

WOOD

THE WORLD'S LEADING WOODWORKING MAGAZINE

AUGUST 1994 • ISSUE NO. 71

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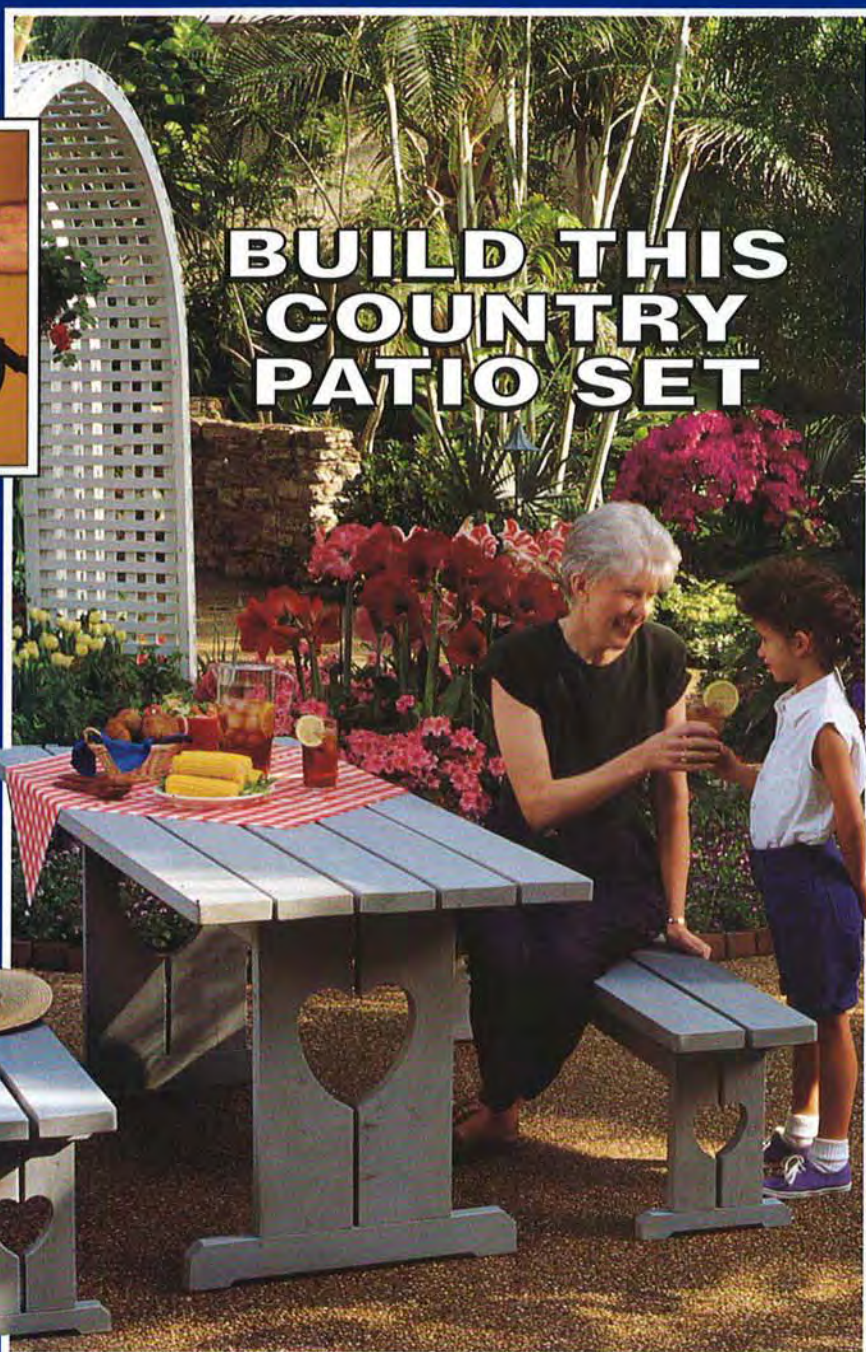
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TODAY'S
JIGSAWS**

See Page 25



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THE EDITOR'S ANGLE

A TALE OF A THIRD-WORLD WOODWORKER



Ironwood figure carver Refugio Garcia at work on a sailfish in his shop. With just a few well-worn tools, he creates works of art that rival any I've ever seen.

I'm not a great woodworker by any means—just average. But I have been fortunate indeed to have met a fair number of the “great ones” during my 10-year association with *WOOD*® magazine.

Turners Dale Nish and Rude Osolnik, furniture maker Ian Kirby, carver Fred Cogelow, cabinetmaker George Reid, intarsia-artist Judy Gale Roberts—each of these craftsmen and craftswomen and a few dozen others have been blessed with a level of talent that only a few people possess. And their work shows it.

A few months ago I happened onto yet another woodworking “giant” when I was in Mexico researching the “Masterpieces From Mexico” article that appears in this issue. His name is Refugio Garcia; he carves ironwood figures for a living in Kino Bay, Mexico. You'll never see him demonstrating at a woodworking

Photograph: Bob Hawks



show or giving a lecture somewhere, but he ranks right up there with the best of the best.

As you can see, his workshop is primitive. But that doesn't stop this Mexican artisan from crafting some of the very finest carvings I've ever seen—and doing it in a most unusual way. Take a look at *page 32*, and I think you'll be as amazed as I was at what emerges from Refugio's humble shop. ♣

Larry Clayton

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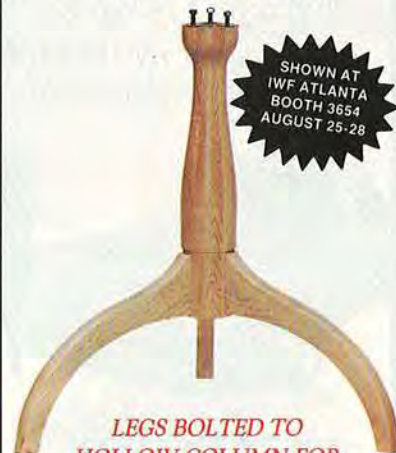
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WOOD

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AUGUST 1994

ISSUE NO. 71

WOOD PROFILE

Hackberry: The wood you could call "poor-man's ash"..... 23

Though neglected by early colonists, this species later received the attention of barrelmakers, cabinetmakers, and furnituremakers.



TOOL BUYMANSHIP

Jazzed up about jigsaws..... 25

Looking for accuracy and speed when cutting curves? Then, take one of today's new-generation jigsaws for a spin. We did. In fact, we tested 16 of the latest models (by 11 different manufacturers), and, boy, were we impressed!

TURNING

Just spoolin' around 30

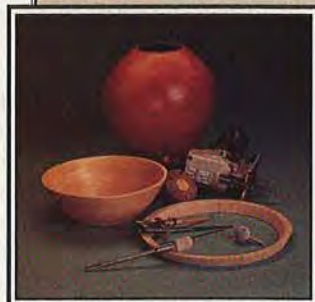
Make this hollow, lidded spool for holding needles and pins, then sew up a friendship by giving it to your favorite seamstress.



CRAFTSMAN CLOSEUP

Masterpieces from Mexico.. 32

Travel south of the border with *WOOD* magazine Editor Larry Clayton as he spends a day with one of Mexico's most talented ironwood carvers, Refugio Garcia.



SHOP-TESTED TECHNIQUES

Stacked-ring vessels..... 38

You don't need a lathe to shape the stunning vessel and bowl shown in the photo left. But you do need a jigsaw. Surprised? You'll be equally delighted when you find out how easy they are to make.

NOW YOU CAN BUILD IT

Lovely laminated lamp base..... 44

Put our stacked-ring construction technique to work by building this eye-catching tabletop project.

This issue's cover wood grain: beech

CARVING

North woods nester.....48
Capture in wood one of nature's most beautiful birds, the loon, using our detailed instructions. Order the blanks to speed the work.

Sunny-day sandbox.....52
Build a backyard play structure for your kids with this outdoor project plan. At the day's end, store toys in the flip-top box.



Spotlight on router safety.....56
Learn the do's and don'ts for successful, injury-free routing.

Picnic-perfect table and benches.....58
Enjoy summer to the max with this outstanding outdoor furniture set. Dimensional lumber makes construction inexpensive and easy.

WHAT WOODWORKERS NEED TO KNOW

How to paint outdoor projects.....62
Protect your deck, patio, and lawn projects from nature's wrath with the painting pointers found here.

CRAFT SHOP

A fish out of water.....64
Scrollsaw a long-legged aquatic wonder.



It's a cinch.....66
Buckle up with this unique herringbone project.

Lesser-known species.....68
Discover a new, attractive selection of exotic woods and our sources for purchasing them.



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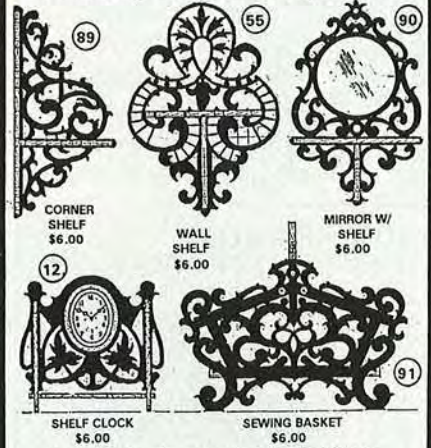
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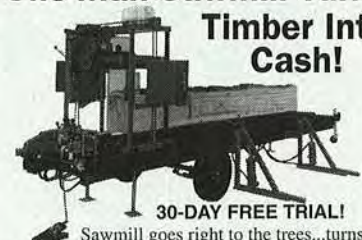
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Sure cure for muffled chimes

I made the oak cabinet for the "Wall Clock" design in the June 1993 issue. I used the clock kit that you recommended, but upgraded the mechanism to a chime movement. However, the chimes are very muffled inside this case. What can I do to make them louder?

—William Doutel Jr., Langhorne, Pa.

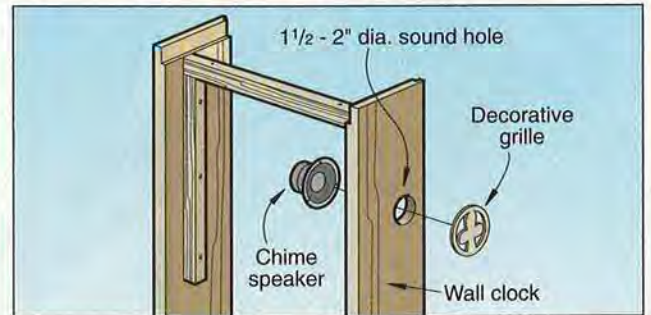
The type of mechanism you purchased, Bill, will determine what you need to do to amplify the chime sounds. A clock mechanism with detachable sounding-rod chimes needs only to have the sounding-rod unit fastened to the case side. The wood then functions similar to the sounding board of a piano, increasing the volume of the chimes.

A clock mechanism with electronic chimes will require a sound hole in the clock case to improve the chimes' tone. Drill a 1½-2" diameter hole in

the case side behind the clock movement. If your mechanism has a detachable speaker, fasten this speaker directly behind the sound hole. Cover the hole with a decorative grille of your choice. You can scrollsaw a wooden one of your own design, or use a commercially available item. Here are two sources for sound-hole covers:

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TALKING BACK

Continued from page 6

In praise of Wood-Mizer

Your article on the Wood-Mizer bandsaw mill hit home. Several years ago, Michael Park of Suttons Bay, Mich., used one of these machines to saw some oak and birch for me. He produced an impressive number of board feet of lumber. One cannot exaggerate the precise evenness of cut, edge to edge, the full length of the board. I reduced the very smooth cut to a planed surface on each board with a loss of only 3/16" of thickness.

—Marvin C. Howe, Traverse City, Mich.

In hot water over Cool Blocks®

In the November 1993 issue, you state that the Jet bandsaw comes with Cool Blocks as standard equipment. That is not correct. Cool Blocks is a registered trademark of Garrett Wade Co., Inc., and can be used with our permission to refer only to the use of our special patented dry-lubricant impregnated bandsaw-blade guide blocks.

Traditionally, mild steel has been used for these guide blocks. Some manufacturers have attempted to imitate Cool Blocks by using other non-traditional materials. None of these imitations use the Cool Blocks material, and none of them will perform like Cool Blocks.

Cool Blocks are currently available from tool suppliers, Sears stores, and Delta dealers, as well as Garrett Wade. They also may become original equipment on some bandsaws in 1994, but if so, the manufacturers will advertise this fact by using the registered trademark.

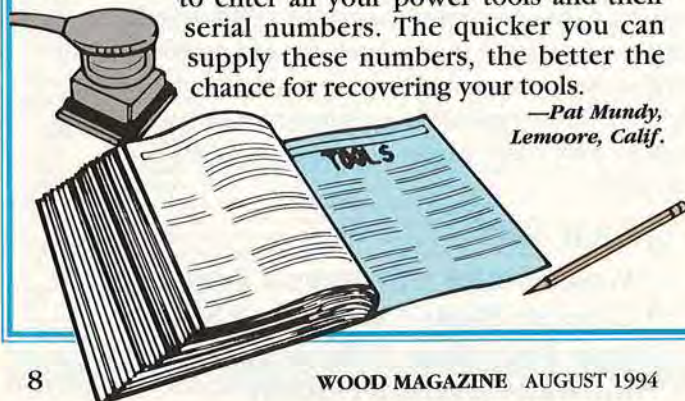
—Garry Chinn, Garret Wade Co., New York

Tool protection by the numbers

As a police officer, I have taken numerous reports from people whose workshop has been broken into and their power tools taken. Most of these owners don't know the model number or the serial number of their missing tools. It is essential for the investigating officer to have these numbers in order to enter the items into the National Criminal Identification System. To delay this listing is to lose precious time in the investigation.

I have a suggestion for a safe and easy-to-find location for these numbers. Write them in your family's telephone directory. There's plenty of room in there to enter all your power tools and their serial numbers. The quicker you can supply these numbers, the better the chance for recovering your tools.

—Pat Mundy, Lemoore, Calif.



