ADVANCED PROJECTS IN WOODWORK

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"Correlated Courses in Woodwork and Mechanical Drawing," and
"Projects for Beginning Woodwork and Mechanical Drawing."

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PREFACE.

ADVANCED PROJECTS IN WOODWORK is a collection of projects designed to meet the needs of classes in high school woodworking. These projects presuppose familiarity with woodworking processes, tools, and the two simple joints required in the making of projects contained in the author's *Projects in Beginning Woodwork and Mechanical Drawing.*

The drawings are complete only as to their general dimensions. The working out of details, such as the sizes of mortises and tenons and their locations, is left for the pupil in his work in drawing and design.

It is expected that the projects will afford suitable basic material for classes in woodworking design. It remains for the instructor to point out the manner in which this material may be used. For illustration, many beginning students are slow in appreciation of possible modifications in structure or decoration. Circular tops may be used instead of square or octagonal, and vice versa. Modification of the manner of filling side spaces with slats offers variety in initiative. Vertical posts may be made tapering and vice versa. Rails and stretchers may be variously employed. There is almost always a choice in the matter of joints,—keyed or thru or blind tenon. Fig. 1 is suggestive as to possible modifications of a type.

In addition to the possible structural modifications, the plates suggest variation in the matter of decorative ornament such as pierced and carved forms and simple inlay. Such ornament will, of course, be kept subordinate to the structural design.

The upholstering of stool tops and seats for chairs provides another problem in variation.

Little, if any, use is made of dowels as substitutes for the mortise-and-tenon. While it is true that modern commercial practice makes much use of dowels in this way, the author feels that such practice is too often contrary to the principles of good construction. Its genesis lies in economy of material rather than in any superiority as a fastening device.

In the designing of these projects the author has had in mind at all times the thought that most

of the students using them would have access only to a band-saw or jig-saw and a miter-box in addition to the regular hand tool equipment. For this reason such projects as hall clocks, mission beds, etc., have been excluded. The exceptional student will find projects of sufficient size to

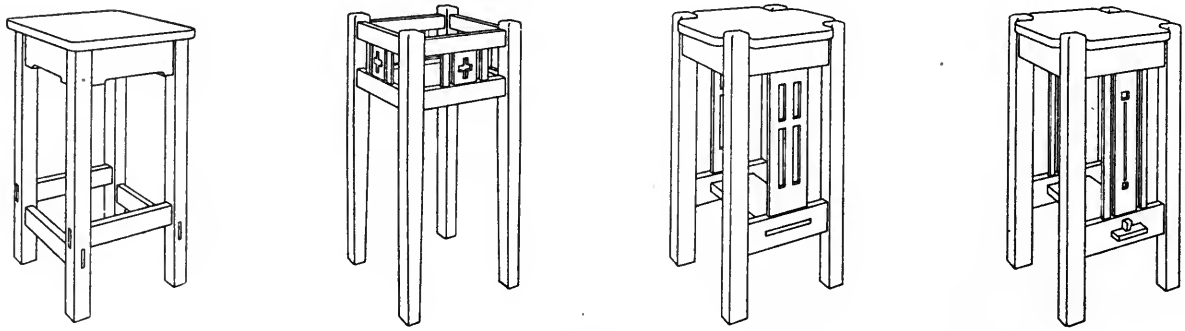


FIG. 1.

tax his ability and muscle. Easier projects and lighter projects have been provided for the weaker members of the class while the use of slats or their omission will provide additional variation in time of execution.

The use of stock ordered S-4-S (surfaced on four sides) has not been anticipated. The use of stock S-2-S and moldings such as are carried in stock by lumber yards is presupposed. If a working principle for the use of stock partly prepared were asked for it would be: Any material

that is carried as stock and which does not have to be ordered especially worked for the project a boy elects or designs may be made use of legitimately. Such a principle would permit the use of stock S-2-S, moldings of stock pattern, hardware such as hinges and locks without any suggestion of deception. It would exclude table legs and tops, etc., especially prepared at a mill, and offers a rational dividing line between two extremes, neither of which is desirable.

Of course, these projects may be used in the teaching of the use of woodworking machinery.

No definite notes as to methods of procedure are given in this book for the student is supposed to have acquired, thru experience with the projects in the elementary book, enough insight to enable him to proceed of his own accord. Definite instruction in making the new joints, in wood-finishing, etc. will be found in *Essentials of Woodworking,* a companion book.

While these projects are especially arranged for use with the courses outlined and discussed in *Correlated Courses in Woodwork and Mechanical Drawing,* by the author, there is nothing in the form of the plates themselves to prevent their being used with any course in woodwork.

July, 1912. IRA S. GRIFFITH.

The inking of the drawings and the making of the perspectives in this book is the work of Mr. George Gordon Kellar.

LIST OF PLATES.

GROUP IX.—JOINERY.

1. Exercises—Keyed tenon, Blind Mortise-and-Tenon.
2. Exercises—Miter Joint, Glue Joint.
3. Exercises—Modeling, Hammer Handles.
4. Necktie Rack.
5. Footstool.
6. Book-rack.
7. Upholstered Stool.
8. Leg Rest.
9. Cricket.
10. Wall Shelves.
11. Stool (square).
12. Taboret (octagonal top).
13. Taboret (round top).
14. Small Table.
15. Taboret (square top).
16. Piano Bench.
17. Piano Bench.
18. Book Stand.
19. Umbrella Stand.
20. Umbrella Stand.
21. Jardiniere Stand.
22. Magazine Stand.
23. Roman Seat.
24. Light Stand.
25. Stool (square).
26. Book Trough.
27. Screen.
28. Tea Table.
29. Hall Rack.
30. Wall China Rack.
31. Side Chair.
32. Arm Chair.
33. Morris Chair.
34. Electric Reading Lamp.
35. Pedestal.
36. Occasional Rocker.
37. Mission Chair.
38. Drop Leaf Table.

GROUP X.—CABINET WORK.

39. Exercises—Mortise-and-Tenon Joint, Rabbeted Joint, Grooved Joint.
40. Exercises—Thru Multiple Dovetail, Half-blind Dovetail.
41. Waste Paper Box.
42. Wall Cabinet.
43. Telephone Table.
44. Sewing Cabinet.
45. Writing Table.
46. Chafing-dish Stand.
47. Cabinet.
48. Library Table.
49. Writing-desk.
50. Dressing Table.
51. Linen Chest.

PRICE LIST FOR YEAR 19____, 19____

LUMBER—Quality, 1st, clear, and kiln-dried.

Kind of Wood	Per 1000 feet when surfaced on two sides							
Thickness in the Rough	3/8"	1/2"	5/8"	3/4"	1"	1 1/4"	1 1/2"	2"
Yellow Poplar								
White Pine								
¼ Sawed White Oak								
Mahogany								
¼ Sawed Red Sycamore								
Black Walnut								
Plain Sawed Red Oak								

HARDWARE—
For prices on hardware consult Hardware Catalog provided for you.
Figure retail price, that is, figure screws at price per dozen, not price per gross.

WOODFINISH—
Per square foot of surface covered.

LABOR—
Per hour.

(Form for high school use)

BILL OF MATERIAL

NAME_____ DATE BEGUN_____

CLASS_____ DATE FINISHED_____

ARTICLE_____ EXTRA HOURS_____

Pieces	Size	Description	Price	Feet	Cost			
2	½ x 3¼ x 12½	Walnut Slats S-2-S to ⅜ in.	.10	$\frac{5}{10}$		.05		
1	1 x 8¼ x 14½	" Stretcher " ⅞ in.						
6	1 x 3¼ x 12½	" Rails " "	.10	$3\frac{9}{10}$		.39		
1	1 x 14¼ x 14½	" Top " "						
4	1½ x 1½ x 24½	" Posts " 1¼ in.	.11	2		.22		.66
8	2 inch No. 10	Flat Head Brt. Screws	.00½			.04		
4	1½ inch No. 10	" " " "	.00¼			.01		.05
	13 sq. feet	Wood Finish	.01					.13
		MATERIAL COST..	.....	.....	.....	.....	.....	.84
	30 hrs.	Labor	.15				4	.50

TOTAL COST $5.34

INSTRUCTIONS FOR MAKING BILL OF MATERIAL.

Under "pieces" put the number of parts that are alike.

Under "size" put the various dimensions of pieces. In finding the sizes of the various pieces of lumber, examine the working drawings for finished dimensions, making due additions for tenons, then add ¼″ to the width and ½″ to the length to allow for cutting out and squaring up. Tho you are to make use of stock mill-planed to thickness, you are to specify the thickness from which this mill-planed stock is got. Allow at least ⅛″ for mill-planing.

Remember that length always means along the grain.

Fractions of an inch in width and length are not considered. Neither are fractions of a cent in the final results. If the fraction is ½ or over, take the next higher whole number. If it is less than ½, drop it. Fractions of an inch in thickness that are over 1″ and fractions of a cent in the price per foot are to be figured as they are.

Lumber is measured by the superficial foot which is 1″ x 12″ x 12″. Boards that are less than 1″ thick are sold by surface measure. In other words, boards less than 1″ thick are figured for quantity as 1″ thick.

Standard sawed thicknesses are 1″, 1¼″, 1½″, 2″, 2½″, 3″, 3½″, 4″. Thicknesses less than 1″ necessitate re-sawing these sizes. In some communities the price per square foot for re-sawed stock varies for each difference of ¼″ in thickness.

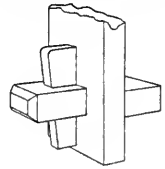
In figuring, multiply the length by the width by the thickness, by the number of pieces. If any piece is less than 1″ thick figure it as 1″. Combine all results that are the same in price per foot. Reduce to square feet by dividing by 144. Reduce decimally and do not carry the result beyond tenths place. Dispose of any fractional part beyond tenths as directed above. Write your result in fractional form that the decimal point may not be overlooked and be the cause of trouble.

The price list gives the price of lumber per 1,000 feet. The price per foot is readily obtainable.

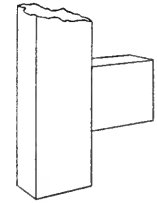
In figuring finish for these cabinet pieces, double the number of feet of stock as given by the stock bill to get the number of feet of finish. This is only an approximate method but is sufficiently accurate for such pieces as are to be made in first year high school, as specified in *Advanced Projects in Woodwork,* Group IX.

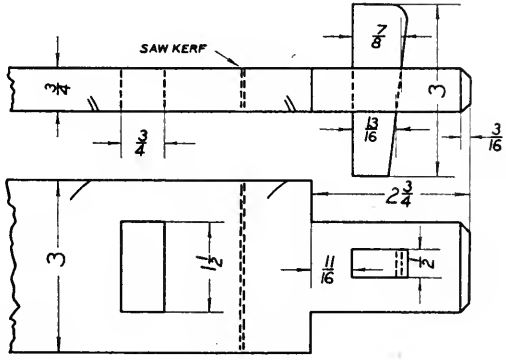
EXERCISE (PREPARATORY TO GROUP IX)

KEYED TENON



BLIND MORTISE AND TENON





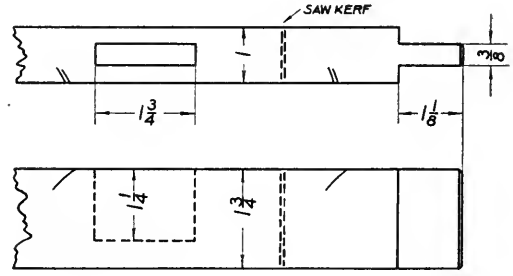


PLATE 1.

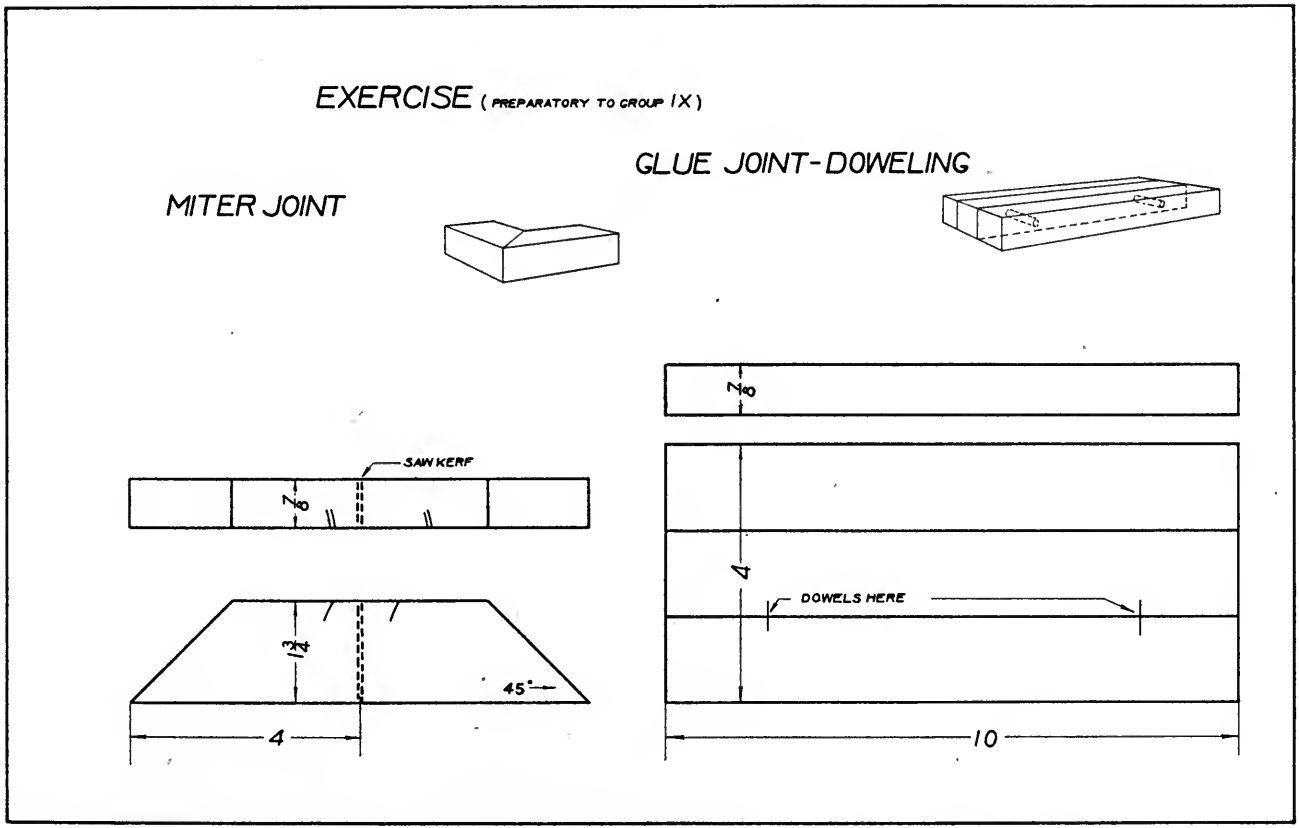

EXERCISE (PREPARATORY TO GROUP IX)
MITER JOINT
GLUE JOINT-DOWELING
SAW KERF
7/8
1 3/4
45°
4
7/8
4
DOWELS HERE
10

PLATE 2.

