterwards be pressed perfectly dry. This process being repeated for five or six days, the sponge, at the expiration of that time, will be ready for bleaching.

Should the sponge, as is frequently the case, contain small pieces of chalk and shells, which cannot easily be got out without-tearing it, the sponge must be soaked for twenty-four hours in muriatic acid, with twenty parts of water added. This will cause an effervescence to take place, liberating the carbonic acid gas, when the shells and chalk will become perfectly dissolved; after that the sponge must be carefully washed in fresh water, and afterwards immersed in sulphuric acid, the specific gravity of which must be four degrees on the hydrometer. The immersion of the sponge in this acid should continue for about eight days, but it must occasionally, during that period, be pressed dry, and thoroughly washed. After being perfectly washed and cleaned it should be sprinkled with rose water, to give it a pleasant smell, which completes the process. This process some may think rather tedious and costly, but the washing off of one carriage will amply repay the most skeptical painter in the satisfaction he will derive from it. Try it.

J. B. P.

ENGLISH VARNISHES.

We have been informed by a correspondent that a dealer in carriage materials has the *face* to charge him $12.50 for a gallon of English varnish—the same as he did last spring when the premium on gold was much higher than now. When asked why he does this, and told our quotations, he sneaks out by saying that our quotations are for inferior quality. The best answer we can make to such subterfuge is, our prices are for Nobles and Hoare, and Harlan and Son's varnishes.

If they have any better in Cleveland, we would like to know it. To day $12.50 would be about $4 *extortion*. We do not buy English varnish, except on a charge of fifty-cents per gallon, for the simple reason that no dealer in New York allows any commission to purchasers, this article being an exception from all others. When we buy the article we pay $6.25 in gold, which with the premium at 34½ cents, as it is the day this is written, would make the cost of a gallon of the best English varnish just $8.40⅝.

To silence any more such misrepresentations, we will inform our readers that special pains are taken to have our Prices Current reliable, for which purpose the whole list is revised on the day of date, by the oldest dealer in the trade in this city. There are a few articles, the price of which is varied by the quality; for such we try to fix a medium report, but English varnish is not in this category. We wish it distinctly understood that this Magazine tries not only to put down "humbug" in others, but also to steer clear of engaging in any such questionable operations itself.

Trimming Room.

NEW TARIFF ON IMPORTED FABRICS.

In order that our readers may understand how the new tariff will affect their interests, we give them the particulars, in some instances, where these vary, both as passed by the Senate and the House.

SENATE.	HOUSE.
On woolen cloths, comprising broadcloths, cloakings, cassimeres, ladies' cloths, doeskins, tricots, and all other fulled or felted goods or fabrics, woolen shawls, flannels, and all manufactures of wool of every description made wholly or in part of wool, not herein otherwise specified, valued at $1.50, or less, per pound, 45 cents per pound, and in addition thereto 35 per centum ad valorem; valued at over $1.50 and less than $2 per pound, 50 cents per pound, and in addition thereto 40 per centum ad valorem; valued at $2 and over per pound, 50 cents per pound, and in addition thereto 45 per centum ad valorem.	On woolen cloths, comprising broadcloths, cloakings, cassimeres, ladies' cloths, doeskins, tricots, and all other fulled or felted goods or fabrics, woolen shawls, flannels, and all manufactures of wool of every description made wholly or in part of wool, not herein otherwise specified, 50 cents per pound and 35 per cent.

On webbings, beltings, cords, bindings, braids and galloons, composed wholly or in part of wool, worsted, the hair of the alpaca, goat, camel, or other like animals —Senate, 50 cents per pound, and, in addition thereto, 45 per centum ad valorem—House, 50 per cent.

On fringes, gimp, tassels, dress trimmings, head nets, buttons or tassel buttons, or buttons of other forms for tassels or ornaments, wrought by hand or braided by machinery, made of wool, worsted, the hair of the alpaca, goat, camel, or other like animals, or of which the above named materials are the component parts of chief value—

Senate, 70 per centum ad valorem—House, 50 cents per pound and 50 per cent.

SENATE.

On Wilton, Saxony and Aubusson, Axminster, patent velvet, Tournay velvet, and tapestry velvet carpets and carpetings, Brussels carpets, wrought by the Jacquard machine, and all medallion, or whole carpets, valued at $1.25 or under per square yard, 80 cents per square yard; valued at over $1.25 per square yard, 90 cents per square yard: *Provided*, That no carpeting, carpets or rugs of the for going description shall pay a duty of less than 50 per centum ad valorem.

On Brussels and tapestry, Brussels carpets and carpetings, printed on the warp or otherwise, 60 cents per square yard.

On all treble ingrain, three-ply, and worsted chain Venetian carpets and carpetings, 45 cents per square yard.

On yarn Venetian and two-ply ingrain carpets and carpetings, 35 cents per square yard.

On druggets, baizes and bockings, and felt carpets and carpeting, printed, colored, or otherwise, 25 cents per square yard, and, in addition thereto, 30 per centum ad valorem; on carpets and carpetings of wool, flax, or cotton, or parts of either, or other material not otherwise herein specified, 40 per centum ad valorem: *Provided*, That mats, rugs, screens, covers, hassocks, bed-sides, and other portions of carpets or carpeting shall be subjected to the rate of duty herein imposed on carpets or carpeting of like character or description, and that the duty on all other mats (not exclusively of vegetable material), screens, hassocks, and carpet, and door rugs, shall be 40 per centum ad valorem.

HOUSE.

On Aubusson and Axminster carpets, and carpet woven whole for rooms, 50 per cent.; on Saxony, Wilton and Tournay velvet carpets, wrought by the Jacquard machine, 70 cents per square yard and 35 per cent.

Wrought by the Jacquard machine, 44 cents per square yard and 35 per cent.; on patent velvet and tapestry velvet carpets, printed on the warp or otherwise, 40 cents per square yard and 35 per cent.; on tapestry Brussels carpets, printed on the warp or otherwise, 28 cents per square yard and 35 per cent.; on treble ingrain, three-ply, and worsted chain Venetian carpets, 17 cents per square yard and 35 per cent.; on yarn Venetian and two-ply ingrain carpets, 12 cents per square yard and 35 per cent.

Sec. 5. *And be it further enacted*, That in lieu of the duties heretofore imposed by law on the importation of silk and the manufacturers of silk, there shall be levied, collected, and paid the following duties and rates of duty, that is to say: On all ribbons, beltings, galloons, hat-bands, bindings, braids, fringes, gimps, gloves, cloak and dress trimmings, fancy buttons, cords, dress cords, cords and tassels, head nets, head dresses, neckties, collars and scarfs, made of silk, or of which silk is the component material of chief value—Senate, 70 per centum ad valorem—House, 60 to 75 per centum ad valorem.

On all brown or bleached linens, ducks, canvas paddings, cot bottoms, burlaps, drills, coatings, brown Hollands, blay linens, Spanish linens, diaper, damasks, crash, huckabacks, handkerchiefs, lawns, or other manufactures of flax, hemp, or jute, or of which flax, hemp, or jute is the component material of chief value, not herein otherwise specified, valued at 30 cents per square yard or less—Senate, 4 cents per square yard, and in addition thereto, 35 per centum ad valorem; valued at over 30 cents per square yard, 6 cents per square yard, and in addition thereto, 40 per centum ad valorem—House, 6 cents per square yard, and 30 to 40 per cent.

On threads, patent threads, saddlers' thread, shoe thread, gill-net thread or gill-net twine, and pack thread, and sewing-machine thread, and all threads, and twines, and yarn, when advanced beyond single, made of flax, hemp, or jute, or of the tow of flax, hemp, or jute, valued at 50 cents or less per pound—Senate, 5 cents per pound, and in addition thereto, 35 per centum ad valorem—House, 20 cents per pound and 35 per cent.; valued at over 50 cents and not over $1 per pound—Senate, 10 cents per pound, and in addition thereto, 35 per centum ad valorem—House, 30 cents per pound and 35 per cent.; valued at over $1 per pound—Senate, 15 cents per pound, and in addition thereto, 35 per centum ad valorem.

SENATE.

On webbing, tapes, galloons, bindings, gimps, trimmings, braids, plain or otherwise, made of flax, hemp, or jute, or parts of either, or of which hemp, flax, or jute shall be the component material of chief value, 50 per centum ad valorem.

HOUSE.

On thread, patent threads, saddlers' thread, shoe thread, or gill-net twine, or pack thread and sewing-machine thread, and all other threads and twine, and yarn, when advanced beyond single, made of flax, hemp, or jute, or of the tow of flax, hemp, or jute, valued at 50 cents or less per pound, 10 cents per pound and 35 per cent.; valued at over 50 cents and not over $1 per pound, 20 cents per pound and 35 per cent. ad valorem; valued at over $1 per pound, 30 cents per pound and 35 per cent.

On webbing, tapes, galloons, bindings, gimps, trimmings, braids, plain or otherwise, made of flax, hemp, or jute, or of parts of either, or of which flax, hemp, or jute shall be the component material of chief value; on all other manufactures of flax, hemp, or jute, or other similar fibers not herein otherwise specified; on all manufactures of which flax, hemp, or jute shall be the component material of chief value,

there shall be levied, collected, and paid the same duties as those herein assessed on similar articles composed wholly of the above-named materials.

Editor's Work-bench.

BUSINESS PROSPECTS.

Disguise it as we may, yet it is very evident that the financial state of the country is undergoing a serious change. Our currency, inflated beyond a healthy point, has stimulated trade and manufactures to such a degree, that all kinds of business have been overdone, and reaction is evidently about to take place. This, in connection with our high rates of taxation, made necessary by the civil war through which the nation has just passed, must weigh heavily upon the industry and economy of the people. While business was flourishing, this evil was little felt, but a season of stagnation will produce no little complaint, if not lead to something more serious. Under such circumstances the sincere well-wisher of his country's prosperity cannot but feel a certain degree of alarm, and pray that He who governs the affairs of men may interpose His protective hand to turn aside the threatening storm.

The laboring classes, under the delusion that legislation will affect a radical cure for all industrial complaints, are making earnest calls upon Congress, now in session, for help. It is evident from past experience that no relief can be obtained in that direction. Congress can bring no remedy to resuscitate an overdone trade; this time alone will cure, while the people themselves practice the strictest economy, and forego all such luxuries as tend to prolong the evil. The laws established by "supply and demand" are more potent than any which men may enact, and cannot be set side by legislation. As well might we undertake to prevent the rise and fall of the tide, or, Xerxes-like, try to stop the ragings of the sea by chastisement.

It was expected at the close of the war that everything would come down with a rush, and that prices for all commodities would be very low. Two years of experience have taught us the falsity of such prophecy. It is well for the interests of the country that we have been disappointed in this particular, for had business matters taken the turn all expected, the ruin of business men would have been complete. Two years of caution, and the lessons taught us by experience in other days, have not been without good effect in preparing our people for the revolution which is unmistakably upon us. What the country now needs is some modification of the internal revenue taxes, especially as these relate to carriage-building. It has all along seemed to us unfair to tax some of its details over three or four times while passing through the workshops, on no better grounds than that, because carriages are luxuries, therefore those who patronize them ought to bear the burden; or, in other words, be selected as the scape-goats for national sins. This policy is working a serious injury to trade, as it tends to keep prices high, and as a consequence sales very few. This not only discourages the manufacturer, but is virtually murdering the goose from which golden eggs are expected.

It would afford us some gratification to find our present Congress acting upon the recommendation of the Commission appointed last year, by making "such a revision of the present internal revenue system, as will look to an entire exemption of the manufacturing industry of the United States from all taxation." Such action would have the tendency to revive the life of industry, and give a new impetus to business, which would be felt all over the land, by all classes of people.

IMPORTANT SOUTHERN NEWS.

The President of the Coach-makers' International (Trades) Union, who, we believe, is an Englishman, has recently made a journey southward, and published in connection with its history the following interesting piece of gossip:

"On going into Myers & Hunt's shop [Nashville], we were quite taken by surprise at the very cordial manner by which we were received, an old New Yorker himself. [Myers & Hunt *an old New Yorker?*] He was quite glad to see us, and also pleased to find what our mission was, saying, 'all the men employed in my establishment are ready to join your Union, and so am I. I have read your Journal and am very much pleased with it; one of its articles especially pleased me, the mild and manly (!) reply of your editor to the disgraceful personal attack made on him by the editor of The Coach-maker's Magazine. I would like to become a member of your Union myself.'"

We are not told the result of the last wish, but suspect *he was* "taken in." We infer this, because the President afterwards says, that "friend Myers" took him to his hotel, "where the waiter brought him a bottle of port-wine instead of porter," *which was very agreeable to him.* Of course, after such condescension "Friend Myers," in conformity with ancient custom, could do nothing less than "stand treat." That much was to be expected; but we submit that it was hardly necessary to tell us that he had such an "*agreeable*" taste for wine.

The President further says, that on the evening of the same day he left for Memphis, "by which act we think we saved our morals somewhat (?); for had we remained all night with the batchelor coach-makers of Nashville, as batchelor Myers wished us to, we cannot tell what might have happened, so concluded to leave." In another part of his journal the President takes special pains to tell his

readers, that, when a few days previous he was in Louisville, he managed to walk "quite *straight* during the whole day." Leaving "Friend Myers" in the hands of his new associates, we have to congratulate the "missionary" President on his lucky escape from Nashville, advising him to join the *Temperance Society* before he travels further, as a matter of protection against temptation hereafter.

We have called the extracts we have made from the President's report of his journey *important* news—it ought to be at least. *First*, because it obligated a journey of several thousand miles, and months of time, at a salary of $1000 a year, incidentals added, to find a boss anxious to go with his journeymen over to the Union, and receive the dictating terms as helps in business; and, *secondly*, because this is the first instance in which—outside of the "International Union"—any one who has read our article on "Warring against capital," ever termed it "a disgraceful personal attack" on any individual. No name was mentioned, nor did we know a line of the gentleman's history who so readily applied them to himself. And, just here let us remark, by way of parenthesis: there are some nervous persons, who are habitually inclined to construe all they hear said as having reference to them, *especially when words fit.*

The President tells us he *was surprised* on going into Myers & Hunt's shop, and well he might be. Such willingness on the part of an employer in submitting to "International" government has not been exhibited since the time when the Confederacy desired a Prince from England as dictator in preference to Yankee rule. Imagine, reader, how this "surprise" must have been intensified by opposite treatment elsewhere. We have it from the President's own pen, that a few days previous, in Cincinnati, he spent full two hours in trying to convince our friend, Mr. Gosling, that the Union was got up for his benefit, as well as for its members; but only succeeded in enlightening his mind on a few points, without effecting much. And, Mr. Miller too—he was honored with a call—but he could not see a single *point* in the "International" looking-glass that would benefit him, and because of this *blindness* the President left—to abuse him in print. Of course, such *stupidity* as these Cincinnati employers manifested, must have acted as a *damper* upon the object of the President's visit, which required the serener temperature of some more Southern clime to thaw out—and Nashville did it *surprisingly*. Since the President has seen fit to show us some little attention, it would be ungenerous in us not to reciprocate the favor, in doing which, for the special benefit of "our Southern friends," and that of others anxious to call in the Union to assist them in properly conducting the carriage-business, we will relate "a little story."

About five years ago, one pleasant afternoon in April, the Trades Union people of New York met *en masse* in Tompkins-square to *ventilate* their indignation against certain men who had submitted to the State Legislature the consideration of a bill, calculated "to protect such persons as choose to work at a lower rate of wages than those established by Trades Unions, and who might thereby meet with opposition from the members of these combinations." Over this mass meeting the new ally of our Southern friends presided as chairman, when, unreproved among other speakers, Jacob Simpson gave the crowd his ideas of law and order, as duly reported in the morning papers of the next day.

"In certain parts of this country horse-thieves are hanged, and though the men who might vote for this bill are worse than horse-thieves, we dare not hang them [cries of 'we shall see'], for hanging a man is abolished in this State, but, *we can spit at them, serenade them, applaud them, until they will be glad to be out of the city...* If the bosses have a man arrested for striking, all we have to do is to ask the boss to release him, *or we will give him such a beating as he will remember for a life-time.*"

We could add more of a similar nature, but reserve it for a future opportunity. Although our Southern friends may not thank us for saying so, still, we cannot help, in the interest of good taste, pronouncing the journal to which allusion has been made the vilest compound of silly twaddle, miserable English, and foolish allusion to a friend, we have found in our readings for a long time. Well may "our batchelor friend" say with John Randolph of Roanoake, "Lord, deliver me from my friends."

COACH-MAKERS' WAGES.

THE prices annexed were paid at different points on the 30th of November, 1866, as we learn through the United States Bureau of Statistics. At Biddeford, Me., $2.00 *a* $3.50; Pen Yan, N. Y., $1.75 *a* $3.25; Muscatine, Iowa, $3.00 *a* $4.00; Tiffin, O., $2.50 *a* $3.00; Cairo, Ill., $2.50 *a* $3.50; Peoria, Ill., $2.50 *a* $4.00; Leavenworth, Kansas, $3.50; Covington, Ill., $2.75 *a* $3.50. Since the time stated above wages have been much reduced. At this time (1st of February), in some of the shops in this city—working on short time too—the *pro rata* prices have been reduced ten, and in others twenty per cent. below those of last fall. In fact, the eight-hour system is decidedly *unpopular*, probably because the "strike" was inaugurated by the employers.

LITERARY NOTICES.

THE *Atlantic Monthly* for February is a deeply interesting number, of about one hundred and twenty-five pages, making quite a volume alone, all for 35 cents. How the publishers are able to give so much original matter for the money is one of the mysteries of the times. It certainly could not be done and pay without a very large circulation.

The above remarks will apply to *Our Young Folks*, issued by the same house. Among all the juvenile periodicals—and their name is legion—there are none which equal this in fine engravings, or pretty stories, to say nothing about originality, which last is a feature none other can lay claim to.

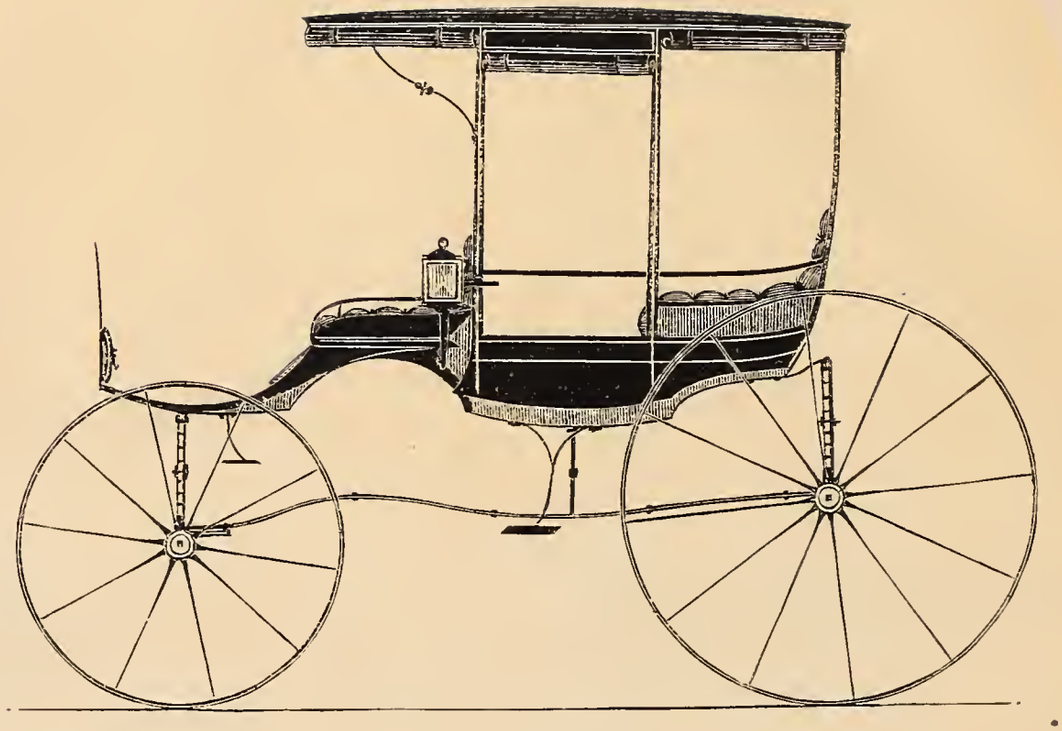
Every Saturday, which, with the above, is published by Messrs. Ticknor & Fields, of Boston, is a journal of choice reading, selected with much discrimination from foreign current literature, published, as its name imports, weekly, at $5 a year.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

New York, February 16, 1867.

Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10c.
Axles, plain taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2.
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $1.50 to $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per bundle of 6 pairs.
Bolts, Philadelphia, list.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3.25 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 50c., or $5.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $2.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 60c.; 6–4, 90c.
Do. Drills, 48 in., 75c.; 5–4, 85c.
Do. Ducks, 50 in., $1.10; 5–4, $1.00; 6–4, $1.30.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $2.90.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1.50; narrow, 10c. to 17c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 32c.; split do., 18c. *a* 21c.; No. 1, top, 32c.; No. 2, enameled top, 30c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 10c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisement under this head on 3d page of cover.
Oils, boiled, per gallon, $1.75.
Paints. White lead, ext. $15, pure $16.00 p. 100 lbs.; Eng. pat. bl'k, 35c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.50; No. 2, $2.65; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.
Screws, gimlet, manufacturer's printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Serims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.35 *a* $1.50 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 19c.; bright, 21c.; English (tempered), 26c.; Swedes (tempered), 30c.; 1¼ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10½.; 3-4 x 5-32 a 11 c; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 8c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top-props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.10; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, 90c.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $9 to $10 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.



STANDING-TOP OR COUPÈ ROCKAWAY.—½ IN. SCALE.