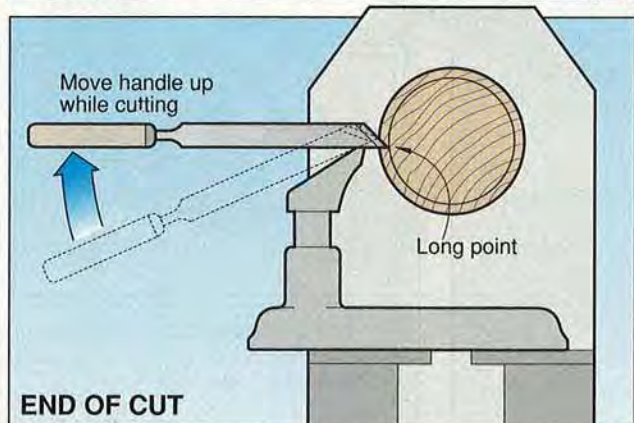
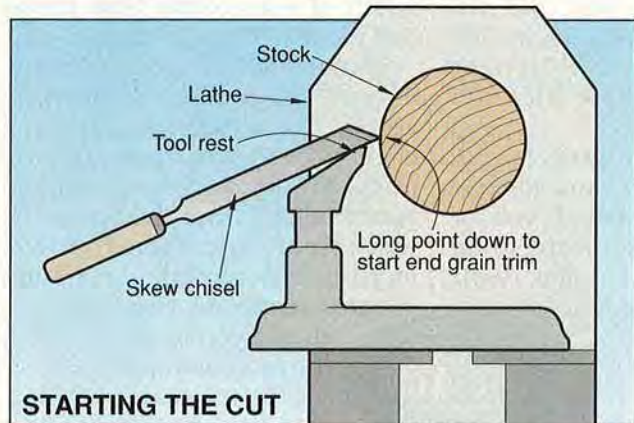
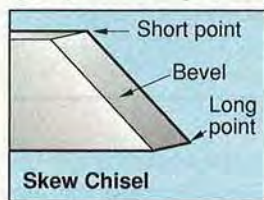
Which way is down?

I just finished reading "Turning Between Centers" in the October 1993 issue. In the section on cutting square shoulders, you mention you use the skew chisel "with its pointed end down". The final sentence in that section says to "gradually raise the tool's handle so it's almost level by the end of the cut". These sentences seem contradictory to me. Can you please enlighten me?

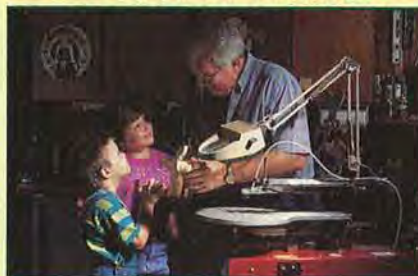
—Dale Messmore, East Peoria, Ill.

Sorry about the confusion, Dale. We'll try to clear things up.

A skew chisel has a long point and a short point on its beveled end as shown below. To use this tool as described in the article, position the skew chisel with the edge of the chisel leading to the long point resting on the tool rest. Then lower the handle of the chisel, raising the long point of the bevel. Start the cut on the edge of the shoulder, using the very tip of the chisel (the long point), and slowly raise the handle of the tool as the cut is being made. This will feed the long point of the tool into the wood in a smooth motion, giving a clean, non-tearing trim to the shoulder.



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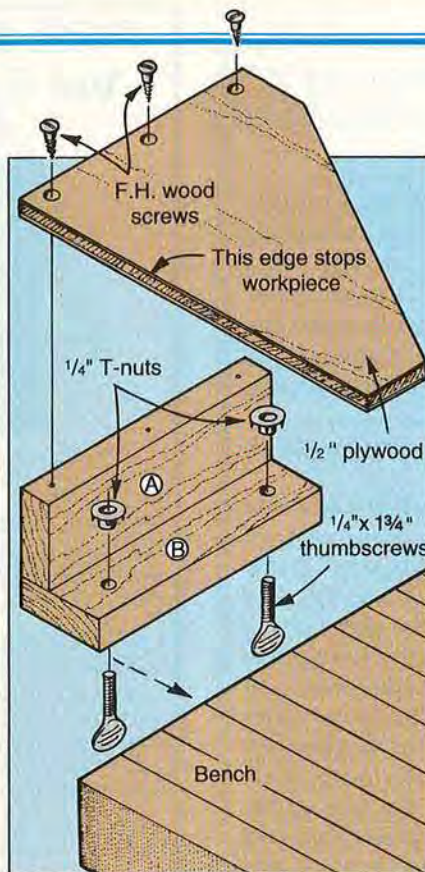
TIPS FROM YOUR SHOP (AND OUTS)

Bench stop works great without any holes

If you don't use bench dogs often, you may not want to drill holes in your benchtop. Still, you'd like to have a way to keep a workpiece from sliding around.

TIP: Build a stop that clamps onto the edge of your bench. Cut parts A and B from $\frac{3}{4}$ "-thick stock 6" long. Make the width of A equal to your benchtop's thickness plus about $\frac{1}{16}$ "; part B about 2" wide. The plywood stop measures $\frac{1}{2} \times 6 \times 10$ ". Drill part B where shown for two $\frac{1}{4}$ " T-nuts, and assemble the parts as shown with screws and glue. Thread in a pair of $\frac{1}{4}$ " thumbscrews. When locked in place parallel to your vise jaws, the straight plywood edge holds stock securely in position.

—Alfred Boice, Louisville, Ky.



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We try not to use shop tips that have appeared in other magazines, so please send yours to only one. We do not return shop tips. Mail your tip(s), address, and daytime phone number to:

Top Shop Tip
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 1912 Grand Ave.
 Des Moines, IA 50309-3379

Pull out all the stops when you rout multiple mortises

You need a lot of mortises, but you don't own a mortising attachment for your drill press. And you don't want to spend hours chopping the mortises by hand.

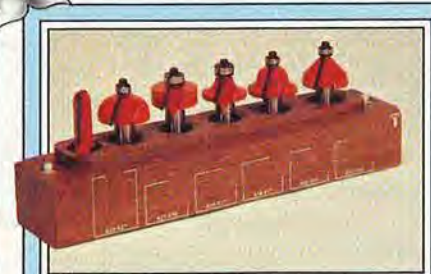
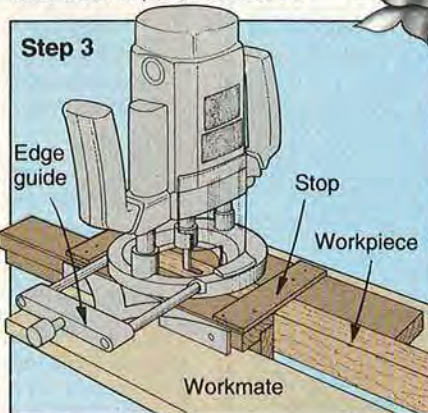
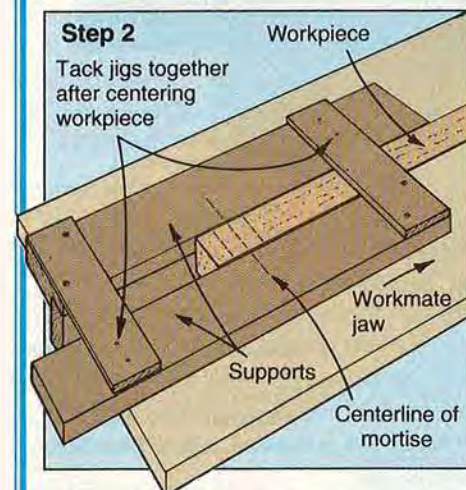
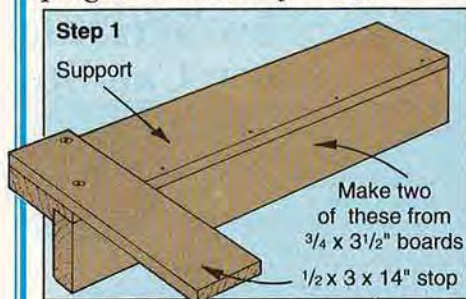
TIP: Use a plunge router and these jigs to cut mortises as fast as you can rout them. Glue and nail together two jigs as shown in Step 1. Make them about 4" longer than your router base plus the length of the mortise.

Turn the jigs so the stops face in opposite directions, and loosely position them in a bench vise or Workmate. Slide the board to be mortised between the jigs, with the centerline of the mortise as shown in Step 2. Align the two stops so that the distance from the mortise centerline

to each stop measures half the length of the mortise plus half the width of your router base minus half the diameter of your bit.

Tighten the vise or Workmate, extend the mortise centerline across the supports, and tack each stop to the opposite support. Attach an edge guide to your router, center the bit on the workpiece, and then rout the mortise. The centerline markings you made on the supports enable you to quickly align the next workpiece.

—Ronan Cambridge,
 Ottawa, Ont.



For his prize-winning tip, Ronan will receive a six-piece, $\frac{1}{2}$ "-shank router bit set from CMT Tools.

Continued on page 12

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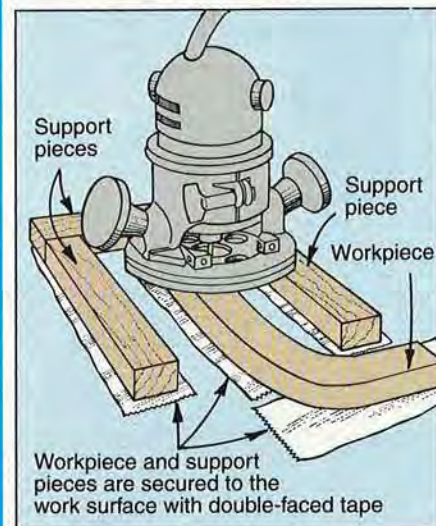
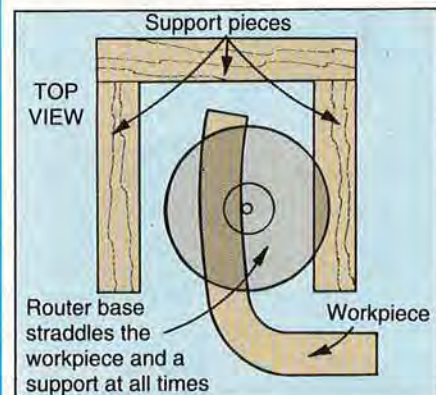
Continued from page 10

Scrapwood shapes give router needed support

*Edge-routing narrow, curved
workpieces becomes a challenge
without a router table. The router
keeps tipping, digging the bit into
your work and spoiling it.*

TIP: From scrapwood the same
thickness as your workpiece, cut
straight or curved supporting
pieces about 1" wide. Arrange
them around your workpiece as
in the example shown, and then
rout away. With the router riding
on both the workpiece and the
supports, you'll avoid nicked
edges and chewed-up corners. Be
sure to make the supports the
same height as the workpiece. If
you use double-faced tape to hold
the workpiece in position, for
instance, use it to hold your sup-
ports, too.

—Alex Polakowski, Skokie, Ill.



A neater way to mix and apply putty is in the bag

Mixing water putty and similar products poses a couple of problems: What do you mix it in, and how do you stir it thoroughly without spilling it all over?

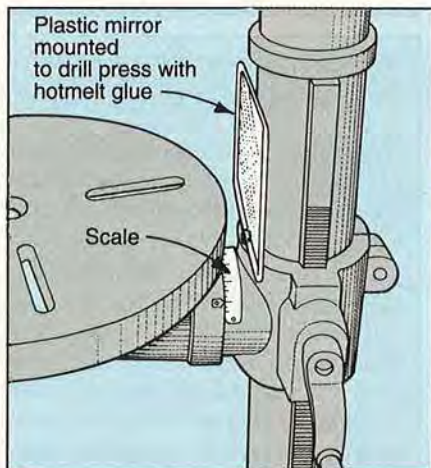
TIP: Grab a resealable sandwich bag the next time you mix putty. Measure out the powder, pour it into the bag, and add the water. Then, seal the bag and knead it to mix without making a mess. To apply, snip off a corner of the bag and squeeze out the putty.

—Paul J. Feller, Dubuque, Iowa



Mirror reveals hidden scale on drill press

They might just as well have left the tilt-angle scale off your drill-press table. You certainly can't see the thing very easily.



TIP: Peek at the scale with a small purse mirror. Position the mirror on the table support where shown, and then tilt it to reflect the scale. Secure the mirror with hotmelt glue.

—Sidney O. Jackson, Carlyle, Sask.

Continued on page 14

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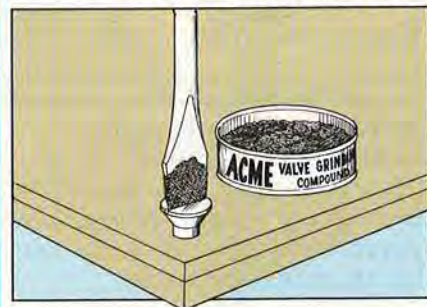
Continued from page 13

Grinding compound keeps screwdriver in the slot

While trying to remove a screw that just won't budge, you twist the screwdriver even harder. The sides of the blade ride right up the sides of the slot and pop out—a phenomenon technical types call "camming out," and which you call a major irritation.

TIP: Buy a can of valve-grinding compound, an abrasive powder suspended in oil. (Auto-parts stores sell it.) Dip the end of the screwdriver into the compound. The abrasive particles between the screwdriver blade and the screw slot prevent cam-out, so you can put more oomph on the screwdriver to break that stubborn fastener loose.

—Gordon Reiter, Ridgway, Pa.



A FEW MORE TIPS FROM OUR WOODWORKING PROS

• Gluing up stacked materials often proves tricky. For a simple solution, take a look at the threaded-rod clamping set-up we developed for the Stacked-ring Vessels article, page 41.

• If you're stuck with a sticker that won't peel off neatly, try gently warming the sticker with a heat gun on a low setting. The heat softens the glue so the sticker peels off cleanly.