EXERCISE PREPARATORY TO GROUP IX
(CHOOSE ONE)

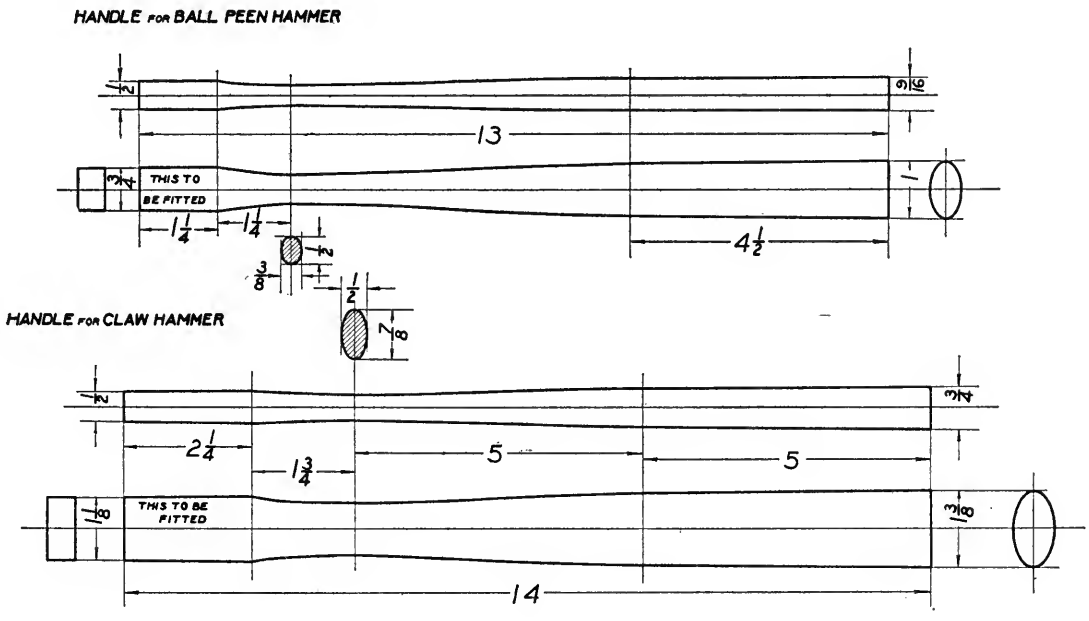


PLATE 3.

NECKTIE RACK

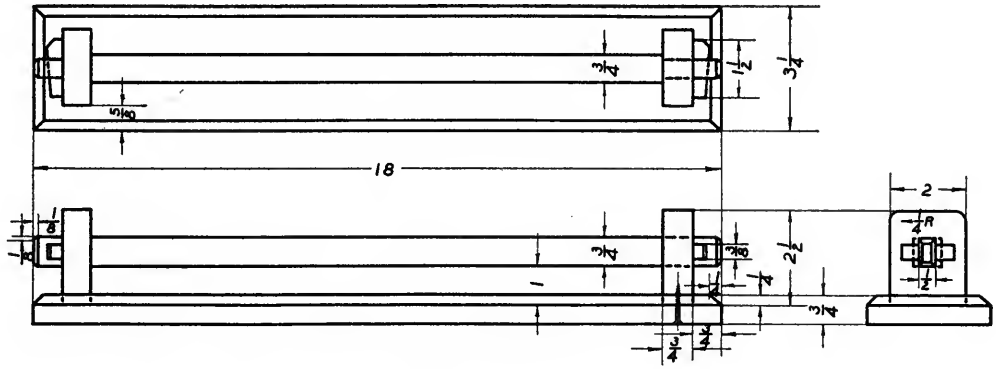
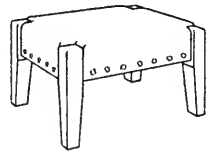


Plate 4.



FOOT STOOL

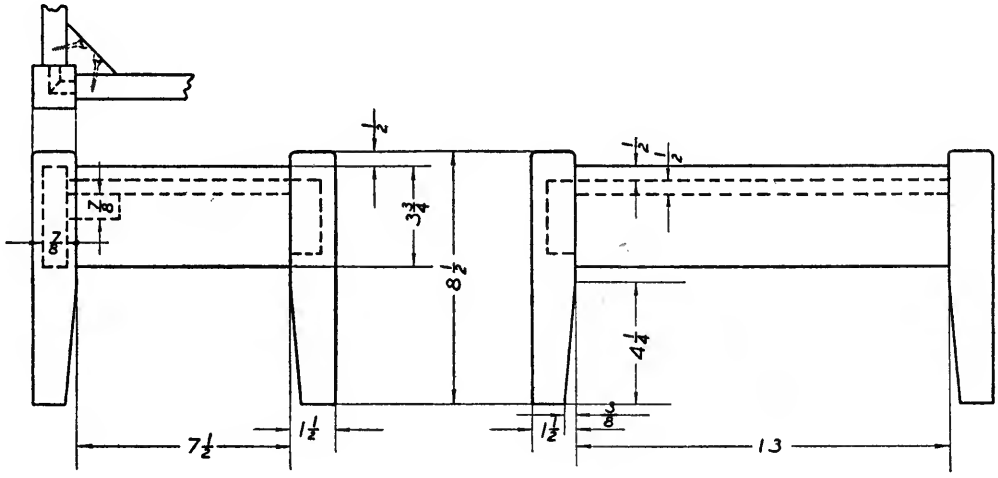
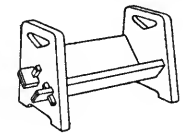


PLATE 5.

BOOK RACK



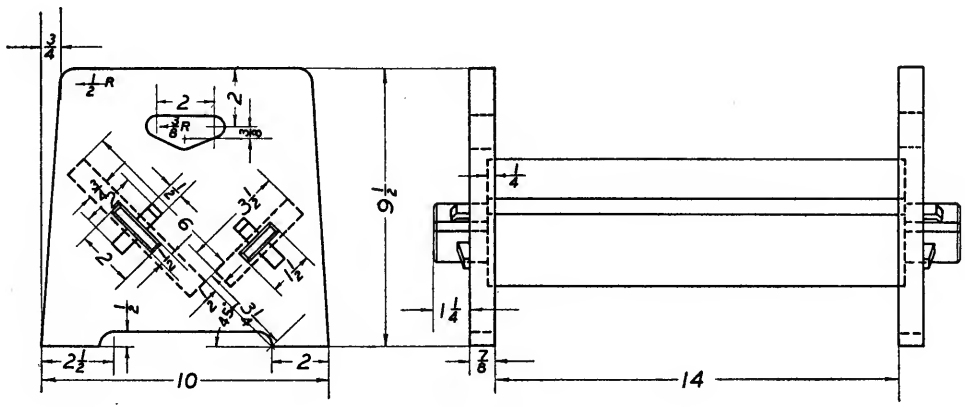
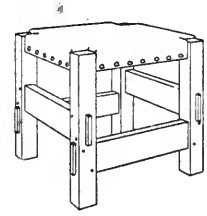


Plate 6.

UPHOLSTERED STOOL



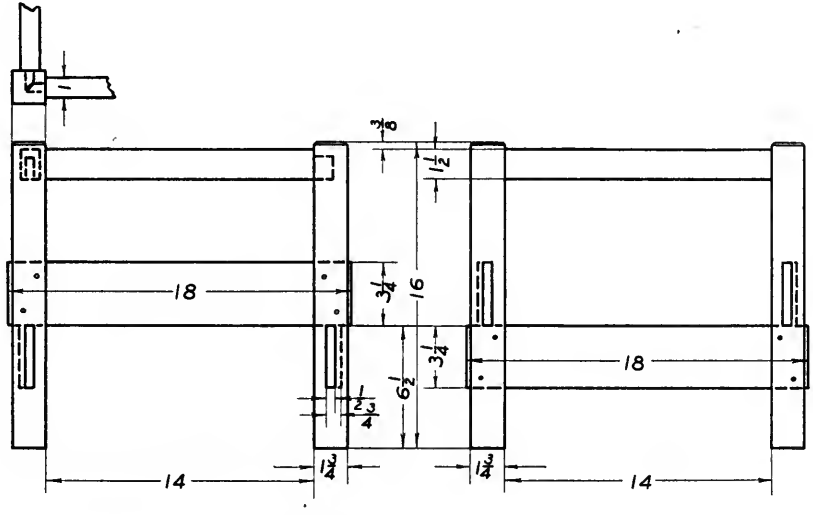
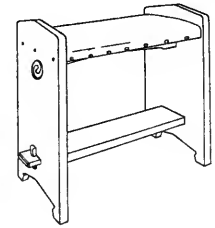


Plate 7.

LEG REST



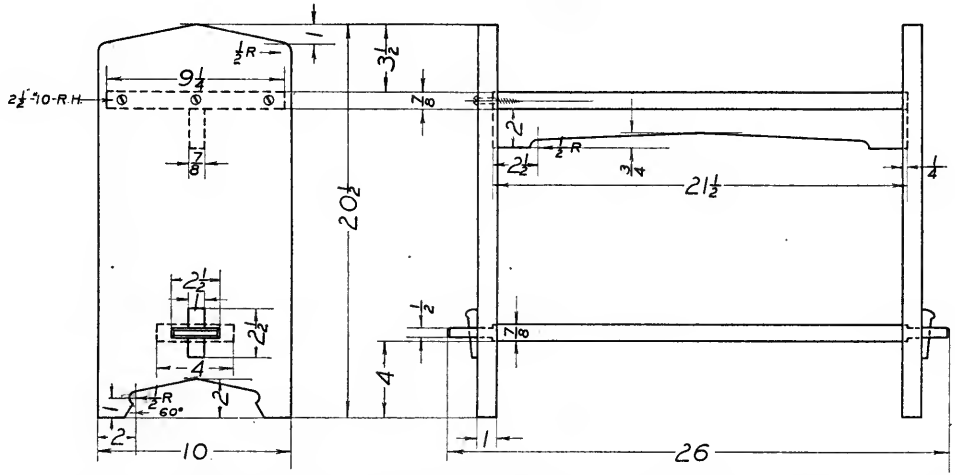
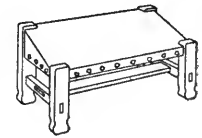


PLATE 8.

CRICKET



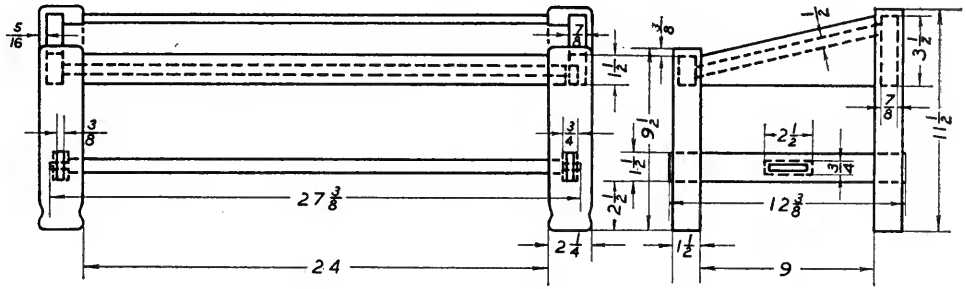
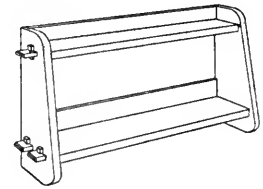


PLATE 9.

WALL SHELVES



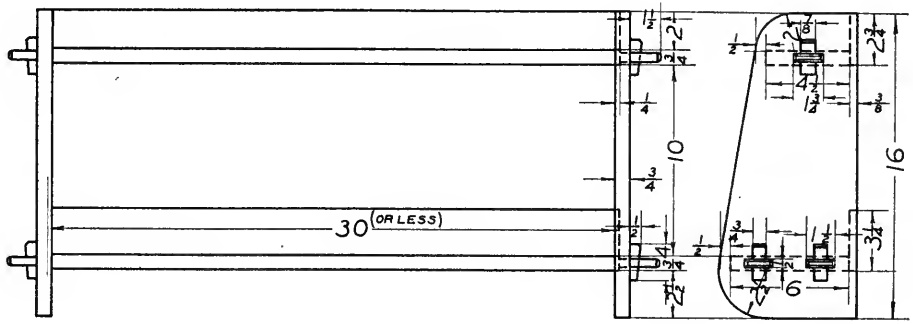
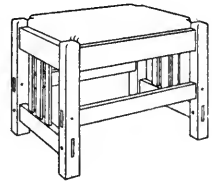


PLATE 10.

STOOL



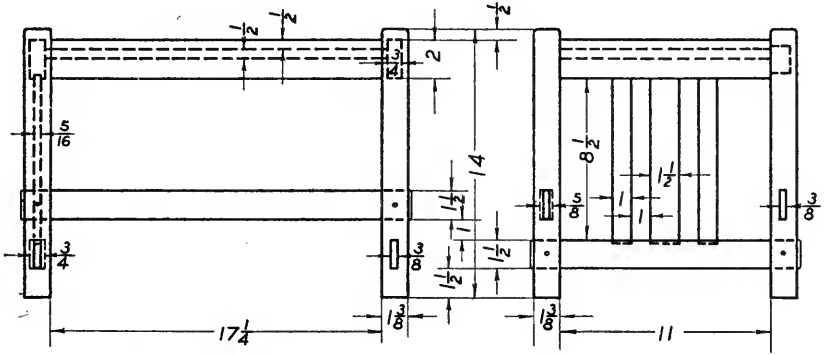
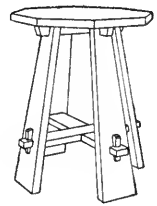


PLATE 11.