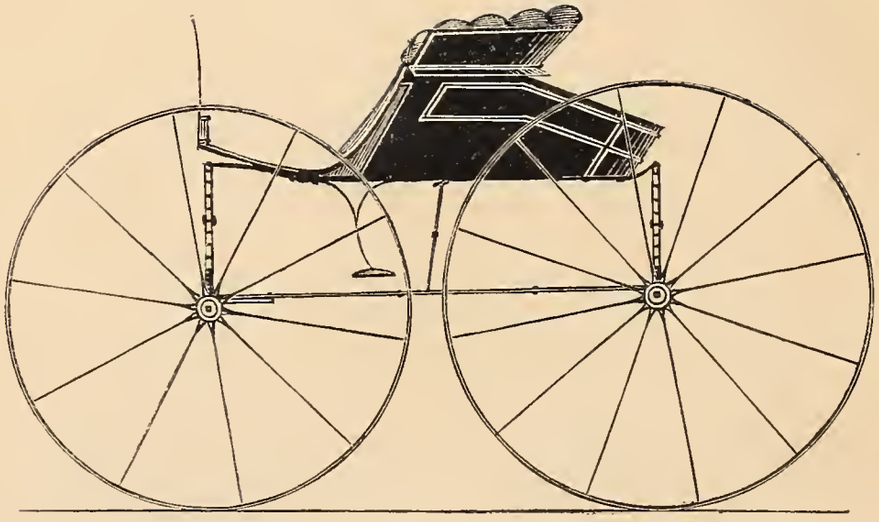
Designed expressly for the New York Coach-maker's Magazine.

Explained on page 167.

SHAM-TILBURY BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

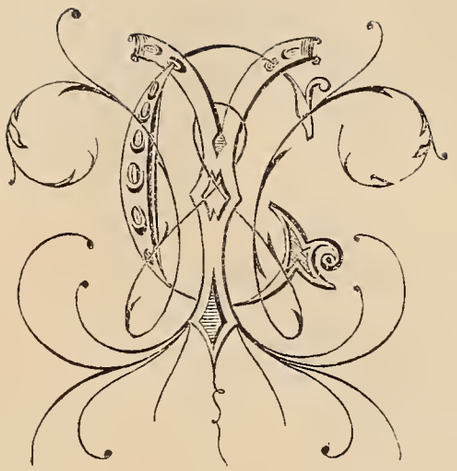
Explained on page 167.



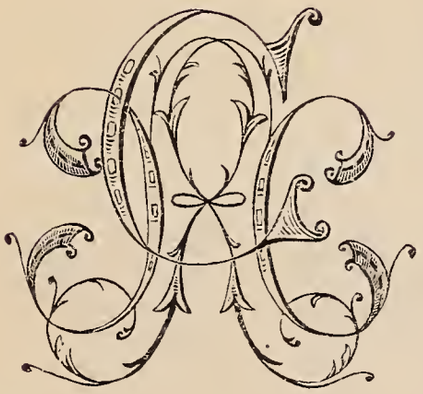
ROAD-BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 168.



W. G. Y.



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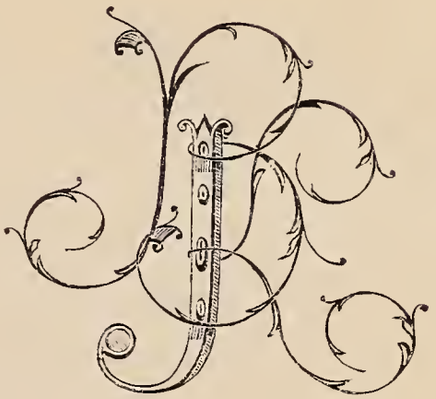


B. J. K.

ORIGINAL MONOGRAMS.

See marks on page 169.

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, APRIL, 1867. No. 11.

Mechanical Literature.

MORE ABOUT SCREW-DRIVERS.

Mr. Editor :—I find in the February number of your Magazine that Mr. Peek comes to the rescue of his pet screw-driver theory with commendable alacrity. I hold it to be self-evident, that a father has the right to defend his own offspring, at all times. Notwithstanding his able defense, I venture to return to the attack, inasmuch as he has invited me to do so.

I have been carefully looking over his original article, and I still think that my criticism was just; and I also find that his theory is false in another particular, according to my way of thinking. Let us review his positions:

First, He opens with the following: "The acknowledged superiority of a long over a short-handled screw-driver I have experienced to be this: a very small deviation of the short-handled one permits the point to slip out of the nick in the head of the screw more easily; but it is obvious that the greater the deviation of the screw-driver from the axis or direction of the screw, the greater must be its power." Now I acknowledge the first part of the above to be true, but that the greater the deviation of the screw-driver from the axis, or direction of the screw, the greater must be its power, I object to as contrary to reason and experience. The deviation of the handle from the direction of the screw cannot act as a lever. To his assertion that it does, I oppose my assertion that it does not; and, as he has the affirmative in this discussion, I await the argument in support of his assertion.

Secondly, He lays it down that the elasticity of a screw-driver is another cause of its superiority, because it permits the acting power (the handle of the driver) to move *faster* than the resistance, which is the screw, and in consequence of which power is gained. Now, with due modesty, let me inform Mr. Peek that the handle of the screw-driver travels *no faster* than the screw. I do not say that it travels no *further* than the screw. To illustrate what I mean, suppose Mr. Peek should place a hand-sled on a level floor and attach to it one end of an elastic cord. If he takes the other end and commences to draw, he will notice, that when he first begins to move, the sled remains stationary, but when the tension of the cord overcomes the adhesion of the sled to the floor, the sled will move off just *as fast* as he does, and if he travel all day, the sled will keep pace with him. But he must have gained power (according to his theory) because he traveled as much further than the sled, as the cord stretched between the time of his starting and the time of the starting of the sled. I fail to see where the power is gained. Again, suppose a spring balance be attached to a weight of twenty-four pounds by means of an elastic strap. In raising the weight by this means two and a half inches, the spring balance may have raised three inches in consequence of the stretching of the strap, moving as much further than the weight as six is to five, and ought to make Mr. Peek's theory true, to indicate but twenty pounds. But it is evident that such will not be the case, but that it will indicate twenty-four pounds. This theory applied to elastic screw-drivers is as follows: If the handle of the screw-driver be turned sixty degrees the screw would remain stationary at first, perhaps, until the handle of the screw-driver had moved ten degrees, then commencing to move would move *as fast* as the handle until the sixty degrees had been accomplished. This I think sufficient to show that Mr. Peek's *premises* are false, consequently the train of reasoning founded on said premises amounts to nothing. In my first criticism I called his theory of elasticity giving increased power his *main* reason, because, *if true*, it would be the main reason. I trust that the above is "sufficiently explicit," if not, I will try again.

I will now give the reason, in my opinion, *why* a long screw-driver is better than a short one. *First*, Because the deviation of the screw-driver from the direction of the screw will be less than in a short one. It is evident to my mind that the nearer the handle of the screw-driver is to the line of direction of the screw, the easier the screw is turned—Mr. Peek's theory to the contrary, notwithstanding. *Second*, Because, usually, the handle of a long screw-driver is broader than a short one, consequently gives increased leverage, on the same principle that a hole can be bored with an auger, the handle of which is sixteen inches long, easier than with the same auger with a handle twelve inches long.

Third, Because more power can be applied with the

same effort to a long driver than to a short one, on the principle that two persons of equal strength, struggling to get possession of a chair round the one that has two thirds of the length in his possession will have the advantage of the one who has only one third.

I do not understand the Greek, Hebrew, or Latin words in the last section of Mr. Peek's last article. Pray give us plain English, that an "umble" disciple of the "jack plane" can understand. I more than half suspect that the "big words" were intended as an extinguisher for

Body-maker.

ENGLISH CARRIAGE HORSES.

(*Concluded from page* 147.)

The hire of a pair of carriage-horses is from £70 to £100 a year, the latter being the outside figure; and nearly as much is charged for the season of five months. For these sums a pair of horses are always at the disposal of the hirer, who feeds them and pays all expenses. But although he pays nominally for a pair, he really has the use of at least three, as one will frequently be sick, or unfit in some way for work. Large carriage-horses are so difficult to find sound, require such careful seasoning before fit for London work, and are always so subject to accidents, that men of fixed, even of large means, prefer jobbing, because it is a certain way of being always served at a limited expense. Many jobmasters will also feed at an additional fixed charge, delivering the fodder weekly. Under such arrangements, it is as well to job the coachman too. A brougham horse may be had for about £40 a year.

The system is decidedly economical for all ladies and busy men who do not care for the individual animal, and consider a carriage merely a machine for locomotion.

There are a few points worth remembering by those who decide to buy their first pair or a single horse. Aged horses, if sound in legs and wind, are the best for harness, because they are seasoned and safe from a variety of ailments and diseases incident to juvenile horseflesh. Some of the finest horses in London are sixteen and seventeen years old. An organized system of tampering with the teeth in the breeding-counties makes all three-year olds seem four, and all four seem five. An honest seven or nine or ten, with good legs and wind, is cheaper than a dishonest five. Few veterinary surgeons can detect the deception. It takes at least six months to break an average pair of well-bred horses, or a single brougham horse, fresh from the country, to town use, although many go well in six weeks.

A horse that has once kicked or laid down in harness is never safe. Some horses will only go double, some will only go single, and some will never go safely in harness at all. Courage is an essential quality in a harness-horse. A riding-horse sometimes walks and sometimes canters. A harness-horse should stand stock still, and yet be always ready to trot and trot on gently, pulling at the bit, without ever requiring the whip. The slug is even more dangerous in the streets than the hard puller. As a rule, horses regularly worked in town become quiet, probably from being occupied by a multiplicity of sights and sounds. Those to whom horses are a necessity, and economy is an object, may purchase exceedingly good-looking useful animals, with some unimportant defects, at a low price at the end of the season.

Harness is the next consideration after the horse, and in that article there is no middle way. The best only is worth having, however plain. The best leather and the best workmanship are by far the cheapest in the end; besides, your life may depend on the soundness of a buckle or the strength of a strap. Brass mountings wear better than silver, but are more difficult to keep bright; the latter, however, plated on white metal, have been so much improved, that they are very durable. Where shafts are used, the open Tilbury tug, into which the shafts drop, instead of being poked through a hole, are an old approved arrangement. Patents in connection with harness are innumerable, but scarcely any of real use. White's, far superseding the buckles of traces and tugs by a flat-covered slide, with a peg instead of the buckle-tongue, is admirable, from its utility and simplicity. It is almost impossible to alter a trace-buckle without a long struggle; but with White's patent the operation may be performed instantaneously, and this is often of importance when changing a carriage, or when a horse falls. In single harness, a strong kicking-strap is indispensable with even the quietest horses; and get a breaker to show you how to put it on, as it may be so fitted as to be either useless or liable to snap with the first effort of a violent horse. It is an excellent plan to drive a young horse with a double set of reins, one to the check, and the other to the lowest bar; for if he pulls and you drive him constantly on the bar, his mouth becomes dead; but on the other plan he may be brought to cease pulling, and go pleasantly, as all horses should, in single harness, on the check. This wrinkle was given me by one of the old school, an experienced coachman, who had often driven the same team of four from Calais to Florence.

There is a great deal of nonsense written about bearing-reins, which may be abused, but properly used are a source of both comfort and safety. A bearing-rein, buckled up so tightly that the horse is never off the bit, is not only cruel but dangerous, because it allows no play for his head and neck to adjust the balance of his body if he makes a stumble; but there are horses which will carry their necks as straight as pigs, and lean a dead weight on the driver's hand, while, with a well-adjusted bearing-rein, they will learn to carry their heads in the proper place, and spare the driver's wrist. The best harness-horses are so formed that when once broken they carry their heads perfectly well without artificial aid; but horses, like men, have to be taught their respective drills and gymnastics. In double harness, horses rarely stand well without bearing-reins; and the writer of this article narrowly escaped a serious accident from a horse in a mail phaeton without a bearing-rein, hooking his bit over the end of the pole while waiting at a door. Certainly ladies ought never to be trusted to drive without bearing-reins. At the same time coachmen will often, if not checked, turn this regulating rein into an instrument of torture.

To drive well, either one high-couraged horse or a pair, requires nerve, good teaching, and plenty of practice; with these qualifications it may be on occasions a very useful, and is always a very pleasant, healthy, gently exciting amusement. But it cannot be learned, like some other superficial accomplishments, by imitation, and practiced with fiery horses in crowded streets with safety. If you can afford a carriage, get up early in the morning and become the pupil of one of those accomplished breaks-

men who may be seen in Piccadilly every day, exercising or breaking the choicest animals of the greatest dealers. Money and time so laid out will be found an economical investment. Don't talk to the driver while he is driving a pair of rawish fresh four-year-olds, but watch him, and reserve your questions for a private interview in the sanctuary beyond that Piccadilly vista of red sand, straw, and green paint, at once so mysterious and inviting to the stranger. Style is of the utmost importance. Hansom cabmen and butchers go along in the most wonderful manner. The drivers of Pickford's fast vans perform feats that would have excited the admiration of the four-horse coachman of the last generation; but they are not models for a gentleman. Light hands, a sure eye, the most rapid decision, the utmost watchfulness, cloaked under apparent impassiveness—these are the characteristics of the best English school, which can only be obtained by combining sound principles with constant practice. It would be difficult to decide whether the rash or the timid driver of well-bred, high-fed horses is in the greater danger. Of course any one can take hold of the reins of a dull hay-fed old screw just as he would of a bunch of ropes, and shuffle along under sufferance from the charitable and contemptuous omnibus-men.

And now a few words about the expense of a carriage. The least troublesome method is to job the whole concern, and have man, horses, carriage found, fed, and kept in order, for one or two contracts, with nothing to order except the coachman's livery. But if you prefer the trouble and amusement of having and feeding your own horses, in your own stable, then the proper cost may be easily calculated by reference to a ready reckoner and the prices of corn and hay. Any average harness-horse can be kept in condition for hard work with seven pecks of oats and seven stone of hay a week, and he will also want a hundred-weight of straw for litter. These would cost about twelve shillings and sixpence a week at the prices of 1865. The very largest carriage pair of horses, with six quarterns of oats each every day, could not consume fodder to the amount of more than about thirty shillings a week for the pair. To this must be added rent of stables, leathers, brushes, and other tools for dressing the animals, say about sixpence a week, and the wages of the coachman. But it will be found that ladies and idle gentlemen pay for at least twice as much fodder as their horses can consume.

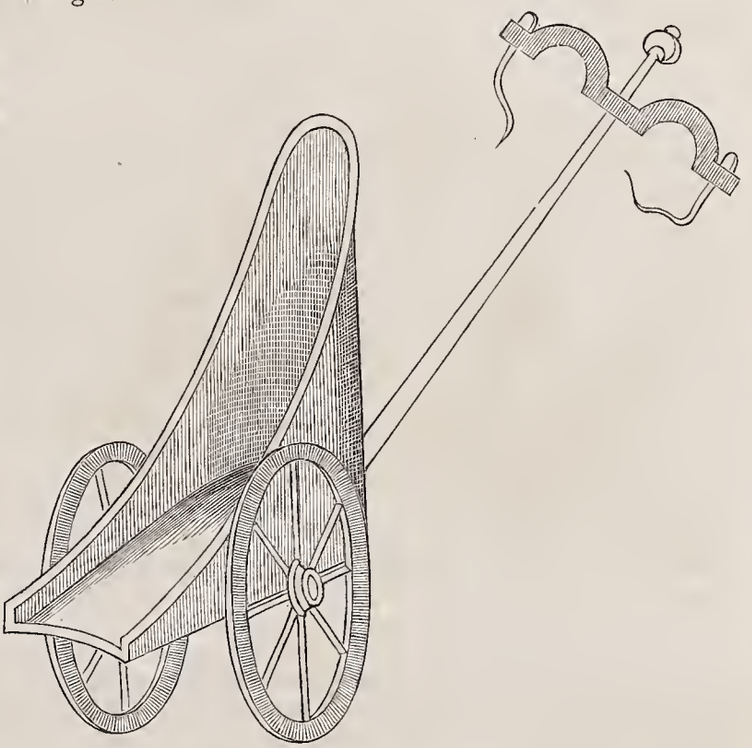
To keep down the corn-dealer's bills without sacrificing the horses, there is a secure recipe in the plan on which Chinese court physicians are said to be paid. Contract with a respectable corn-dealer, and make your man's place and certain extra wages in spring and autumn, before and after the season, depend on the condition of the horses. Tell him you listen to no excuses, but only judge by results. As a rule, the horses of gentlemen suffer most from too much hay and corn, too little regular work, and too frequent a resort to physic.

Finally, if economy is important to you, you must learn the art, and attend to your stable yourself. If, on the other hand, you can afford to save yourself trouble, be assured that those who pay punctually and liberally can always be well served by coach-builders, horse-dealers, corn-dealers, and saddlers, and that in each class thoroughly respectable men are to be found by those who want to find them.

OUR CARRIAGE MUSEUM.—X.

The War chariot is called in the Chaldean tongue *Rhidvan* and in the Greek *Diphros*—similar to Buophoros—"two-seated"—and sometimes, too, *Synoris*, or "double team." Aristotle, in *Lib. de Mundo*, gives this last name to a *Biga*, saying that they were used in war too. The Scholiast in Aristophanes' Clouds says "Synoris does not mean the whole team, but simply that it is drawn by two horses, hence we call it 'Diphron.'"

In the remote ages people used to fight on chariots, and, as we have said on a former occasion, this use dates as far back as the days of nomadic life; and on a large number of Egyptian monuments discovered in our days, which are reproduced with so remarkable an accuracy in several illustrated French works, we find several Battle Bigas.



GRECIAN CHARIOT.

We are surprised at the immense number of battle chariots with which the armies of the old world were provided, and the more so as we know that these chariots did not constitute the main part of the army, but were chiefly intended to open battle and break and confuse the ranks of the enemy's cavalry. We read in the Bible (Gen., chap. xiv., vs. 6, 7): "And he [Pharaoh] made ready his chariot, and took his people with him. And he took six hundred chosen chariots, and all the chariots of Egypt and captains over every one of them." This, no doubt, means battle chariots, and no other wagons or vehicles, and their number certainly was considerable.

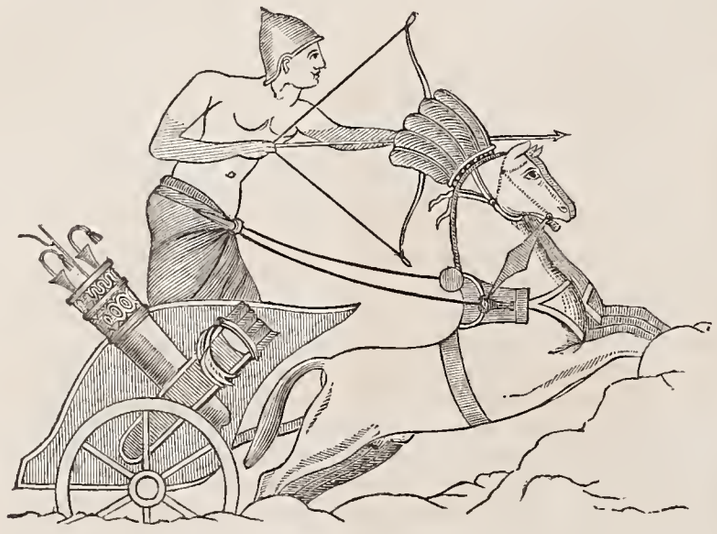
In the first book of Samuel, chap. xiii., v. 5, we read that the Philistines gathered themselves together to fight with Israel, thirty thousand chariots and six thousand horsemen and people as the sand which is on the seashore in multitude.

In Judith, chap. ii., Holofernes, the general of Nebuchadnezzar, marched out with the whole army of chariots,

horses and archers, covering the plains like locusts. In chap. iv., v. 3, of Judges it is stated that Jabin, the king of Canaan, had nine hundred chariots of iron in his army to fight against Israel.

We find mentioned another large number of chariots in the first book of Chronicles, chap. xix., v. 6. The children of Ammon collected a thousand talents of silver to hire thirty-two thousand chariots and horsemen out of Mesopotamia.

The finest specimens of old Egyptian battle wagons are to be found on the walls of the temples and palaces of ancient Thebes. It gives us pleasure to find that in all that relates to fine style and special neatness these wagons could serve as samples to the Greeks, whose Diphron, like most of the wagons of ancient nations, in general resemble very much the Egyptian style, the difference being merely in the ornamenting of wagon and harness, according to the usage of the country.



EGYPTIAN WAR CHARIOT.

Our engraving represents one of these Egyptian Battle Bigas, the front of which, it will be seen, is much bent forward, thus affording a greater space for the movements of the driver or warrior, enabling them, in case of danger, to jump from the wagon on the back of the horses. We notice, too, the neat wheel, with six spokes and wooden felloes, and the arms with which the outsides of the body are provided; the helmet of the warrior, looking very much like the tiara of the Persians and Medians; and finally, the double team, with manes cut down, broad sureingles and poitrals, and splendid ornaments on the heads of ostrich feathers, like most of the Egyptian horses. Our figure shows the harness very distinct and handsome. The yoke cushions and the rings holding the reins are distinctly marked. The broad breastplates seemed to have served as protection too. The warrior is in the act of bending his bow and has the reins fastened round his body. Unfortunately the arms of the original are broken off where tinted.

The proportions of these heroes of the chariot, and in fact of all Egyptian princes and generals which we find represented on their monuments, are always colossal, but intentionally so, and those of other figures and objects around them diminutive and small, as in our illustration. Such was the custom with all nations, and intended as a proof of homage and veneration. It is probable that from this fact dates the use of genuflection before the mighty. The ancient people used to select their princes and chiefs from the highest men, and in the Bible this is often said. (See Deut., chap. ii., v. 20.) The country in which the children of Ammon dwelt was called the land of giants, and in former times giants lived there. And in chap. iii., v. 11, King Og of Bashan was the only man left of the generation of giants, and his iron beadstead is it not in Rabbath? nine cubits long and four cubits wide, after the measure of a man's elbow. This was the reason, says a German writer, why Samuel attacked Saul King of Israel. For Saul was a young and handsome fellow, and the length of one head taller than any of the people.

Curtius narrates in Lib. vi., cap. 5, that when Queen Thalestris of the Amazons visited Alexander the Great, she for some time gazed at him silently and unembarrassed, and confessed that his proportions did not at all come up to her expectations; for all barbarous people thought those only fitted for preeminence whom nature had befitted with bodily conspicuousness. Long after the age of the Egyptians the people used to designate the heroes of their lands as giants, and this accounts for the many tales we have of giants, particularly in northern countries, even in our days.

But it was not in a spirit of pride or boasting that the Egyptians and other nations represented their kings and princes as heroes and conquerors, but history teaches us that they were heroes indeed, and always led on their armies to war in person. Thus Pharaoh, riding in his chariot, accompanied his legions, and the usage of those times demanded of every prince that he participate in the fight—fought themselves against the most valiant leaders, and often died as heroes on the field of battle.