• Cutting sandpaper ruins knives and scissors. Use an old hacksaw blade instead. Hold it flat on the sandpaper and pull the paper up against the teeth of the blade. ♣

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Dia.	Teeth	Kerf	Bore	List	SALE
12"	40	1/8"	1"	\$183	\$129
12"	30	1/8"	1"	162	119
10"	40	3/32"	5/8"	156	119
10"	30	3/32"	5/8"	135	99
9"	40	3/32"	5/8"	146	109
9"	30	3/32"	5/8"	125	99
8 1/4"	40	3/32"	5/8"	136	99
8"	40	3/32"	5/8"	136	99
8"	30	3/32"	5/8"	115	89
7 1/4"	30	3/32"	5/8"	112	69
6"	40	3/32"	5/8"	139	89

*1/8" Kerf available

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Woodworker I gives you:

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Dia.	Teeth	Kerf	Bore	List	SALE
12"	60	1/8"	5/8"	\$198	\$139
10"	60	3/32"	5/8"	162	129
9"	60	3/32"	5/8"	156	119
8 1/4"	60	3/32"	5/8"	150	109
8"	60	3/32"	5/8"	150	109

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Dia.	Teeth	Kerf	Bore	List	SALE
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12"	80	1/8"	1"	212	181
10"	80	3/32"	5/8"	207	159
9"	80	3/32"	5/8"	207	179
8"	80	3/32"	5/8"	202	169
7 1/4"	60	3/32"	5/8"	149	129

*1/8" Kerf available

Boring up to 1 1/4" available on all Forrest blades: \$7.50 extra

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Hitachi 8 1/2", DeWalt & Ryobi	8 1/2"	60	5/8"	179	109
Delta	9"	80	5/8"	204	119
Ryobi, Makita & all others	10"	80	5/8"	207	129
Hitachi, B&D, DeWalt	12"	80	1"	229	139
Ryobi, Makita	14"	100	1"	266	179
Hitachi	15"	100	1"	277	189



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-Herbert Needlman, Greenlawn, NY

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-David Hares, St. Louis, MO

(Your) Woodworker II blade is by far the finest saw blade that I have ever used. I also have the Forrest dado set which is without a doubt the king of all dado sets. I work exclusively with red oak and oak veneer plywood, and the dado set performs splinter-free cuts as advertised.

-Dennis Schule, Owatonna, MN

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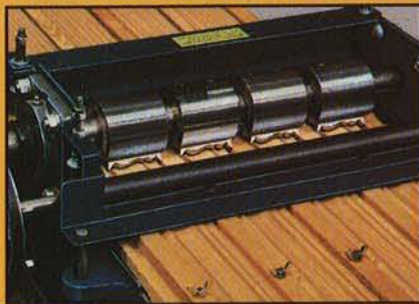
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E. D. Holtz, North Carolina

Whether your woodworker's license reads "Beginner," "Intermediate," or "Advanced," you're bound to have a few questions about your favorite hobby. We can help by consulting our staff and outside experts. Send questions to: Ask WOOD®, Better Homes and Gardens® WOOD Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379

These glues hold up in water

I would like to use a waterproof glue in assembling the blanks for my stacked, turned bowls. What glue would you recommend?

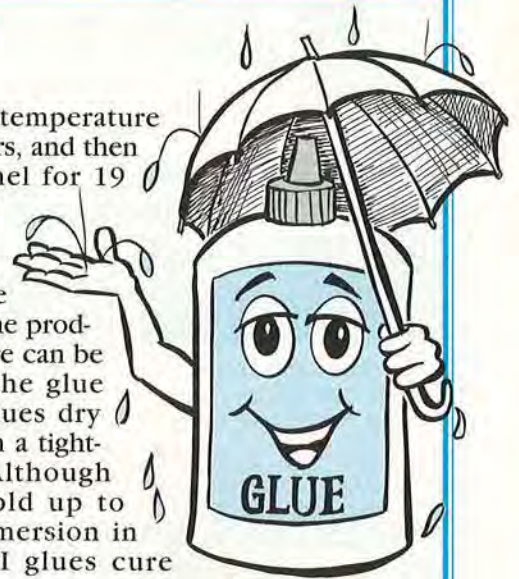
—William R. Bobnsack, Longville, Minn.

There are three types of glue that will work for you, Bill. Resorcinol glue will hold the wood together, but this glue does have the drawback of drying with a dark glue line. Use resorcinol glue where you join dark and light colored woods, as the color contrast between the woods will hide the glue line.

Franklin Titebond II and Elmer's Weather-Tite Wood Glue both pass "Type II" testing for water resistance. This test involves soaking a glued-up

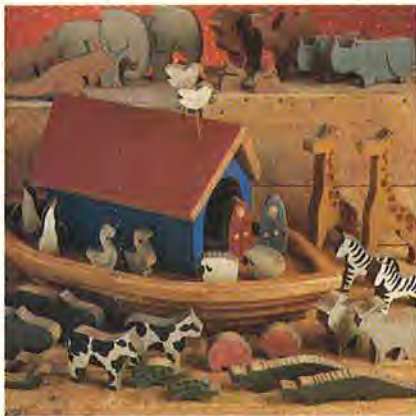
panel in room-temperature water for 4 hours, and then drying the panel for 19 hours in a 120° oven. Testers repeat this process three times, and for the product to pass, there can be no failure of the glue joint. These glues dry without color in a tight-fitting joint. Although they won't hold up to continual submersion in water, Type II glues cure faster than other water-resistant glues and are reasonably priced.

Slow-setting epoxies have been used extensively in the boat-building industry. These glues give you an hour or more working time to adjust your workpieces. They provide excellent water resistance, and produce a strong joint. However, slow-set epoxies need 24 hours or more to cure, and these glues produce a thin, dark line at the glue joint.



Continued on page 18

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ASK WOOD

Continued from page 17

Unwarping boards (we wish!)

*I have some cherry boards that are warped. Can I
remove this warp without planing the wood?*

— Don Hayes, Whalen, N.Y.

Don, once Mother Nature has warped a board, the
only way we know to remove those twists is by flat
planing the lumber. You can reduce the amount of
stock lost to this process by ripping and trimming
the wood into narrower or shorter pieces, as the
bill of materials will allow.

Surface one side of the wood using a jointer or a
smoothing or jack plane. Use a thickness planer to
cut the second side parallel with the first.

We have heard rumors of steaming the wood to
remove a warp, but we know of no successful
attempts. Steamed wood usually rebounds slightly
towards its original shape when dry. Forcing a
piece of wood into a shape that it does not want to
go will lead to the self-destruction of the project
the board is included in.

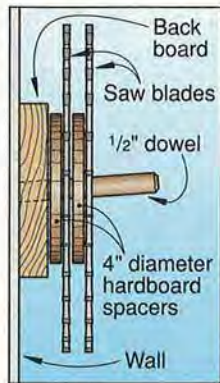
A gritty subject

*I have a number of projects that need sandblast-
ing. Do I use ordinary contractor's sand or is there
some special sand to be used?*

— Ray Surowski, Murrieta, Calif.

The type of sand to use, Ray, depends on the mate-
rial you're abrading and the texture you want on
the finished piece. The following table from the
April 1990 issue of **WOOD**® lists the types and
uses of sandblasting abrasives.

NITTY-GRITTY ABRASIVE FACTS			
Fine white silica sand	Glass, wood	\$6-8 per 100 lb.	Best for all-around use if you have no means of retrieving abrasive. Use respirator.
Common river or beach sand	Wood, glass	\$4-5 per 100 lb.	Abrasive must be clean and free of debris. Use respirator. Cuts slightly slower and creates rougher texture than fine white silica sand.
Aluminum oxide	Glass, brass	\$1-\$3 per lb.	Use only if abrasive can be recycled. Retains sharpness through repeated applications.
Silicon carbide	Glass, brass	\$1.50-\$5 per lb.	Available in very fine grits. Economical only if abrasive can be retrieved and recycled. Best retention of sharpness through repeated applications.



Super saw-blade saver

The man who sharpens my saw blades says I should not stack them on top of each other, because of damage to the teeth. Do you know of any designs I could use to keep blades apart, but wastes little space?

—Mike Layton, Holdrege, Neb.

Mike, he's right, you can damage the saw-blade's teeth when you stack the blades with nothing between them. Cut a 4- to 5"- long

piece of 1/2" dowel, and set this in a hole drilled in a wall stud or backing board (see drawing). Cut several 4"-diameter discs from 1/8- to 1/4"- thick plywood or hardboard. Drill a 5/8" hole in the center of these disks, and place one of these spacers between each of the blades you store on this peg. Add more pegs and spacers to store additional saw blades.

How to stave off bowl-joint failure

I make stave construction bowls, mostly of oak, with a contrasting wood between the staves. Occasionally, a bowl will come apart at one of the joints. I seem to recall hearing that certain shapes will build up a tension while being turned. Can this be why my bowls are coming apart?

—Roger F. Bratt, Napa, Calif.

We suspect, Roger, that the problem lies in the bowl lamination rather than as a result of tension caused by the shape of the turning. The reasons cracks develop in laminated pieces include: joints that were forced together, improperly cured wood, cross-grain lamination, or combining woods of greatly varying rates of moisture absorption. Eliminating these sources of stress will go a long way towards helping your bowls stay together.

Take the extra time and care to ensure properly fitting joints when assembling your lamination. If you need to use heavy clamping pressure to close a glue joint, you're better off starting over and recutting the ill-fitting joint.

Also, wood not properly cured will continue to move and twist while drying. Combining this with more stable cured wood can result in joint failure.

Laminating two pieces with the grain running in opposite directions also creates problems. The expansion and contraction of these two pieces of wood will be crosswise, building stress until the joint opens.

Remember, too, that different woods will absorb moisture at different rates, causing a difference in the expansion and contraction of the woods. This will place additional stress on the glue joint, occasionally causing joint failure. 🍄

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C1669 1/4" Shank	1 1/4"	1/2"	2 1/8"
C1670 1/2" Shank	1 1/4"	1/2"	2 1/8"

*Kit includes one of each: 3/8" Bearing, 1/2" Bearing, 5/8" Bearing, 3/4" Bearing, Hex Key, Screw

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C1665 1/2" Shank	1 3/4"	3/4"	3"

*Kit includes: Arbor, two cutters, two bearings and shim set.

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PART	DESCRIPTION (1/2" Shank)
C1689	Quarter Round
C1690	Bead
C1691	Roman Ogee
C1692	Ogee

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*For 7/16" to 1 3/8" stock.

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PART	CUTTER DIA.	CUTTING LENGTH	RADIUS
C1662 1/2" Shank	2 1/8"	3/4"	3/8"

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PART	CUTTER DIA.	CUTTING LENGTH	OVERALL LENGTH	ANGLE
C1660 1/4" Shank	1/2"	1/2"	2 1/4"	14°

*For use when template is on top of the workpiece.



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- High moisture levels in the wood, high humidity, cool temperatures, or thick glue lines all tend to delay drying, and warrant the use of longer clamp times. The more severe any of these conditions may be, the longer the clamp time required.

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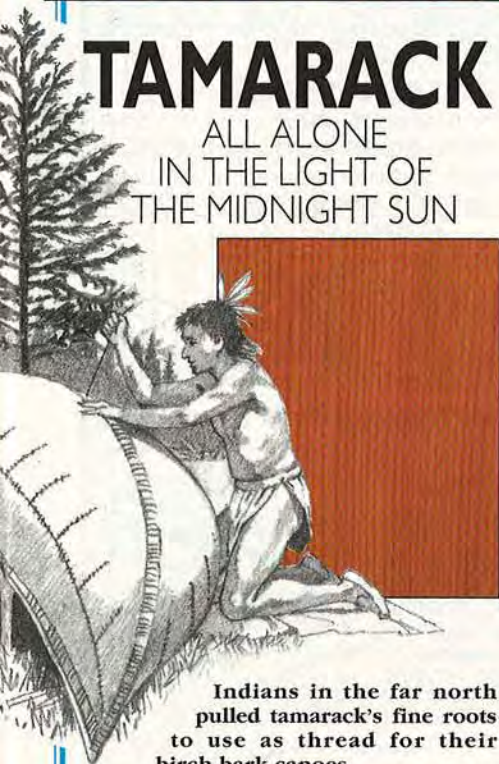
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WOOD ANECDOTE

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TAMARACK

ALL ALONE
IN THE LIGHT OF
THE MIDNIGHT SUN



Indians in the far north pulled tamarack's fine roots to use as thread for their birch-bark canoes.

Wintertime travelers in the far north—Canada's Labrador and beyond—often mistake vast stands of tamarack trees for scarred survivors of fire or disease. Brown and destitute looking, the trees starkly stand out against the snow blanket. Yet, were those same visitors to remain until spring, they would see an entirely different sight.

The tamarack (*Larix laricina*), you see, unlike all conifers except the bald cypress, loses its needles each fall. Then, in the spring, it replaces them with feathery fragments of light green that give the tree a lacey appearance. And in the most northerly reaches of its range (tamarack grows the farthest north of any tree species) it produces new "leaves" in the faint light of the midnight sun.

But even dressed in summer green, the tamarack offers little

shade. With fine, sparsely spaced needles, the tamarack allows sunlight to pierce to its base.

A tree that favors sphagnum bogs and shallow swamps over high, dry land, tamarack was historically sought by Indians. They used its thinner roots for thread to sew their canoes.

When white boat builders came, they looked to the tamarack, too. But instead of thread, they sought knees—those heavier roots with angular bends that made naturally perfect braces for keels.