TABORET



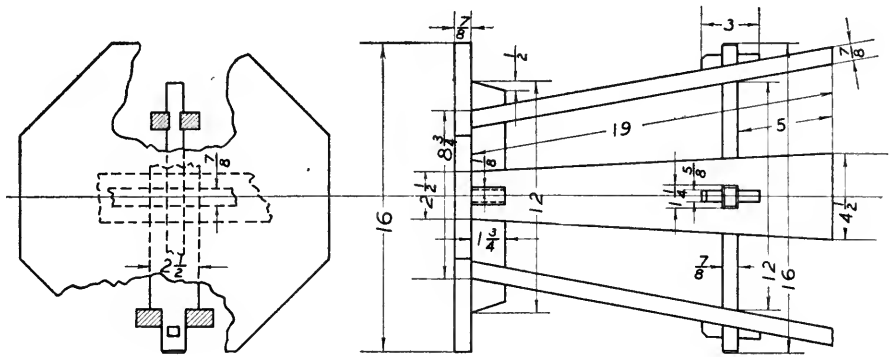
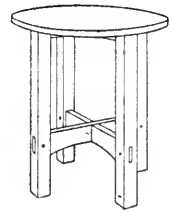


PLATE 12.

TABORET



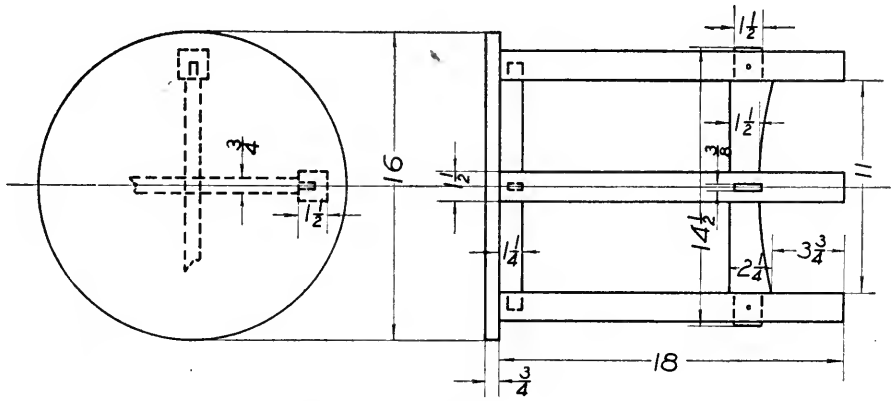
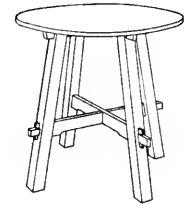


PLATE 13.

SMALL TABLE



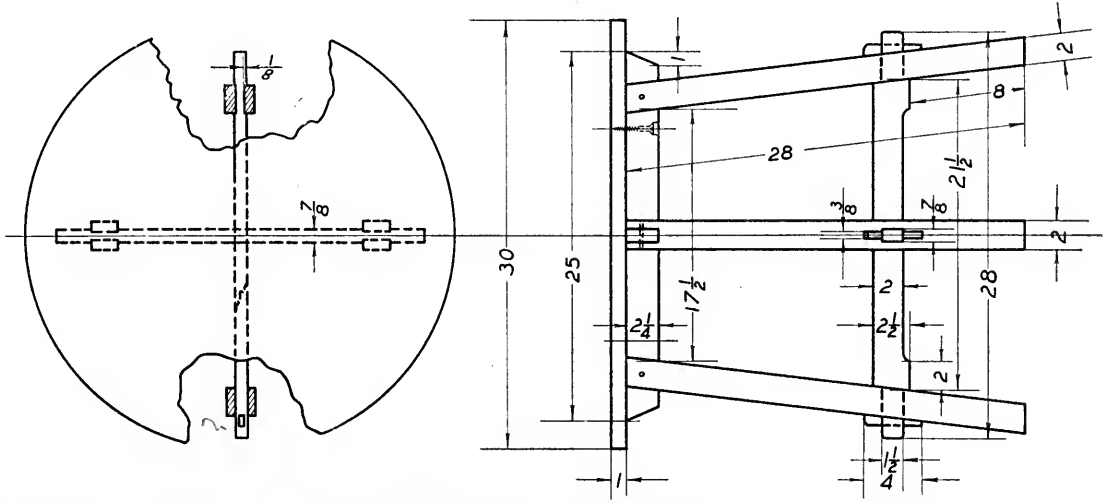
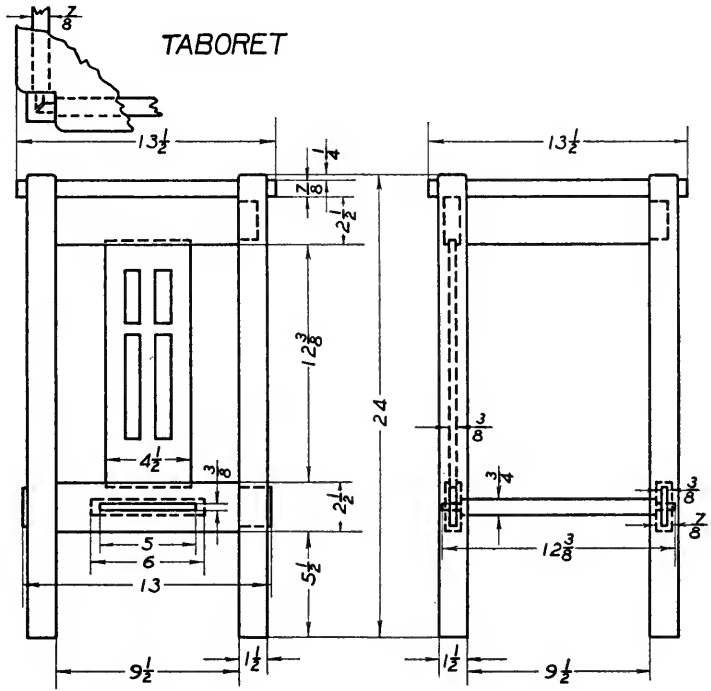


Plate 14.


TABORET
7/8
13 1/2
1/4
7/8
2 1/2
12 3/8
24
4 1/2
3/8
2 1/2
5
6
13
5 1/2
1 1/2
9 1/2
13 1/2
3/8
3/4
3/8
7/8
12 3/8
1 1/2
9 1/2

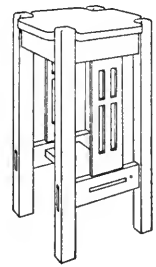
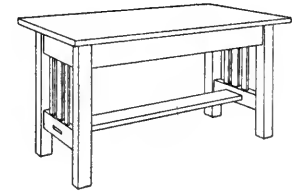


PLATE 15.

PIANO BENCH



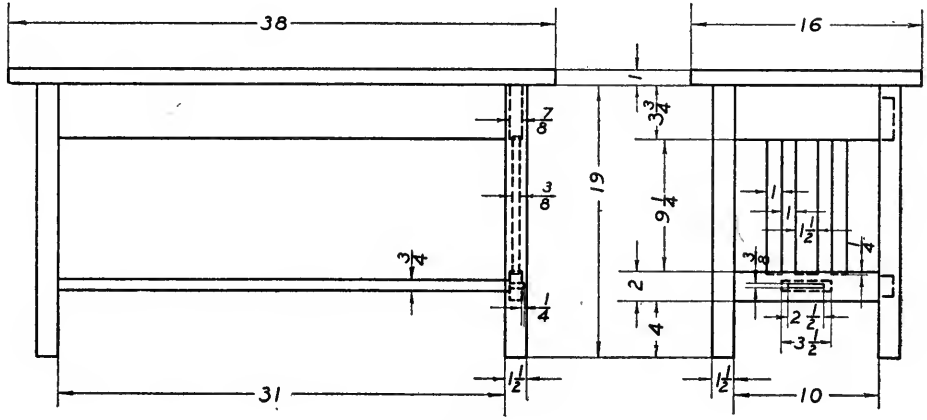
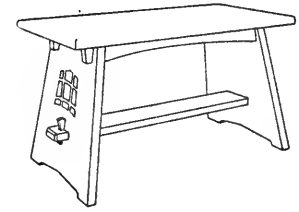


Plate 16.

PIANO BENCH



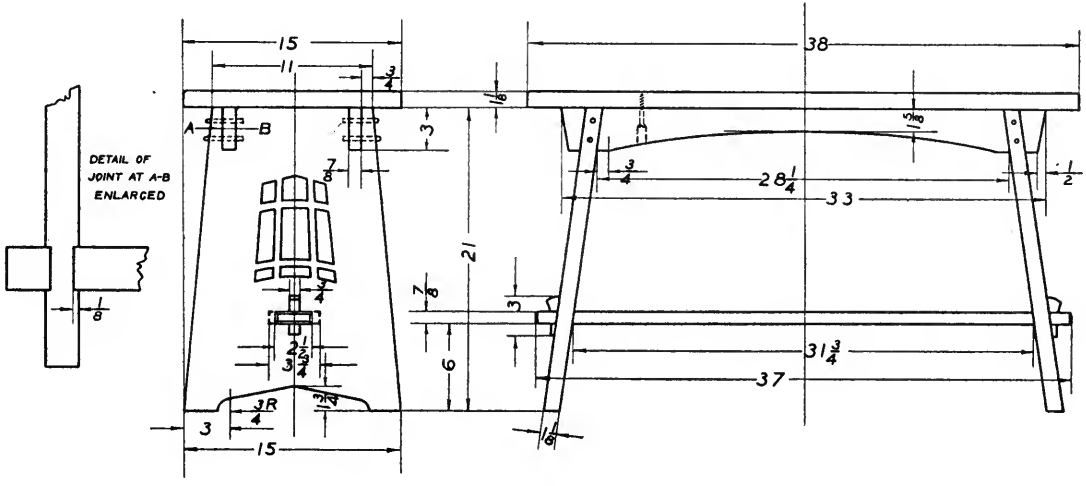


PLATE 17.

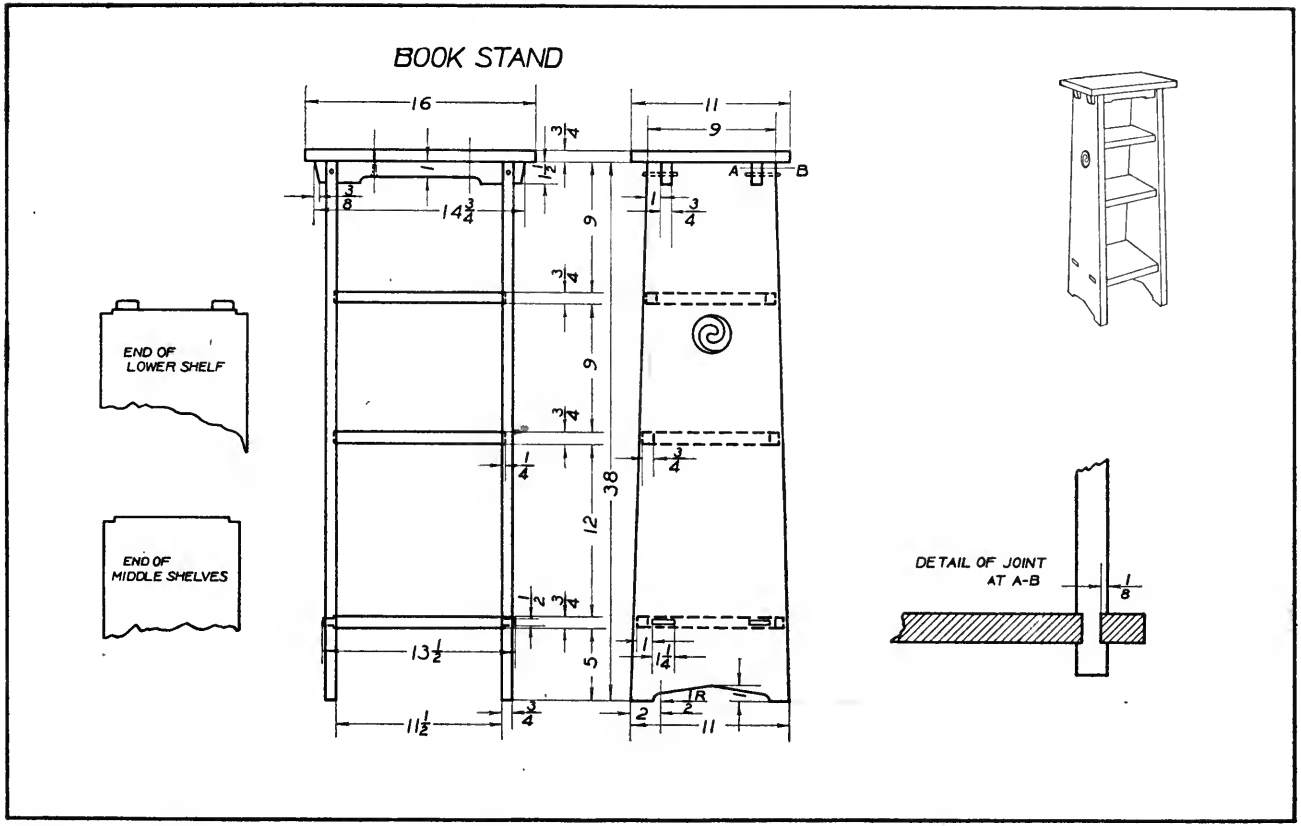
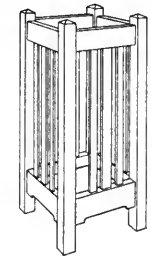

BOOK STAND
16
11
9
A
B
14 3/4
9
38
12
5
13 1/2
11 1/2
11
2
END OF LOWER SHELF
END OF MIDDLE SHELVES
DETAIL OF JOINT AT A-B

PLATE 18.