Homer mentions the names of kings and princes who were in their chariots on battle-fields, and other historians mention Xerxes, Cyrus, Darius, Alexander, and others.

Darius addressed his armies as follows: "It is not only to follow the custom that I mount a chariot, but I want to be seen by everybody." The same author says: "*Darius currii sublima aminabat.*" Darius projected from a high chariot, and around the chariot of Darius lay dead the most gallant leaders of the enemy.

We read in the Iliad that the great city of Thebes alone furnished ten thousand war chariots and two men for each. As the ordinary battle chariots were Bigas, the city of Thebes had to raise twenty thousand horses. In the Vulgate these battle chariots are called "Quadrigas" (drawn by four horses abreast). See Nahum, chap. ii. *Quadrigas collisæ sunt in Plateis.* How considerable, therefore, must have been the number of horses required by ten thousand vehicles, if we take the expression of the Bible, "Quadrigas," as correct. We repeat again, that all Egyptian monuments only represent Bigas, never Quadrigas.

It has been said before that in ancient times iron war chariots were in use, and this has led some to believe that these were sythe chariots, but such a version is not sufficiently proved. We read in an old scripture (Judges,

chap. iv., v. 13): And Sisera collected all his chariots, even nine hundred *iron* chariots; and Israel could not interfere with the inhabitants of the valley, because they had iron chariots.

All ancient nations knew how to work iron, and therefore it would not have been strange to find that iron chariots were in use at those times. Our figure is taken from a bas-relief in the grotto of El-Kab. It does not show anything like a harness, except the knotty leash, or more probably chain-rein. It seems to us, judging from the kind of arms depicted, that the driver is rather on a hunting expedition than going into battle. In the original the head of the man, where it is marked with points, is weather-beaten.

Many savants in our days doubt the correctness of what history says about the immense number of battle chariots, but they confound the condition of the old world with that of modern times, and ignore the passages in ancient writers, where the population and war establishments of those long bygone days are distinctly related.

Diod. Siculus, chap. ii., v. 17, says of the immense army of Minus, King of Assyria, with which he invaded Bactria: "This force consisted of seven hundred thousand infantry, two hundred and ten thousand cavalry, and ten thousand six hundred sythe chariots." Diodorus adds, "Such numbers will seem incredible to those who hear of them far away, but not to such as know the vastness of Asia and the number of nations inhabiting it."

Semiramis, desiring to make herself celebrated after the death of her husband, raised an army of three million infantry, five hundred thousand cavalry, and one hundred thousand war chariots, besides ten thousand men mounted on camels and armed with swords four yards long. She had built two thousand river boats, which could be laid in parts and were transported by camels.

One writer (Michælis) thinks for so many vehicles no space would have been large and level enough to bring them into action, and Bockiger surmises that these numbers are exaggerated, because in no open field could they have been formed in line and moved on. But we answer that in these well planned campaigns such numerous armies found room to fight, and no doubt the chariot-bearers too selected favorable places where to operate. These chariots, having a broad track and low wheels, were well adapted for driving over ditches or hills of corpses, arms and debris. Although it is said that the chariots were drawn up in line, any one with a little military science knows that this is not meant literally, as we would say of a number of guns drawn in line, but that the armies of the ancients often extended over whole empires, where there were many plains adapted to the use of chariots. Nobody said that the whole of the chariots were present on every occasion in a single place, or had to drive into all hollow ways.

We have seen battles fought in our days, where hundreds of guns were in action—and guns are less easily moved than chariots—and five hundred guns must be accompanied by five hundred ammunition wagons, which, calculating six horses to each, makes a total of six thousand horses. Our posterity would make just the same mistake, by doubling the numbers, because of the impossibility of operating such a force on one large plain, which it would be impossible to find.

Besides the battle chariots in which princes and leaders generally stood erect, they had other more comfortable wagons for their own use brought with them, in which they could sit or lie down. We read in Chronicles: But the archers shot the king, and he spoke to his servants: take me over, I am badly wounded; and his servants put him in his other wagon and drove him to Jerusalem, where he died.

Herodotus says of Xerxes, in Lib. VII, that sometimes he got off his two-wheeled battle chariot (Harma), and lay down in the four-wheeled Harmamaxa. This he only did when he wanted to rest or to recover from the fatigues of the march. The Harmamaxa was covered for protection against sun and rain. The Indian kings and potentates accompanied their armies, in wagons drawn by elephants, covered all over with gold, or they were carried on palanquins of gold or silver, lined with purple and ornamented with pearls.

THE LABOR MOVEMENT.

A Board of Commissioners, having been appointed by the State Legislature of Massachusetts to investigate the subject of the hours of labor, the majority have reported that there is almost a total disregard of the law forbidding the employment of children under ten years of age in manufactories, by the overseers, the penalty of the law being solely directed against "owners, agents, and superintendents." Twenty-five per cent. of the operatives are under eighteen years of age, working eleven hours in the day. The Board recommend that a special officer be appointed to see that the law is not evaded hereafter.

After a long discussion of the "eight-hour system," the Board estimates that the decrease in production, by two hours deduction in time, would be one-sixth, which would certainly result in a pro rata reduction of wages, and consequently the workmen would be unable to purchase as many of the luxuries of life as he may under the ten-hour system, and question the benefits to be derived from any less hours of labor. Reducing the hours of labor, without reducing a day's wages, would of itself cause such an influx of foreign labor, as to speedily reduce the price according to the reduction of the hours of work. The Commission scout the idea that it is practical to reduce the hours of labor, and at the same time keep up wages to the old standard. They conclude, that since no one is by law compelled to work, there is no good reason why any one should be forbidden to work, and since the Government has no control over the labor of free men, they can with no more propriety or justice ordain that eight hours shall constitute a day's work than they can that eighty cents shall constitute a dollar; that all attempts to interfere with the laws of value must be ineffectual for any good, since the laborer can never be oppressed by working at perfect liberty as he pleases, and that he is never injured by competition, unless the laws or customs of the country deprive him of his just rights. They also further think that public sentiment does not call for an eight-hour law, and that all work should be measured by the hour, and not by the day, and close by stating that they cannot recommend the enactment of any eight-hour law.

The minority report of the Board urges the eight-hour law on the grounds of "religious, intellectual, and industrial" benefits, and maintains with Channing that "manual labor is the divine training to energise character;" and

with Ellesmere, that "the more hours men work in any staple branch of manufacture, the less they receive in the form of wages," and insist upon it that labor is capital. The conclusion is the recommendation of a ten-hour law in the absence of contract for farm labor, and eight hours for mechanical.

A convention of working men has since met in New Haven, Connecticut, having for its object much the same purpose as that assembled at Albany. A correspondent describes it as having been "an excited and stormy session," closing on the 22d of February. Over this convention, Mr. C. N. Gibson, of Norwich, presided. The propriety of nominating a State ticket, having for its object the election of men pledged to the interests of labor, after much discussion, was negatived. Several resolutions were passed, among them the one making eight hours a legal day's work; another, declaring that "labor has no conflict with capital," yet, recommending "energy and perseverance" in the use of honorable means to accomplish their objects; closing by declaring "that all attempts of employers, by threats and coersion, to control the votes of employés, are outrages on the franchise, and demands at the hands of the Legislature a law punishing such offenses by imprisonment in the penitentiary."

BRISTOL (ENGLAND) WAGON WORKS.

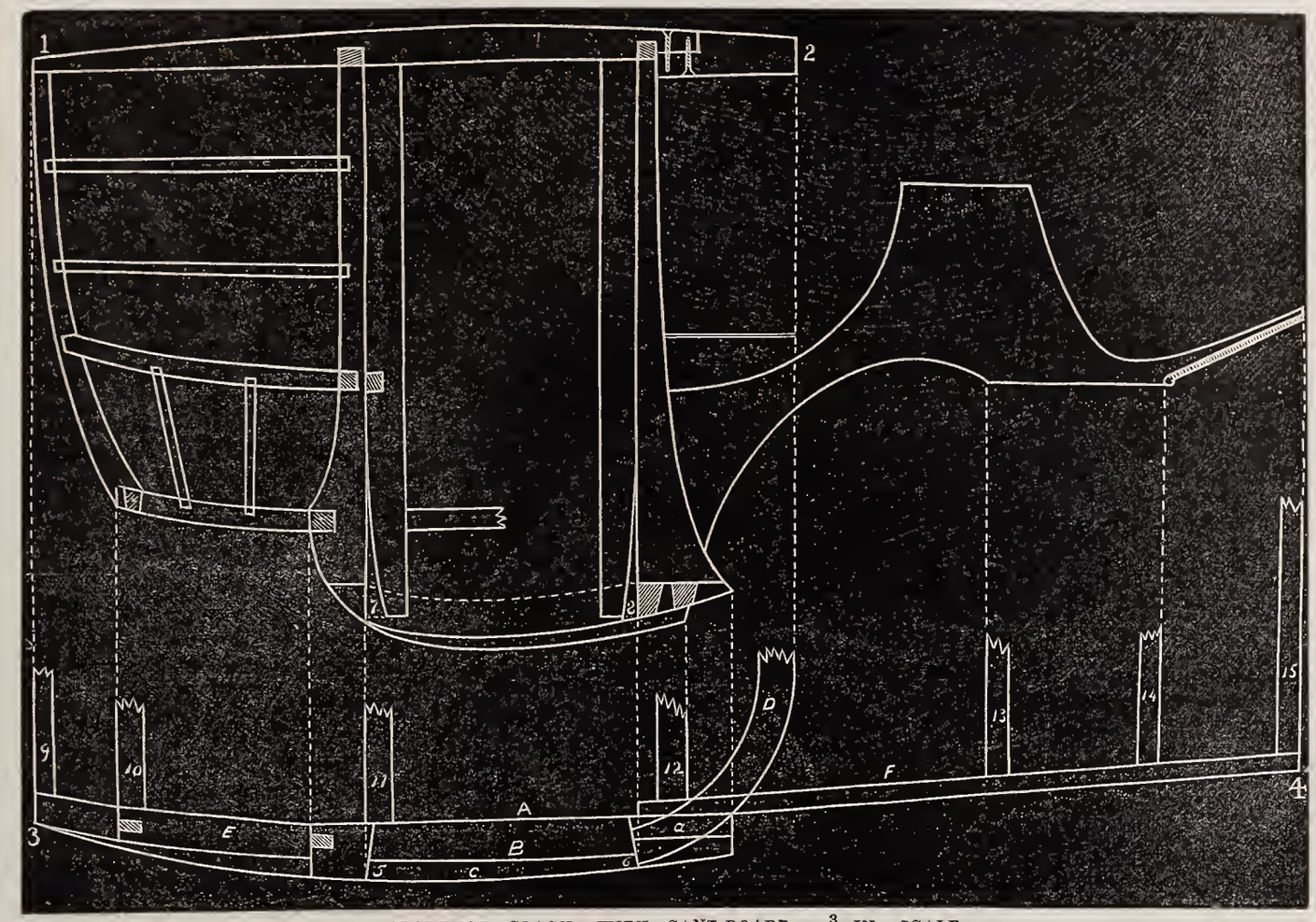
Travelers upon the Midland Railway, between Gloucester and Bristol, cannot fail to have observed in the neighborhood of Lawrence Hill a number of mammoth sheds surrounding a lofty chimney-stack, all of which seem to have grown up, as it were, in the course of a few weeks; and numerous and varied no doubt have been the speculations as to the projected use. What was a short time ago a piece of waste land—having been robbed of the rich clay with which it abounded to supply the neighboring brick-yards—is rapidly being covered with workshops smithies, wagon-sheds, and other buildings necessary to the carrying on of the extensive business in which the Bristol Wagon Company are about to embark. A more eligible site for work of this description cannot possibly be found. The company have secured twelve acres of land—six and a half upon the north side of the Midland Railway, and near to the point at which the line is crossed by the South Wales Union Railway, and five and a half across upon the other or south side.

Thus situated, the company will have immediate access to both the broad and narrow gauge railway systems of the country. Though the works are far from being complete, the *Bristol Daily Post* says they are sufficiently advanced to admit of a pretty general idea being formed of their ultimate extent and their comprehensive character. Side by side are the smith and fitting shops, two large, commodious and lofty buildings. The former is fitted up with twenty-seven forge-fires; and the tedious and monotonous operation of blowing these fires will be performed by steam employed to drive a blast-fan, and the current air thus created is conveyed by pipe to each fire.

In this building is also fitted up one of those ponderous and powerful machines known as steam-hammers, and a furnace for heating the tires of wheels. In the fitting-shop a twenty-five horse-power engine and a large variety of the most improved and costly machinery are being erected. A short distance off is the carpenter's and wood machine shop; another building, 200 feet long by 56 feet wide, in which machinery will be largely employed in manufacturing the wooden portions of the wagons. In another portion of the yard are two wagon shops, 140 feet by 50 feet each, in which the wagons and trunks and carriages—for the directors do not intend to limit their operations to the construction of wagons, as the title of the company would seem to denote—are, to speak technically, "erected;" that is, when all the component parts have been prepared in the different shops they are brought to these sheds and then put together. In the center of these buildings is one of the most substantially-built chimney-stacks we have ever seen. The height of the stack is 92 feet 5 inches, and it is built of Richardson's Almondsbury bricks, the qualities of which are highly spoken of by practical men, and which in appearance much resemble the well-known Staffordshire bricks. Those used in the erection of this stack are especially molded for the building of chimneys, and are a great improvement upon the old style. The bricks resemble in shape a wedge, and when placed together they form a complete circle, and do not leave, as other bricks would, large interstices to be filled up with mortar.

As we have already stated, the site was formerly a brickyard, and considerable difficulty was experienced in obtaining foundations for the buildings, owing to the clay-pits having been filled up with rubble; but after excavating to the depth of fifteen feet, very firm and substantial ground was reached. The directors had resolved upon sinking a well for the purpose of supplying the works with water, but, singular to relate, the men, while engaged in this work, came upon a most prolific well of water, the mouth of which had been closed and covered with rubble to the depth of ten or fifteen feet. The various buildings now erected are only a portion of the complete plan, and they have been so built that they can most readily be extended to meet the requirements of increasing business. The company will commence operations early in the ensuing year, and will give employment to between 500 and 600 men. The architect is Mr. Crisp, of Bristol, and the general contractor is Mr. E. J. Hatherley, of Stokes-croft.—*Lond. Mech. Mag.*

A New Way of Setting Tires.—We present the following from the *Mail-bag*, for the amusement of our readers. A practical man will naturally ask, by what process can one *stretch* the rim or fellies, so as to meet at the joints after the screwing operation. "The tires of the wheels of vehicles are very liable to become loose owing to the shrinking of the fellies of the wheel and the hub, and, more frequently, to the penetration of the ends of the spokes into the fellies and hub. When the tire of the wheel becomes loose from either of the above causes, it has hitherto been the custom to remove the tire, and either cut it, and remold it, and shrink it again on the wheel, or to contract the tire without cutting it, by upsetting it with a machine, many of which are patented for the purpose. Both of these plans are attended with considerable trouble and expense, which it is the object of a new American invention to avoid. This invention consists in applying to the spokes of the wheel a nut and sleeve and a screw, arranged in such a manner that the spokes may be expanded or lengthened at will, and the tire always kept tightly on the wheel."



CLARENCE COACH, WITH CANT-BOARD,—$\frac{3}{4}$ IN. SCALE.

GEOMETRY OF CARRIAGE ARCHITECTURE.

BY A PRACTICAL COACH-MAKER.

PART SEVENTEENTH.—BODY CONSTRUCTION.

THE Clarence Coach we now give, with a cant-board, will be found in this volume, on Plate XIII. With the remark in passing, that we intend hereafter to accompany, when necessary, all the heavy carriage designs with a cant, we proceed:

1. To draw the dotted lines 1 and 2, showing the length of the roof, and next, 4, the extreme length of the body.

2. Lay down the cant-rail as seen between 3 and 4, and draw the dotted lines 5 and 6, giving the width of the door.

3. Next, determine the proper amount of turn-under for the standing-pillars, as shown by the spaces 7 and 8.

4. Draw the lines B and C, giving the side sweeps of the side and roof. The sweep at D shows the curve for the front of the body. The parts numbered from 9 to 15 represent sections of various cross-bars.

A shows the inside of the bottom-side; B the main bottom-side; E the bottom-side for the back quarter; F edge-view of the rocker front.

The strainers for the hind-quarter are shown in their proper position for paneling.

Pen Illustrations of the Drafts.

STANDING-TOP OR COUPÈ ROCKAWAY.

Illustrated on Plate XXXVI.

THE front standing pillar in this design so much resembles that of the coupè that we may very appropriately call it a coupè Rockaway. The back-quarter shaped as this is, not only presents a light side-view, but likewise allows the body to hang much lower, two points not always gained in carriage-building. The portion of the hind-quarter against which the back seat-squab finishes may be either panel or patent leather. Wheels 3 feet 6 inches and 4 feet 2 inches; hubs $7 \times 4\frac{1}{2}$ inches; spokes 1 inch, and rims $1 \times \frac{3}{4}$ inches; body linings blue broadcloth.

SHAM-TILBURY BUGGY.

Illustrated on Plate XXXVII.

IN this instance the sham-pillar is formed by a simple molding. The narrow bearing on which the seat rests is in conformity with the latest French pattern, which aims to give a light appearance to this portion of the car-

riage, which, as may be seen, we have endeavored to carry out in many other designs in this volume. The top joints are still another form, in which modern carriage-builders have sought to improve upon the old S pattern.

ROAD-BUGGY.

Illustrated on Plate XXXVIII.

Nearly all the novelty shown in this design is imparted to it by striping the body in a peculiar manner. Even the *front pillar* is obtained in the same way. It is wonderful how many different looking vehicles, made after the same draft, may be obtained by simple painting. In fact the chief designer *of variety*, just now, is the skillful painter. The principal proportions required in building this buggy have been already given for the road-buggy described on page 120 of this volume.

Sparks from the Anvil.

CARRIAGE SPRINGS.

We continue our specimens in attempts to improve upon the perfect elliptic spring, as illustrated in Fig. 7, page 71 of this Magazine, continued by selections from the United States' Patent Office Reports. We might further show that invention has failed to produce anything better of late than we already had, but of this matter we think our readers are by this time qualified to judge for themselves, without our giving an opinion.

The next example, Fig. 14—probably the best combination elliptic yet invented—consists in the combination of a volute coil with elliptic leaves in such a manner that the two elements, when combined, constitute a spring which may dispense with check-straps, but which certainly has no claim to improvement, simply as a carriage-spring, over its prototype.

Fig. 14.

The next, Fig. 15, is a sort of spring within a spring, which, while complimenting the modesty of the inventor, we cannot pronounce other than a work of supererogation. We give the inventor's description and claim in detail:—"These elliptic springs are combined with supplementary plates which act by lateral tension, and the improvement consists in the method of combining and securing the several bearings and tension-plates which form the entire spring. The main feature consists in the use of hollow caps to retain the ends of the spring-plates." The special claim is "the combinatian of curved tension-spring-plates with elastic bearing plates in the construction of a tension elliptic spring, when such tension-plates are self-retained in their proper positions, and left free to expand independently of each other. Also, the use of hollow-end caps to retain and secure the ends of the elastic plates in an elliptical or semi-elliptical tension-plate spring," &c. The complication about this spring is alone sufficient to prevent its coming into general use, saying nothing of the increased costs of manufacture.

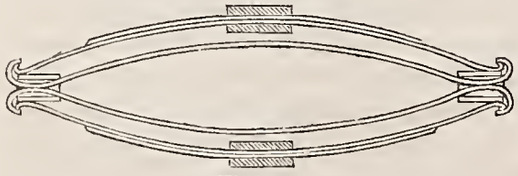


Fig. 15.

Figure 16 appears to be an attempt to improve upon the faulty model which we have already shown on p. 71. This is called by the inventor an adjustable spring, in which he claims "placing India-rubber, or an equivalent yielding surface, between elliptic springs for vehicles, and a similar substance on the top of the bolster or rocker, or underneath the axletree, in combination with a regulating screw and hand or thumb nut, all arranged substantially as and for the purposes specified."

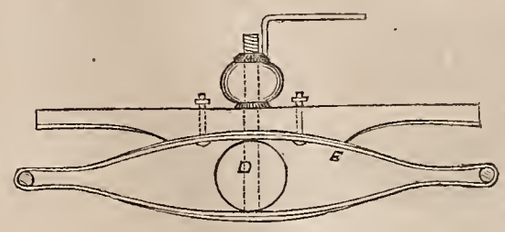


Fig. 16.

This inventor can lay little claim to novelty in his spring, as the rubber, D, has been "inserted between" carriage-springs for more than fifteen years previous to his patent to our certain knowledge, and the "similar substance" on the top of the bolster, or "underneath the axle" makes an already bad enough job, still, less a spring.

From what we have presented in the elliptical line of improvement, it will be seen that very little progress has been made of late years, either in the shape, or the practical adaptation of it as a combination or compensating spring. We think, we risk nothing by saying that so far all attempts at improvement on the old elliptic, invented years ago, in the simple form of Fig. 7, on page 71, have only ended in failures, expense and folly. As before noticed, these vain experiments to improve an already good thing have nearly all been made by individuals, not carriage-makers, and often non-mechanics. This thought, under the circumstances, affords the practical carriage-maker some consolation, and ought to shield him against the reproach of intermeddling criticism.

Our next article will be an attempt to show some of the improvements in other forms of carriage-springs, which may be set down as *offshoots* of the elliptic spring.

Paint Room.

ON THE PREPARATION OF CARMINE.

The fine *Carmine de Langlois*, of Paris, is made by first boiling four pails of river water in a copper boiler. Two pints of this water are drawn off as soon as it boils, upon five eggs, previously beat up, shells and all, in a tureen, and the emulsion thus formed is laid aside to ruse. There is then poured into the boiler a filtered solution of ten Troy drachms of Allicant barrila in four pints of boiling water, and at the same time twenty-eight ounces of cochineal mesteque, coarsely powdered, are added, and boiled for a half an hour, being kept stirred. The boiler is then taken from the fire, fifteen Troy drachms of real Roman alum, powdered, are added, the whole stirred once and left to stand ten or twelve minutes, or until, in the perfumer's phrase, the carmine is come, that is to say, that

the violet color of the decoction is changed to a bright scarlet. The liquor is then poured off into another boiler, the emulsion above mentioned strained and added, and a boil given to the whole, after which it is poured out upon a cloth, strained upon a frame which retains the carmine. The liquid that passes through the strainer is used for preparing lakes.