Because tamarack earned a reputation as tough, rot-resistant wood, it eventually was cut from its home in the bogs for railroad ties, posts, and utility poles. Since the advent of preservative treatment for nearly any wood, though, the hard-to-harvest tamarack has been left to stand alone in the otherwise treeless north. 🌲

Illustration: Jim Stevenson

MLCS

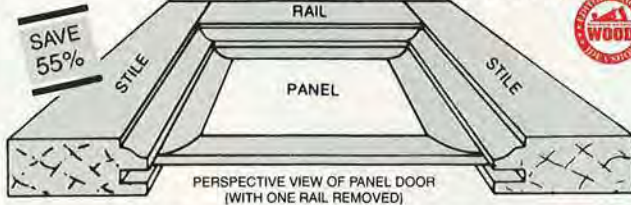
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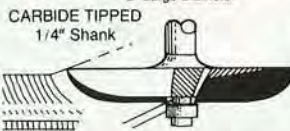
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PERSPECTIVE VIEW OF PANEL DOOR (WITH ONE RAIL REMOVED)

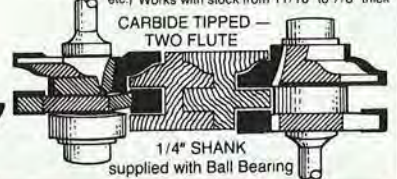


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HACKBERRY

The wood you could call "poor-man's ash"



Historically, North American tree species received colorful, descriptive names from the Native Americans who first encountered them. In turn, the colonists early on either adopted those names or chose their own for the tree. Not so with the hackberry. Records from the period make no mention of the even then abundant tree.

Maybe it was because hackberry, although a member of the elm family, doesn't look much like an elm. Even its leaves more closely resemble the nasty nettle weed. And its wood, despite being fairly easy to work, was long ignored. Eventually, though, someone called the tree hackberry, and the species at least had a title, if not respect. Today, hackberry still is one of the most neglected hardwoods in North America, but for little explainable reason.

Hackberry's first commercial role was as hoops for barrels because of the wood's toughness and flexibility. Now, though, the wood becomes kitchen cabinets, inexpensive furniture, and inevitably, boxes and crates. Increasing demand for it as a substitute for more costly white ash has increased hackberry's volume in the marketplace.

Wood identification

Actually, there are four hackberry species in North America, all looking a lot the same. The common hackberry (*Celtis occidentalis*) has the greatest range, but a southern hackberry, called sugarberry, produces the most commercial lumber. But the character-

istics of each hackberry species remain the same. In fact, they are mixed and sold together.

Hackberry grows best in the thick forests of the bottomlands. In fact, along the Mississippi River, specimens nearly 4' in diameter and 120' tall have been recorded. In other areas, hackberry may only attain half that size.

Recognizing hackberry isn't difficult. Just look at the bark. Ranging in color from light brown to silvery gray, it usually features ridges and rough, irregular warts. And in summer, hackberry carries 2-4" long, roundish, tooth-edged leaves that end in a sharp point. Small purple, cherrylike fruits (edible by birds) that ripen in the fall.

At 37 pounds per cubic foot air-dried, hackberry wood weighs about the same as black walnut and is nearly as hard but not as strong. Yet surprisingly, it outranks walnut in shock resistance.



Natural range

The color of hackberry ranges from creamy white (sometimes with a grayish cast) to a light yellowish tan, with no sharp contrast between heartwood and sapwood. Its grain resembles ash.

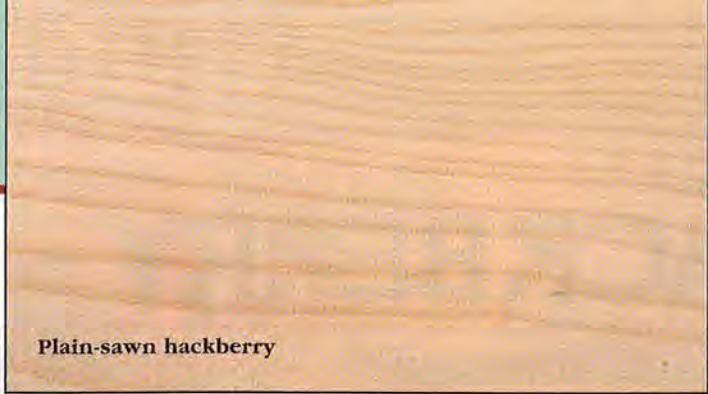
Uses in woodworking

Hackberry may look like ash, but it's not as rugged. However, you can use it for furniture such as chairs and tables, and for cabinets, too. You can carve hackberry, but its coarseness isn't very appealing. Woodturners might reject it for the same reason.

Availability

Although hackberry's commercial volume has steadily risen over the years, don't expect to find it at a typical retail outlet. The demand just isn't there yet. But local mills within hackberry's range carry it, and large hardwood suppliers can special order the wood. Expect to pay about \$1.50 per board foot or less. Veneer isn't available except to the architectural trade.

Continued



Plain-sawn hackberry

hackberry

(*Celtis occidentalis*)

According to a spokesman for a major hardwood producer that processes 10 million board feet of hackberry annually, the wood has only one fault. But it's one you should look out for. Unless harvested in winter when the sap is down, hackberry has the tendency to develop a bluish-gray stain. And, says our source, you might not notice it on the surface of rough-sawn stock until planing. But, the stain does not harm the wood in any way, and like the varying hues in yellow poplar, it does have its own appeal.

Should you desire light-colored stock without stain, be sure to buy only surfaced (S4S) stock, and carefully inspect it. Then, follow these suggestions for working this under-appreciated wood:

Machining methods

•Although not nearly as hard as white ash, hackberry does have a blunting effect on cutting edges, so opt for carbide cutters.

•Hackberry has irregular grain. Sometimes the grain runs straight and then again it can be interlocked. When you run into interlocking grain, plane it at a slight angle to avoid tearout.

•Don't force-feed this somewhat dense wood when ripping, as it will burn. And use a rip-profile blade with at least 24 teeth.

•Watch grain direction when jointing this wood. To avoid tearout, the jointer knives should follow the grain direction.

•Because hackberry burns and chips almost as easily as white ash, be sure to take shallow passes with your router. And on end grain and cross-grain cuts, use a backing board.

•Don't skip grits when sanding hackberry, as it easily scratches.

•Drill this wood only with brad-point bits, and lift the bit from the hole occasionally to clear it or you'll burnish and burn the stock.

•Plan on white glue for joining because like ash, hackberry

absorbs glue slowly. You'll want plenty of open time.

•Staining hackberry won't cause you any problems, unless you have to compensate for blue-stained wood by going lighter in those areas.

Carving comments

Unlike the much harder white ash, hackberry will yield to carving tools if you like its look. To tackle it, try these tips:

•Deeper bevels of 25-30 degrees will cut better in rough-in work. Then switch to 15-20 degree bevels for finer cuts.

•Avoid splinters along straight grain by taking shorter strokes and using stop cuts.

Turning tricks

Should you decide to turn hackberry, take shallows cuts to avoid splintering, and make them with sharp tools.♣

SHOP-TESTED TECHNIQUES THAT ALWAYS WORK

Any exceptions—and tips pertaining to this issue's featured wood species—appear under other headings elsewhere on this page.

•For stability in use, always work wood with a maximum moisture content of 8 percent.

•Feed straight-grained wood into planer knives at a 90-degree angle. To avoid tearing, feed figured or twisted grain at a slight angle (about 15°), and take shallow cuts of about 1/32".

•For clean cuts, rip with a rip-

profile blade with 24-32 teeth. Smooth cross-cutting requires at least a 40-tooth blade.

•Avoid using twist drills. They tend to wander in the wood and cause breakout. Use a backing board under the workpiece to reduce tearout.

•Drill pilot holes for screws.

•Rout with sharp, preferably carbide-tipped, bits and take shallow passes to avoid burning.

•Carving hardwoods means fairly shallow gouge bevels—15 to 20°—and shallow cuts.

HACKBERRY AT A GLANCE

Cost	\$ \$ \$ \$ \$
Weight	⚖️ ⚖️ ⚖️ ⚖️ ⚖️
Hardness	T T T T T
Stability	▲ ▲ ▲ ▲ ▲
Durability	🕒 🕒 🕒 🕒 🕒
Strength	💪 💪 💪 💪 💪
Toxicity	☠️ ☠️ ☠️ ☠️ ☠️
Workability	🪚 🔪
Look-alike	White Ash

JAZZED UP

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Hey woodworkers! If you still think of jigsaws as blade-breaking, splinter-making tools you use only when circumstances leave you no choice, have we got good news for you. Now, any one of these new and improved tools can serve as a powerful ally in your workshop.

 Print this article

Power: How much is enough for you?

In our tests, the jigsaws felt plenty powerful, even in stock thicker than 1". The amperage on these jigsaws ranged from 2.5 amps for the Sears 17211 to 6 amps for the Makita 4302C. If you cut thick materials on a regular basis, the extra power comes in handy. The speed with which these saws cut varied plenty, but keep in mind that the blade stroke length and the reciprocating action also affect a jigsaw's cutting speed.

Vibration: Smooth action leads to better cuts

All jigsaws vibrate. The best ones purr with smooth efficiency, while the less-expensive saws tend to rattle your hand. Excessive vibration roughs up your cuts and makes following and cutting a line difficult. See the chart on *page 29* for the models that scored the highest grades in this category.

The saws with the least vibration have sealed ball bearings, machined (rather than stamped) steel parts, sturdy support of the reciprocating shaft, and extra steel or plastic surrounding the bosses that hold the housing screws. Take a look at the Jigsaw Anatomy drawing on the next page for a better understanding of the tool's parts.

Blade speed: different strokes for different tasks

For cutting wood, you'll rarely need to vary from a speed of 3,000 to 3,200 strokes per minute (spm). For delicate cuts in wood

Continued

We tested these jigsaws



AEG
BSPE 100X



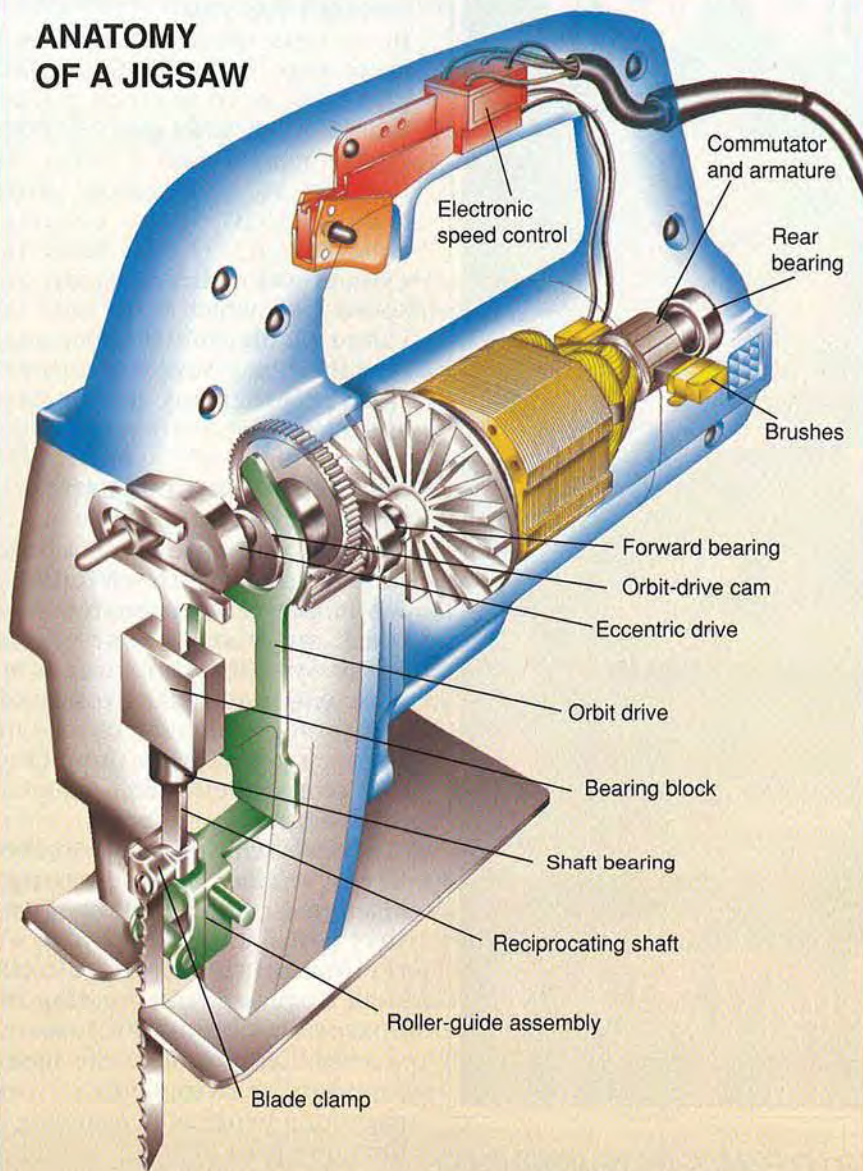
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JAZZED UP ABOUT JIGSAWS

ANATOMY OF A JIGSAW



This cut-away view of the Porter-Cable saw shows how the eccentric drive converts the circular motion of the motor into the up-and-down motion of the reciprocating shaft. Orbital action comes from the orbit-drive cam pushing down on the orbit drive, which in turn kicks the roller-guide assembly and the blade forward.

and when cutting other materials such as plastics, foam, metal, and ceramics, you'll want to slow down the speed. Variable-speed jigsaws give you this option.

Some models allow you to slow all the way down to 0 spm—a nice feature when you're starting a cut in brittle material such as tile. With others you have to set a fixed bottom-end speed, usually around 500 to 800 spm.

The method by which you change the speed on these saws can make a big difference in how you use the tool. On some saws you vary the trigger pressure—squeeze hard to increase speed, back off to slow down. Others require you to set a dial on the body of the saw and then stick with that speed throughout the cut. The most versatile arrangement combines a speed-limiting dial mounted on a variable-speed trigger switch.