UMBRELLA STAND



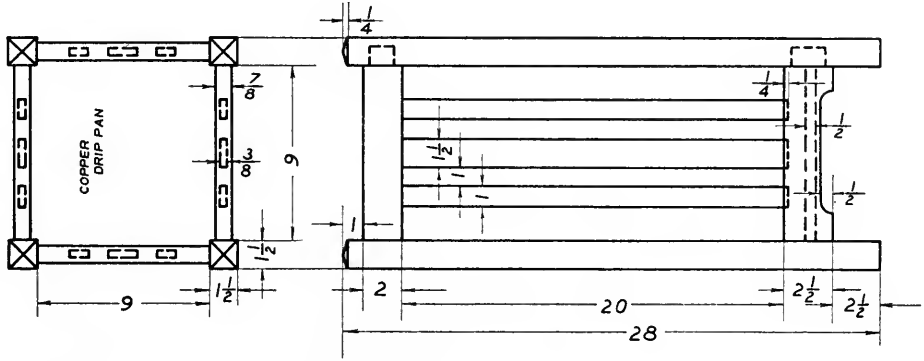
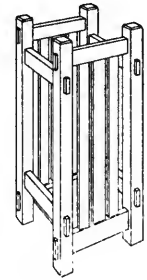


PLATE 19.

UMBRELLA STAND



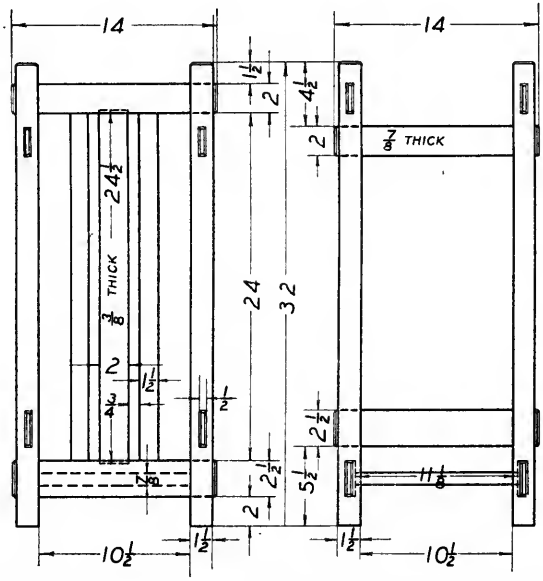
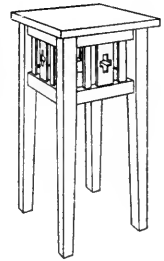


PLATE 20.

JARDINIERE STAND



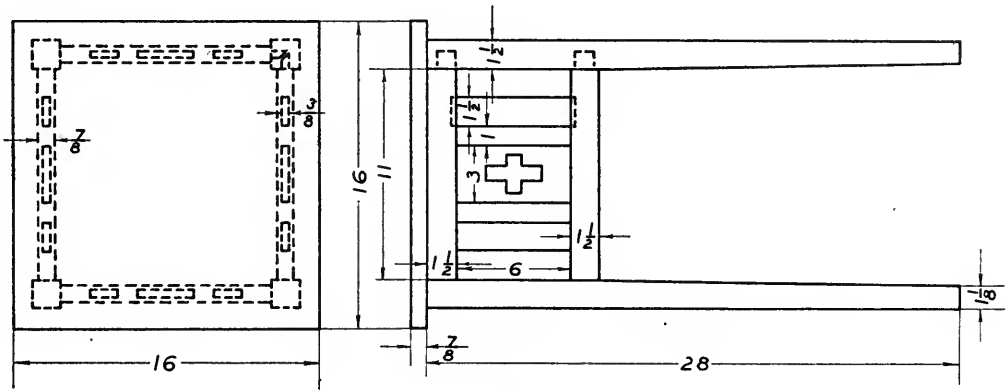
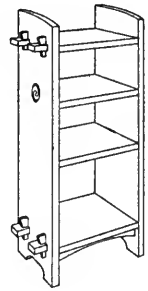
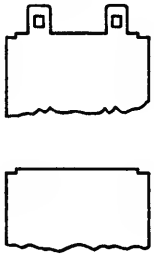


PLATE 21.

MAGAZINE STAND





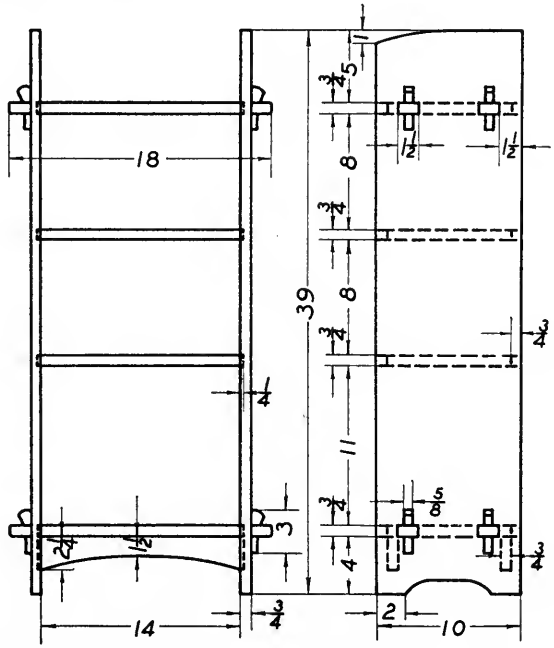
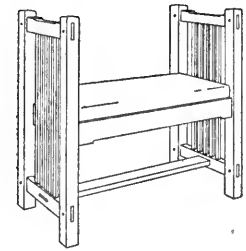


PLATE 22.

ROMAN SEAT



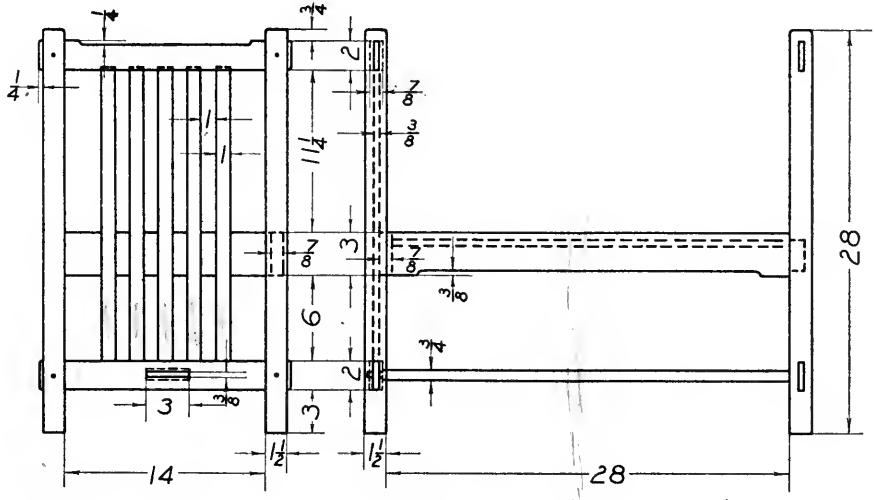
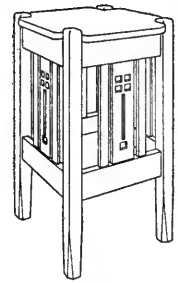


PLATE 23.

LIGHT STAND



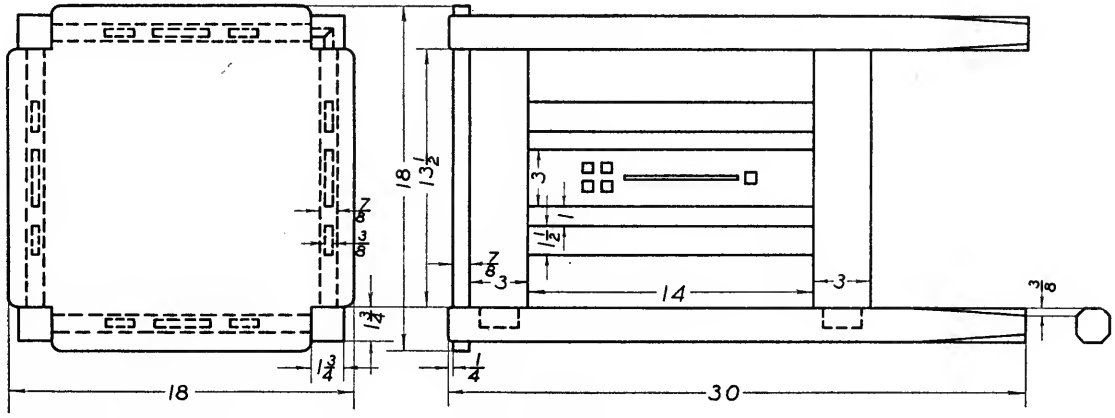
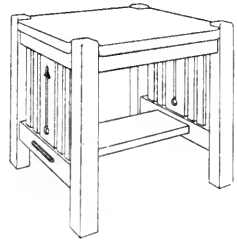


PLATE 24.

STOOL



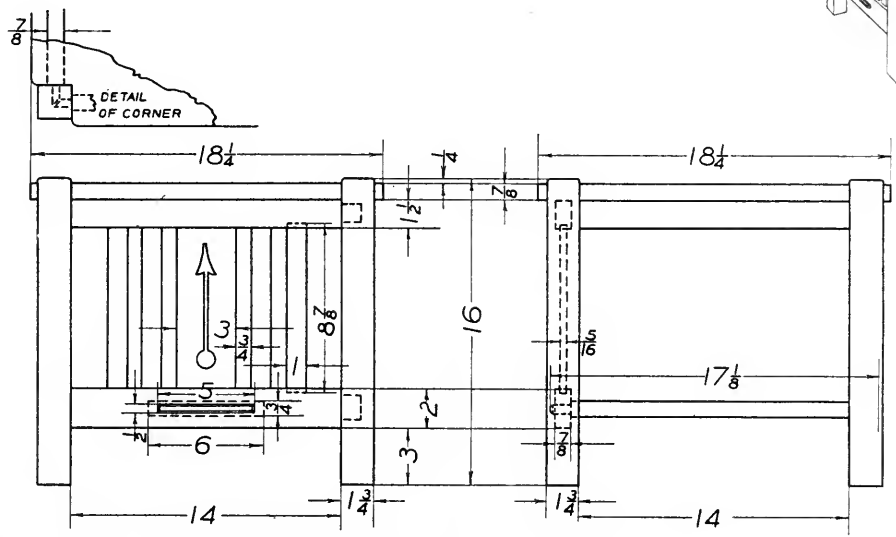


PLATE 25.

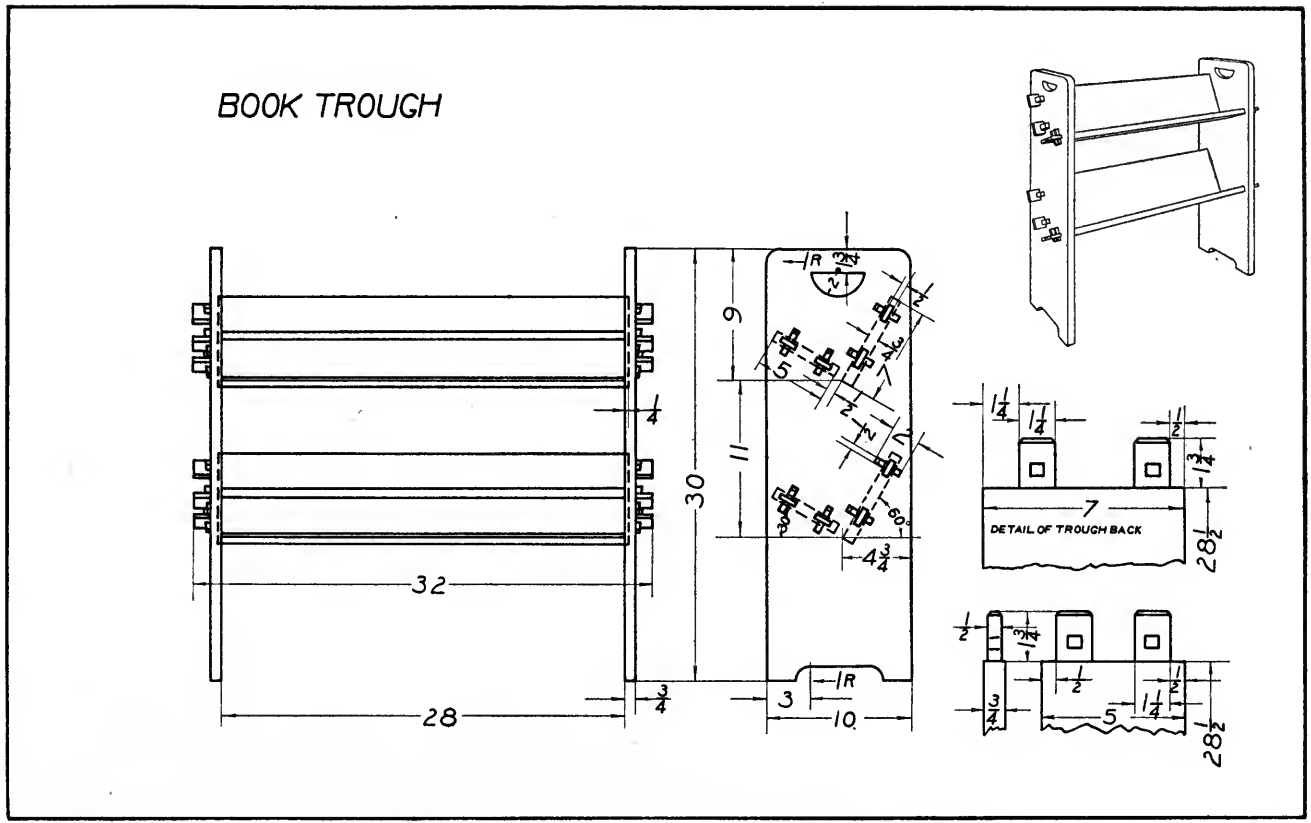


PLATE 26.