In the preparation of the superfine carmine of Madame Cenette, of Amsterdam, very different salts are used. Six pails of river water are set on the fire, and, as soon as it boils, two pounds of cochineal mesteque, in fine powder, are added. When the boiling has been continued for two hours, three ounces of purified salt-petre are added, and directly afterwards four ounces of the true sorrel, and the whole left to boil for ten minutes. The boiler is then removed from the fire, and left for four hours to settle. The water is drawn off by means of syphons into a number of turreens, and these are placed on a shelf for three weeks. After a few days a mouldy pelliele appears which is taken off with a sponge. The water is at last drawn off again by syphons; the carmine adheres strongly to the sides of the turreens. It is very bright; so much so, that it fatigues the eye.

There is another carmine, called the Chinese, in which the muriats of tin are employed as follows:—Twenty ounces of very finely powdered cochineal are boiled in a pailful of river water, sixty grains of Roman alum are then added, and the boiling continued for seven minutes. The boiler is then taken from the fire and the liquor strained or decanted into another vessel, and laid by. Aqua regia is prepared by dissolving ten ounces and a half of common salt in a pound of aquafortis, and in this four ounces of filings of Mallara tin are dissolved by adding a little at a time. This solution of tin is then dropped gradually into the decoction of cochineal previously heated, and the carmine falls down. When the carmine is settled, the liquor is decanted. Sometimes soda is used, as in the process of Alyou's carmine, in which two pails and-a-half full of river water are boiled, and a pound of ground cochineal added by degrees. After boiling half an hour, there is added a ley, composed of five drachms troy of soda, dissolved in a quart of water, and then the boiling is continued for another half hour. The boiler is then taken from the fire and placed sloping on a plank; six drachms troy of alum added, and after settling for near half an hour, the bright scarlet liquid is poured off into a basin, and there is added the whites of two eggs, beaten up in a half pint of water. The whole is well stirred, then put on the fire and made to boil, when the whites of the eggs, of course, coagulate. The vessel is then taken from the fire, left for half an hour to settle, the liquid is poured off, and the settling is turned out on a fine cloth to drain. When drained, the carmine is taken off, and dried on plates covered with sheets of white paper. A pound of cochineal bugs yields by this process half an ounce of carmine.

The common carmine is made in France by boiling for a few minutes one pound of powdered cochineal in a copper boiler with five pails of water (of four gallons each), and three drachms and a half troy of salt of tartar. The violence of the boiling is stopped with cold water, and, the copper boiler being taken from the fire, eight drachms of powdered alum is then thrown in, which immediately renders the color more brilliant than it was. In about a quarter of an hour the cochineal settles at the bottom, and the liquor becomes quite clear, which is then poured off into another vessel, placed again on the fire, and some trim Isinglass jelly added to it. As soon as the liquor boils, the carmine rises to the top of the liquor, and a coagulum is formed. The vessel is then taken from the fire and stirred with a wooden spatula. In a quarter of an hour the carmine falls down, the liquor is then drawn off, and the carmine turned out on a fine cloth to dry.

From these receipts it evidently appears that alum is not essentially necessary in the preparation of carmine, for its place may be supplied either by the salt of sorrel, the muriate of tin, or isinglass.

Messrs. Pelletier and Caventon of Paris have separated from cochineal a peculiar principle, which, being the basis of this color, they call "cochenilline", or carminum, and others carmine.

Mr. Editor,—Carmine having been, and still being in use, it occurred to me that it would be interesting to the painters to know how it was manufactured. Hence I trouble you with the above receipts gained from a French painter, who at one time was engaged in the manufacture of it.

I am, sir,
An old correspondent.
J. B. P.

ORIGINAL MONOGRAMS.

Illustrated on Plate XLIII.

This makes the fourth instalment of monograms we have published this year, and completes the quota for this volume. The designing and engraving of these figures entails considerable expense upon us; but to offset this we have the gratification of knowing that they are very satisfactory and useful to a large class of our readers, furnishing, as they do, appropriate lessons for amateur studies. It will give us pleasure to publish, giving credit, would our young friends favor us with some of the fruits of exercise in this line, if on examination they should be thought worthy of a place in the Magazine.

Trimming Room.

OBSERVATIONS IN TRIMMING.

There is seemingly very little change this spring from last year's styles in trimming carriages. We notice that blue cloth continues to be the prevailing stock for lining buggies. This is, in a few instances, varied by using corduroy, but such is not what we would call a taking article at present. It merely answers for some fancy individual who thinks that an article in common use will never do for him.

Narrow laces of silk or worsted are seldom seen in light work now. These have given way to patent leather, cut in strips of suitable width, which, "whipped" around a cord, is used not only for the edges of the cushions, but is sewed in fancy figures or lines in the front and in the falls to the seat.

A new article imported from France, which appears to be manufactured from sheep-skin, of a pliable nature,

has to some extent been used in trimming the heavier class of vehicles. The most approved are claret or wine colors. In connection with this, sheep-skin or morocco, both broad and narrow laces, are employed. Even the cushion fronts are broad lace, of either silk or worsted, oddly combined.

GUMMY OIL ON LEATHER.

In the earlier days, the oil used in the finishing of leather was neatsfoot only; then we heard nothing of gummy leather; but as time rolled on, and neatsfoot oil grew dearer, leather-dressers sought out some cheaper substitute, and the article nearest neatsfoot oil was supposed to be the oil expressed from fish. The hide of the cow or the calf has a strong affinity for neatsfoot oil, of course; even the hide of the horse absorbs this oil, and holds it. This oil does not gum, and will not, when once absorbed by the leather, exude to the surface. Not so with fish oil, however. This is something of quite another character. The oil of the fish differs as much, mechanically, from the oil of the hoof of the ox or the cow as it does from that obtained from the vegetable world, which contains a still larger amount of gummy property. Fish oils are heating or burning in their character, and will ruin any leather they are applied to; the stock hardens, and finally cracks, through the effects of the stuffing, of which this oil is the main ingredient. If fish oil and neatsfoot are mixed, the evil is lessened, and when tallow is incorporated, the bad results of the fish oils are partially warded off; but the application of fish oil to leather kills the substance, and is the prime cause of the gum which is found on the surface.—*Hide and Leather Interest.*

Editor's Work-bench.

☞ Through some mistake in numbering, our Pen Illustrations of the Drafts are duplicates of those on page 152. The error, however, was discovered in time to give a consecutive numbering to the plates.

EDITOR TO THE READER.

One number more will complete the Eighth volume of this Magazine. It affords us much satisfaction to find that, during the past year, our outspoken course with demagogues and imposters has secured for us the good wishes and solid patronage of the honest-hearted, right-thinking men—the only class whose friendship or patronage we have any ambition to retain—among the different branches of the coach-making business. Our sales since December last have greatly exceeded those of any former year; and we have been obliged to refuse some transient customers, to preserve a certain number of volumes perfect, so as to meet the prospective orders for sets hereafter.

It has come to our knowledge, from friends in this and other cities—where the disgraceful work has been undertaken—that a report has been industriously circulated that we intended to stop publishing with the close of this volume. We therefore take this early opportunity of saying to our friends that there is not a word of truth in such report, and that the whole thing is an underhand trick, got up for a special purpose; what such may be our readers can judge for themselves. When we come to the conclusion to stop, our patrons will get the announcement, direct; through our columns. That day, if our life is spared, and health continues, will be some time distant. Therefore, let no *interested* vagabonds deceive you with their stories.

We repeat here what we have said on former occasions, that The New York Coach-maker's Magazine was not originally got up as an enterprize for making money, but as a matter of pleasure, as well as the good of the public. Having no axes to grind, and a competence to carry on this publication, we can afford to be independent, and, if necessary, circulate it gratuitously.

Some have thought five dollars a high price to pay; but what are the facts? There is scarcely a journal which, owing to the continued high price of everything, has not doubled its terms of subscription. Formerly, when we charged only three dollars, our profits were larger than now. Our club rates—which, to meet the wishes of those in limited circumstances, we have put down, to clubs of six or more, to three dollars and fifty cents—are cheaper, when all things are taken into consideration, than has ever been offered before, and barely pays the cost. Such get the work cheap enough, we should think; and, should they not agree with us, we shall not expect their sympathy or patronage. We can get along without them.

To those who have stood by us all through our national troubles, and do still, we return our sincere thanks, and respectfully invite them not only to send in their own subscriptions, but to use their influence to induce their neighbors and friends to do likewise as soon as possible. A special notice will be found on another page of this number, to which the reader's attention is requested.

AN HISTORICAL FRAGMENT.

About ninety miles up the Hudson River from New York is situated Kingston, in the earlier stages of its history known as Esopus. This place was settled by the Dutch as early as 1663, or about two hundred years ago, and was at one time the capital of the State, which fact called down upon its citizens the vengeance of Sir Henry Clinton, the British commander, who burned the place on October 13, 1777. Among the Huguenot population, carriage-making seems to have made but slow progress. It was not until 1826 that fine vehicles for pleasure riding were built here. Before that nothing more than lumber-wagons had been attempted. An old man named Tunis Houghtaling, aged eighty years, a wheelwright, died there a few weeks since.

As previously intimated, about the year 1826, as we are informed by the journeyman who did the work, Pierce Catlin, who is still living at the south end of the village, a Yankee by birth, from the Eastern States (in partnership with Martin Miner in the smith-shop), built a buggy and put under it a pair of steel springs imported from England. The name of the blacksmith who did the iron-work was Spook, last from Troy, but who learned his trade in Philadelphia. This was done to fill the order of *a fast man*, one John Lawrence, a widower. Tunis Houghtaling, James W. Baldwin, and Pierce Catlin were cotemporaries in trade, followed by the two Brothers Wells, at a suburban shop in a place known as "Higginsville." The Wells held the shop for about twenty-five years, then Peter Van Vleck for two more, the latter gentleman being succeeded by Mr. Perine, who still carries on the business. Mr. J. N. Merrit commenced business about 1840; Mr. J. P. Hermance about 1845, he having since been succeeded by Messrs. Curtis, Bowen & Co. Messrs. Merrit & Brooke and Curtis & Co. are the principal carriage-builders in the place now, their work, principally for the home market being creditable to the trade.

NEW YORK WORKINGMEN'S CONVENTION.

The third annual meeting of the Workingmen's Assembly of New York met in the City Hall, in Albany, at noon on the fifth of February. Quite a large attendance from the principal cities and villages in the State were present, interested in the questions of maintaining the price of labor, shortening the hours of work, and limiting the employment of apprentices. These questions have been agitated for some time, but—judging from the interest manifested on this occasion—are apparently getting somewhat stale, probably caused by want of success thus far.

In his opening address, the President, John Parr, gave a history of the labor movements of the past year, and said that it had been singularly eventful to labor reform. The details, however, bore a very discouraging aspect, which seemed to cast a gloom over the future. The eight-hour bill had been thus far defeated in the New York Legislature, and the house painters and ship caulkers, who stood out for higher wages last summer, had been unsuccessful in their object, and it would seem that there was no remedy left but such as might be afforded them by legislation. Even *Fincher's Trades' Review* has not been as liberally supported as its object demanded, and has now been discontinued, leaving the laboring classes without a national organ. These failures have somewhat dampened the hopes of the weak-hearted, but has had the effect of nerving the more resolute to redoubled activity in the cause of labor reform. A new bill has already been presented to the Legislature, the main object of which is to shorten the hours of daily toil, with some hopes that it will pass.

The President thought that the apprenticeship question was one of the greatest importance, both to journeymen and employers, as it looks to the production of a better class of mechanics. No great opposition would be made by employers to the agitation of this subject, he thought. It is thought that more stringent laws are needed to secure the workman his wages, and that an income to the amount of $1,000 should be exempt from tax. Mr. Parr closed his address by inviting a careful consideration of the matters in the Secretary's report, and a cultivation of the sense of dignity in labor in the workingman. After presentation of delegates, the remainder of the first day was chiefly occupied in electing officers for the coming year, with the following result:

President, Wm. W. McArthur, of Troy, Painter.
Secretary, James Conway, of Albany.
Treasurer, John Parr, of Albany.

The morning of the second day was spent in hearing reports from various local unions, the remainder of the day being occupied in discussing the eight-hour question. Mr. Jessup, a delegate from New York City, introduced a resolution virtually introducing the principles of the National Labor Congress, held in Baltimore, in August, 1866, which he wished indorsed by the Assembly. The object is in favor of the eight-hour movement, and deprecating strikes. Wm. W. McArthur, the new President, having vacated the chair, and substituted a delegate, took the floor against the resolution, confining himself to the eight-hour subject. He said he thought it unwise to press the matter now, as there were questions of equal importance requiring attention. Laboring men were receiving good wages, which they might lose in attempting to grasp after more. As a matter of prudence, he insisted that pressing the subject now is injudicious, and as a matter of right, a day of eight hours would be of doubtful advantage, even if made so by law. He thought that interference between capital and labor would jeopardize the interests of the workingman.

This called to his feet, Mr. Jessup, who expressed his astonishment at the President's opposition to the eight-hour movement, and had he known this yesterday, he never would have voted for him. Omit this eight-hour question before this Assembly, and he, with the entire New York delegation, would take their carpet-bags and leave for home, never to return.

Mr. Spencer, ex-polisher, from Cohoes, aroused by the President's remarks, pronounced them encouraging to capitalists; but consoled himself with the idea that the movement would go forward to success in spite of every obstacle. He intimated that all opposition to the law

eame from men who were afraid to pronounce themselves in favor of it.

Mr. John Morris, a Trojan shoemaker, took sides with the President. The eight-hour movement all sprang from a false theory,—that men could do less work and receive the same wages they do now. This was delusive. Diminish the hours of labor and you lessen the wages of labor. Besides, if less articles were manufactured, the workingmen would have to pay higher for their purchases. The result of the discussion was to press the question vigorously upon the State Legislature.

The morning session of the third day was taken up in discussing amendments to the Constitution, confining the delegates from subordinate unions to one each. In the afternoon, a communication was read from Cohoes, asking that the hours of labor for children in factories be reduced to ten, and forbidding the employment of small children, the day being consumed with the consideration of the President's address, the apprenticeship system, prison labor, securing wages to operatives, and exempting $1,000 from internal revenue taxation.

The fourth and last day of the Convention was spent in adopting resolutions favorable to at least semi-monthly payments of wages, and petitioning the Legislature to pass a law giving labor the preference over all other claims in cases of insolvency, and in favor of the indenture system as regards apprentices, and the abolition of taxes on incomes of $1,500 and under.

In consequence of the President's unfavorable views of the eight-hour system, he was induced to resign, and Mr. Jessup, of this city, was elected to fill his place. The next Labor Congress of the workingmen was appointed to be held in Chicago, the Convention adjourning *sine die*.

[This article should have appeared in the March number—it having already been put in type—but was unavoidably laid over for lack of space.]

FIFTH AVENUE AND CARRIAGE-MAKING.

We learn from a source entitled to credit, that our friends, Messrs. Brewster & Company, of Broome Street, have leased for a term of ten years the large building on the northwest corner of Fifth Avenue and Fourteenth Street, in this city, opposite Delmonico's, which they intend on the first of May next, to alter to suit their purpose, and occupy as a repository or salesroom for their own manufactures. It is not their intention to manufacture there—this will be continued in their present location—but the appearance on this aristocratic street of anything having a look of business, especially carriage-making, will have the tendency to mortify the pride of aristocracy, and excite the wonderment of the mechanical fraternity as to the result. We abide the *denouement* with some curiosity, since this may be but the opening wedge to business in the finest street of this metropolis.

PARISIAN FASHIONS.

We translate from the *Mercure Universel* the following news for our Magazine, that our readers may have some idea of trade in Paris.

Landaus of every form and size are now constantly made, both for one and two horses. We have descriptive designs of such with windows opening with the doors; landaus mechanically opening by machinery beneath the seat; landaus with shortened tops; landaus with eight glass windows, opening as usual, but without the circular fronts visible; landaus with curved joints; landaus with rotating joints; landaus both with simple and complicated steps, and landaus with loose linings.

Some clarances are made in the shape of landaus. This means that there is no pillar in the center of the circular front, and that the side windows slide towards the door windows.

There are some few landaulets running. Basket wagons have "played out", being replaced by other more pretentious little vehicles.

Bordeaux is a city of fine inventions. Messrs. Laumonier & Gaudin have invented a window glass which works very well, and Mr. Bareyre, an ingenious carriage-maker of the same city, has invented a description of landau covering, the advantage of which is that the bow works as shown on our plate. [This we may illustrate at another time.] The disadvantage in all old constructions has been, that in order to lay the front bow down even with the pillar, an allowance had to be made for the leather, which gives a very bad finish to it.

AMENDED INTERNAL REVENUE LAW.

Congress, during its last session, revised and amended some of its acts of the previous year. The law, as it now stands, fixes the assessment of the tax in March, making the same payable in April, two months earlier than heretofore. We notice here some of the changes, as they seem to affect the carriage-making business.

On all wood-screws the tax is now five per cent., instead of ten; on leather of all descriptions, including goat, deer, calf, kid, sheep, horse, hog and dog skins tanned, &c., and on all articles of wool, or of which wool is the chief component material, or the component material of chief value, two and a half per cent. *ad valorem*.

The free list consists of bar, rod, hoop, band, sheet, and plate iron, of all descriptions, and iron prepared for the manufacture of steel, provided they are not manufactured into spikes, nails or other articles on which taxes are imposed; glue, sleds, wheelbarrows and hand-carts, thimble-skeins and pipe boxes, made of iron, ultra-marine blue, varnish, wagons, carts and drays, made to be used for farming, freighting, or lumbering purposes. This amendment does not relieve the trade of that odious fea-

ture of the old law—compound taxation—of which we have reason to complain. Perhaps this is owing more to the indifference of the sufferers, in not properly presenting grievances to the consideration of the committee, than to any act of the Congressional body.

EDITORIAL CHIPS AND SHAVINGS.

Historical Scraps.—The earliest carriages were imported into New York from Dublin in 1766, with workmen to repair others, who were the Dean Brothers—Elkanah and Williams. Their advertisement proposed to open as a new affair the construction of all manner of carriages at five per cent. below importation prices, and have *brought out* workmen at great expense, to make "coaches, chariots, Landaus, phaetons, post-chaises, *curricles*, chairs, sedans and sleighs;" also to "gild and japan and carve, and paint,".. A curricle but little used for sale with a pair of blood-horses, at "Larey's stable" was advertised in 1761.. The first carriage of the coach kind ever owned in Philadelphia was judge Allen's. This was of the phaeton or Landau kind and had a seat in front for children, and was drawn by four black horses. Springs were in use as early as 1766, the mail-stage called a "Flying-machine" being advertised to go through from New York to Philadelphia in two days, with good wagons and seats on springs" at three-pence a mile, or twenty-shillings through. This stage was owned in Philadelphia ..The carrying of the mail between New York and Philadelphia, after the Revolution was but a small affair and was carried in a saddle-bag, on horse-back by a boy three times a week. Afterwards it was enlarged and taken in a sulky, and still the wonder grew, and then they took off the body and run it in a large bag, on a platform, set on the wheels, until it outgrew all expectations.

Cheap European Travel.—A correspondent, writing from Europe, thus closes his record of a tour:—"I am now safely through a host of extortioners, in the shape of hotel keepers, waiters, guides, hack drivers, etc., etc. I have only to run the gauntlet of a few more in the United States. As I look over to the American shore, I see a whip, a pair of crack horses, and a carriage behind them, and a driver which is to redeem, in my eye, all the exactions of similar characters in Europe. 'Five dollars for a carriage from Hoboken to a New York hotel!' exclaimed a Bremen hack driver, to whom I had stated the usual charge in New York, after I had paid him forty cents for a similar service; 'that's stealing!' In South Germany even forty cents would be called by a similar ugly name. Thus traveling morality changes; and as I call over in my memory the several charges in hotels, at railroads, and in stage coaches, I forgive all in the awful presence of American rulings on this subject."

Early Travel in Western New York.—The road from Fort Schuyler (Utica) to the Genesee, which in 1797 was little better than an Indian path, is stated by Capt. Williamson as being in 1799 so far improved that a stage started from Fort Schuyler in September, to arrive at Geneva on the third day, with four passengers. In the winter of 1797 two stages ran from Geneva and Canandaigua to Albany weekly. In 1815, Samuel Hildreth began to run a stage, and to carry the mails, twice a week between Canandaigua and Rochester, a distance of twenty-eight miles. "Only nineteen years preceding our journey," says one who traveled over the route in 1828, "a friend of ours who had gone in the first gig that had reached Niagara, and although it was drawn by two horses tandem, he was a whole day in going over a route of sixteen miles, much filled with 'corduroy' logs."

Coaching to Brighton.—An English paper says that "one of the most popular fashionable amusements of the day is to run down to Brighton, an English watering place, on the new stage coach, when the chances are ten to one that the amateur coachman is a member of the aristocracy. This is another proof of the vicissitudes of taste, that, in the days of the rail, a light four-horse coach should again appear and be supported upon the road. We fancied, to parody a line of a popular ballad, the light coach of other days had faded, and its glories passed away. Such, however, seems not to be the case."

Cartmen in the Olden Times.—In 1676, all the carmen in the city [New York], to the number of twenty, were ordered to be enrolled, and to draw for 6*d.* an ordinary load, and to remove weekly from the city the dirt of the streets at 3*d.* a load. The dustmen, becoming wrathy, refused to comply, consequently the "seout Burgomasters and Shepens" [Sheriffs] forthwith "dismayed" the whole body of carmen, by divesting all of their license who should not appear as usual at the public dock, pay a fine and make their submission. Only two succumbed, the rest were enjoined from further business, so a new set came into existence. As late as 1784 carts were not allowed to have any tires on the wheels.

Clip King-bolts.—Messrs. D. Smith & Co., Springfield, Mass., write us:—"We have made the clip king-bolt, with shoulder attachment, more or less ever since they have been made. We can show a rockaway built in the fall of 1863, with shoulders to the king-bolt—don't believe Mr. Phelps' patent will hold."