Blade guides: Don't get bent out of shape

Most saws today use hardened steel roller guides behind the blade about 1/2" above the work surface. These guides relieve stress on the reciprocating shaft and bearing block, help keep the blade from skewing or bending in difficult cuts, dampen the vibration of the blade, and provide blade support throughout the length of the cutting stroke. The guides also kick the blade forward when you have the saw set on orbital action. AEG and Porter-Cable jigsaws gain an extra measure of support by using adjustable bandsaw-like guide blocks on the sides of the blades



Bosch
1581 DVS



DeWalt
DW318K



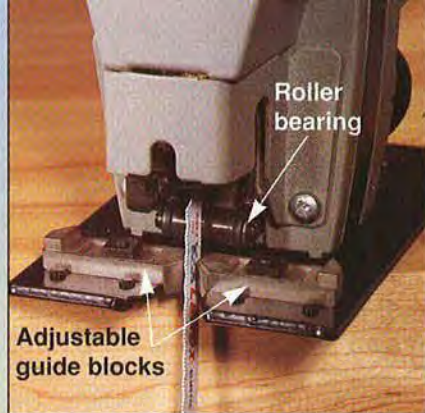
Hitachi
CJ65V2



Makita
4302C

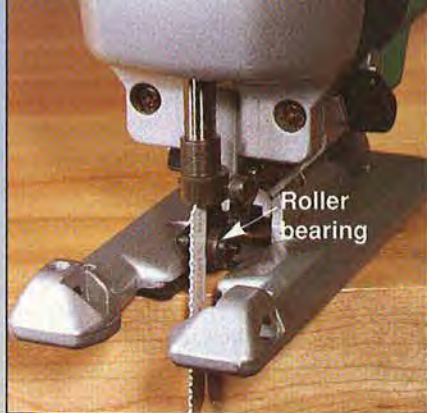


Makita
4320



Adjustable guide blocks

Roller bearing



Roller bearing



Blade support comes from two devices on the Porter-Cable saw: adjustable guide blocks and a roller bearing behind the blade. The guide blocks also help reduce splintering.

Roller bearings, like the one on this Hitachi saw, are standard on the more expensive saws. They minimize blade skew and kick the blade forward during an orbital-type cut.

Because it has no roller bearing, you can actually turn the blade on this Sears 17211 saw for auto-scrolling, but the lack of support results in more blade skew on curves.

Stroke length: the longer the better

A longer stroke puts more teeth in contact with the material and clears out debris better. For example, a saw with a ¾" stroke, cutting a ½" board at 3,000 spm with a 10-teeth-per-inch blade, will put just 13 teeth in contact with the wood and make 39,000 cuts per minute. A jigsaw with a 1" stroke puts 15 teeth in contact with the material and churns out 45,000 cuts per minute.

Orbital action: for fast, aggressive cutting

Another useful development in many jigsaws, orbital action, increases the cutting speed. In an orbital sequence, the roller guide kicks the blade forward so that the blade cuts at a slight angle on each upstroke, as shown in the drawing at left. At the end of the upstroke, the blade returns straight down, allowing sawdust to fall free and helping to cool the blade. Running your saw with the orbital setting on will leave a slightly rougher cut and give you less control. But in our tests, the more powerful saws, on full orbit, could crosscut a nominal 2x8 in

less than six seconds. We found this aggressive cutting handy for rough carpentry. See our chart for a comparison of cutting speeds.

Dust collection: breathe easier and clean up less

The AEG, Bosch, and Black & Decker Quantum jigsaws come with vacuum-assist dust collection as a standard feature. Hitachi offers dust collection as an option.

On these saws, a clear shield traps and directs dust toward the vacuum port. The Bosch and Black & Decker Quantum use large, full-cover shields that we found more effective than the smaller, tapered shield on the AEG saw. Each shield, however, required regular cleaning.

With dust collection, your vacuum hose may sometimes get in the way during tight scrolling, but even so, the benefits far outweigh the hassle. All the saws, with or without dust collection, run with a kerf blower—no need to blow the sawdust away from the line.

Top vs. barrel handle: to each their own

Most of the heavy-duty jigsaws are offered with either a top- or bar-

rel-type handle. The choice is largely a matter of personal preference. We found that top handles let you lean over the jigsaw to better see the line you're cutting, and they're more controllable when you have only one hand to hold the saw. The barrel handles require you to position yourself behind the blade and, in some circumstances, use two hands for control.



For us, the barrel grip handles (left) work best when we guided them with both hands.



Top handles (right) gave us better control when we needed one hand to hold the work.

Continued



Metabo EP 565



Milwaukee 6256



Porter-Cable 7549



Ryobi JS0-45

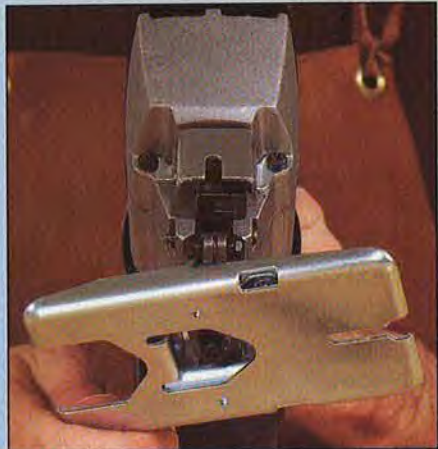
JAZZED UP ABOUT JIGSAWS

Baseplates: Check these out carefully

Remember three things when you examine a baseplate on a jigsaw. First, the size of the opening where the blade passes through the plate should be small enough that you have some support when cutting close to an edge, but wide enough that you can see the line you're cutting. The DeWalt, Ryobi, and Sears 27251 solve this problem with reversible baseplates. One end sports a narrow opening for edge work and fine scrolling, the other end offers a large opening for clear visibility.

Second, give the baseplate of any saw you want to buy a twist test. Hold the saw (unplugged, of course) so that the bottom of the baseplate faces you, and try to twist it to the right and left. The baseplate should not move. If it does, it can throw off your accuracy when you work with a fence.

And third, if you want a tilting



A narrow blade opening obscures the line, but a wide opening can leave you without support. The DeWalt, Ryobi, and Sears 27251 saws solve this problem with a reversible baseplate.

baseplate, make sure it locks down tightly. With the exception of the Porter-Cable, all of the baseplates tilt from 0° to 45°. Porter-Cable fixes its baseplate flat at 0° and says that so few woodworkers ever bevel-cut with a jigsaw that they've opted for the security of a baseplate that can't creep or get knocked out of alignment.

Blade-changing: faster than you ever thought possible

AEG's blade-changing system proved to be the easiest to operate. To use it you push a lever on the front of the jigsaw, insert the blade, and let the lever spring back. On the updated version of the Bosch jigsaw, the "Clic" quick-change system enables you to rotate a knob on top of the handle, then just pull the blade out. Another nice feature we discovered about the quick-change systems is that they lock the blade more securely than other methods. To change blades on the other jigsaws you have to take a little more time to tighten either a slotted screw or hex-head screw.

Auto-scroll: cuts corners when you're boxed in

The Black & Decker 7588, Skil 4395, and the Sears 17211 offer an auto-scrolling feature that enables you to turn the blade without turning the body of the saw. This feature comes in handy when you're cutting up to a wall or inside a cabinet and you don't have much room to turn the saw. But to get this feature you give up the blade roller guides and the support they provide. For working on new projects, this feature may see little, if any, action.



Auto-scrolling comes in handy when you're in a tight corner.



You'll find three different types of blade tangs on the market. From left to right: Porter-Cable's, universal, and bayonet. See the chart at right to find out which saws take which type of blade.



Sears
27251



Sears
17211



Skil
4580



Skil
4395

COMPARING JIGSAWS: SPECS AND PERFORMANCE

MANUFACTURER/ IMPORTER	MODEL	MOTOR				CUTTING SPEED (1)		SPEED CONTROL		BLADES			PERFORMANCE (6)					DUST CONTROL (7)	ANTI-SPLINTER INSERT (YES, NO)	HANDLE TYPE (8)	WARRANTY, YEARS (9)	COUNTRY OF ORIGIN (10)	LIST PRICE	SELLING PRICE (11)	
		AMPS	ORBITAL ACTION (YES, NO)	STROKE LENGTH (INCHES)	STROKES PER MINUTE	SPEED OF CUT NON-ORBITAL	SPEED OF CUT ORBITAL	TYPE (2)	ELECTRONIC (YES, NO)	BLADE TYPE (3)	BLADE LOCK (4)	BLADE SUPPORT (5)	CONTROL OF CUT	QUALITY OF CUT	VIBRATION	PLUNGE CUTTING	OVERALL PERFORMANCE								CORD LENGTH
AEG	BSPE 100X	5.7	Y	1	450-3100	9.7	5.3	D	Y	B	A	RG	E	E	E	E	9	10'	KB/VA	Y	T*	1	G	\$302	\$165
BLACK & DECKER	7588	3.5	N	1 1/16	800-3200	53.6	--	D	Y	U	FB	--	F	F	F	F	6	6'	KB	N	T	2*	E	102	55
	QUANTUM BD4200	3.5	Y	3/4	800-3200	23.7	8.5	D	Y	B, U	FB, HK	R	E	G	E	G	8	8'	KB/VA	Y	T	3*	U	175	95
BOSCH	1581 DVS	4.8	Y	1	500-3100	9.8	5.5	D	N	B	FB	R	E	E	E	E	10	6'7"	KB/VA	Y	T	1	S	295	169
DeWALT	DW318K	4.5	Y	1	0-3100	9.5	5.3	T/D	Y	U	HK	R	E	E	G	E	8.5	8'	KB	N	T	1	U	258	149
HITACHI	CJ 65V2	5.2	Y	1	700-3200	9.0	5.0	D	Y	B, U	HK	R	E	E	E	E	9	8'	KB	Y	T*	1	J	300	175
MAKITA	4320	2.9	N	1 1/16	0-3200	48.6	--	T/D	Y	U	HK	R	G	F	F	F	7	8'	KB	N	T	1	J	156	84
	4302C	6.0	Y	1	1000-3000	9.7	5.0	D	Y	B, U	HK	R	E	E	E	E	9	9'	KB	N	T	1	J	351	194
METABO	EP 565	5.0	Y	1	500-3000	12.2	5.3	D	Y	B, U	HK	R	E	E	E	E	9.5	8'	KB	Y	T*	1	G	--	275
MILWAUKEE	6256	3.8	N	1	0-3100	11.7	--	T/D	N	U	FB	R	E	E	G	E	8.5	8'	KB	N	T*	U	U	264	155
PORTER-CABLE	7549	4.8	Y	1	500-3200	8.6	5.6	D	Y	PC, B, U	FB	RG	E	E	G	E	9	7'	KB	Y	T*	1	U	260	159
RYOBI	JS0-45	3.0	Y	5/8	0-3000	52.1	28	T/D	N	U	HK	R	G	F	P	F	5	6'	KB	N	T	2	U	156	82
SEARS	17211	2.5	N	3/4	0-3000	60.4	--	T/D	N	U	HK	--	F	F	P	F	5	10'	KB	N	T	1	U	--	80
	27251	4.5	Y	1	0-3100	9.5	5.3	T/D	N	U	HK	R	E	E	G	E	8.5	8'	KB	N	T	1	U	--	140
SKIL	4395	3.2	Y	5/8	0-3200	44.6	22	T	N	U	HK	--	F	F	P	F	5	5'	KB	N	T	1	U	78	67
	4580	3.5	Y	13/16	0-3200	20.7	9.7	T	N	U	FB	--	G	F	G	F	7	8'	KB	N	T	1	U	162	109

NOTES:

1. Test indicates the number of seconds it took to crosscut a piece of 2x8" pine.
 2. (D) Dial operated
 (T) Trigger operated
 (T/D) Combination trigger and dial control

3. (B) Bayonet
 (U) Universal
 (PC) Porter-Cable
 4. (A) Automatic clamp lever
 (FB) Flat-blade screwdriver
 (HK) Hex key

5. (R) Roller wheel
 (RG) Roller wheel and guide blocks

6. **E** Excellent
G Good
F Fair
P Poor

7. (KB) Kert blower
 (VA) Vacuum assist
 8. (T) Top grip
 (*) Also available in barrel grip
 9. (U) Unconditional lifetime warranty against defects in workmanship or material.
 (*) Warranty covers home use only.

10. (E) England
 (G) Germany
 (J) Japan
 (S) Switzerland
 (U) United States
 11. Selling price based on catalogs and dealer inquiries.

Our recommendations

For its smooth cutting, durable construction, and ease of use, the Bosch 1581 DVS turned out to be our favorite. (Bosch recently upgraded this jigsaw to 5 amps and renamed it the 1587 DVS. That's the new saw on the cover of the magazine.) The AEG, Hitachi, Makita 4302C, and Metabo jigsaws came in close behind, and right on their heels were the DeWalt, Milwaukee, Porter-Cable, and Sears 27251.

We found so little difference in overall performance between these saws, however, that we suggest you shop for price and features. Consider dust collection if you want a clean shop, power and orbital action to cut thick lumber, or a quick-change blade-locking system for convenience.

If price is no object, the Metabo saw is ruggedly built to withstand the daily rigors of a production woodworking shop. Metabo only sells through select dealers, so if

you can't find its tools, write to the company at P.O. Box 2287, West Chester, PA 19380, or call 800/638-2264.)

But if you're on a tight budget, you needn't avoid the less powerful saws. Of these, we think the Black & Decker Quantum BD4200 offers the best value for the money. It gives you components that match the sophisticated engineering of the more expensive jigsaws and plenty of power for home-shop needs.

Written by Tom Jackson Testing consultant: Bob McFarlin Photographs: John Hetherington Illustrations: Kim Downing



JUST SPOOLIN'



Just another wooden thread spool? Not quite! Astound your sewing friends and relatives by popping off the spool's end to reveal a handy storage spot for needles and pins inside.

We used these tools and supplies

Stock

2x2x6" maple or birch

Lathe tools and equipment

Screw chuck

Cone-point live tail center

Roughing gouge, 3/4"

Spindle gouges, 3/4", 1/4", 1/2"

Skew, 1/2"

Parting tool, 1/8"

Lathe speeds

Roughing: 800 rpm

Turning, sanding

1200-1500 rpm

Locate and mark the center on each end of a 2x2x6" turning square (we used maple). At the center on one end, drill a 3/16" hole 3/4" deep. Center a pilot hole for your screw chuck at the other end of the blank.