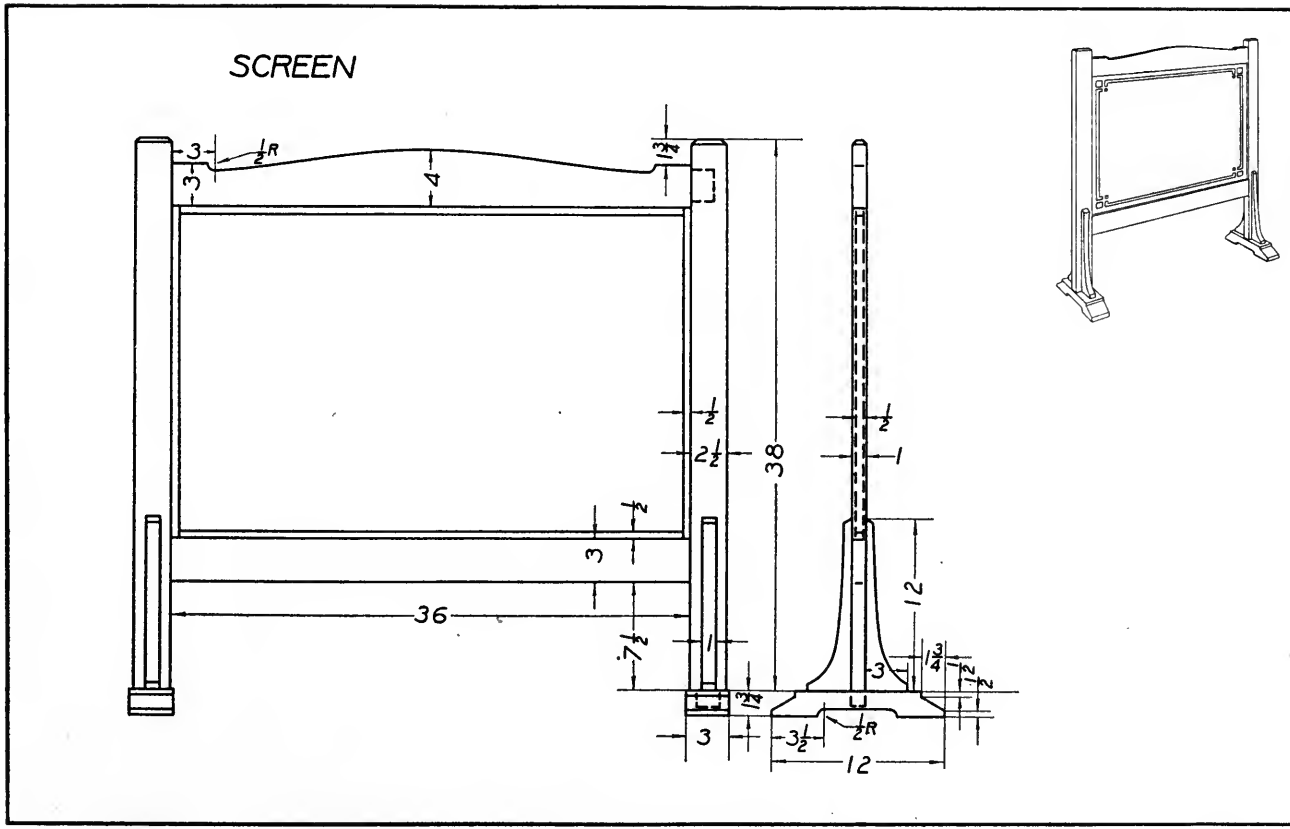
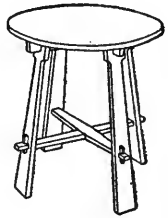


PLATE 27.

TEA TABLE



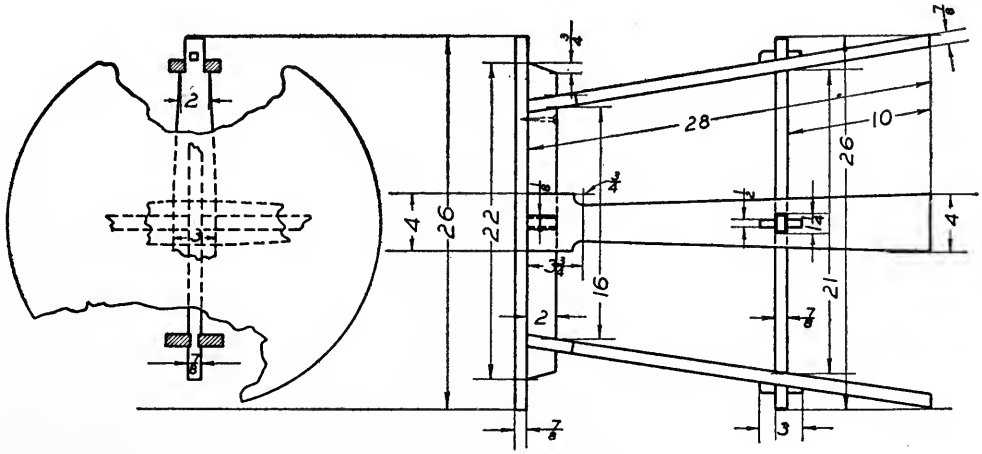
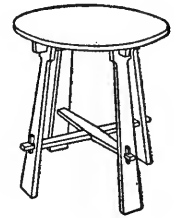


PLATE 28.

TEA TABLE



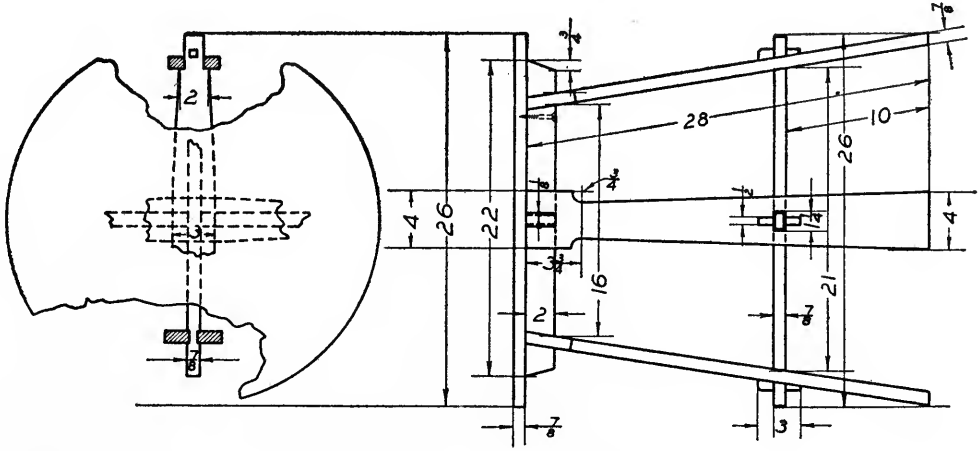


PLATE 28.

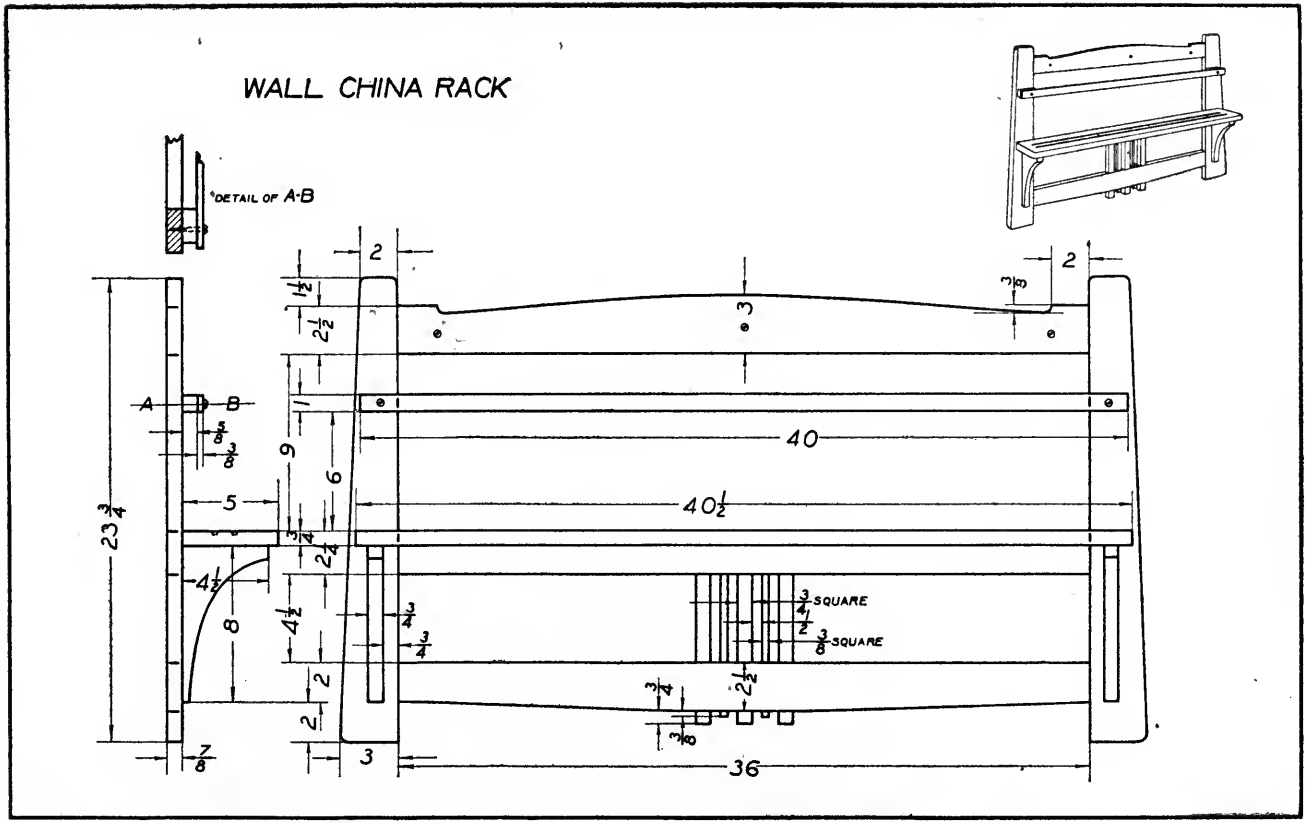
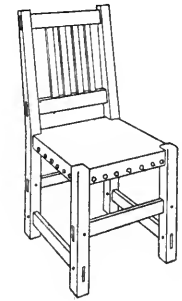

WALL CHINA RACK
DETAIL OF A-B
A
B
40
40½
36
23¾
9
6
8
5
4½
2½
1½
1
2
3
¾ SQUARE
⅜ SQUARE

PLATE 30.

SIDE CHAIR



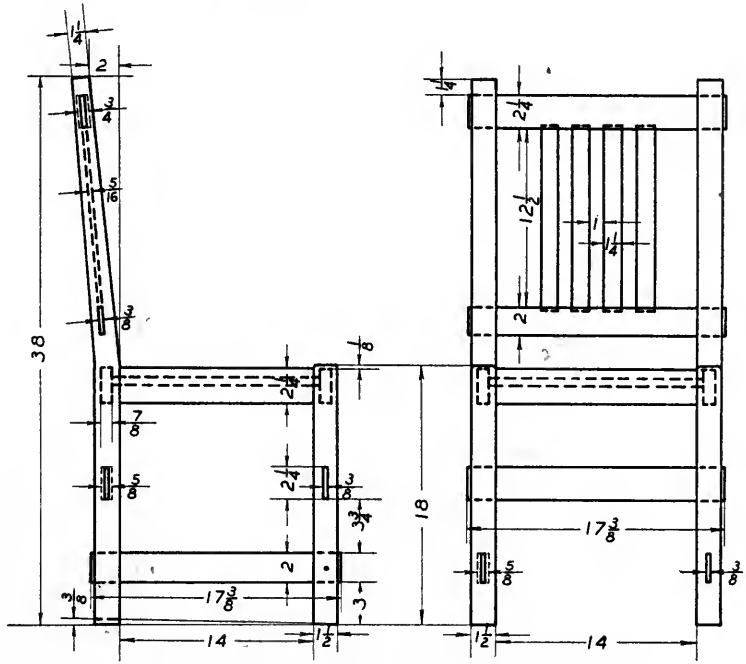


PLATE 31.

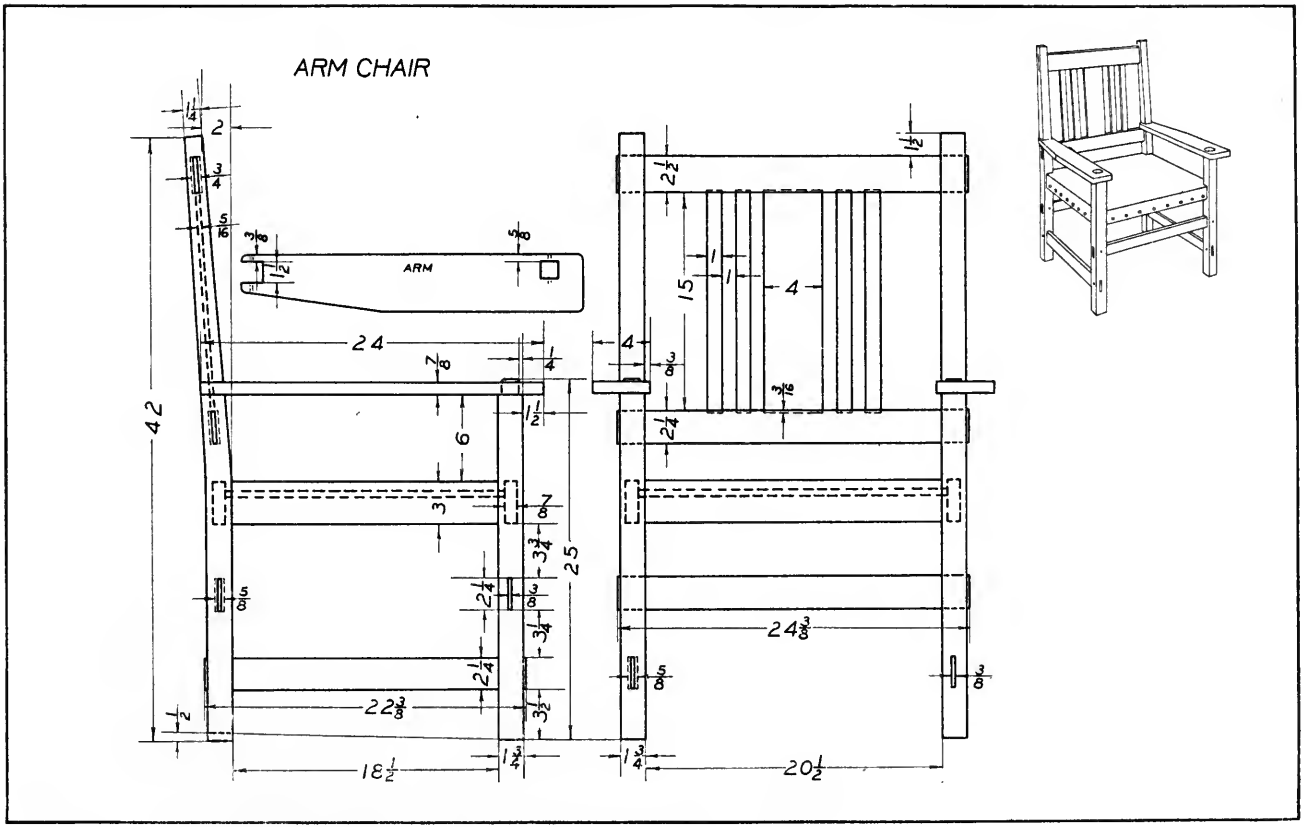


PLATE 32.