Wooden Horse Punishment in New York.—This punishment was inflicted upon two soldiers, for some crime not stated, in December, 1638, being made to sit on one for two hours. This was a military punishment for certain crimes, copied from a Holland custom. The soldier strode a sharp back, and his body was forced down to it by a chain and iron stirrup, or a weigh tfastened to his legs.

Dutch Punishment for Quakers.—In 1657 sundry Quakers in New York, under Petrus Stuyvesant's administration, "for publicly declaring in the streets," were put in the dungeon, and Robert Hodgson was led at a cart tail, with his arms pinioned, then beaten with a pitched rope until he fell; afterwards he was set to the wheelbarrow to work at hard labor. This continued until a sister of the Governor, moved to pity, persuaded him to set the *culprit* free.

LITERARY NOTICE.

The American *Gardener's Assistant*, in three parts, containing complete practical directions for the cultivation of vegetables, flowers, fruit trees, and grape vines. By Thomas Bridgeman, Gardener, Seedsman, and Florist. New edition; revised, enlarged, and illustrated, by S. Edwards Todd. New York, William Wood & Co. Such is the running title of a volume which now appears in a new dress, with a number of fine engravings illustrative of the subjects treated of. The work has met with

much favor from the public, and the sales, consequently, been large. This second edition, with important additions from a practical pen, must greatly increase its value and recommend it to all who may be so fortunate as to own a garden (which we are not), or to till a yard (which is our lot) in a crowded city.

Patent Journal.

AMERICAN INVENTIONS.

January 1, 1867. (60,972) Hollow Auger.—Joseph Ward, New York City:

I claim, *First*, The arrangement within the case A, of the cutter-stock B, constructed with discharge throats C, and adapted for adjustment by means of the cam *e*, and guides *a*, as and for the purposes specified. *Second*, The within described tool, adapted for cutting tenons and boring holes simultaneously, constructed and operating in the manner and for the purpose specified.

(61,053) Paint Brush.—William Cover, Jenner's Cross Roads, Pa.:

I claim, *First*, A brush provided with a tubular handle B, and having the reservoir C, attached thereto, substantially as shown and described. *Second*, The combination of the brush A, tubular handle B, reservoir C, and the compressing device, E, *b*, arranged to operate substantially as set forth.

(61,070) Whip-stock.—Liveras Hull, Charlestown, Mass.:

I claim, *First*, The improved whip-stock, made substantially as described, viz: with each of its rattan strips *b*, having its joint with the next strip arranged in the plane of that face of the heart-piece to which the former strip may be applied, the strips and heart-piece being glued together and subsequently turned into shape, as set forth.

15. (61,188) Carriage-boot.—P. Tenney Gates, Plattsburgh, N. Y.:

I claim, *First*, The boot A, constructed substantially as described, and used as and for the purpose herein set forth. *Second*, The dash-cover provided with its flaps D, and straps *d*, when constructed as set forth and used as specified. *Third*, The combination of the dash-cover C, and boot A, when formed as herein fully described, and used with the dash of a vehicle, either stationary or adjustable, in the manner and for the objects described.

(61,230) Carriage Thill Coupling.—Simeon Mills, Madison, Wis.:

I claim, *First*, The socket D, formed solid, with the exception of the slot for the pivot, substantially as described, whether fastened to the draw-bar or clip, or on axle-band. *Second*, The combination of the solid socket D, slide F, and flanges *b b*, on the thill-iron.

(61,235) Carriage Thill Coupling.—Peter Myers, Newton, Ill.:

I claim the construction and arrangement of the coupling iron J, spring E, follower F, thill-iron G, safety-button or spring C, grooves *p p*, all for the purposes as above set forth.

(61,246) Carriage Brace.—James B. Pelton, assignor to D. H. Wood, Sandusky, N. Y.:

I claim the combination and arrangement of the braces G, with the ordinary elliptic springs C, and the body A, in the manner shown and described, that is to say, the braces forming simple bars attaching to the body and connecting with the upper half of the elliptic springs, so that while both the body and springs are united and braced against rocking and swaging the springs are unincumbered and allowed their natural, free and unimpeded elastic action, and the bars are hidden from sight as herein set forth.

(61,288) Paint Burner.—W. W. Wakeman, Jun., Brooklyn, N. Y., and R. Ross, New York City.

We claim, *First*, The within-described apparatus adapted for projecting flame obliquely in a central stream upon painted surfaces, and allowing of being moved about and tilted, substantially as and for the purpose herein set forth. *Second*, The cover K, *k*, in combination with the dish formed and provided as above represented, and adapted to receive sufficient quantities of air at the sides and to expose only a small area of the upper surface of the vessel through which the jet of flame may issue, substantially as and for the purpose herein specified.

(61,292) Paint and Varnish Brush.—George A. White, Boston, Mass.

I claim combining with the ferrule *a*, the fender wires *c*, and binder-cord *d*, substantially as described. Also, in combination with such binder-cord, I claim the paper cylinder *c*, or its equivalent, substantially as set forth.

(61,293) Carriage-hub.—James M. Whiting, Providence, R. I.

I claim, *First*, A carriage-hub made with its central part for receiving the spokes and elastic cylinders of bronze, combined with the conical sleeves of iron, forming in two pieces the axle-box and nut for comprising the elastic cylinders, and the external covering for these, and forming the two ends of the hub. *Second*, The conical-shaped elastic cylinders in packing. *Third*, The ventilated air-space between the axle-box and the packing. *Fourth*, The tips and slots for preventing the turning of the sleeve in screwing and unscrewing, with the holes giving access to the external air, all made and operating substantially as described, or their mechanical equivalents.

22. (61,310) Thill Coupling.—John F. Bridget, Washington, D. C.

I claim the combination of the set-screw G, and socket-plate H, and spring K, operating to raise the end of the thill in its bearings, substantially as and for the purpose described.

(61,329) Tail-board for Wagons.—Joseph O. Farrell, Chicago, Ill.:

I claim providing the tail-boards with a double latch constructed substantially as described, that is to say, consisting of a rod, and two rack-bars rigidly connected and vibrating in journals in or on the tail-board under the impulse of the hand or of the spring, so that they shall traverse the openings in the braces I, as the tail-board is moved, and when abandoned to the influence of the spring shall afford support to the tail-board by the engagement of the notches, subtantially as described.

(61,337) Cans for Paints, etc.—William A. Hopkins, New York City:

I claim the combination of the can, cover, ears and clamps, when the same are combined, constructed and operated substantially as shown for the purpose specified.

(61,402) Wheel and Axle Connection.—Henry S. Cook, Boston, Mass.:

I claim the improved carriage-wheel and axle connection, consisting of the plates *a* and *e* (with their studs *c*, *c*, *c*, and openings *f*, *f*, *f*), operating in combination with the collar h, as described. I also claim, in combination with the above-described arrangement of parts, the pawl *i*, or its equivalent, substantially in the manner and for the purpose as set forth.

29. (61,507) Wagon-seat.—Jacob Beck, Williamsville, Ill.:

I claim the wagon-seat A, provided with suspension rubber springs *a*, in combination with a wagon-box provided with two or more rods *c*, substantially as and for the purposes specified.

(61,523) Wagon.—James Dowd, Boston, Mass.:

I claim the improved jigger as made with the neck or arm B, combined and arranged with its platform A, the sweep-

frames, their supporting springs and front axle, the whole being substantially as described. I also claim the application of the driver's seat or the same and the foot-rest to the arm or neck B, extending from the platform A, and over the front wheel sweep-frames and axle, as set forth.

(61,601) Carriage-clip.—Walter Bound, Hackensack, N. J. Ante-dated Jan. 19, 1867:

I claim, *First*, The hinged end-piece E, in combination with the bolt D, and frame B, C, substantially as herein set forth, for the purpose specified. *Second*, The spring F, provided with the lip *c*, and applied in relation with the hinged end-piece E, bolt D, and frame B, C, substantially as herein set forth, for the purpose specified.

FOREIGN INVENTIONS.

April 30, 1866. Improvements in or applicable to Carriages.—G. Davies, Serle street, Lincoln's Inn, London:

The first part of these improvements relates to a mode of holding and controling horses, the means therefor being attached to a convenient place on the front of the carriage and managed by the driver. The second part of the invention consists in making the axle-tree in two parts and coupling them together at the center by certain special means. The third part of this invention consists in placing on the axle-tree of the carriage (or in any equivalent position), near the nave of the wheel, a piece of metal or other suitable substance, having projecting arms of a sufficient length and placed in such positions as to support a guard projecting over the tire of the wheel above, and around the wheel as far forwards and backwards as may be deemed necessary to prevent the mud and dirt from being thrown from the periphery of the wheel upon the carriage, its occupants, or the horses. The fourth part of the invention consists in attaching a guard to the ends of the carriage shafts of single-horse vehicles in such a manner that it will be impossible for the reins to catch around the ends of the shafts.

May 2, 1866. Carts, Wagons, etc.—R. Brierly, Walton-le-Dale, near Preston:

This invention relates to arranging the frame and body of a cart, wagon, or lorry (?), so that loads of any weight or bulk up to three tons may be easily drawn with one horse, and unloaded with less power and less inconvenience than usual. To effect this purpose the inventor uses three or four wheels as convenience may dictate; the fore wheel or wheels will be made to work under the frame, and swivel on a plate or otherwise in the ordinary "Dobbin" wheel manner; these are placed under the frame connected to the shafts and the axle of the hind wheels, and these hind wheels he makes larger in diameter, say seven feet and equivalently broad, to support the load without injuring the roads. He does not confine himself to any particular size of wheels, as he may vary such wheels according to the size and use of the vehicle. To the axle of the hind wheels he hinges the body in the ordinary way for tilting to unload, the tilting apparatus consisting of one or two quadrants, with slide brackets on the side of the body for quadrants to work in, and on the inside or outside of such quadrants teeth are made to form a rack, into which he works a pinion for tilting. *Not proceeded with.*

May 10, 1866. Carriages or Vehicles running on two Wheels.—W. Botwood, Ipswich:

This invention consists in so connecting the shafts with the vehicle that the motion of the horse may be much less felt than heretofore, and also that the length and height of the shafts may be adjusted to the size of the horse intended to be used, and the body of the vehicle remain level whether the horse be tall or short. The patentee arranges the shafts to pass along each side of the body of the vehicle and to enter sockets at the back thereof. The fore parts of the body on each side are also connected with the shafts, so that the shafts are able to pivot on the points of attachment. The shafts are made of elastic wood, such as lance-wood, and on each step of the horse they are free to bend from end to end over the fulcrum or pivot which connects the fore part of the body to them. In consequence of the spring of this long length but little horse motion is communicated to the body of the carriage. The bending of the shafts in this manner could not take place freely were they rigidly connected to the body at their hinder ends, but the slight to-and-fro movement which the sockets admit enables the portions of the shafts behind the pivots or fulcrums to bend as described. The sockets are lined with leather to prevent noise, and the shafts are tipped with brass at their rear ends to cause them to slide more freely in the sockets. The pivots or fulcrums are pins projecting from the body on each side and passing through loops fixed on the shafts. For the purpose of adjusting the length of the shafts to correspond with the length of the horse, the loops on the shafts are made of considerable length, so as to allow the shafts to move a distance lengthwise on their pivots or fulcrums and there are locking-levers jointed to the shafts to hold the pivots or fulcrums at either end of the loops, or it may be in a position intermediate of the length thereof. Springs keep these locking levers down, except when they are purposely raised to shift the shaft in or out. To give the adjustment required for the height of the horse, the sockets at the hinder end of the body are arranged so that they can be raised or lowered by means of screws. The sockets are bound at the two ends of a bar passing across under the body from side to side through guides, which allow it to rise and fall vertically. In these guides screws are fitted so that they can be turned by movable handles, but the screws cannot otherwise move independently of the body. The screws pass through the socket-bar through holes formed with corresponding screw-threads, so that by turning the screws the socket-bar is moved up towards or down away from the body, and thus the required movement is given to the shafts about their pivots or fulcrums.

May 18, 1866. Doors for Landau and other Carriages similar thereto. P. Derilliard and A. Postweiler, Paris, France:

The great objection to the present mode of manufacturing the doors of landaus and other similar carriages is that they cannot be opened without first lowering the glass, otherwise it would be broken. In order to overcome this drawback the patentees make the door in appearance similar to any ordinary carriage-door, having the frame-work complete and independent of that connected to the hood of the carriage, such part being so arranged simply to admit of the door opening and shutting freely. These two parts, that is to say, that fixed to the hood of the carriage and that forming the frame of the door, are so connected by hinges as to allow of all the parts moving and folding together when the hood is thrown back, and this without in anyway interfering with the frame of the carriage. When the hood is closed the door *in situ*, that part of the frame-work connected to the hood at the upper part of the carriage is secured by a tenon, and that of the door by means of screws, bolts, catches, and other suitable fastenings. The opening and shutting of the hood is precisely the same as usual, these improvements consisting in the adaptation of a jointed frame work to the door, so as to make it entire and capable of being readily folded together with the parts connected with the hood in opening the carriage, and by this mode of construction the necessity of lowering the glass each time of opening the door is dispensed with.

June 1, 1866. Wheeled Carriages.—C. Brantigan, St. Petersburg.

This invention relates to the connection of the bodies of common road carriages with the axles carrying the fore-wheels, and consists in dispensing with the perch and wheel plate upon which, in carriages of the ordinary construction, the under carriage turns, and in substituting therefor two horizontal locking wheels or rings, fitted one within the other.

CURRENT PRICES FOR CARRIAGE MATERIALS.

CORRECTED MONTHLY, FOR THE NEW YORK COACH-MAKER'S MAGAZINE.

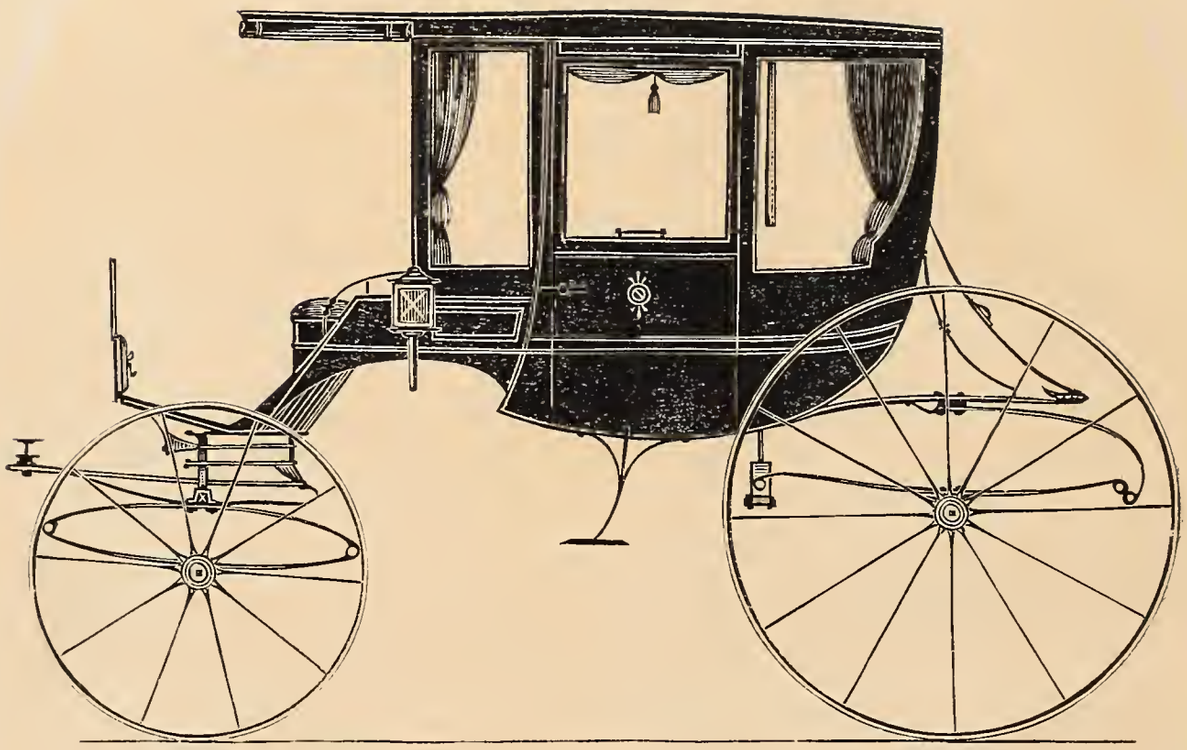
New York, March 18, 1867.

Apron hooks and rings, per gross, $2.00.
Axle-clips, according to length, per dozen, 75c. *a* $1.25.
Axles, common (long stock), per lb, 10c.
Axles, platin taper, 1 in. and under, $6.50; 1⅛, $7.50; 1¼, $8.50; 1⅜, $9.50; 1½, $10.50.
Do. Swelled taper, 1 in. and under, $7.00; 1⅛, $8.25; 1¼, $8.75; 1⅜, $10.75; 1½, $13.00.
Do. Half patent, 1 in. and under, $10.00; 1⅛, $11.00; 1¼, $13.00; 1⅜, $15.50; 1½, $18.50.
Do. do. Homogeneous steel, ⅝ in., $14.00; ¾, $14; ⅞, $15.00; long drafts, $4 extra.
☞ These are prices for first-class axles.
Bands, plated rim, under 3 in., $2.00; 3 in., $2.25, and larger sizes proportionate.
Do. Mail patent, $3.00 *a* $5.00.
Do. galvanized, 3½ in. and under, $1; larger, $1 *a* $2
Basket wood imitations, per foot, $1.25.
☞ When sent by express, $2 extra for a lining board to a panel of 12 ft.
Bent poles, each $1.50 to $2.00.
Do. rims, under 1⅛ in., $2.25 per set; extra hickory, $3.25 *a* $4.00.
Do. seat rails, 50c. each, or $5.50 per doz.
Do. shafts, $7.50 per buudle of 6 pairs.
Bolts, Philadelphia, list. 10 off.
Do. T, per 100, $3 *a* $3.50.
Bows, per set, light, $1.50; heavy, $2.00.
Buckles, per grs. ½ in., $1.50; ⅝, $1.50; ¾, $1.70; ⅞, $2 10; 1, $2.80.
Buckram, per yard, 25 *a* 30c.
Burlap, per yard, 20 *a* 25c.
Buttons, japanned, per paper, 25c.; per large gross, $2.50.
Carriage-parts, buggy, carved, $4.50 *a* $6.
Carpets, Brussels, per yard, $2 *a* $3; velvet, $3 *a* $4.50; oil-cloth 75c. *a* $1.
Castings, malleable iron, per lb, 20c.
Clip-kingbolts, each, 40c., or $4.50 per dozen.
Cloths, body, $4 *a* $6; lining, $3 *a* $3.50. (See *Enameled.*)
☞ A Union cloth, made expressly for carriages, and warranted not to fade, can be furnished for $2.50 per yard.
Cord, seaming, per lb, 45c.; netting, per yard, 8c.
Cotelines, per yard, $4 *a* $8.
Curtain frames, per dozen, $1.25 *a* $2.50.
Do. rollers, each, $1.50.
Dashes, buggy, $2.75.
Door-handles, stiff, $1 *a* $3; coach drop, per pair, $3 *a* $4.
Drugget, felt, $2.
Enameled cloth, muslin, 5–4, 50c.; 6–4, 90c.
Do. Drills, 48 in., 75c.; 5–4, 85c.
Do. Ducks, 50 in., $1; 5–4, $90c; 6–4, $1.15.
☞ No quotations for other enameled goods.
Felloe plates, wrought, per lb, all sizes, 25c.
Fifth-wheels wrought, $1.75 *a* $2.50.
Fringes, festoon, per piece, $2; narrow, per yard, 18c.
☞ For a buggy top two pieces are required, and sometimes three.
Do. silk bullion, per yard, 50c. *a* $1.
Do. worsted bullion, 4 in. deep, 50c.
Do. worsted carpet, per yard, 8c. *a* 15c.
Frogs, 75c. *a* $1 per pair.
Glue, per lb, 25c. *a* 30c.
Hair, picked, per lb, 55c. *a* 75c.
Hubs, light, mortised, $1.20; unmortised, $1.—coach, mortised $2.
Japan, per gallon, $2.75.
Knobs, English, $1.40 *a* $1.50 per gross.
Laces, broad, silk, per yard, $1.00 *a* $1 50; narrow, 10c. to 17c.
Do. broad, worsted, per yard, 50c. *a* 75c.
Lamps, coach, $18 *a* $30 per pair.
Lazy-backs, $9 per doz.
Leather, collar, dash, 32c.; split do., 18c. *a* 21c.; No. 1, top, 32c.; No. 2, enameled top, 30c.; enameled Trimming, 30c.; harness, per lb, 50c.; flap, per foot, 25c.
Moquet, 1½ yards wide, per yard, $8.50.
Moss, per bale, 10c. *a* 18c.
Mouldings, plated, per foot, ¼ in., 14c.; ⅜, 16c. *a* 20c.; ½, lead, door, per piece, 40c.
Nails, lining, silver, per paper, 7c.; ivory, per gross, 50c.
Name-plates.
☞ See advertisoment under this head on 3d page of cover.
Oils, boiled, per gallon, $1.60.
Paints. White lead, ext. $14.50, pure $15.50 pr. 100 lbs.; Eng. pat. bl'k, 40c.
Pole-crabs, silver, $5 *a* $12; tips, $1.50.
Pole-eyes, (S) No. 1, $2.35; No. 2, $2.60; No. 3, $2.85; No. 4, $4.50 per pr.
Sand paper, per ream, under No. 2½, $5.50; Nos. 2½ & 3, $6.
Screws, gimlet, manufacturer's printed lists.
Do. ivory headed, per dozen, 50c. per gross, $5.50.
Scrims (for canvassing), 16c. *a* 25c.
Seats, buggy, pieced rails, $1.75; solid rails, $2.12.
Shaft-jacks (M. S. & S.'s), No. 1, $2.65; 2, $3.10; 3, $3.35.
Shaft-jacks, common, $1.35 *a* $1.50 per pair.
Do. tips, extra plated, per pair, 25c. *a* 50c.
Silk, curtain, per yard, $2 *a* $3.50.
Slat-irons, wrought, 4 bow, 75c. *a* 90c.; 5 bow, $1.00 per set.
Slides, ivory, white and black, per doz., $12; bone, per doz., $1.50 *a* $2.25; No. 18, $2.75 per doz.
Speaking tubes, each, $10.
Spindles, seat, per 100, $1.50 *a* $2.50.
Spring-bars, carved, per pair, $1.75.
Springs, black, 19c.; bright, 21c.; English (tempered), 26c.; Swedes (tempered), 30c.; 1½ in., 1c. per lb. extra.
If under 36 in., 2c. per lb. additional.
☞ Two springs for a buggy weigh about 28 lbs. If both 4 plate, 34 to 40 lbs.
Spokes, buggy, ⅞, 1 and 1⅛ in. 9½c. each; 1⅛ and 1¼ in. 9c. each; 1½ in. 10c. each.
☞ For extra hickory the charges are 10c. *a* 12½c. each.
Steel, Farist Steel Co.'s Homogeneous Tire (net prices); 1 x 3–16 and 1 x 1-4, 20 cts.; 7-8 x 1-8 and 7-8 x 3-16, 23 cts.; 3-4 x 1-8 25 cts.; 3-4 x 1-16, 28 cts.
Do. Littlejohn's compound tire, 3-16, 10½c.; 1-4, 10¼.; 3-4 x 5-32 a 11 c; heavier sizes, 9¾c. currency.
☞ Under no circumstances will bundles be broken to furnish a single set—bundles weigh from 110 to 120 lbs. each.
Stump-joints, per dozen, $1.40 *a* $2.
Tacks, 8c. and upwards per paper.
Tassels, holder, per pair, $1 *a* $2; inside, per dozen, $5 *a* $12; acorn trigger, per dozen, $2.25.
Terry, per yard, worsted, $3.50; silk, $8.
Top props, Thos. Pat, wrought, per set 80c.; capped complete, $1.50.
Do. common, per set, 40c.
Do. close-plated nuts and rivets, $1.
Thread, linen, No. 25, $1.75; 30, $1.85; 35, $1.80.
Do. stitching, No. 10, $1.00; 3, $1.20; 12, $1.35, gold.
Do. Marshall's Machine, 432, $2; 532, $2.10; 632, $2.60, gold.
Tufts, common flat, worsted, per gross, 20c.
Do. heavy black corded, worsted, per gross, $1.
Do. do. do. silk, per gross, $2.
Do. ball, $1.
Turpentine, per gallon, $1.
Twine, tufting, per ball, 50c.; per lb, 85c. *a* $1.
Varnishes (Amer.), crown coach-body, $5.50; nonpareil, $6.50.
Do. English, $6.25 in gold, or equivalent in currency on the day of purchase.
Webbing, per piece, 65c.; per gross of 4 pieces, $2.40.
Whiffle-trees, coach, turned, each, 50c.; per dozen, $4.50.
Whiffle-tree spring hooks, $4.50 per doz.
Whip-sockets, flexible rubber, $4.50 *a* $6 per dozen.
Do. hard rubber, $9 to $10 per dozen.
Do. leather imitation English, $5 per dozen.
Do. common American, $3.50 *a* $4 per dozen.
Window lifter plates, per dozen, $1.50.
Yokes, pole, each, 50c.; per doz, $5.50.
Yoke-tips, extra plated, $1.50 per pair.