Mount the stock with the screw chuck at the drive end and a cone-point revolving center at the tailstock. Place the tail center's point into the 3/16" hole.

Start with a simple spool

Round the stock to 1 3/8" diameter, using the roughing gouge or a spindle gouge. With the lathe running, hold a pencil point against the workpiece to draw a line around it 3/8" from the tailstock end. Make another mark 3"

from the first line, as shown in the Layout Marks drawing. Then, mark 1/4" inside each line.

With the parting tool, cut in about 1/4" deep on the outside of the outer lines, where shown by the number 1 in the Parting Cuts drawing. These cuts mark the ends of the spool. Next, part in on the inside of the inner lines to delineate the spool's central cylinder and establish its diameter (cut 2). Cut in to a diameter of 1 1/16".

Turn the central cylinder to diameter with a gouge or skew. For a true cylinder, set your caliper to 1 1/16", then check the cylinder's diameter at each end and at random points along its length.

Now, form the chamfer on the inside of each end flange. First, draw a line around the flange at the tailstock end, 1/8" from the end of the spool. Then, with the long point of a narrow skew, cut the chamfer between that line and the cylinder, where shown in the Forming Flanges and Lid Tenon drawing. Repeat at the other end of the turning.

Sand the spool with 150-, 220-, and 320-grit sandpaper. Round over the edges of the flanges slightly for a softer, worn look.

Turn an end into a lid

Form the lid for the needle case at the tailstock end of the turning. First, cut in right at the junction of the bevel and the spool cylinder with the parting tool. Cut about 3/16" deep to set the tenon diameter at 1 1/16". Make an adjoining cut to form a tenon 1/4" long.

Part the waste from the top of the lid,



AROUND

where shown by the first parting cut in the Forming Flanges and Lid Tenon drawing. Move the tailstock out of the way, then smooth the top surface of the lid.

With a small gouge, chamfer the edge of the center hole. Sand the lid as necessary. Separate the lid from the spool where shown by the second parting cut in the drawing. (We brought the tailstock back up to part off the lid.)

Make a space for needles

A $\frac{1}{2}$ " hole with a larger counter-bore forms the inside of the needle case, as shown in the Boring the Body drawing. This way, the needles don't lay against the wall of the case near the lid. This makes them less likely to get stuck between the lid tenon and the sidewall. Mount a drill chuck on your lathe's tailstock, and bore out the spool body with drill bits. Or, use gouges.

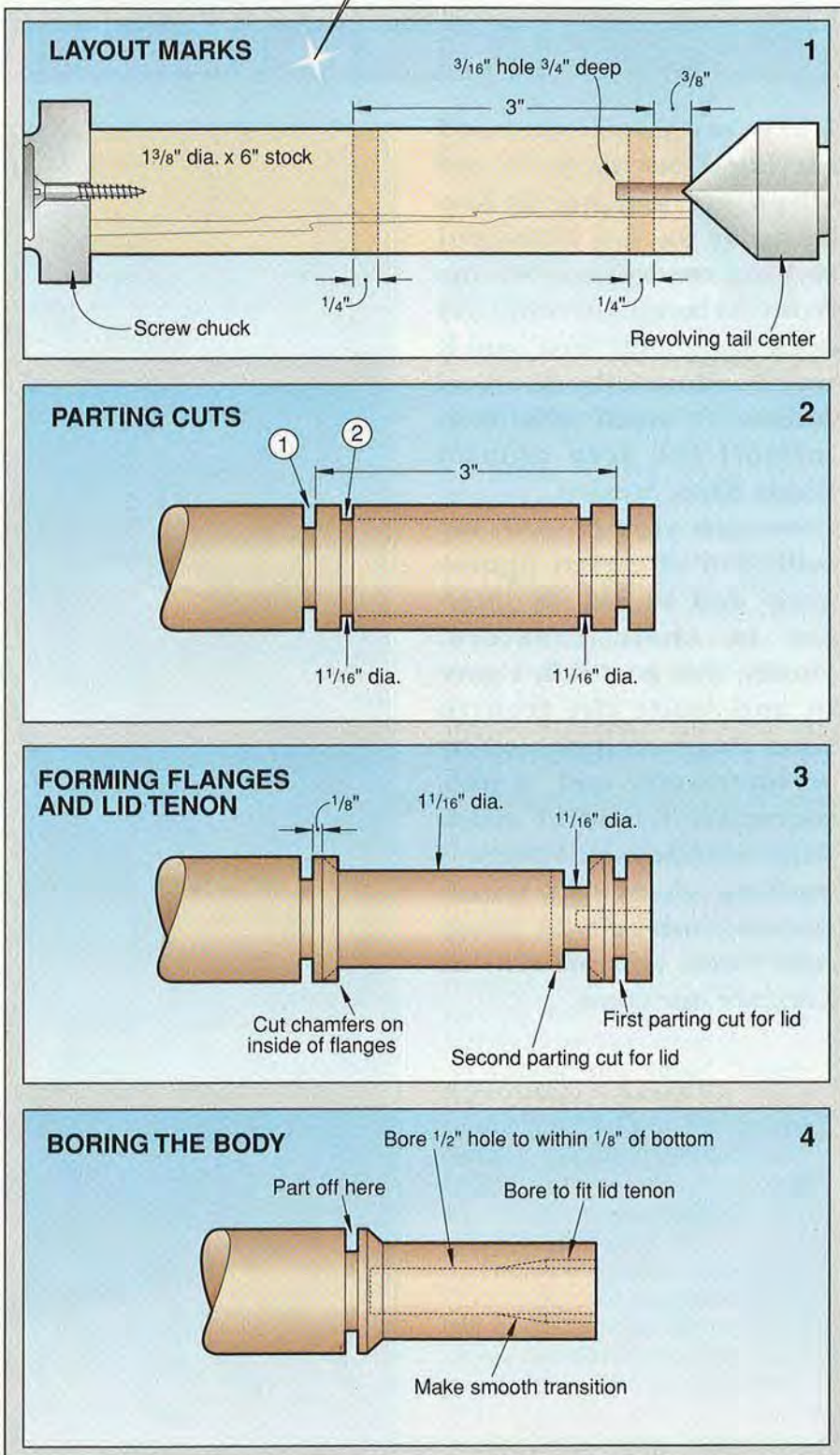
First, measure your turning's overall length. Then bore a $\frac{1}{2}$ " hole to a depth $\frac{1}{8}$ " less than the length. (We drilled $2\frac{1}{4}$ " deep into our $2\frac{3}{8}$ "-long workpiece.)

Next, measure the diameter of your lid tenon. Bore a hole slightly smaller than that measurement $\frac{1}{2}$ " deep. (For our tenon, which measured a little over $1\frac{1}{16}$ " in diameter, we bored a $\frac{5}{8}$ " hole.)

Now, with a small gouge, carefully enlarge the bigger hole until the lid fits snugly. Taper the inside wall to create a smooth transition between the holes. Skim a light cut from the rim of the spool body to ensure a neat lid joint.

Then, part the spool from the lathe at the bottom of the flange. Sand the bottom as necessary, and finish the spool and lid. ♣

Photographs: John Hetherington
Illustrations: Kim Downing
Project Design: Larry Johnston



WOOD® magazine travels south of the border in search

MASTER

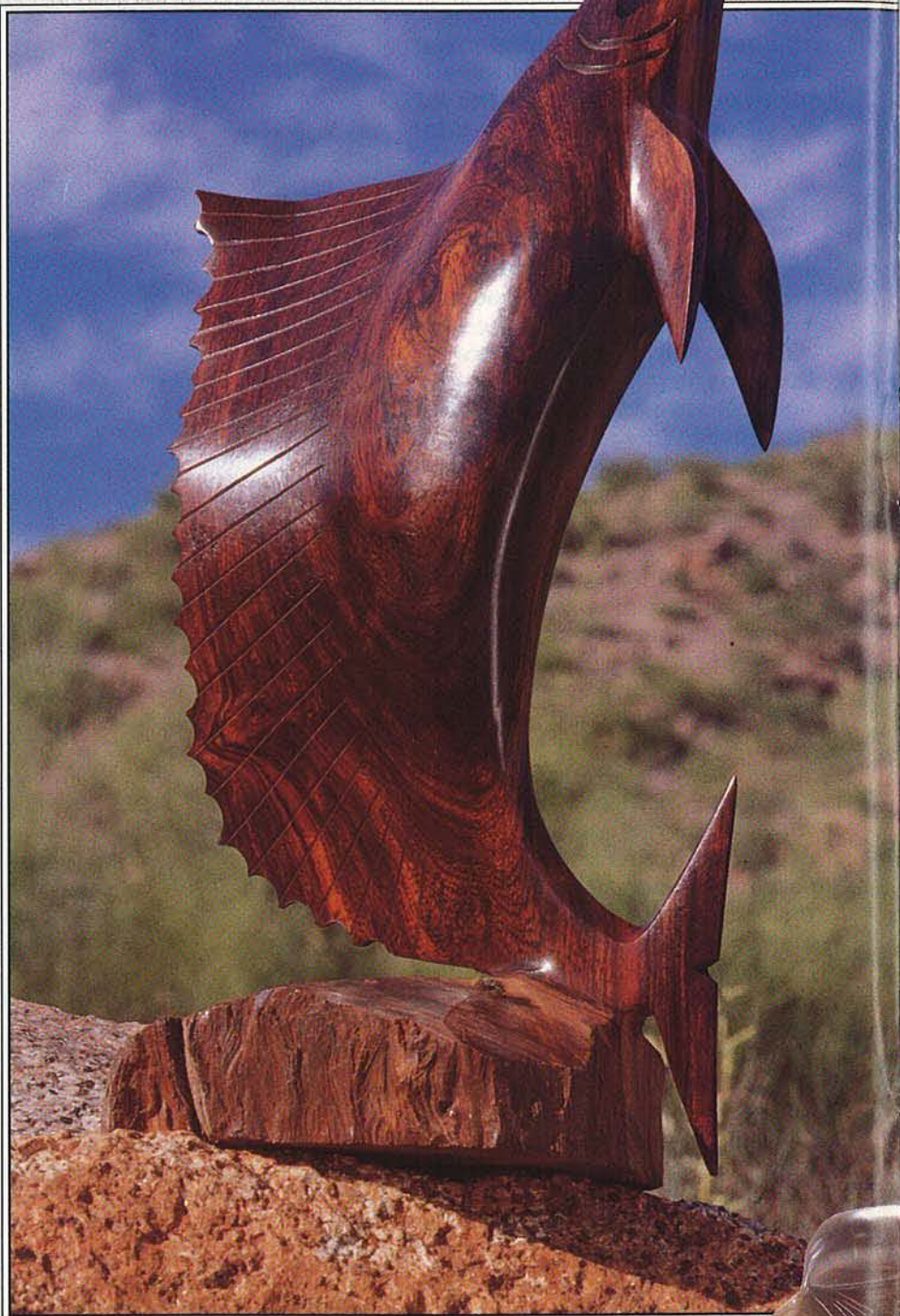
FROM MEXICO

I saw my first ironwood carving about six years ago when my mother-in-law brought back a beautiful stylized roadrunner for me from Arizona. Around its neck hung a tag that said it was handmade by the Seri Indians, a small tribe who inhabit the area around Bahia Kino, Mexico.

As each year passed, my collection of carved figures grew, and so did my interest in their creators. Finally, this past fall, I gave in and made the trek to Kino Bay, accompanied by an interpreter and a photographer friend of mine. What we discovered there is nothing short of a wood-carving miracle in progress. Come join me now as I retrace our steps.

Larry Clayton
Editor

 [Print this article](#)



of carved ironwood "treasures."

PIECES

The odyssey begins

A short time after photographer Bob Hawks and I stepped off the AeroMexico airliner in Hermosillo into the hot Mexican afternoon sun, we caught up with Jane Wyatt, our interpreter. (An American who divides her time between Tucson and Hermosillo, Jane is a professor in food and nutrition at the university in Hermosillo.) Barry Snider, my Tucson, Arizona, contact and one of the largest importers of ironwood sculptures into the U.S., had suggested that I hire Jane, and that proved to be very good advice indeed.

You see, for several years, Jane worked part-time with Barry as his purchasing agent. And as a result, she developed friendships with several of the best carvers in the Kino Bay area. This, along with her language skills, allowed us easy access to not only the Seri Indians, but also to the Mexican carvers of the area.

Note: Although it was the Seris who began carving in ironwood in the early 1960s, Mexican carvers have a corner on the market today. Why? It's mainly because they are willing and able to use power tools to speed up production of the carvings.

After getting acquainted with Jane over some nachos and lemonade, Bob and I drove about an hour to Kino Bay, a typical Mexican fishing village nestled along the shores of the Gulf of California. We settled into our motel (you know, the one without the hot water!), full of anticipation about what we hoped to see the following day.

Bargaining for bowls

The next afternoon, Jane, Bob, and I made the short drive to Old Kino,



the area where most of the carving activity takes place. Along the way, though, Jane noticed something she wanted us to see. We stopped in front of a small concrete building, and she went to the door. In no time, several Seri Indian women and two small children appeared, each carrying some of the most stunningly beautiful hand-woven bowls I've ever seen. They also showed us a few ironwood carvings and some gaily colored seashell necklaces.

Continued

A very brief history of ironwood carvings

The Seri Indians—historically fishers, hunters, and gatherers—began carving ironwood

in the early 1960s. And it wasn't long until they (and some industrious Mexicans) realized what a good source of income their desert- and ocean-inspired carvings were.

Within a few years, though, the Seris had used up the wood in their immediate area. As the Indians' supply dwindled, they began to focus more on making finely woven baskets and seashell necklaces.

Today, a few hundred Mexican craftsmen do the bulk of the ironwood carving. A dozen or so distributors bring their products into the U.S. for sale.



A group of Seri Indian women showing off their wares, most of which are exquisitely done. It's said that some of the bowls are woven so tightly that they can hold water.