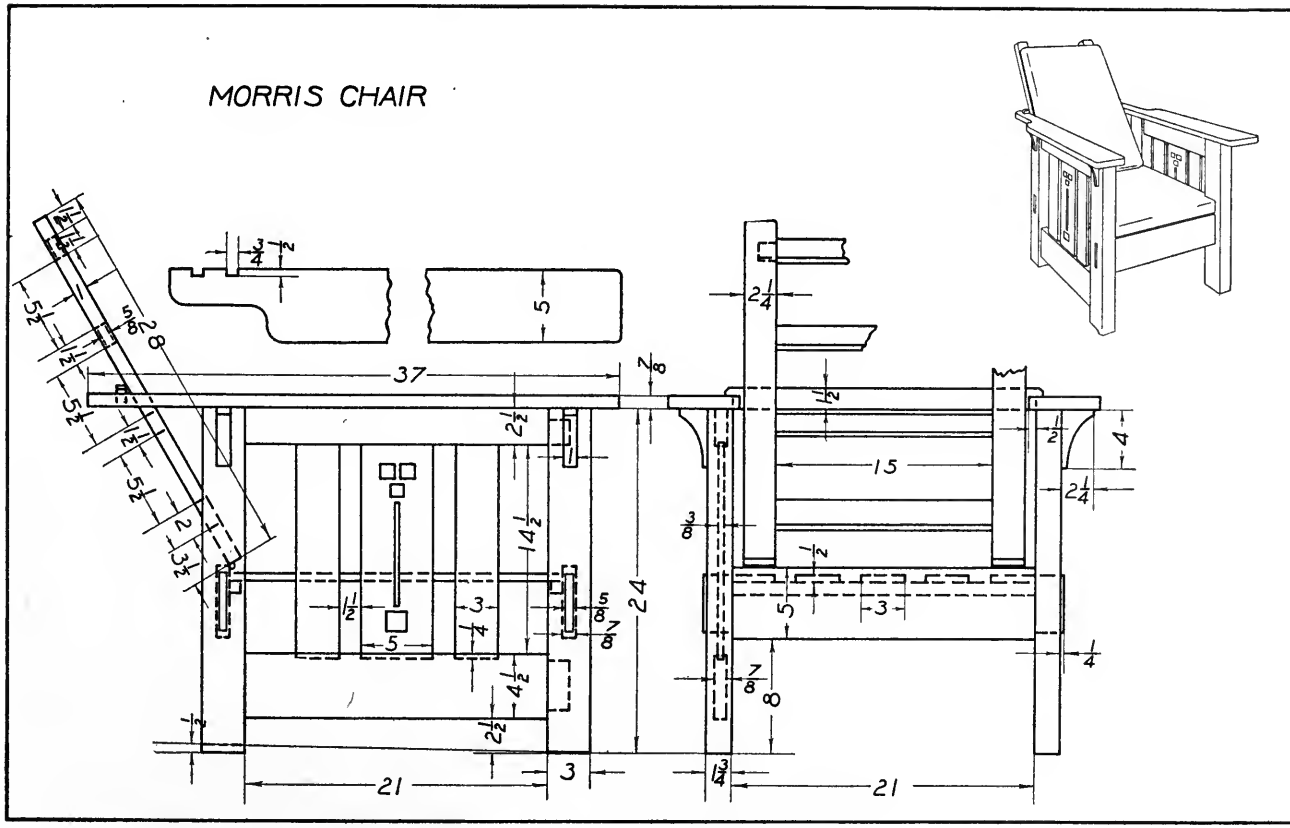
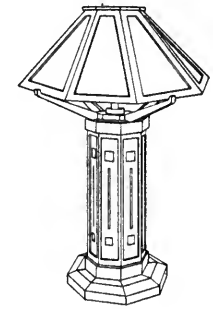


PLATE 33.

ELECTRIC READING LAMP



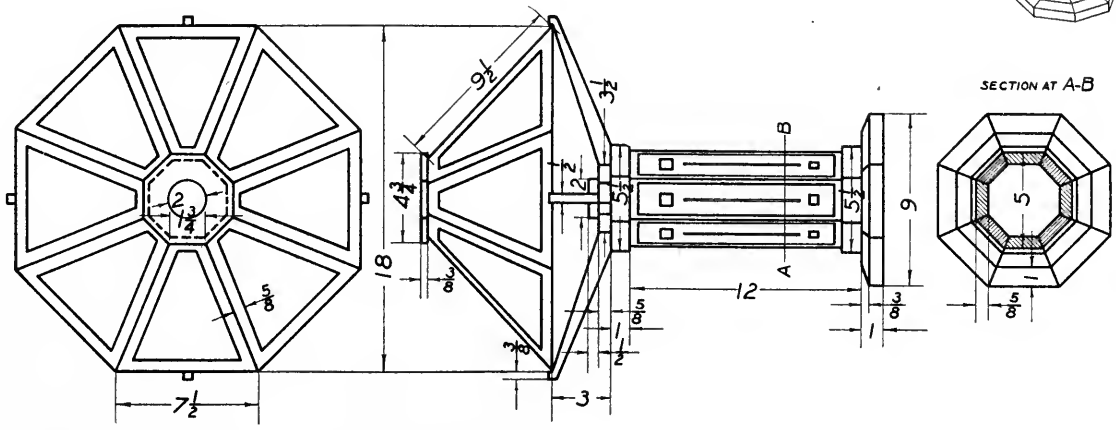


PLATE 34.

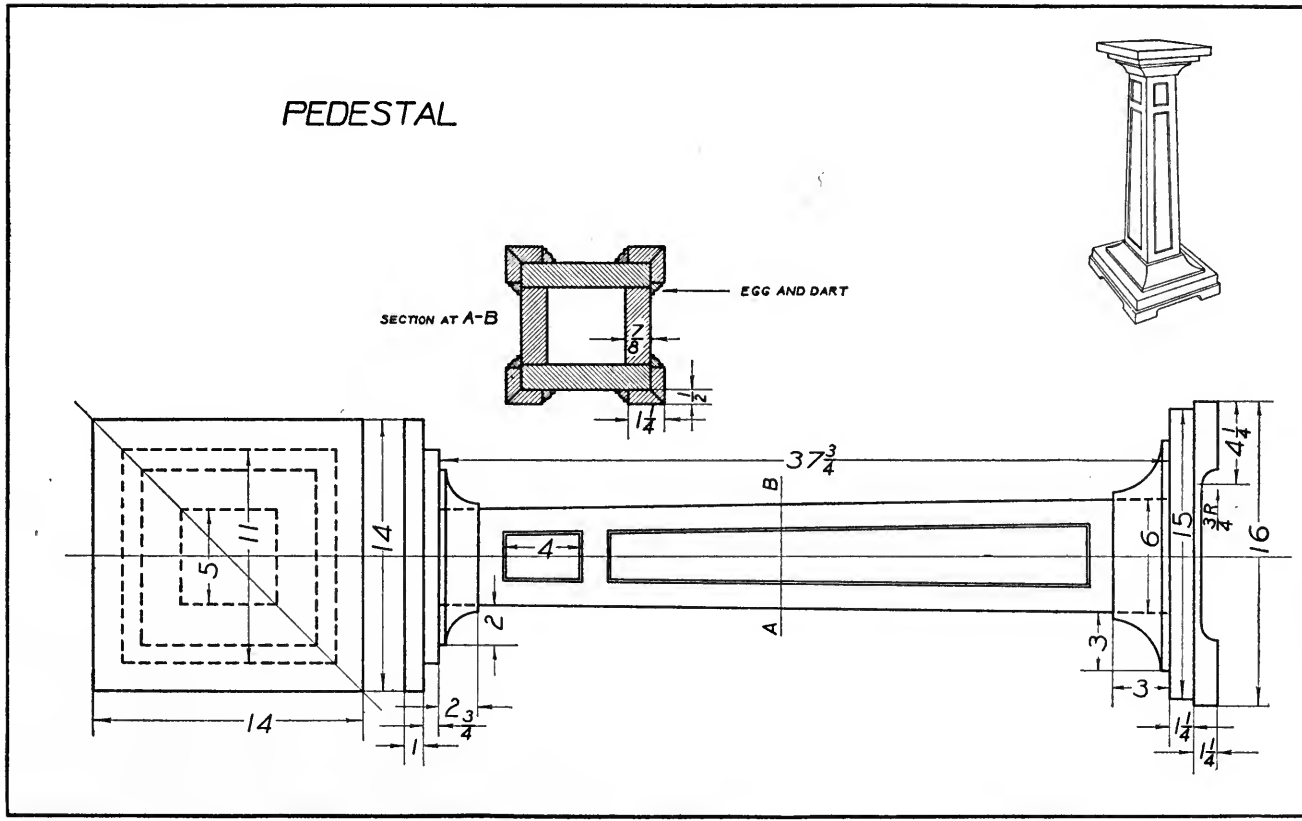
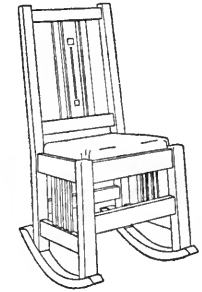

PEDESTAL
SECTION AT A-B
EGG AND DART
7/8
1/2
1 1/4
37 3/4
B
A
14
11
5
4
2
14
2 3/4
1
6
15
3
3
3/4 R
4 1/4
16
1 1/4
1 1/4

PLATE 35.

OCCASIONAL ROCKER



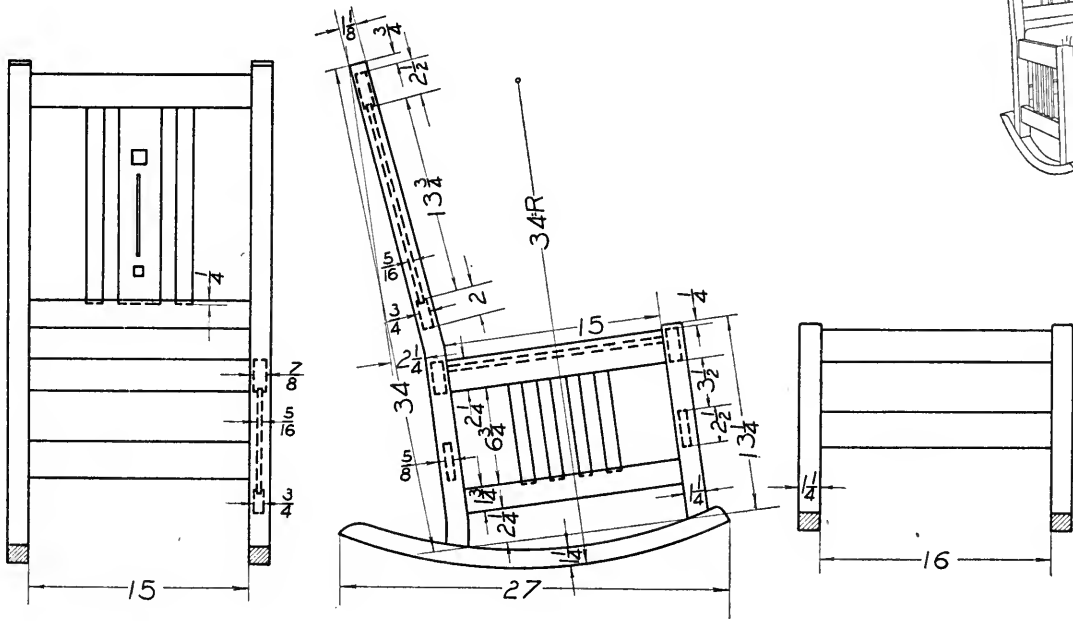
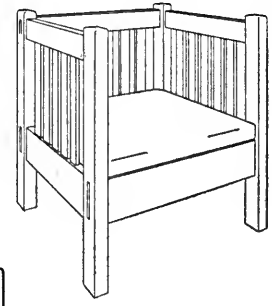


PLATE 36.