SPECIAL NOTICE.

With the next number will be given the title-page and a complete index to Volume Eight, at which time a large proportion of the subscriptions to this Magazine will run out. This notice, we hope, will be sufficient to remind such, that in order to secure its regular monthly visits, it will be necessary to renew, by a prompt remittance, that we may be saved the unpleasant task of taking their names from our mail-book.

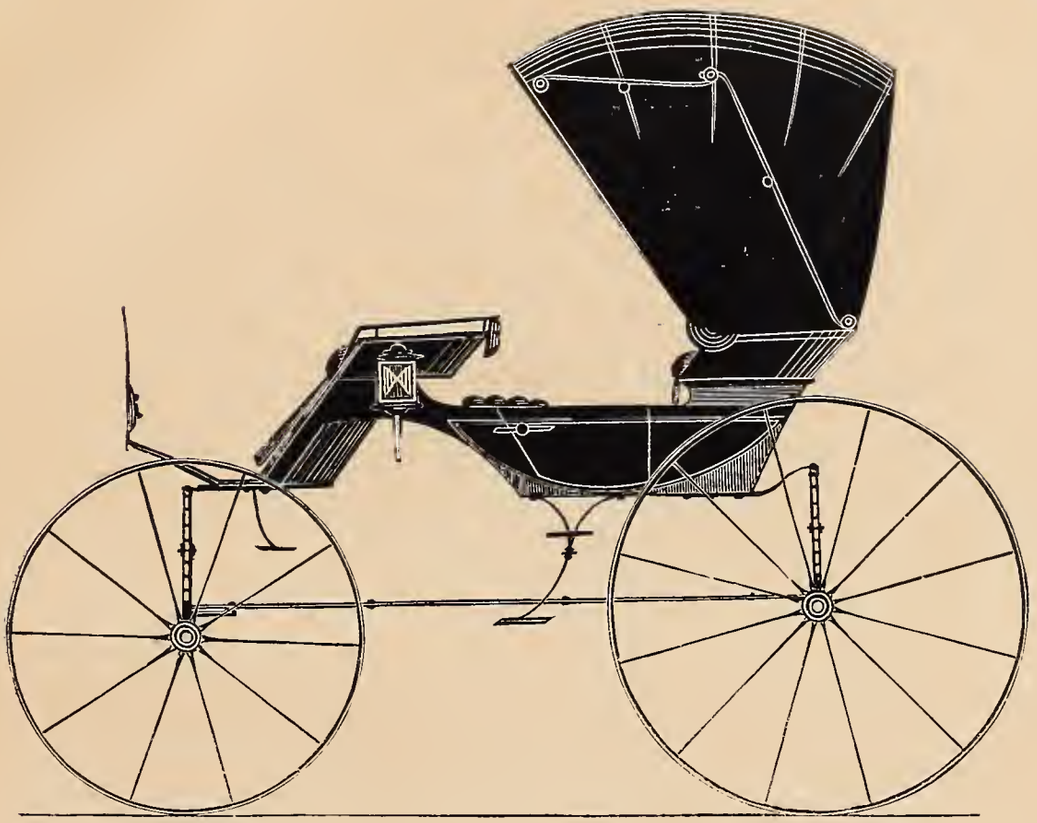
On or about the 10th of May, we intend publishing NUMBER ONE, VOLUME NINE, of this Magazine, for JUNE. Our past efforts need not be recounted here, but serve as an index of what the public may expect of us in the future. The subscription price will be $5.00, which may be sent in a post-office order with entire safety. Club rates will be found on the first page of our cover.



SIX-SEATED COUPÈ ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

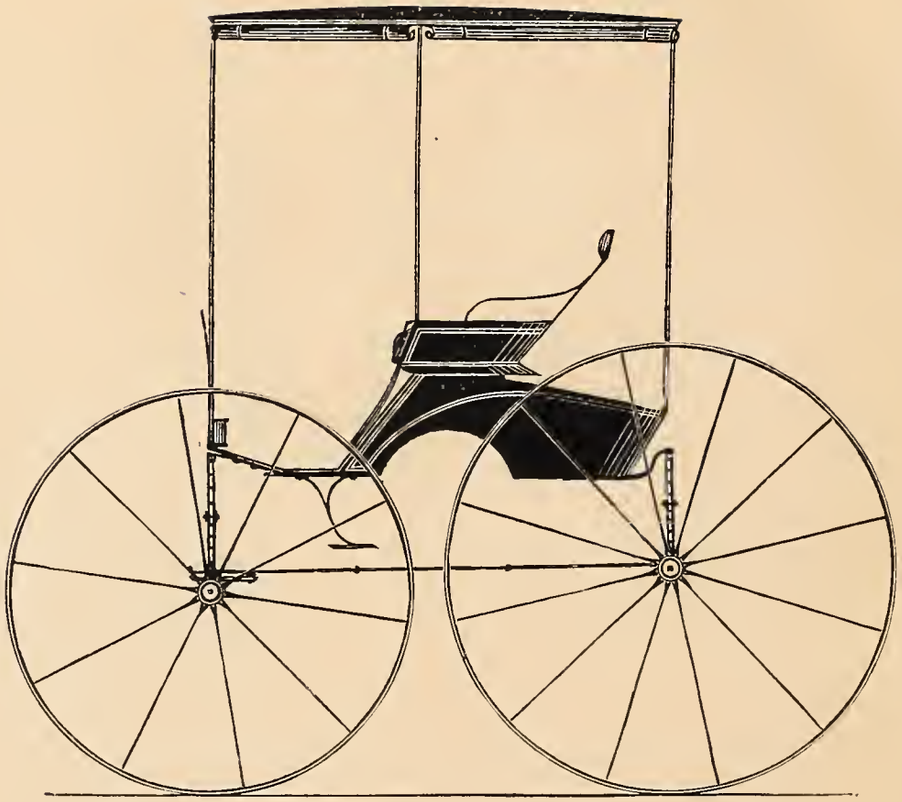
Explained on page 180.



HALF-OVAL BODIED LIGHT ROCKAWAY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 180.



STANDING-TOP BUGGY.—½ IN. SCALE.

Designed expressly for the New York Coach-maker's Magazine.

Explained on page 180.

THE NEW YORK
Coachmaker's Magazine

DEVOTED TO THE LITERARY, SOCIAL, AND MECHANICAL INTERESTS OF THE CRAFT.

Vol. VIII. NEW YORK, MAY, 1867. No. 12.

Mechanical Literature.

THE SCREW-DRIVER DISCUSSION.

Mr. Editor: I feel obliged to your correspondent, "Body Maker," for pointing out what he thinks is an inaccuracy in Vol. VII., No. 10, of your Magazine, for it would be a pity that any obscurity should remain on a subject written expressly for those not initiated in the arts and mysteries of our craft. In the case of "Long-handled Screw-Drivers *vs.* Body-Maker," the defendant claims that the plaintiff has not clearly established his point. I feel pretty certain that your correspondent has neither wielded a screw-driver nor shaken his *two paws* over a Turkey or Washita stone as long as I have done, otherwise he would have a very different opinion in regard to the instrument in question. But to the point.

He starts out at a venture, no doubt believing in the old adage, "Venture nothing, nothing made," having found (in his own opinion) by his first venture that my theory is false in another particular, viz., that the deviation of the handle from the direction of the screw cannot act as a *lever*. I would ask him how does he know that? What is a lever? What I meant by *deviation* was to produce the deviation from a right line to a circular one, making the sides of the handle the arms of a lever, not meaning the distance from the point to the top of the handle entirely and alone. He is slightly mistaken in my meaning, which proves the fallacy of the assertion that the deviation of the handle from the direction of the screw cannot act as a lever.

Passing from this we come to "Body-Maker's" second proposition. It may be convenient, before proceeding farther (perhaps the best way of settling the *only* question which remains between Body-Maker and myself), to give a short summary of the propositions already laid down by mechanical laws respecting all bodies acted upon. *First*, the resistance to the motion of the driver arising from friction is the same at all velocities; that is, the resistance is equal in equal times. Whatever be the space passed through, this is the primary law established in mechanics which is applicable to screw-drivers. It follows from this that a screw impelled along a space by continued power exceeding what is sufficient to overcome the resistance of friction (I contend that the elasticity of the driver will do this, on the principle of the fly-wheel of an engine, Body-Maker also admitting this fact, by conceding that the handle of the driver travels *faster* than the driver), which is an uniform quantity, will have its motion continually accelerated in the ratio of the square of the times. It is my decided opinion that when a problem can be resolved by no other mode, it is much better, as it is unnecessary to explain that by principle, difficult to be understood, which admits of a solution by more obvious methods. But I do not think myself bound by what he has advanced to do so, as his reply, in which he introduces the elastic cord, is anything but a mathematical calculation pertinent to the question at issue. Neither have I the time to spare, while paying war prices for subsistence and working at reduced wages, to travel all day up and down the room, to experiment with an elastic cord and sled.

Before proceeding farther, I beg leave to observe that though Body-Maker informs us, with characteristic modesty, that the handle of the driver travels no *faster* than the screw, and yet does not deny that it travels *farther*, let me ask him how distance is overcome unless it travels faster than the driver; and if so, what caused it to travel faster? However, as I have been more prolix than I intended, I shall reserve the remaining remarks I may have to make for a future paper, and meet his arguments in true Yankee style, by propounding a few questions in elasticity to prove the truth of my assertions. Why is it that all the mechanical properties of steam depend on its elasticity? Why is it that in every breath of pure air we breathe we depend on its elasticity? Why is it that the most expert boatmen want their oars made elastic? Why does a wheel-maker use an elastic handle in his mallet or hammer in driving spokes? Or why does the son of the Emerald Isle use an elastic handle in his hammer in breaking stones for all the great thoroughfares of this continent? And why are rubber bands used in the place of leather ones or cogs?

The limbs of all animals are elastic, having a strong muscle attached to the bone near the socket supplying elastic power. A slight contraction of the muscle gives considerable motion to the body. This effect is particularly conspicuous in the motion of the arms and legs of the human family, a very inconsiderable contraction of the

muscle at the shoulder and hips giving the sweep to the limbs from which the body derives so much activity. I therefore contend that these few facts are very much in favor of my *premises*, as Body-Maker is pleased to term them. I might produce many more examples to prove the assertions I have made, but I am sure that to the practical workman these will prove sufficient. I think I have said enough to demonstrate to all the truth of what I have advanced, and shall merely add that I am sure Body-Maker has been influenced by the best of motives in criticising what he thought might mislead the workman. I trust in candor that he will admit that he has not proven the falsity of any one of my propositions. But perhaps, sir, he will compare me with the Schoolmaster in Goldsmith's beautiful poem, where he says:

"For e'en though vanquished, he would argue still."

But I am seeking knowledge, and therefore provoke inquiry, even at the risk of still farther eliciting controversy, and I would not have any of my brother correspondents afraid of sporting a random opinion, now and then, for the sake of acquiring information. In regard to the "Greek, Hebrew, or Latin" words used in connection with my last article, I can assure you they were not intended as an extinguisher for Body-Maker merely because he differed from me in opinion, for in my judgment the matter has been fully explained in regard to the practicability of a certain amount of elasticity in a screw-driver, which causes the acknowledged superiority of a long over a short one.

JOHN B. PEEK.

STRIKES.

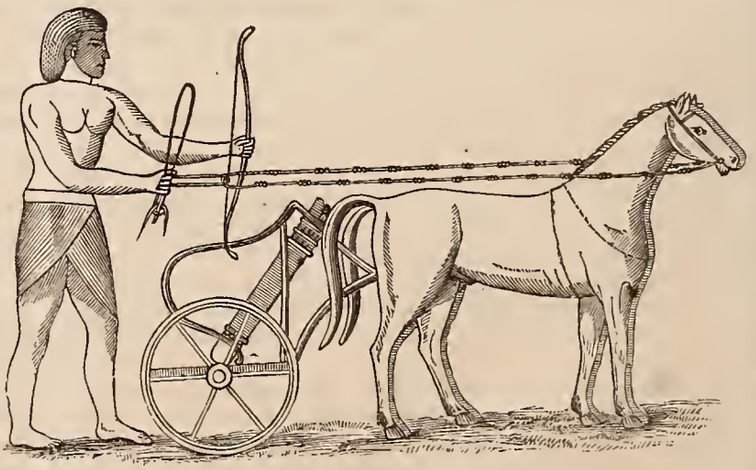
THERE was a certain country in which the most intelligent of the working men gradually arrived at the conclusion that they did not get a fair share of the productions of their own labor. The painters said that painting was unhealthy, and required better food; the sawyers said their work was more exhausting than that of the weavers, and the fishermen complained of exposure to the sun. To make a long story short, each trade in turn went in for shorter hours of labor and more pay, and as they could not consistently refuse to others what they claimed for themselves, it ended in all having wages of from 15*s.* to £1 per day, and working eight hours or less per day. But it was gradually forced upon their notice that they were actually *worse off* now than at first, and they could not understand it at all, nor, in fact, have they yet learned that the share of each individual in the good things of this life depends very much upon the whole quantity produced, and that if all producers work fewer hours, this means simply that there will be less of everything for everybody. Admitting, for the sake of argument, that we could begin the new year with wages of all kinds ten per cent. higher than at present, of course all home productions would immediately rise in the same proportion, and so long as we could induce other nations to continue to supply us with food, &c., at the old prices, and to buy our productions at the new rate, we could get on swimmingly. But how long would it last? Perhaps the leaders and organizers of strikes will explain the ultimate benefit to be derived from "a strike all round." I need not name the country where this *reductio ad absurdum* occurred, but any one who wishes to see the process in operation need not go far from home.—*London Builder.*

TRUEING WHEELS.

A CORRESPONDENT at Vallensyne, Canada West, favors us with the remarks given below, which he thinks may be of use to some of our readers. He says: I find that in a great many shops, when boxing wheels, the workman follows the old plan of fastening the axletree to the bench, on which he tries his wheel by turning it around while holding a stick on the floor to ascertain how much it deviates from being "true." This operation he repeats until by wedging he approximates correctness, to the great waste of time and labor; whereas it can be much easier done by taking a piece of wood, and fitting it like the arm of an axletree, leaving it to stick out five or six inches, and then driving in a nail at the shoulder to prevent the wheel from slipping in too far and binding, after which bore a hole in the part which remains above the box, fitting a strip of wood in it. This should extend over the rim, so that when the wheel revolves it will show where to apply the wedge, and should the rim not be twisted in making or tiring the wheel, the same may be "trued" to run to the sixteenth part of an inch.

OUR CARRIAGE MUSEUM.—XI.

As early as the time of the Trojan war, the kings used, even in battle, superb chariots. Homer gives a description of the chariot of King Rhesus, and says nothing exceeds its beauty; it is hung with gold and silver all over. Euripides says of the same chariot: "Like a god, Rhesus appears on his Thracian chariot; a golden yoke smooths the neck of his white racers; his shield, covered with golden pictures, glitters on his shoulders; the head of a Gorgon and that of the immortal Ægides [father of Rhesus] ornaments the forehead of his horses, and the noise of a thousand bells increases the terror of his appearance."



CAR FROM A BAS-RELIEF AT EL-KAB.*

Of battle-wagons of different nations in a former age, we find representations not only on Egyptian monuments, but also in the ruins of Persepolis, and on the so-called Etruscan vases, the origin and antiquity of which nobody knows with any certainty. All of these correspond with the Diphron of Homer, which is the oldest battle-chariot known, the form and construction of which has been distinctly determined. Properly speaking, the body only

* See the account on page 165, first column, and first paragraph.

was called Diphron, or "two-seated," but the Greeks took under that name the two-wheeled battle-chariot entire, which was drawn by two, three, or four horses, and called by the Romans Biga, Triga, and Quadriga. The body of the ancient chariot the Greeks called Plithion. Primitively the body of the battle-chariot was basket-work, with a view as much to lightness as to prevent arrows from penetrating it, and many people used shields made of willow. Homer calls the battle-chariot "the fine-finished." Theseus is said to have been the first Greek who used battle-chariots, and Pyclus, an Ætolian, is the inventor of an elevated step inside of the body, so Alexander Sardus narrates, in "*De Inventoribus Rerum.*"

We have already said that the bodies of the *Greek* leader's war-chariots were built more spacious than those of common warriors. In Homer's *Iliad*, we read that "they laid the corpse of the hero Harpation in his wagon, and drove it to Troy." This makes us conclude that the chariots of princes were larger, or there would be no room for laying in a corpse; yet, notwithstanding, these chariots were extremely light and durable. Diomedes, in the *Iliad*, is reflecting if he should draw the chariot and equipments of the dead king Rhesus by the pole, or carry it on his shoulders over the sleeping Thracians.

These chariots could not have four wheels, as these would prove a hindrance in getting on and off, and this is proved by the fact that the heroes felt the burning breath of the horses running behind them.

Cyrus abolished the old form of Trojan chariots, as used by the Salaminians, the Curians, the Cyrenians, the Medes, Syrians, Arabs, and most Asiatic nations, and had new ones built with longer axles and stronger wheels. The warriors ordinarily stood upright in the Diphron in going into fight, on the left or right side of the driver, according to circumstances; but during long marches, or when no danger was immediate, a small seat (diphrisos) was taken out of the box in front, which served as foot-stool, and hung on four chains or straps attached to the sides of the body. It is a mistake of some translators, when they speak of the whole body as hung on straps. This was only the small seat or bench just spoken of.

The Greek and Trojan heroes did not always fight in the chariot, but often stepped into the ranks of the foot soldiers; in fact, they were always in the place of greatest danger, where honor could be reaped; for in those times, personal bravery and valor, without arms dangerous from a distance, but man against man, breast to breast, the bloody contests of these ages were fought and decided. When the warrior in his chariot pursued the enemy, the noble horses rivaled the hero in finding the thickest of the fight, overcoming all obstacles, and trampling under their flying feet man and beast. The value of war-horses was enormous, and their names were often known throughout the whole army. The king Agamemnon spoke to "Teucer," "You get the next prize after me, a golden tripod, or a set of horses, or a fine virgin." Such valuable presents were only given to those who distinguished themselves by gallantry. Agamemnon, in the *Iliad*, promises Achilles, to reconcile him, twelve powerful horses, who, victors in the race-course, gained many prizes for him. "Surely," he exclaims, "rich was the man who possessed so much gold as these horses gained for me with their flying feet."

When the heroes left their train of chariots to battle in the foremost ranks of the foot soldiers, the chariots were drawn up in files to await orders. Sometimes the driver had to follow them in the thickest of battle, and keep as near as possible to them. This we learn in the *Iliad*, c. 17, v. 498, where Automedon orders his friend and driver, Alcimedon, to "keep as near to me with the horses so that I can feel their burning breath on my shoulders." It depended entirely on the heroes to fight in the chariot or out of it. Asius, son of Hyrtacus (*Iliad*, c. 12, v. 109), was the only man approaching the ships of the Greeks in his chariot, while all the other princes had their chariots drawn up behind the line. It often happened that the drivers were killed, and then the warrior had to take hold of the reins, and endeavor to get in the rear, and find a friend to drive him.

We see Automedon take the reins of the immortal horses of Achilles after the death of their beloved master Patroclus, break the lines of the enemy, quickly pursuing and evading the Trojans, but he could not make due use of his arms (*Iliad*, c. 17, v. 460).