MASTERPIECES

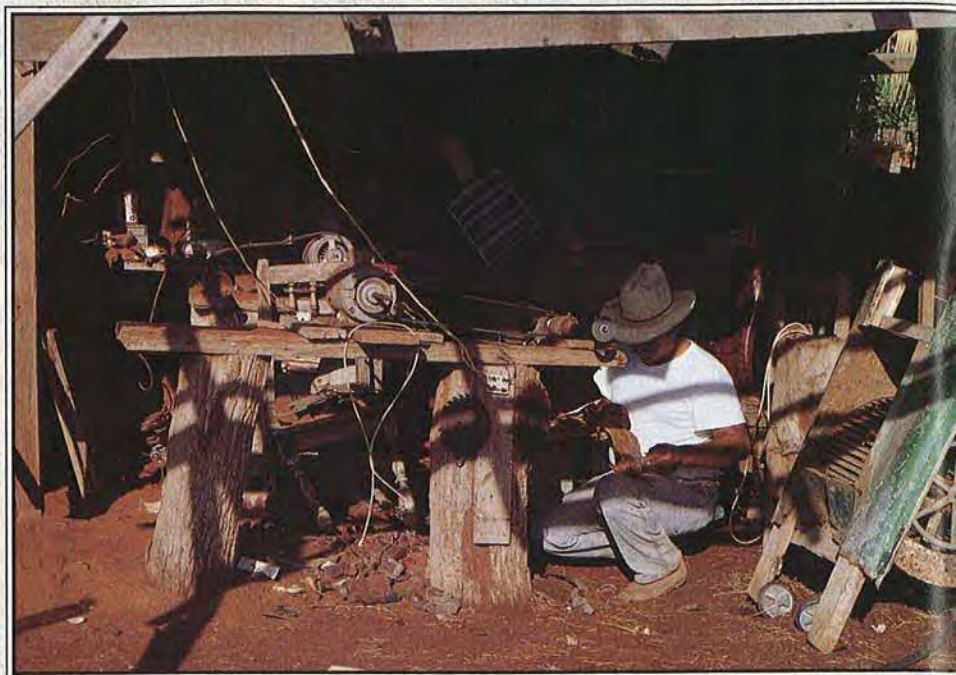
As it turns out, these native entrepreneurs know the value of their wares. Even after prolonged haggling, we managed to buy only one small bowl (it cost about \$30) and a few necklaces. The women were asking from \$300-400 for some of their larger works. (See the photo on page 33.)

Looking for Cuco

After our shopping experience, we set out in search of Refugio Garcia (everyone calls him Cuco), a 49-year-old Mexican carver who both Barry and Jane agreed does terrific work. When we arrived at Cuco's house, Jane again did the introductions, and after a short chat, Cuco agreed to let us photograph him while he carved a 16-inch-tall sailfish.

A no-frills shop that really does the job

Cuco's shop, which sits about 100 feet behind his house, is humble by almost any standard, but it's ideally suited for the work he does. As you can see in the photo above right, it's a lean-to pole building that serves mainly to protect him from the sun. A couple of tree stumps and a 6- or 7-foot-



long 2x12 serve as his workbench. Mounted to the bench, about midway down its length, is an old 1½-hp motor that's connected to a shaft near the end of the bench by a belt.

Note also the squirrel-cage fan near the workbench. When he sits down to work, Cuco turns on the fan, which helps blow the ironwood sawdust away from him.

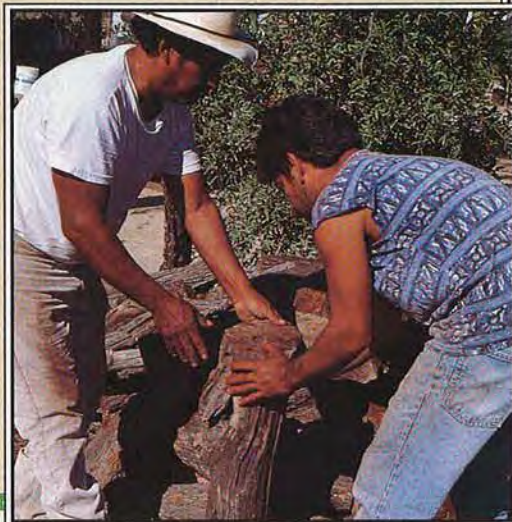
Above: Proof positive that it's not the shop, it's the craftsman who counts. Some of the best carvings in the world are done in these humble surroundings.



The artist and his work...step-by-step

1 Right: Cuco and his brother-in-law sort through a stack of ironwood, none of which looks like it would be good for anything except maybe firewood. The piece they're inspecting cost us \$15.

2 Right: Here, with the help of a razor-sharp ax, Cuco spends about 10 minutes rough-hewing the blank. We watch nearby as the contour of the sailfish emerges.



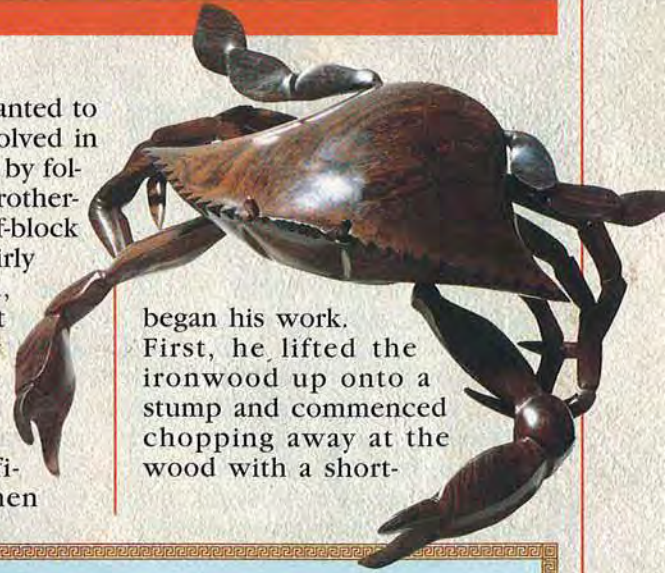
Witnessing a miracle—well almost

Chances are good that if you happened onto a piece of ironwood somewhere, you'd probably pass it by, never suspecting what beauty lies within. But Cuco, being a gifted artist and a skilled craftsman, can coax and cajole the extremely dense, highly figured wood into shapes of rare beauty, almost at will. Of course, it helps that he's been doing it for about 30 years now.

I told Cuco that we wanted to see every step that is involved in the process, so we started by following him over to his brother-in-law's house about a half-block away. There we saw a fairly large stack of ironwood, which I later found out had cost about \$400. After paying him \$15 for our wood, we walked back to Cuco's place.

Acting with the confidence of a pro, Cuco then

began his work. First, he lifted the ironwood up onto a stump and commenced chopping away at the wood with a short-



How ironwood is harvested and sold

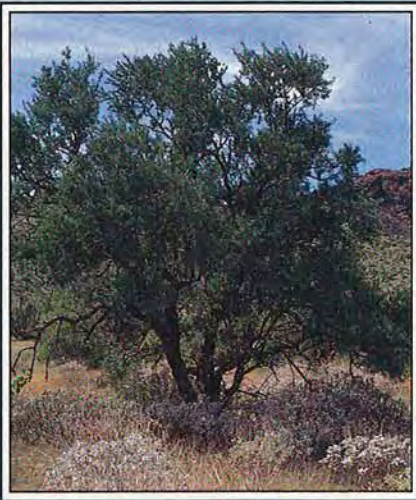
According to Barry Snider, the owner of a company called JoBa and one of the largest ironwood figurine importers in the U.S., it works like this:

These carvers don't process their own wood. They buy it from a woodcutter who gets a permit from the Mexican government to harvest the ironwood.

With a permit in hand, the woodcutter searches the Sonoran desert for some dead (but still standing) trees. Mexican law pro-

hibits cutting down live ironwood trees. The ironwood tree in the photo *at left* would be off-limits until it dies.

After harvesting, the woodcutter loads the wood into his truck and heads for Kino Bay or other nearby towns. There, he'll go up and down the dirt streets yelling "Palo fierro," the Mexican name for ironwood. The carvers come out of their houses, take a look, and if they like the quality of the wood, they will buy it then and there.



3 Below: Even though he is an experienced carver, Cuco still takes the time to draw the profile of the sailfish on the ironwood blank. Doing this helps him proportion the fish correctly.



4 Above: That's an 8" carbide-tipped circular saw blade rotating at 1725 rpm within a foot of our master carver. As you might suspect, many ironwood carvers have sustained injuries doing their work.

Continued

MASTERPIECES

handled ax. Within about 10 minutes, it started to take on the shape of a sailfish.

Then, using a piece of white chalk, he quickly sketched the profile of the fish onto the blank. That done, Cuco went to the workbench, switched on the electricity, pulled the belt connecting the motor to the spindle to "kick start" the motor, flicked on the squirrel-cage fan, and positioned himself in front of and less than a foot away from a whirling 8" carbide-tipped circular saw blade.

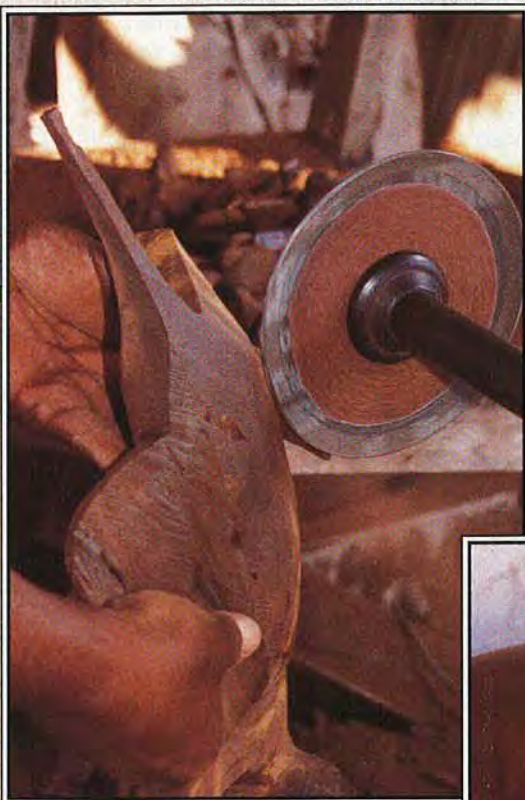
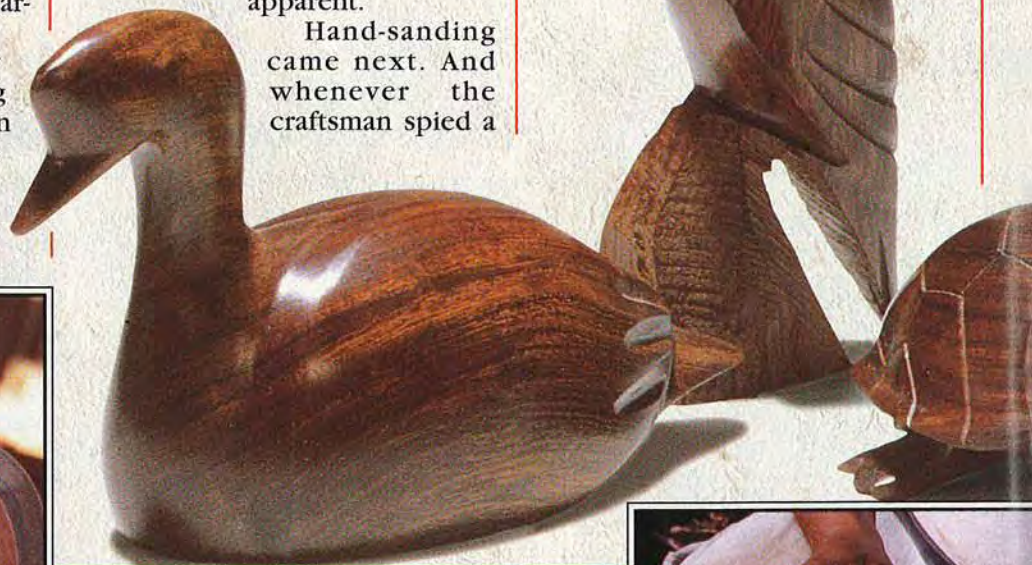
Bob, Jane, and I stood nearby for about 45 minutes watching this artist work his magic, in what can only be described as a truly dangerous dance with the spinning blade. By the time he was finished cutting,

though, Cuco had skillfully transformed a pretty homely looking chunk of ironwood into a roughed-out work of art in progress. We were impressed.

Cuco spent about three hours total on the carving. A fair amount of that time went toward sanding, first with a coarse 6" sanding disc and then a succession of 2" discs. With each grit, the grain and texture of the wood became ever more apparent.

Hand-sanding came next. And whenever the craftsman spied a

defect, out came the (surprise!) Super Glue. Mixed with ironwood dust, this stuff makes a great patching material that dries



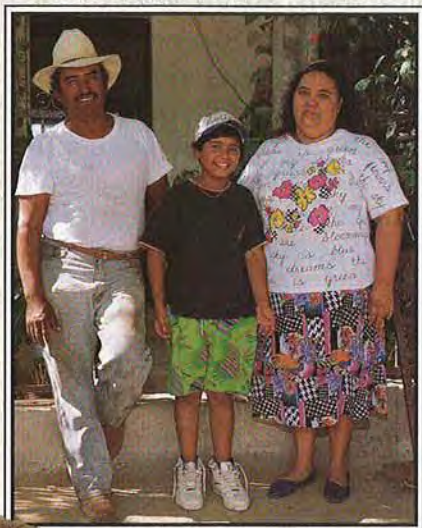
5 Above: The figure goes through a series of sandings, first with a 6" disc, then with a 2" one. Cuco sands his work through 600 grit.

6 Below: For unexpected defects, Cuco uses Super Glue. Mixed with ironwood sawdust, the glue makes a fast-drying patch that our artist sands immediately after applying.



7 Above: Cuco spends a great deal of time sanding his carvings. Here, he's giving the sailfish one last light sanding with 600-grit abrasive. He depends on his squirrel-cage fan to blow away sawdust.