MISSION CHAIR



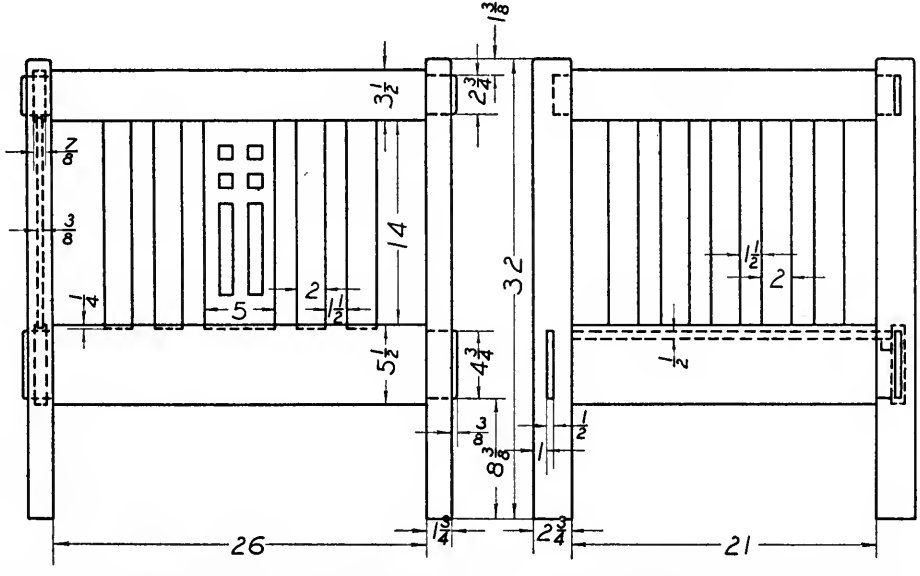


PLATE 37.

DROP LEAF TABLE

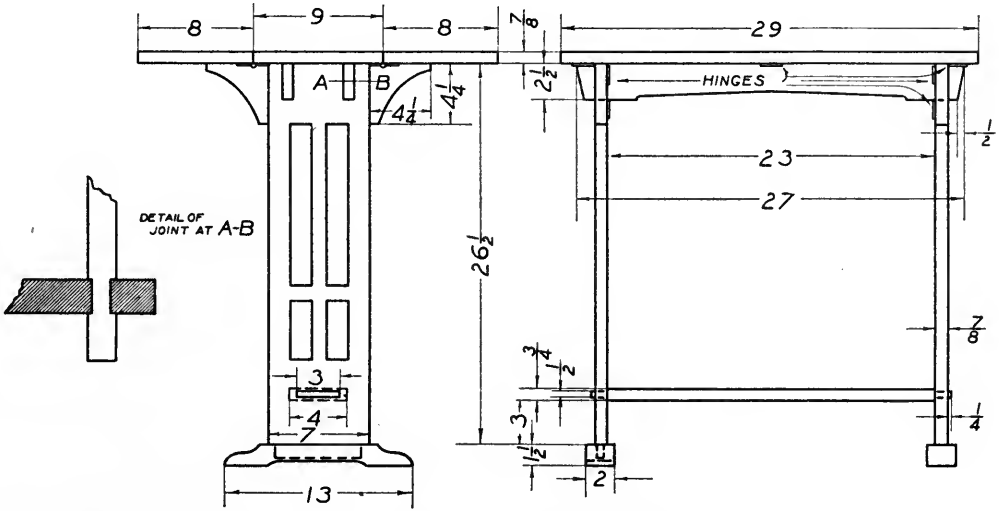
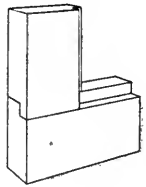


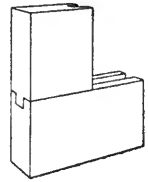
PLATE 38.

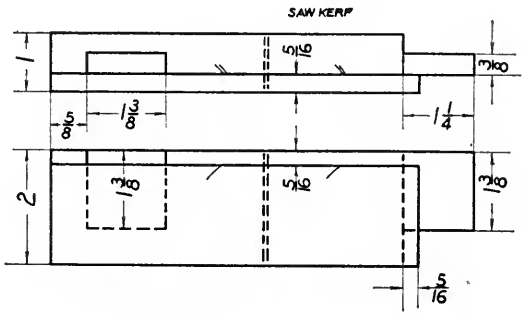
EXERCISE - PREPARATORY TO GROUP X

MORTISE AND TENON - RABBETED



HAUNCHED MORTISE AND TENON - GROOVED





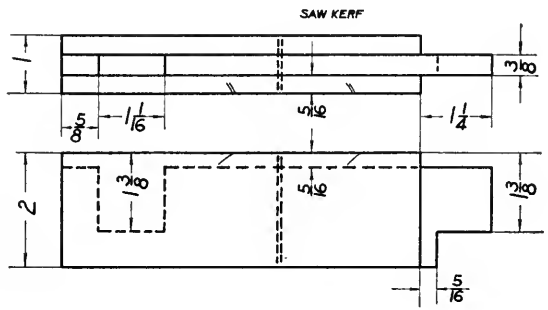
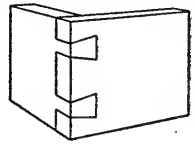
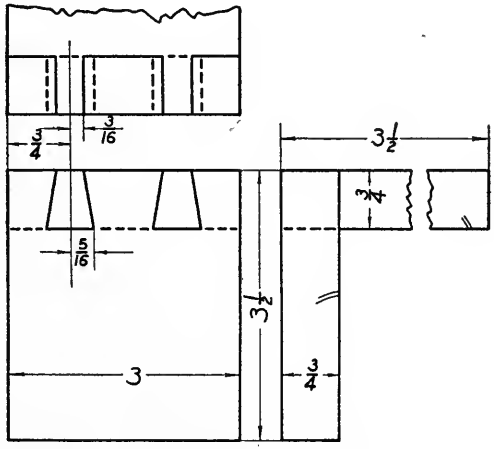


PLATE 39.

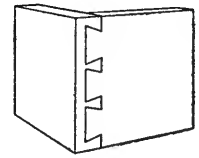
EXERCISE - PREPARATORY TO GROUP X

THRU MULTIPLE DOVETAIL





HALF-BLIND DOVETAIL



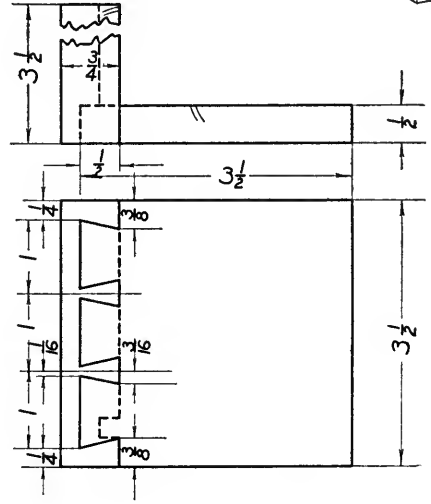
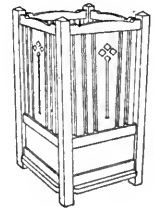


PLATE 40.

WASTE PAPER BOX



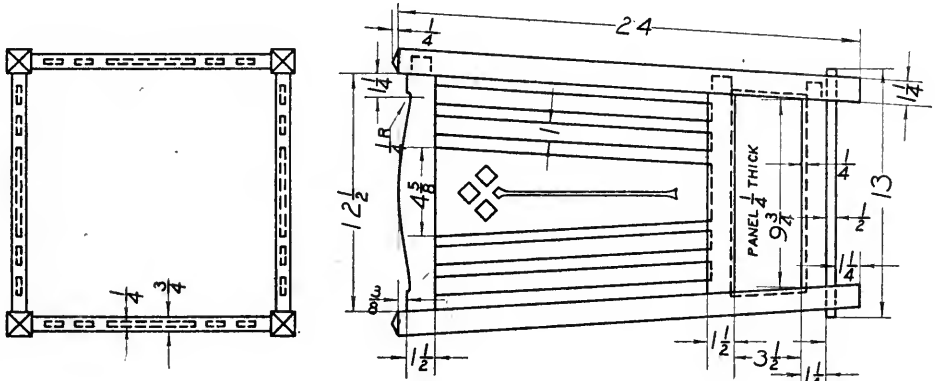
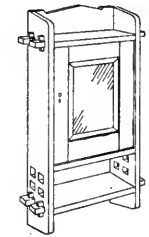
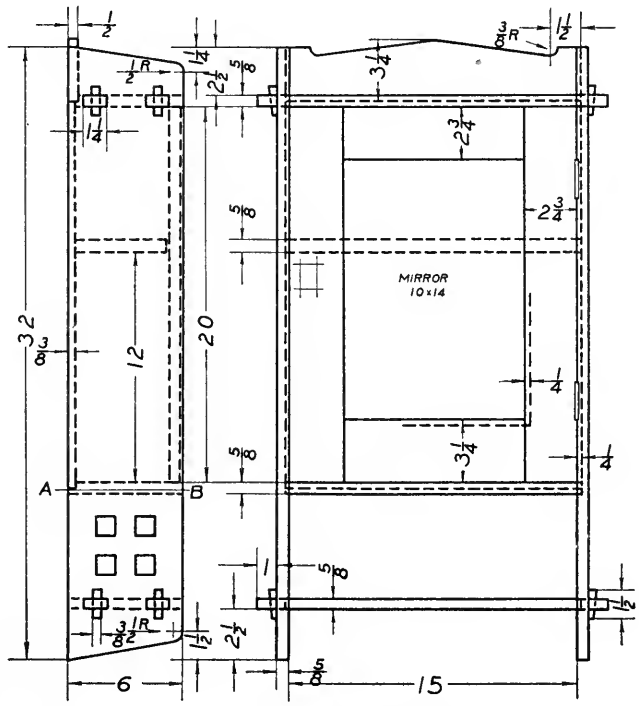


PLATE 41.

WALL CABINET





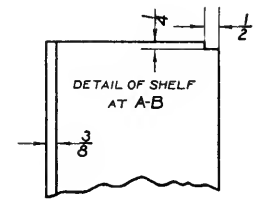
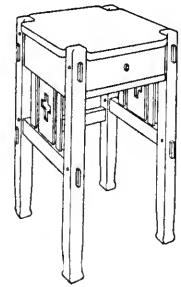


PLATE 42.

TELEPHONE TABLE



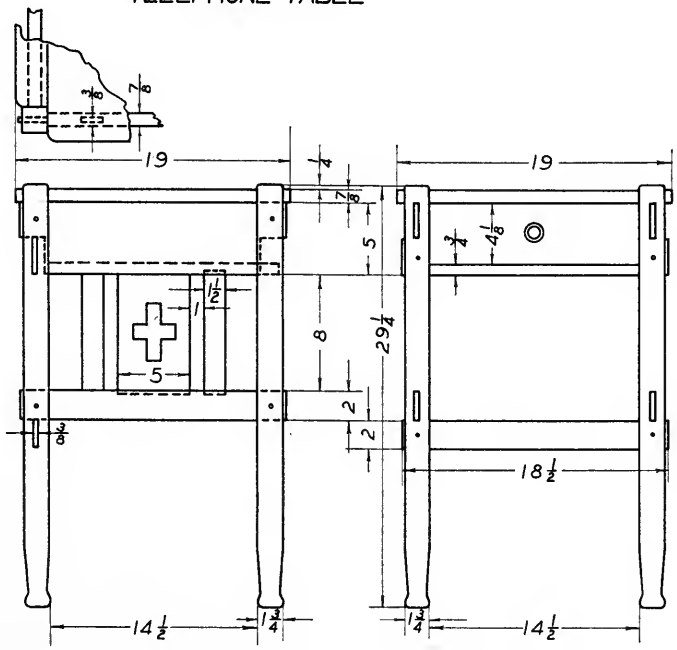
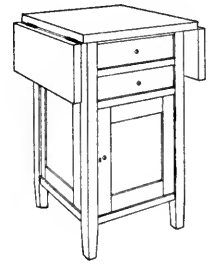


PLATE 43.

SEWING CABINET



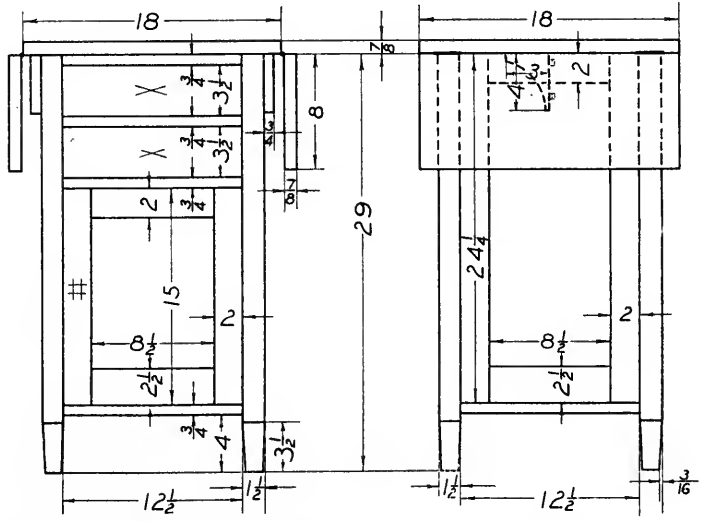


PLATE 44.