But not every warrior was master of the art of driving horses over ravines and hills of arms and corpses. Cebriones, who drove the horses of Hector over the battle-field, made them sprinkle with the blood pouring from their feet the whole body of the chariot up to the railing. And not even all the drivers dared to drive over large ditches, and therefore Patroclus and Hector boast that they could do so, even if these ditches were lined with sharp posts.

The kings and heroes of Homer, who followed their armies in chariots, selected drivers from among the bravest of their friends. They could be seen either dispersing the ranks of the foe or furiously driving into or battling in front with the foot soldiers. The nobles, when fighting in chariots, used the following arms: a helmet, which was tied with check-straps under the chin, a coat of mail, a foot covering, and a shield made of bull's-hide and covered with metal. These shields, owing to their considerable weight, had a heavily ornamented shoulder-strap. On the left hip of the warrior hung his sword, and his right hand swung two javelins, the ends of which had two catch-hooks. Some distinguished heroes, like Ulysses, used spears nine yards long, and of immense weight.

Before the battle was to begin, the horses were well fed, and the condition of the chariots examined. King Agamemnon's order reads: "Every one shall take up his shield, sharpen his spear, feed the light-footed horses, carefully examine the chariot, and get ready for the battle.

In Homer (*Iliad*, 4, v. 289) we see the old experienced master first excite his leaders, then ordering to the front his force of chariots and horses—the cowards in the center, to force them into the fight. Next he admonishes the drivers to do their work well—not to leave the ranks, either to advance too far, nor to fall back and thus weaken the force of the others; and if any one should be thrown from his chariot, he directs them not to mount another. Such should be pushed back with the spear, for it is better for him to walk than crowd another wagon, and impede the movements of its rightful occupants.

When the Greeks went into camp, and their horses could graze in the neighborhood, the chariots were drawn up in regular files, the poles directed upward, and the back part of the body resting on the ground. "*Erecto currum temone supinant.*" Statius (*Thebais*, lib. iii., 414) says, but when the enemy was near, the poles rested on the ground, and the horses were fastened with halter-

chains at the ring at the back-side of the body. The food for the horses was thrown in the body of the chariot, and the warrior rested alongside of his team. The leaders were furnished tents, and sometimes both horses and chariot were brought under these tents for protection against storms.

Xenophon relates (lib. iii., cap. 3) that the Assyrians fastened their horses during the night with fetters to the cribs. The highest commanders and the richest heroes of the army, who owned a number of horses, had several tents erected, under which the horses stood fastened to cribs. Herodotus narrates that the Persian general Mardonius possessed an iron crib of splendid workmanship, which was afterward captured in his tents by the Greeks, and consecrated by them to the temple of Minerva Alea. It was customary, after the return of the heroes, to consecrate, with other trophies, the chariots of the enemy to the temples. So we read in Virgil's *Æneid* (lib. vi., v. 183), "On the sacred walls hung many arms, *captured chariots*, axes, helmets, immense locks, swords and shining javelins."

The Salaminians had the longest Diphron or Greek chariot in use. About the year 424 before Christ the Thebans used them in the battle of Delium against the Athenians. But long after this period battle-chariots of different shape and name were used by northern people.

Diodorus Siculus relates in lib. v., cap. 29, that the "Keltes" (he calls the land from the Pyrenees to Scythia Keltia) used in battle two-horse wagons (Harmata), which were occupied by one driver and one warrior. Curtius tells us that the people of India used a particular kind of war-wagon, for when Alexander fought against them, King Porus made advance one hundred Quadrigas and three thousand horses, but the main strength of the king's forces consisted in battle-wagons carrying six men, two of them armed with swords and shields, two archers, and two drivers. These six men were equally placed on both sides of the box, and when necessary all of them participated in the fight.

On a few Egyptian bas-reliefs we see battle-biga mounted by three men, and Xenophon in Cyropedia (lib. vi., v. 26) mentions a certain kind of chariot armed with twenty men. But these were doubtless not intended for quick driving, as a wagon carrying twenty must have been very large and heavy. Herodotus, in lib. vii., says that the Indians had battle-wagons drawn by wild asses.

The old Chinese people, who were continually warfaring, knew also the use of battle-wagons. *Memoires concernant l'histoire des Chinois, par les Missionnaires de Pekin*, tom. viii. Sun-Tsé says: "We want one thousand chariots to run the foe down, and one thousand covered with hides."

The old Chinese emperor Sema issued a law which required the battle-wagons to be made of good, seasoned, strong wood, the iron mountings to be new and durable, and the screws of proper size and length—in short, all fitting well.

Under the old dynasties of the emperors Tcheou, Hiac and Yn, several kinds of battle-wagons were in use, viz.: the advance wagons, the hook wagons, the cupola wagons, the tiger and the dragoon wagons. Besides each kind had particular marks, after the emperor's own appointment. They were painted in different colors, and signed, hung with flags indicating their purpose. These wagons were called "Lou," a name given both to battle-wagons and to such vehicles as were intended for fortifications and bulwarking.

Pen Illustrations of the Drafts.

SIX-SEATED COUPE ROCKAWAY.

Illustrated on Plate XLIV.

This original design possesses some features of much beauty. With a sham stanhope-pillar has been combined a circular foot-space, that gives this portion of the body a singular appearance of lightness and elegance. Above the belt-rail, just behind the lamp, the artist has added a parallelogramical moulding, which strictly good taste would reject, and might be omitted to good advantage perhaps. Another feature of some interest in this design is the form of the window in the upper portion of the hind-quarter. To the back in this instance we have added the cross-straps. The principal admeasurements for the wheels will be found on page 167, where we have described the Standing-top Coupé Rockaway.

Although various colors are used in painting bodies of this kind, black is *the* color we prefer. Ultramarine does not look bad, where the carriage-part is black. In this case the striping should be blue, to harmonize with the color of the body. We have given on another page examples of French fashions for striping, which may be of service to the carriage-builder.

HALF-OVAL BODIED LIGHT ROCKAWAY.

Illustrated on Plate XLV.

One peculiar feature in this design is the shape of the quarters—a straight-line belt and half-oval sweep. This makes the rocker look a little clumsy in the picture, but imparts lightness to the construction. In this instance we have added a perch, but the under-carriage could be made after the new design we have given on page 181, with decided advantage where the perch is omitted. Wheels 3 ft. 10 in., and 4 ft. 4 in.; hubs 4½ in. diameter; spokes 1 in.; rims 1 × ¾ in.

STANDING-TOP BUGGY.

Illustrated on Plate XLVI.

This design requires very little said by way of explanation. The body is merely the fashionable form of the coal-box, cut under to facilitate turning in a narrow street, with the application of a standing top, as a shelter from the sun and rain. It makes a very convenient vehicle in which to visit the railroad depôt, or for summer watering resort, and with propriety might be called a Depôt-buggy. This Buggy should be heavier than the commonly made, as some hard usage may be required of it.

Sparks from the Anvil.

FORE-CARRIAGE FOR LIGHT VEHICLES.

There are various plans in use for no-perch vehicles, some patented and some not, all more or less complicated. The plan we have endeavored to show here is a new thing, very light, much simplified, and accommodated to dog-carts and light phaetons.

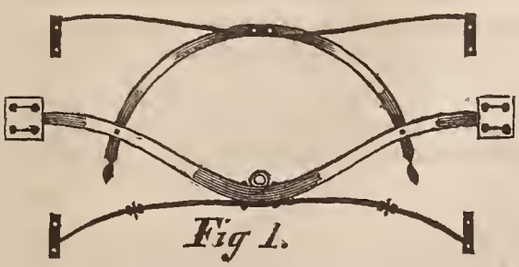


Fig 1.

Figure 1 exhibits the top portion of this fore-carriage, with the body-straps or hanging-irons attached. It will be observed that the horn-bar, or bed, is the only piece of wood used in its construction, it being principally iron.

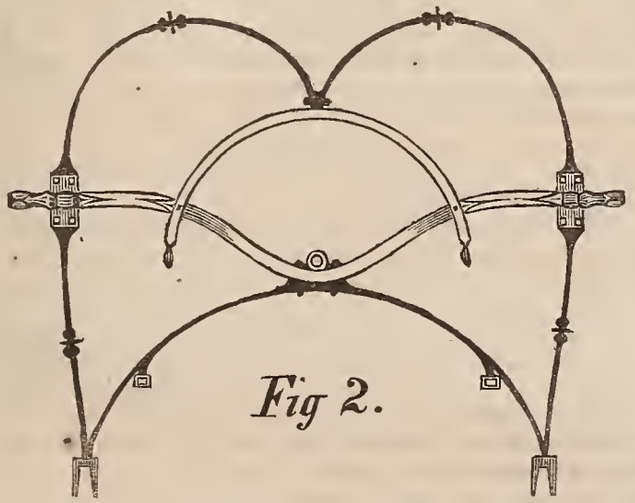


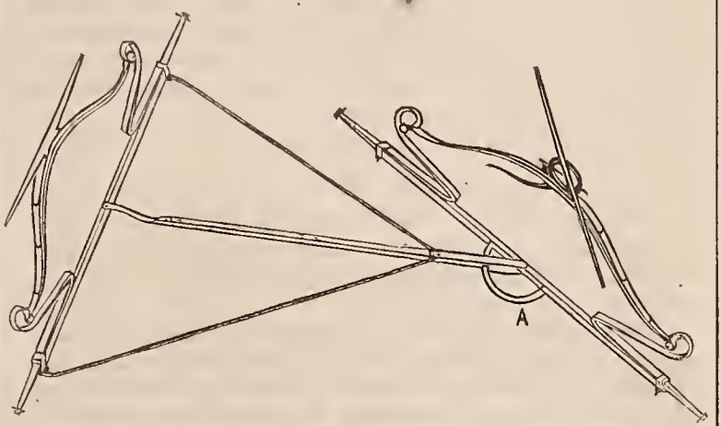
Fig 2.

Figure 2 represents the bottom portion of the fore-carriage designed to take a drop-pole in the usual manner. This should be attached with the draw-bar well up to the wheels, to facilitate draft. Shafts may be applied as in the Coupé. This portion likewise has a bed-piece, so there are but two pieces of wood in the entire fore-carriage. The king-bolt should be placed inside the transoms, to allow the "lightening-out" of the wooden bed-piece as much as possible. The entire machine is simple, elegant and efficient, and it gives us genuine pleasure thus to be able to present it to our readers untrammeled by letters patent.

TAYLOR'S IMPROVED CARRIAGE SPRING.

Patented in Canada, Sept. 2, 1864; *in the United States, Nov.* 7, 1865.

The accompanying engraving exhibits a perspective view of Taylor's patent improved carriage spring, which we shall endeavor to describe so as to be perfectly understood. In this invention are combined the bow, scroll and half-elliptic springs, which together furnish many advantages over all others now in common use. Among these are: it places the weight of the load on the ends of the axle, thereby admitting of a much lighter axle than ordinarily used, and by combining the bow and scroll-spring, greater length of spring is obtained, affording greater elasticity and much easier motion, and the form is such that it folds at the ends, and in so doing accommodates itself to both light and heavy loads in a degree superior to any other yet invented.



At A is shown a D-plate solid with the axle, which serves to prevent the spring from toppling forward.

This spring is applicable to both light and heavy vehicles, and is successfully used in the construction of Concord buggies. With this improvement, buggies can be made lighter, more substantial, and much cheaper than with any other spring. In confirmation of this, we annex the testimony of parties who have manufactured and used them in Canada.

Wm. Gould, of Milton; Thomas D. Hodgens, of London; James Harris, of Ingersoll; J. D. Lawlor, of Strathroy; J. Hawkey, of Jamaica; Alex. Sheriff, of Chatham; Jas. H. Burr, of Mooretown, and Duncan Miller, of St. Mary's, testify to the advantages claimed for this invention, as being easy riding, and not so apt to get out of repair as other springs. Agents, Samuel Morse, Milton, C. W., for Canada, and Walter Hough, Iowa City, Iowa, for the Western States.

THE OLD BLACKSMITH-SHOP.

As we found the old blacksmith-shop in our boyhood days, so we find it to-day, and during that interval of two-score years over which our memory extends we see but little improvement in the *matériel* of the methods of working, and but little change in the *personnel* of its occupants. There have been great changes made in some trades, but none in that of the country blacksmith. Improved and complicated tools are used by the different occupations all around him, but he still uses the same forms of tools that his ancestors wrought with, and he laboriously heats and hammers his iron in the very same way as they did. Is there not here room for great change and improvement? Is it not here needed?

We remember, in the days that we were a "wee toddling thing" and wore the "bib and pinafore," attempting to fathom the mysteries of the blacksmith-shop; and it was with a wonder that our infant brain could scarce comprehend that we viewed the creaking bellows, the roaring fire of charcoal, and the heated, sparkling iron,

as it was beaten with stalwart blows upon the anvil. We probably looked with as much wonder upon that country smith and his coal-dust begrimed apprentice, as did the inferior gods look upon swarthy Vulcan and his assistants as they clustered around their glowing forges in the depths of Ætna.

Apropos of the blacksmith's bellows, is it perfect or is it all that is needed! Is nothing better required, that no improvements have taken place either in its form or operation? Is there not some ingenious brain that can contrive an apparatus that shall operate with less labor than the apprentice now expends, and, as a result, generate a blast equally as great or greater than that now produced?—*American Artisan.*

COLD CHISELS.

To the mechanic who would have his tools of a neat proportion and form, we will say a word about cold chisels. Select about three sizes of octagon steel—say one-half inch, three-fourths, and one inch diameter. When you forge your chisels make them respectively six, seven, and eight inches in length, the half-inch steel furnishing a chisel six inches long. Then forge the width of the cutting-edge of the chisels respectively three-fourths, seven-eighths, and one inch in width; grind the cutting-edge to meet at about an angle of 80°, and when using the chisel upon a plane surface hold it elevated at about 45° with the line of the surface being cut, reference being had to cutting cast-iron.

We have seen projections left upon the castings of machinery which were unsightly and would not be tolerated by a neat workman, because the workman had no cold chisel to use as a part of his stock of tools. Then, again, for the same reason, we have seen workmen leisurely file away a spur or protuberance for like reason, when two or three blows with a hammer and a cold chisel would have accomplished the object in almost as many seconds. Excepting a scarcity of steel, there is no excuse for want of a cold chisel to be beside the vise of the workman, and with its employment there will oftentimes be a great saving of that somewhat costly tool, the file. —*American Artisan.*

Paint Room.

TROUBLE WITH VARNISH.

Mr. Editor: *Dear Sir,*—Some few numbers back of your Magazine, I noticed the request of a painter, wanting to know how to prevent specks in varnish. I have waited for some one to reply, but none have done so. I have an elegant working "finishing varnish," which flows beautifully, but when it is put on the panel looks as if I had taken a bag of finely pulverized sand and shaken it over it. I have tried straining it through silk, and thoroughly cleaning my brushes, but without any effect. Can you, or will any of your readers inform me through the columns of your Magazine what to do with the varnish? The varnish has been on hand for some seven years, but not until recently (say two years) has it become so troublesome.

Very respectfully, &c., A Subscriber.

Having shown the above to "Old Fogy," in manuscript, he has kindly favored us with the following, not however without some misgivings as to the soundness of his theory:

There are so many causes which make varnish look speckled, that I shrink from the task of explaining. If, however, when cups, brushes and work are clean, the job is "specky," the natural conclusion follows that the fault is in the varnish; and should straining it through raw cotton not relieve it, we have reason to think it is not because the varnish is dirty, but that after it has been spread it has formed into globules of air, or what is termed "small pox," or pit marks. Should such be the case, there is no remedy for it, for the varnish has come to an age in which a union once perfect has been destroyed, the materials, as far as it is possible, having gone back to their original state. In this case there is only one remedy—and this is not always effectual—incorporate or unite with it other varnish while one or both are warm.

I have known good varnish to become "specky" after being spread, for the following reasons, viz: dirty cups and brushes, dusty paint rooms, dusty work before varnishing, dirty varnish, and where the paint room has been very damp. These make the whole job look as though fine dust had been thrown over it. Dampness frequently deadens varnish, leaving no gloss, and not unfrequently giving it the appearance of being specky. Sometimes when a body is standing in a corner, with one side and one end to the wall, it dries "dead" and full of specks, the other portions looking like a mirror. Varnish is of such a delicate character that it feels the least change in the atmosphere.

There are some things in varnish which it is very difficult to explain. Where two kinds of dryers are used, the varnish may look well when first laid on, but in drying it exhibits numerous very small pits looking like sand.

It may be that your correspondent and some others may glean some new ideas from the foregoing remarks. As a general rule, however, the fault lies in dirty brushes, cups and varnish rooms. I have known the very best varnish to have a beautiful gloss one day, and on the next, with an excessively hot afternoon and evening, the whole job became dead and "specky." This, no doubt, has resulted from heated air. Old Fogy.

FRENCH STRIPING.

As some of our readers may be interested in the prevailing method of striping carriages in Paris, we present the following, freely translated from the *Mercurè Universel*, of latest date:

The first example has a groundwork of Russian Green, striped with three fine lines in white.

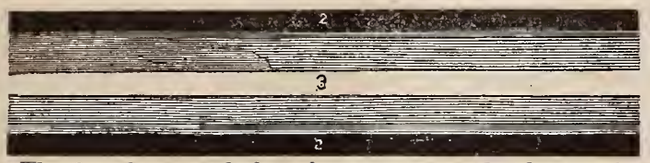
The green is composed of yellow and Prussian Blue, with a little lampblack.

The second specimen shows a broad stripe (1) of either a light green, or white lead, in contrast with a ground color of Prussian Green.

The ground of the third specimen is a dark saturn red,

edged with black (2) and in the center (3) a broad gold stripe.

The ground color is obtained by mixing minium with carmine; the gold stripe being first covered with a composition, and afterward spread with gold-leaf.



The fourth example has the same ground color as the third, with a broad stripe of black (4) through the center;

on each side of which is drawn (5 5) narrower ones of rose color, outside of each of which is added (6 6) fine lines, gold stripe.

Trimming Room.

TRIMMING CARRIAGES IN OLDEN TIMES.

Felton, who wrote about one hundred years ago, tells the public, for whose benefit he professes to write, that "The trimmings about a carriage, in which the cloth is ornamented, have within these few years been much increased, both in quality and quantity.....That which is most generally used is made of worsted, with narrow silk stripes or lays, and is two inches and a half in width; from that it extends to three, three and a half, or four inches; but for extraordinary purposes, such as hammercloths, it will run to eight or nine inches. (!)

"The quality and breadth make a difference in the price. It is frequently made of cotton mixed with worsted, and sometimes, for very superb carriages, it is made of silk only. There are other sorts of very narrow lace made, such as are used to seam the cloth with, or to cover the nailings; the one is called seaming, the other a pasting lace; the colors of which are made to match those in the broader patterns, but cannot form much of the figure, on account of the width. The pattern or figure of lace makes no difference in expense, when the arms or crest are worked in them, and these of course are extra, on account of the difference in workmanship. Fringes have also been greatly improved upon, and, like the laces, are to be valued according to their width and quality, as also if ornamented with button hangers, which are mostly put on them with a very good effect. The common width of fringe, including the gimp head, is five inches and a half. To form any statement of the different prices of hammercloths and linings, it will be needful to state the separate prices of the different sorts of lace and fringe, and then the value of any hammercloth or lining may be collected from the quantity used on either occasion."

[Here follows a list of prices of lace from two to four inches wide, which we omit, as of no interest to our readers.]

"Besides those broad and binding laces, there are some very narrow, that are invariable in their size, called seaming and pasting lace, and also small trimming called roses and French strings. The seaming is what the cloth is seamed with [a use now discarded, the lace still retaining the name]; the pasting is what covers the nailings of the cloth; the roses are what go round the holes of the cloth where the hand-holders are placed; and the French strings are what the glass-strings are held by.

	Worsted.		Cotton.		Silk.	
	s.	*d.*	*s.*	*d.*	*s.*	*d.*
Seaming lace, per yard,	0	6	0	6½	1	8
Pasting do do	0	5½	0	6	1	6
Roses, per doz.,	3	6	4	0	16	0
French strings, per pair,	2	0	2	6	6	0

"If on any occasion a small quantity of broad lace is required of any particular pattern, and a loom is necessary to be set to it, an expense is incurred from 10*s.* to 20*s.*, according to the pattern or width, besides the price of the lace. The least quantity a loom can be set for without a charge is twenty or twenty-four yards of broad lace."

The above extracts, although of no practical use in our times, yet have a historical value, showing, as they evidently do, that very little change has been made in the *finish* of trimming carriages for a century past. It is true we might be inclined to laugh over a piece of lace nine inches wide, but upon the whole we detect but little deviation from modern practice, which fact goes to show that there is very little new in carriage trimming. This accounts for the difficulty we have always found in supplying this department of our Magazine with matter of much interest, and must be our excuse for any seeming defect therein.

Editor's Work-bench.

OUR NEXT VOLUME.

As those who have read this publication for several years already know, we are not in the practice of announcing beforehand what we intend to do in the future; nor would we now, did we not think that as this is the last number of the volume, some before renewing their subscriptions would like to have some idea of what they may expect of us hereafter. One reason why we have not heretofore promised much, is the fact we have known publishers to do so without ever redeeming them so often that we fear to trust ourself in *that* business. No doubt they promised in good faith, but experience has shown that there is very little dependence on help outside of the office of an editor, and that consequently he must mainly depend upon his own resources, which being constantly drawn upon, in time may be impoverished, or at least much weakened. The most then that we dare promise is, that for the coming volume we intend to do our best, and hope to make it equally as valuable, if not more so, than any which have preceded it.

A prominent feature of Volume Nine will be a series of articles on Egyptian history, copiously illustrated with battle and other scenic delineations from the walls of the Catacombs, in which the progress of art, as applied to chariot-building, &c., will be fully given. The greater portion of these pictures have never been presented to the readers of this work before in any form, and can only be found in such expensive tomes that they are placed beyond the hope of ever being seen except in our pages. This feature alone will entail upon us greater expense than the costs of engraving the plate designs we give during twelve months. Indeed, our *inside* engravings have always cost us fully seventy per cent. of the entire sum expended in illustration. These are facts we can prove, and not mere assertions intended for effect.

We design also to give each month at least one example in Carriage Architecture, either American or European. Our old correspondent, the author of "Clarence Clifford," with whom our readers generally were so well satisfied a few years ago, has promised us a series of chapters, the first of which we have already in hand, called "The Blacksmith's Daughter." This promises to be very interesting.

In the Home Circle, Mrs. Housel and other female writers will no doubt keep our friends well provided with monthly amusement of some kind, as usual. The remaining departments we intend shall be all that untiring industry on our part can make them.

Having retired from the active duties of carriage-making, in which we have had thirty-five years of practical experience, our whole time will now be given to this publication. Our facilities for acquiring matter suited to our columns are unsurpassed, having free access to several large libraries, and an extensive reading room, as well as several mechanical exchanges, all of which in addition to our life-long experience, will now be concentrated for a single purpose—that of making THE NEW YORK COACH-MAKER'S MAGAZINE what the public have always conceded it to be—the best thing of the kind ever yet undertaken. Those therefore who are desirous of having its continued visits will please renew their subscriptions at an early day, and send us a post office order, as the safest way of remitting.

BACK NUMBERS AND VOLUMES.

This work having become indispensable to the well regulated workshops of all coach-makers in the land, and believing that many would like to secure a complete set while opportunity remains, we are induced to publish the scale of prices which follow:

When the first five volumes are purchased together, the charge is fifteen dollars; if taken singly, three dollars and fifty cents per volume; for the fifth volume, four dollars; for the sixth, five dollars; for the seventh and eighth, six dollars each. If the eight volumes are taken in a set, thirty dollars. When volumes are ordered to be sent by mail, add fifty cents to each to prepay the postage, without which they cannot be sent. Where more than one volume is ordered, it will be cheaper to send by express, the carriage of which the purchaser will pay on delivery, and also for the return of the money where such is not forwarded with the order.

Any volume except the seventh can still be had in numbers, at the original subscription price. These will be sent by mail, at the rate of two cents postage each number.

These volumes are a complete library in themselves for any coach-maker, possessing as they do *a living interest* unapproached by any other work of the kind issued in this country. Among the more prominent subjects, we may mention that the volumes contain a variety of examples in the so-called French Rule, under the head of Carriage Architecture, both as applied to American and European carriages; a series of lessons on carriage drafting, so plainly written and illustrated that any mechanic with a moderate degree of skill may learn to do his own drafting; articles on all subjects connected with carriage painting, such as the nature and quality of paints, how to mix and spread paint and varnish, ornamental designs for the panel, monograms, &c. In this department every variety of subject is elaborately and practically treated.

In history, ancient and modern, there is more variety given in these volumes, relating to carriages, than can be found anywhere else, and much—especially that relating to Assyrian and Pompeian vehicles—nowhere else to be had in a collected form. It would be difficult to specify all the valuable articles published in these volumes, in addition to the four hundred designs for carriages on separate plates, which alone are undoubtedly the best and most effectual card a coach-maker can have in his office to obtain custom with. We have learned this from experience, and know whereof we speak. A set of these volumes kept constantly in the office, bound up, will not only afford a pleasing variety of food for the mind during moments of leisure, but prove an effectual check upon the tricks of unprincipled men, who, under the false-pretence claim for damages for infringements on some *trumped-up* patent, are constantly swindling the public, particularly the rural carriage-maker. A reference to these volumes, each of which has a copious index to the contents, will enable the public to see at once how to deal with these itinerating vagabonds. We are in the constant receipt of letters from all parts of the country making inquiries of us on topics which, had these correspondents our volumes before them, they would find much better answered therein than we can find time to do with our exhaustive labor. It

is true, many of this class—we cannot much pity them—have never taken this work, and remain still in ignorance of their rights, which had they done, would have saved them some hundreds of dollars. We have some cases in mind now where an investment of a few cents in this Magazine would have saved them at least two hundred dollars. Such a terror has this work been to evil-doers that we have been approached with bribes to cease, or threatened with severity unless we remained silent; but thus far without effect. As in the past, so in the future, this Magazine will continue to stand as a sentinel to sound an alarm, whether the danger comes from designing individuals or combined demagogues. We aim to be candid, and strive to be faithful in every transaction we undertake, and as heretofore, we intend hereafter to study the best interests of all who have any dealings with us.

ADVICE FOR YOUNG BEGINNERS.

Believing that in no business is there so much need of advice from those who have had a life-long experience as in coach-making, we are induced to offer a few practical observations for the special benefit of young beginners. The business is of itself so artistic and complicated that no one need expect to succeed who has not served a regular apprenticeship at it. It is true we sometimes find individuals conducting coach-making who have very little knowledge of art, but such are dependent upon a practical foreman or partner, who does the artistic, while they themselves transact the office duties of the establishment. These, however, are exceptional cases.

Presuming that the novice has been regularly bred to the business by years of service, both in the characters of apprentice and journeyman, he will yet find on setting out in life for himself, as we term it, that he has but just begun to take lessons in the school of experience. In his minority he looked forward to the day when he should become his own master, and after he became a journeyman, to the time when he could lay aside the pains of hard labor for a position of ease and competence. How delusive! The man who enlists in this occupation "on his own hook" will now find that his trials have but just commenced, and should he not be a man of energy and perseverance, he will not be likely to make even a respectable show of success. These necessary natural qualifications, lacking in many individuals, is the fruitful cause of the many failures we see in every-day business life. It is not alone necessary that a mechanic start with an ample capital and a shop well stocked with tools and material, but in addition to these he needs the still more essential stock of practical experience and correct taste. It would be much better for many did they start with less pecuniary means, and acquire capital and experience together as they proceed.

One of the first prerequisites to success is the observance of punctuality. So little—we are sorry to admit it—is this regarded by mechanics generally, and carriage-makers especially, that it has become proverbially a theme for complaint from customers. We have known individuals in the trade promise a job on a certain day, when they very well knew it could not be completed, and they had no expectation of redeeming their word. And why did they act thus? Merely to satisfy a customer for the present, and induce him to leave his job for repairs. How foolish! It is much better to be frank, and tell a customer when you will have his work done—*and be sure and have it done*. You can much better secure custom in this way than by making promises to be broken. A gentleman who *knows* your word can be depended upon will in most cases give you two or three days more time in which to do his work, and wait in patience to have it done, rather than intrust it to one who he knows cannot be believed under any circumstances.

Another thing: in some mechanical branches of trade less attention to minor details may be excused, but in carriage-making inattention may prove fatal in more than one point. Experience will teach that nothing can be too thoroughly well done. In a carriage, the life of the owner is at stake; and knowing this, he will not risk the consequences to a careless mechanic. If then you wish to secure a remunerative and flourishing business, see to it that particular attention is paid to "little things," especially in the blacksmith department. Much depends upon the carefulness with which work is put together; indeed, so important is this matter that we might well say everything about a carriage depends upon the workman employed in doing this work. The simple breaking or the loss of a nut from a single bolt, from defective iron or ill fitting, may sour the mind of your best customer, and drive him elsewhere to have his work done. Most men who use carriages are of the class who expect perfection, and are never inclined to make allowances for seeming defect, consequently any *misfortune* will surely be charged to the carriage-maker, whether he be innocent or guilty. For this and other reasons too much care cannot be bestowed upon details. We have not space to follow out this subject here, but intend to return to it at a future time.

CHARTS FOR YOUR OFFICE.

Customers often call upon the carriage-maker with the intention of leaving their orders, but in ignorance of technical terms, find it very difficult to speak so as to be readily understood. To obviate these difficulties and to assist you in taking orders, as well as to furnish *a picture* for your office, we have published three fine charts, all of one size, 22 x 28 inches, surrounded with a border, the price of which is $1 each, where less than ten copies are ordered at one time; when ten or more are ordered the price will be 75 cents each. The number will be

made up, in variety, from the three, when desired. We will now try and describe them so as to give some idea of what they are made up of, premising that number one is a small affair and old, with 24 cuts on ¼ inch scale, price 20 cents—number two being out of print:—

Number *Three* contains designs for fifteen Buggies, five of these no-tops; a few Rockaways, Bretts and Park-phaetons, one coupé Rockaway and one Landau—twenty-eight in all.

Number *Four* contains six no-top buggies, four coaches, one four-in-hand, one coupé, one cabriolet, one victoria, one Boston chaise, two Hearses and a few other varieties—twenty-five in all.

Number *Five* (the very latest, the two former not being old by any means) contains fifteen buggies (five of these no-tops), one Physician's Phaeton, six Rockaways, a few Phaetons, &c.—in all twenty-seven. Business cards printed in either of these three, $2 extra.

We often get special orders to be made up of designs from this Magazine, in which case we are put to the expense and trouble of making up a new form. For such orders we have fixed the following scale of prices, for charts 22 x 28: For twenty-five copies, $25; fifty, $30; seventy-five, $33; one hundred, $35; one hundred and fifty, $48; two hundred, $50. When these are printed on paste-board (which saves the expense of framing) the extra costs will be (in proportion) $25 extra per one hundred.

A smaller chart, 19 x 24, will be printed to fill an order (card in): one hundred copies for $25; two hundred for $35, and two hundred and fifty for $40. This chart will contain about twelve or fourteen designs and the business card. All orders must be accompanied with the money, unless the customer is *personally* known to us, and in other cases C. O. D. bills, must be sent with the goods and he charged for return of the money. Charts are delivered in better order by express than by mail. We are sometimes requested to get up a chart varying in size from the foregoing. We cannot well fill such, because of the difficulty in obtaining paper of a proper size. For these reasons we prefer orders to be either paper 19 x 24 or 22 x 28 inches.

THE CLIP KING-BOLT.—AN EXPLANATION.

Some months since, after our January and February numbers had been sent abroad, two men called at this office representing themselves as James Phelps of Red Creek, N. Y., and O. Wood, an attorney. These gentlemen stated that we had done them injustice in publishing the several articles relating to clip king-bolts in the issues above mentioned, saying they had never made any claims on the old clip king-bolt, at the same time producing the letters patent which Phelps had obtained on the 13th of November last, a copy of which claim reached us just as the last half of the February number went to press, and was therein published. It will be seen that the *only* claim Phelps has to any part of the king-bolt—the word "clip" being omitted—reads thus: "What I claim as my invention, and desire to secure by letters patent, is the projecting shoulders, or bearings B B, resting on the axle, at the fork of the king-bolt, for the purpose herein specified."

This claim of Phelps'—if our memory serves—came under our notice about six days before Phelps and Wood called upon us, too late for explanation, the February number having already been mailed. Up to that period, be it understood, we did not suppose any one could have the least claim to any part of a king-bolt, and especially to any improvement on the *old* clip king-bolt, which has now for the last ten or twelve years been public property.

Under such circumstances the individuals we have mentioned called with a sorry tale of the injury we had done them in the articles already published, asking as a favor—which we now fear we too readily granted—that we would endorse a paper drawn up by Wood, the substance of which was that we had never before seen the improvement, and believed Phelps had a legal claim to *that* his letters patent specified—nothing more. The letters patent we published in our March number, contrary to Phelps's expressed wish, thinking after the parties had gone that perhaps our endorsement might be used for a bad purpose. If the half we hear is truth, our suspicions are more than realized. We learn that this document has been put in print, and is now used by Stearns and his lawyer, in traveling around the country among the craft, as an indorsement in some way of their claims to infringements previous to the date of Phelps's patent. So far from this are we now, that with the knowledge since gained—see a case in point on page 173—and the facts in our possession, we do not believe Phelps' to be an *original* invention, and therefore judge that he could not recover damages for even infringements on the projecting shoulders B B, as published in his specifications, on page 153 of this volume.

Those who know us need not be told that we have never countenanced any such proceeding, nor lent our name for any such questionable purpose, and we regret that any man of sense has been so silly as to part with his money on any pretensions of this nature. We repeat, no man has any legal claim to the *old* clip king-bolt, and any man who pays for any damages in such cases, does so foolishly and contrary to our advice. The parties making such claim would not dare to sue, and should they do so would doubtless be worsted. In conclusion, we regret that we signed the paper which is now being used for the purpose alleged, and which, were it in our

power, we should recall at once; and trust that the public, after reading this, will not attach to it any value. We would sooner cut off our right hand than countenance deception in any form, and should an attempt be made to do so in our name, we hope the parties so offending will receive no support or countenance from the public. To those who wish to have legal advice in this matter, we can cheerfully recommend S. D. Law, Esq., 25 Pine Street, N. Y., who has had long experience in patent cases, and who so successfully managed the perch-coupling cases for some fifteen individuals that they were relieved from paying damages in that case at a comparatively trifling expense.

THE LABOR MOVEMENT.

In a former notice we stated that the journeymen in this city, in some of the shops, were making short time and getting reduced wages through the winter. This state of things induced the men, by order of the officers of the International Union, on the first day of April, in New York city, to strike for higher wages, or in other words to obtain the same wages they were paid previous to the reduction. As there was and is a large supply of ready-made work filling the warerooms of the city, it was predicted, in prospect of a dull season, that the strike must prove a failure. But strike they did, and the most resolute (in words) were the first to submit and pay the demands of the men. Only one or two shops made much resistance, and these, we judge at this writing, will soon fall into line. Who will say hereafter, that trades-unions have no potency?

The house carpenters, also, in conformity with orders from headquarters, struck for $4 a day on the 1st of April. The demand was met with a flat refusal, in a card from the proprietors of one hundred and five firms, constituting the principal builders of this city, offering to give $3.50, the present rates, and no more. Besides the above there are some other workmen on a strike, the result of which is not yet determined.

In New Haven the Workingmen's Union have quarrelled with their President, who had engaged in electioneering for the democratic party, contrary to the policy of the Union. The Union, it appears, is professionally non-political; but there is very little use in laborers scolding each other, so long as they find it impossible to meet without engaging in political discussion, in which case the leaders are sure to use them for their own purposes.

The boss plumbers in Boston having notified their employees that the eight hour system for a day's work would close on the first day of April, the latter left off work and deserted the workshops immediately thereafter.

The National Mule Spinners' Association have recently notified some of the agents and treasurers of the different cotton and woollen manufactories in Boston and its vicinity, that hereafter ten hours a day will constitute a day's work. This determination has been met with great unanimity on the part of employers, in which they determine to submit to no dictation from employees, even should they be compelled to stop their mills, to do which they think at present would rather relieve than embarrass owners.

EDITORIAL CHIPS AND SHAVINGS.

The Herald on Trades-Unions.—*The New York Herald*, a paper frequently complimented by the working class, on the 5th of April indulged in the following singular remarks: "Trades-Unions are not so serious a complication of difficulties between labor and capital in this country as they have recently become in England. They are, however, not without their influence, and here, as everywhere else, that influence is pernicious. They are organized and managed by the demagogues of the trade—the noisiest, laziest, most conceited and obstinate, though often shrewd man, being the chosen one of the set. These become the presidents, secretaries, and above all, the treasurers of the societies; draw salaries from their funds, manage their more tractable fellows at their pleasure, and live and thrive upon the trouble they create. If we should have any permanent arrest of labor among the builders and consequent distress, it will be due only to the obstinate counsel given by such coteries; but it is so much the nature of our people to think and act for themselves that we do not believe these organizations can have sufficient influence in the present case to do serious harm."

Riding cheaper than Walking.—It has been demonstrated in London that men can be carried much cheaper than they can carry themselves. The laboring man is conveyed to and from his home, distances varying from one to six miles, for one shilling per week, or less than four cents per day. It is easy for him to see that his time and strength saved are worth more than this to him in wages at his work, and that many times this can be saved to him in rent by fixing his residence out on the railway. Accordingly two of the most costly railways in England command by this policy a laboring man's traffic, which is nearly, if not quite, the most profitable they enjoy.

Why a Ton of Hay is drawn easier than one of Iron.—Professor Tilman says, in explanation of the fact that a team can draw a ton of hay easier than the same weight of wood, coal or iron on the same wagon over the same road, is that the hay does not rest, as iron does, a dead weight upon the axles. If the weight was pressed into compact bales, it would not ride easier than wood, and not much easier than iron. The loose hay acts in the same way that springs under a wagon would act. The elasticity buoys up and floats the load over obstacles.

Iron as old as the Pharaohs.—The ancient Egyptians were familiar with the use of iron, as is shown by nails in the inner door of Theban tombs, which could not have been opened for at least 2,000 years. The Assyrians, too, manufactured saws and knives of iron, specimens of which now in the British Museum were found by Mr. Layard in

Nineveh. The Hindoos, the natives of Madagascar, and those of Central Africa, all manufactured iron.

Springs Introduced into New York.—The first man that made coach springs in New York was one Williams, from England, who came to work in a shop with Grant Thorburn. He made money and did well for himself, until he joined Tom Paine's society and infidelity, and then he became an outcast and an almshouse pauper.

Quick Drying Oil.—A quick process of getting drying linseed oil is given by Dr. Dullo. He boils raw oil for two hours with binoxyd of manganese and hydrochloric acid, and so gets a rapidly drying oil in very much less time than by the process generally employed.

A hold-back has recently been invented and patented in this country, made of malleable iron, and clasping the shaft, thereby avoiding the use of screws, which tend to weaken it. This is a very important improvement, especially useful in business wagons.

A Kangaroo made useful.—An Australian colonist has harnessed up a kangaroo, and put him to labor, turning machinery with half horse power. When the animal gets lazy, a pin is stuck into him, which starts him to work again. Should he die, the natives cook and eat him.

Patent Journal.

AMERICAN INVENTIONS.

February 5. (61,703) Carriage Wheel.—N. S. Bean, Manchester, N. H.:

I claim the peculiarity of construction of the mortises of the metallic hub and of the tenons of the wooden spokes, substantially as and for the purpose set forth.

(61,712) Elliptic Spring for Carriages.—Edwin M. Chaffee, Providence, R. I.:

I claim the introduction of india-rubber or similar elastic substance between the leaves or lifts of elastic springs, substantially as and for the purpose specified.

(61,740) Cart Brake—Silas Y. Ives, Meriden, Conn.:

I claim, *First*, The combination and arrangement described of the shoes *g*, the levers, H and *l*, with the equalizer *m*, and the rod, *n*, substantially in the manner and for the purpose specified. *Second*, In combination with the above, I claim the bar *p*, and rod R, constructed and arranged to operate substantially in the manner and for the purpose specified. *Third*, The combination of the shoe, G, and lever, H, when linked together, so as to operate substantially as and for the purpose specified.

(61,748) Carriage Horse-controller.—Francis Marlow, Cleveland, Ohio:

I claim the line F, spool, B, and shaft, A, in combination with the pawl and ratchet, G, D, attached to a carriage, as and for the purpose set forth.

(61,759) Shaft Coupling for Carriages.—Asa R. Reynolds, Auburn, N. Y.:

I claim a shaft coupling composed of a loop bar or bolt wrought in one and the same piece with the loop and strap, and an under and upper piece fitting over against it, and a tightening bolt controling said under and upper piece to adjust their frictional contact with the loop, or draw-bar, or bolt, substantially as and for the purpose described.

(61,761) Thill Coupling.—S. G. Rice, Albany, N.Y.:

I claim, *First*, A ball-and-socket thill coupling, which is so constructed that the thill iron will serve, when in an elevated position, as a means for preventing a casual disconnection of this iron, substantially as explained. *Second*, The combination of the parts A, B, with the section C, C′, slot, *c*, and a bayonet-fastening, *b*, substantially as described.

(61,769) Device for supporting Carriage Thills.—Alonzo Sedgwick, Poughkeepsie, N. Y.:

I claim a device for the purpose specified, consisting of a frame, A, and catch, D, arranged and operating substantially as described.

(61,776) "Fifth Wheel" or Whiffle-tree Attachment for Carriages.—Frederiek Van Patten, Auburn, N. Y.:

I claim a fifth-wheel or whiffle-tree connection for carriages composed of the plates, C D D′, with the hub and collars constructed and operating substantially as and for the purpose described.

(61,781) Whiffle-tree.—Oliver N. Weaver, Dover, Ky., assignor to himself and G. W. Winter, Augusta, Ky.:

I claim the spring whiffle-tree, A, adapted for fastening in rear of the shaft's cross-bar, its ends being provided with the yokes, D, D′, and terminating in hooks or other devices for the attachment of the tugs, as set forth.

(61,782) Unhitching Horses from Vehicles.—Oliver N. Weaver, Dover, Ky., assignor to himself and G. W. Winter, Augusta, Ky.:

I claim, *First*, In the described combination a provision of the snaps, A, on the hip-strap and of the eyes, rings, or loops, B, *b*, upon the breeching and tugs for ready hitching and unhitching, as set forth. *Second*, The provision of the snap, A, at the lower ends of the hip-straps, for the purpose set forth. *Third*, In combination with the elements of the first clause of the claim, I claim the hook, C, projecting from the inside of the shaft to temporarily support the breeching when the horse is unhitched.

(61,793) Carriage Wheel.—Charles C. Ayer, Chelsea, Mass., assignor to himself and Henry A. Breed, Lynn, Mass.:

I claim, *First*, The combination as well as the arrangement of the two springs, *g*, *h*, their separate chambers, *f i*, the head *a*, and the bearer, *e*, with the wheel felloe, A, and the spoke, C, applied to the hub, B. *Second*, In combination therewith, I claim the spring, *l*, and its chamber, *k*, arranged with respect to the spoke, as set forth. *Third*, The combination and arrangement of the follower, *e*, or the same and the check-nut, *d*, with the series of annular springs and the spoke, made and applied to the felloe substantially as set forth.

(61,808) Lumber Rack for Wagons.—Charles G. Comstock, Grand Rapids, Mich.:

I claim, *First*, The combination of the lever stakes, C, and rollers, D, with each other and with the frame, A, of the rack, substantially as herein shown and described. *Second*, The combination of the connecting-bars, F, ropes, G, chains, I, crank, N, shaft, H, and spring, N, with the lever stakes, C, and with the frame, A, of the rack, substantially as herein shown and described. *Third*, the combination of the shaft, H, and chains, I, with the frame, A, of the rack for the purpose of binding the load, substantially as shown and described.

SPECIAL NOTICE.

With this number we furnish the title-page and a complete index to the volume, closing the greater proportion of the subscriptions to the work. This notice, we hope, will be sufficient to remind our friends that in order to secure its regular monthly visits, it will be necessary to renew, by a prompt remittance, that we may be saved the unpleasant task of taking their names from our mail-book.

On or about the 10th of May, we intend publishing NUMBER ONE, VOLUME NINE, of this Magazine, for JUNE. Our past efforts need not be recounted here, but serve as an index of what the public may expect of us in the future. The subscription price will be $5.00, which may be sent in a post-office order with entire safety. Club rates will be found on the first page of our cover.