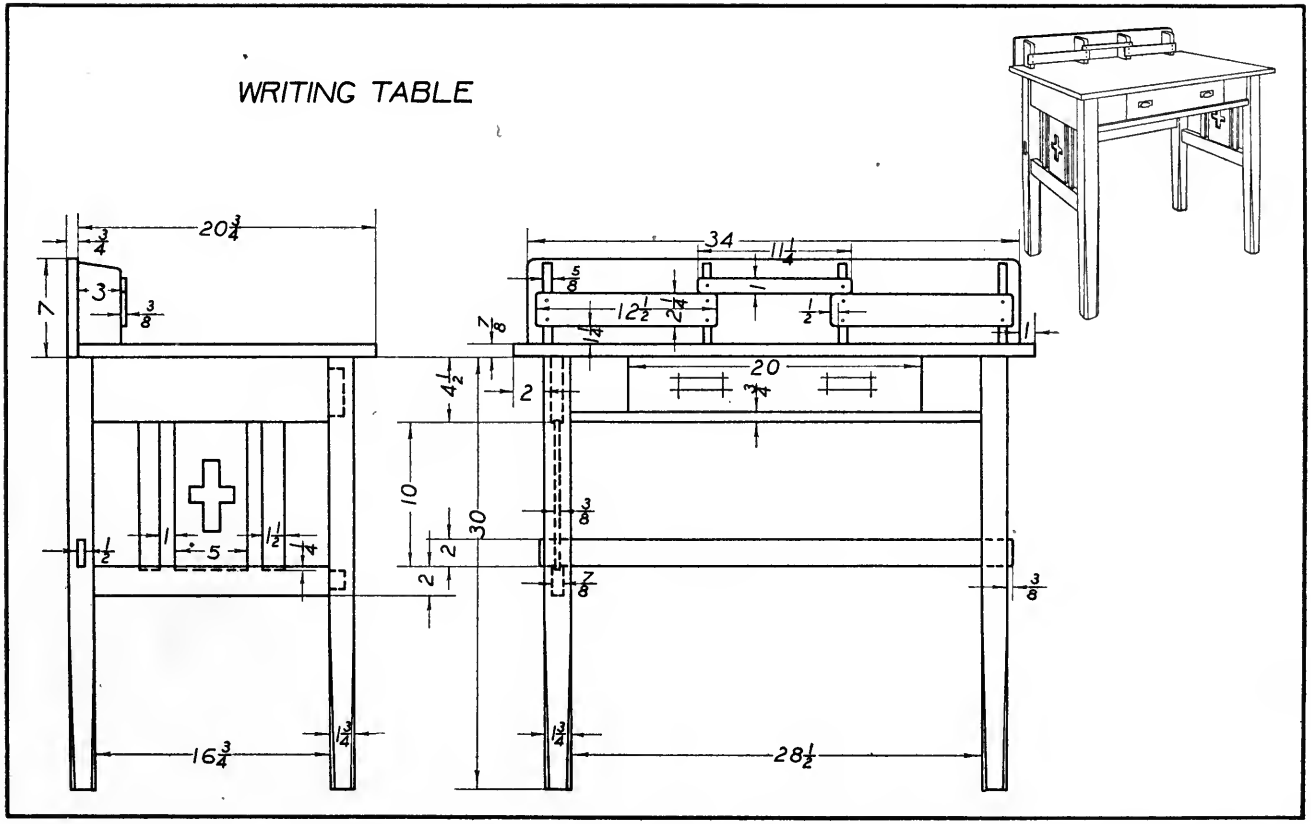
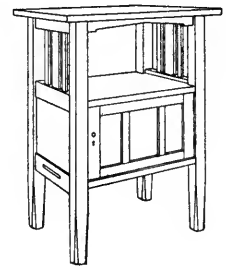

WRITING TABLE
20 3/4
3/4
3
3/8
7
34
11 1/4
5/8
12 1/2
2 1/4
1/4
7/8
1/2
1
20
3/4
4 1/2
2
10
30
2
2
3/8
7/8
3/8
1
1/2
5
1 1/2
1/4
16 3/4
3/4
3/4
28 1/2

PLATE 45.

CHAFING DISH STAND



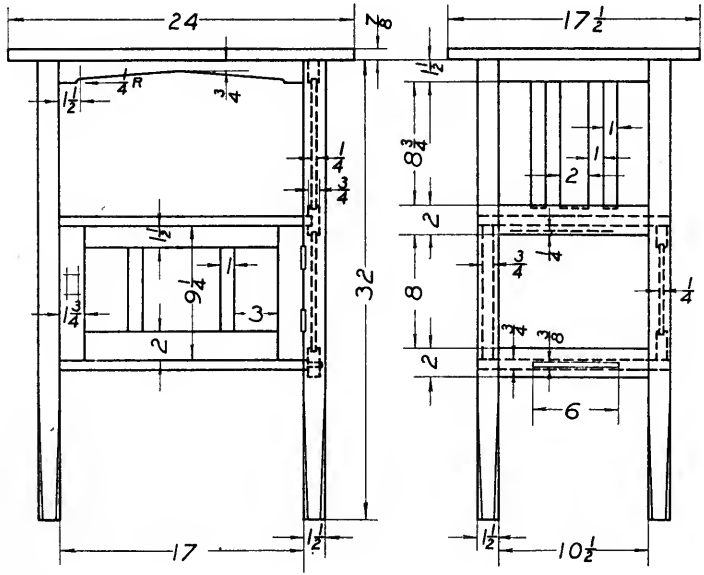
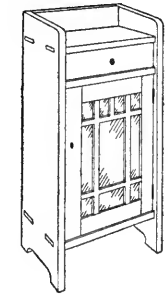


PLATE 46.

CABINET



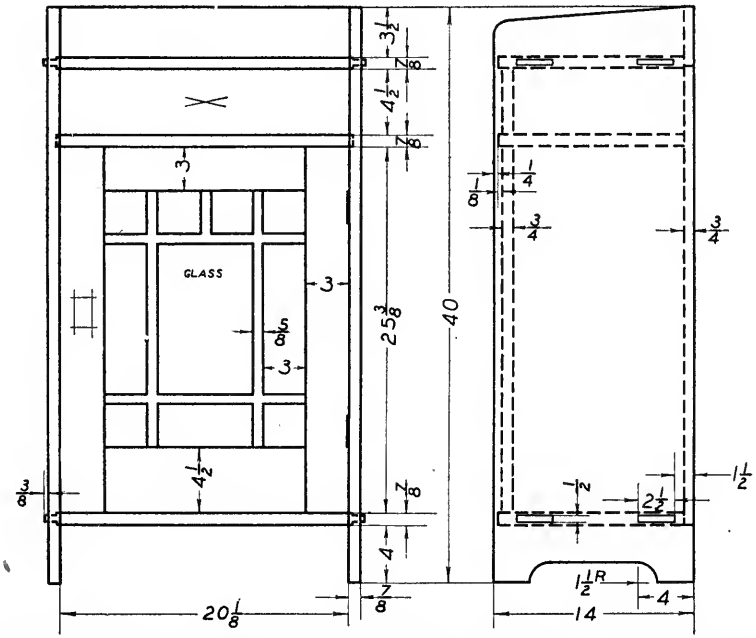


PLATE 47.

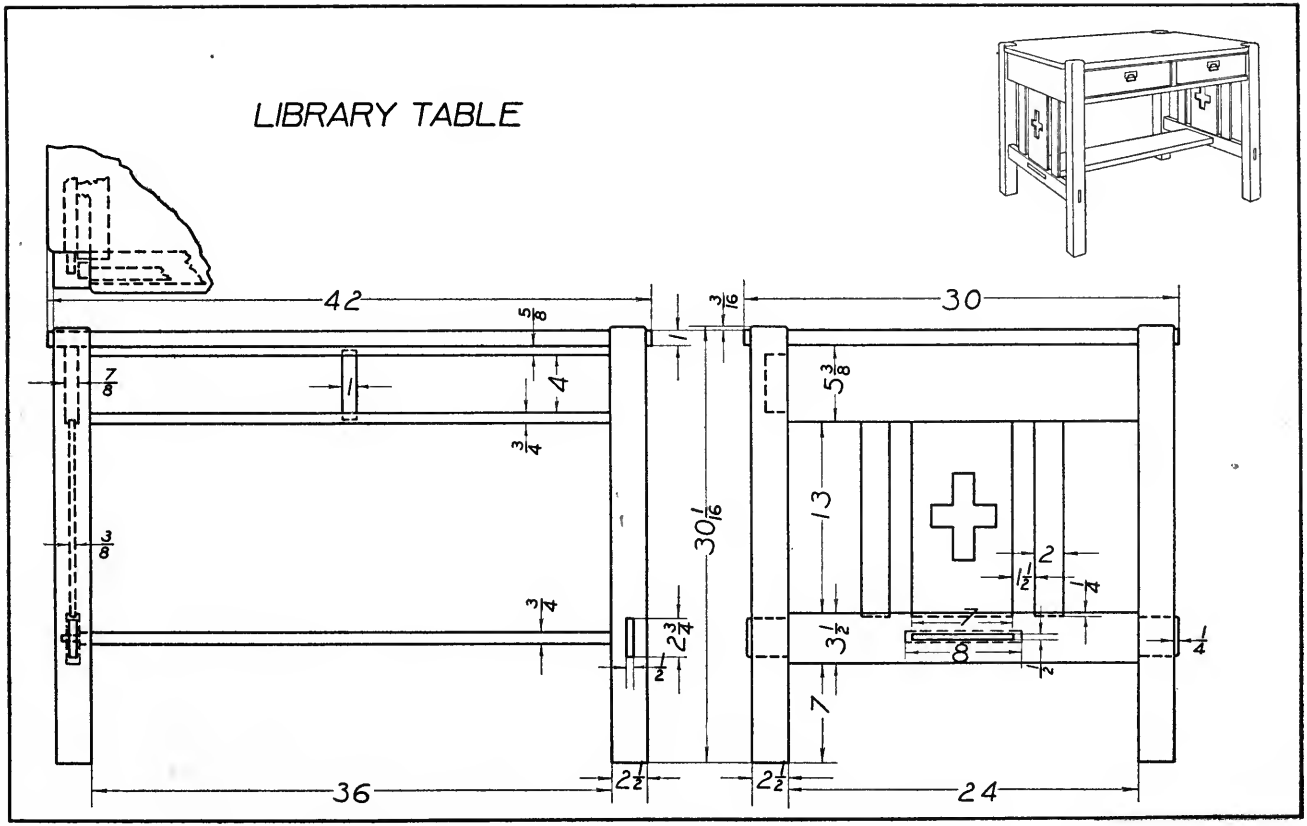
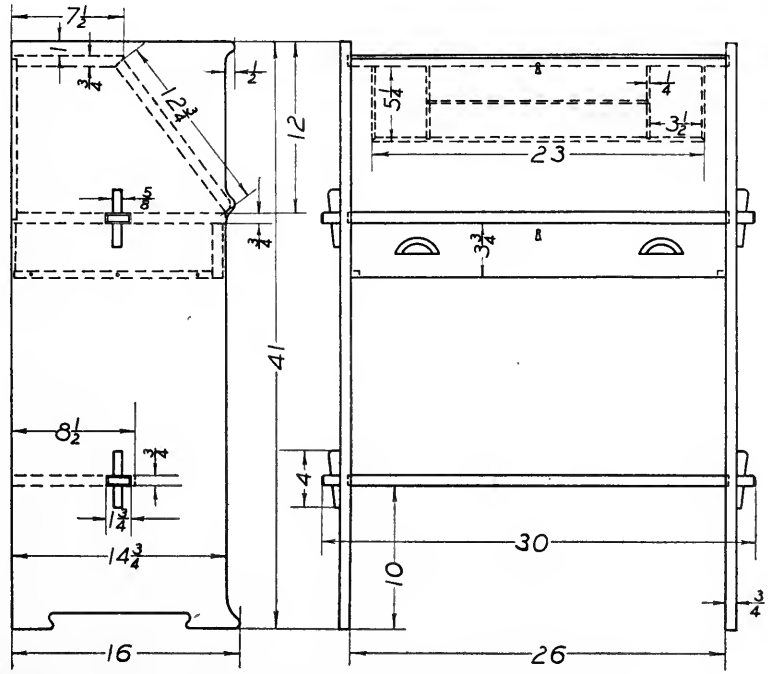
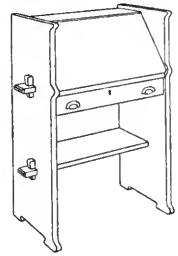


PLATE 48.

WRITING DESK

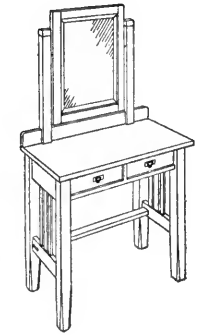




COMMERCIAL DESIGN.

PLATE 49.

DRESSING TABLE



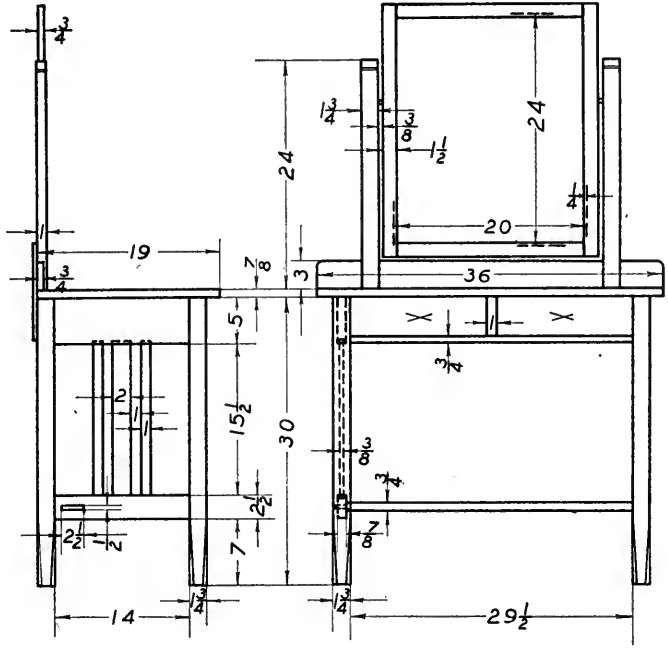
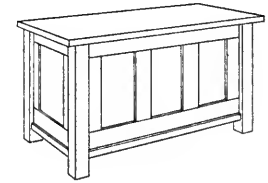
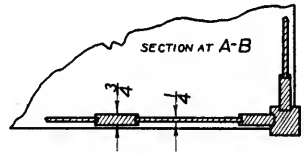


PLATE 50.

LINEN CHEST





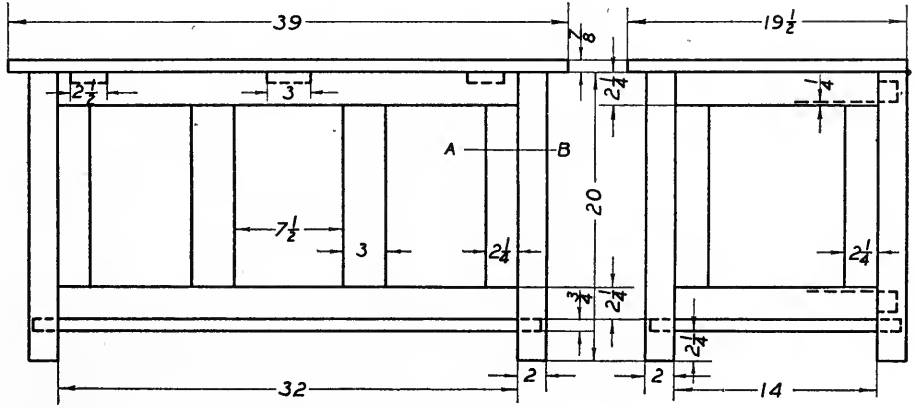


PLATE 51.