Below: Refugio Garcia (Cuco), his wife, and youngest son in front of their home in Kino Bay.



within a few seconds. By the time Cuco had worked his way up to 600-grit, the sailfish was ready for the only finish these carvings need—one coat of brown Kiwi shoe polish.

For more details on Cuco's technique, see the step-by-step photos starting on *page A 12*.

A fond farewell to old Mexico

Our time in Kino Bay went by quickly, and I've got to say that this journey ranked as one of the most informative and enjoyable trips I've ever taken for *WOOD* magazine. When the time came to say goodbye to Cuco and his family, I think we all felt a closeness not normally developed in such a short time. Bob, Jane, and I all agreed that we had witnessed someone who has been blessed with extraordinary carving talent. *Muchas gracias*, Cuco, for a wonderful experience, and the best of luck to you and your family.

Written by Larry Clayton with excellent help from Barry Snider and Jane Wyatt
Photographs: Bob Hawks, John Hetherington



Want to buy some ironwood carvings?

Except in the Southwest, you won't run onto many ironwood carvings. So if you want to purchase some figures, your best bet would be to call Barry Snider at 602/792-1055 or write to JoBa, 3690 South Park Avenue, Suite 809, Tucson, AZ 85713. Though he usually sells wholesale only, Barry said he will work directly with *WOOD* magazine readers. He's got a large inventory in Tucson, and if you're interested in larger pieces, he can have them custom-made for you. But keep in mind that with special orders, you'll have to wait anywhere from a few weeks to several months to receive these one-of-a-kind creations. 🌳

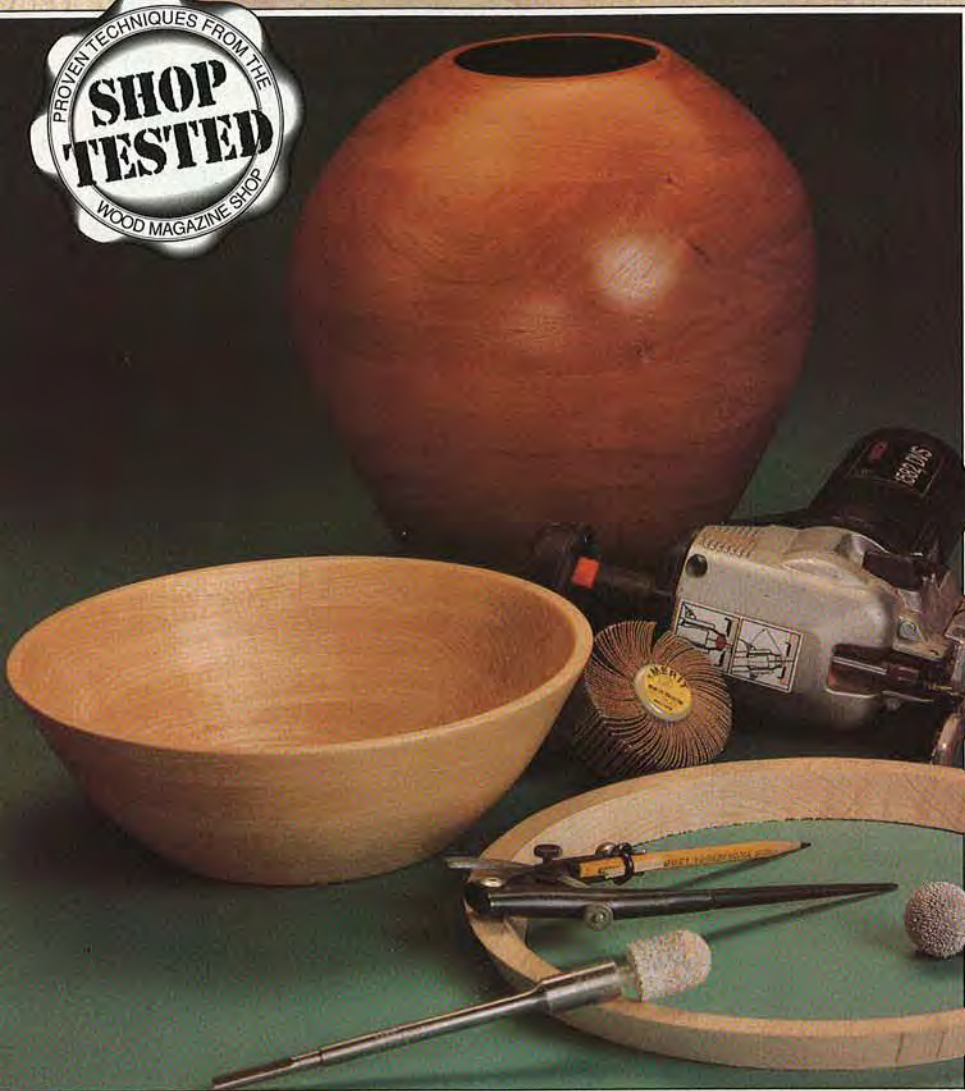


8 *Below:* Always the pragmatist, Cuco carves the gills and dorsal fin freehand with a well-used Makita die grinder.



9 *Above:* Cuco applies brown Kiwi shoe polish as the finish for his projects. A buffing with a soft cloth brings up a deep lustre.

STACKED-RING VESSELS



If you've always wanted to try your hand at making a beautiful turned vessel, but put off the idea because you don't own a lathe, here's the article of your dreams. Now, you can make a vessel of almost any shape, in sizes larger than is possible on most lathes. All you need is a jigsaw, an electric drill, a few sanding accessories, and of course, the friendly guidance presented here.

Way back in the July 1985 issue of *WOOD*® magazine, we ran a story on Robert St. Pierre of Plymouth, Massachusetts and his laminated wooden-ring bowls and vases. At the time, we were amazed with the great results he achieved. But, until we started researching this article a few months ago, none of us on staff had any hands-on experience making vessels that way.

Actually, once we got going we found the process fairly easy. And we'll bet that even your very first effort, like ours, will yield a terrific vessel. Here's how:

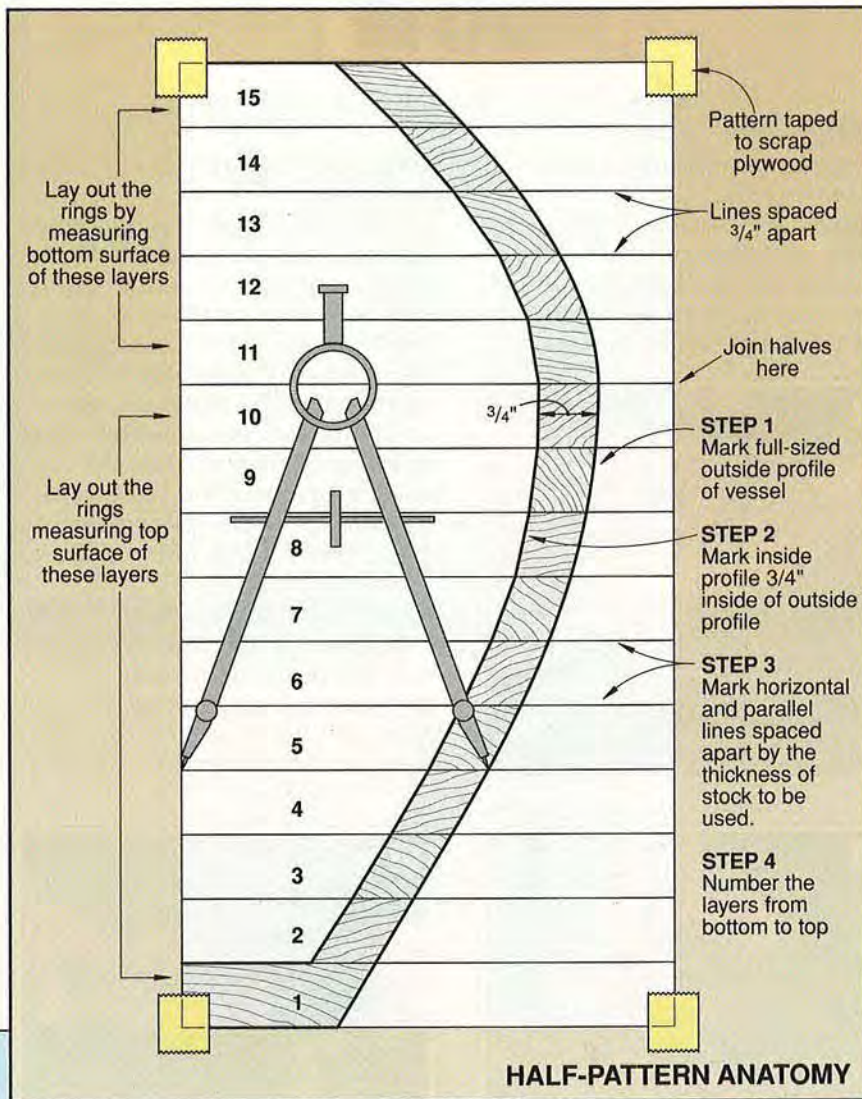
Make a pattern of your one-of-a-kind vessel

With this procedure you can make an endless variety of vessels of most any size and shape. Start by drawing a rough, full-sized sketch of the vessel you have in mind. To help you get the creative juices flowing, we've included three design variations in the drawing *right*. Keep three things in mind when doing your vessel designs:

1) The maximum diameter of your vessel should be no greater than twice the widest spread of your compass.

2) Convex surfaces on the outside of the vessel will be easier to sand than concave surfaces, and tight concave surfaces will be nearly impossible to sand. Convex surfaces should not angle more than 45° past hori-

ABSOLUTELY NO LATHE REQUIRED!

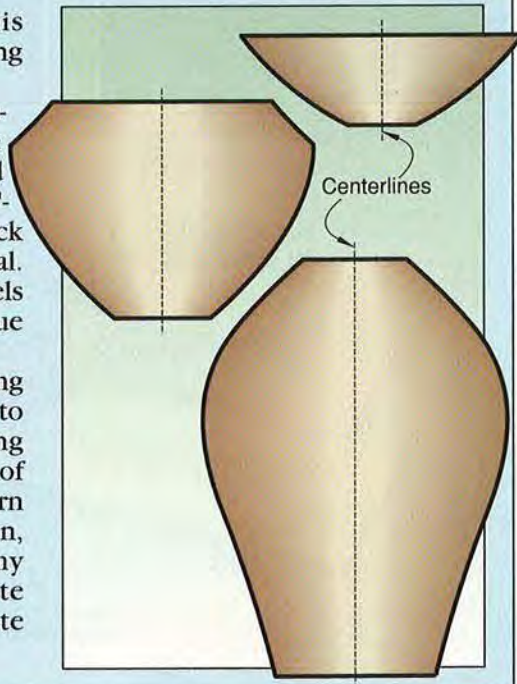


HALF-PATTERN ANATOMY

zontal (you can stretch this slightly, but you'll end up doing additional sanding).

3) The total height of the vessel should be divisible by the thickness of stock you intend to use. In other words, in a 9"-high vessel made from $\frac{3}{4}$ "-thick rings, you'll have 12 rings total. Thicker stock will yield vessels with fewer rings and less glue lines.

Now, fold the paper containing your design in half vertically to yield a half-pattern. Cut along the pattern line with a pair of scissors. Transfer the half-pattern to another sheet of paper. Then, refer to the Pattern Anatomy drawing *above* and complete steps 2, 3, and 4 to complete your pattern.



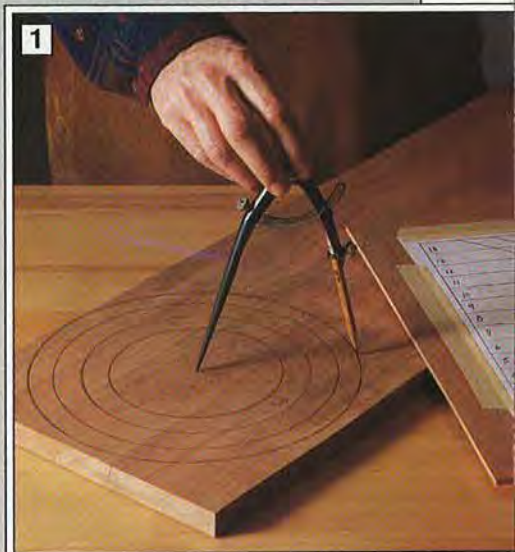
Now, lay out the rings on your stock

At this point, keep in mind that you will construct most vessels, other than open bowls, from two halves. (This enables you to later smooth the inside surfaces of both halves and then join them before smoothing the outside.) These halves consist of rings stacked one atop another. But because the procedure for laying out the rings differs slightly for the top and bottom halves, lay out and cut all of the rings for one half before starting on the other.

As noted on the Pattern Anatomy drawing, you need to lay out the bottom surfaces of top-half rings, and the top surfaces of bottom-half rings. This way, you always lay out the widest diameter of each ring. Here's how to go about it:

Starting anywhere on your pattern, set your compass for the outer radius of a ring and transfer a circle of that radius to your stock. Repeat this procedure for the corresponding inner radius. Be careful to check off the rings on the pattern as you lay them out, and mark the ring numbers on your stock.

As shown in *Photo 1*, you can sometimes save stock by laying out small rings inside larger ones. Just be sure to allow for the beveled cuts coming up.



Continued

STACKED-RING VESSELS

Accurate cuts will ease your sanding work later

In this section we'll show you how to cut the outside of the ring with a bandsaw, and the inside with a portable jigsaw. You could use a jigsaw for both cuts, but your results won't be as smooth and accurate, and you'll have to do more sanding on the vessel's outer surface. (A scrollsaw will also work for outside cuts.)

To transfer the necessary cutting bevel from the pattern to your bandsaw table, first lay the edge of a 3-4" long scrap of wood, the same thickness as your stock, onto a ring layer as we're doing in *Photo 2*. Mark the points where the outer profile of the ring meets both sides of the scrap piece. Then, use a straightedge to draw a line on the edge of the scrap that

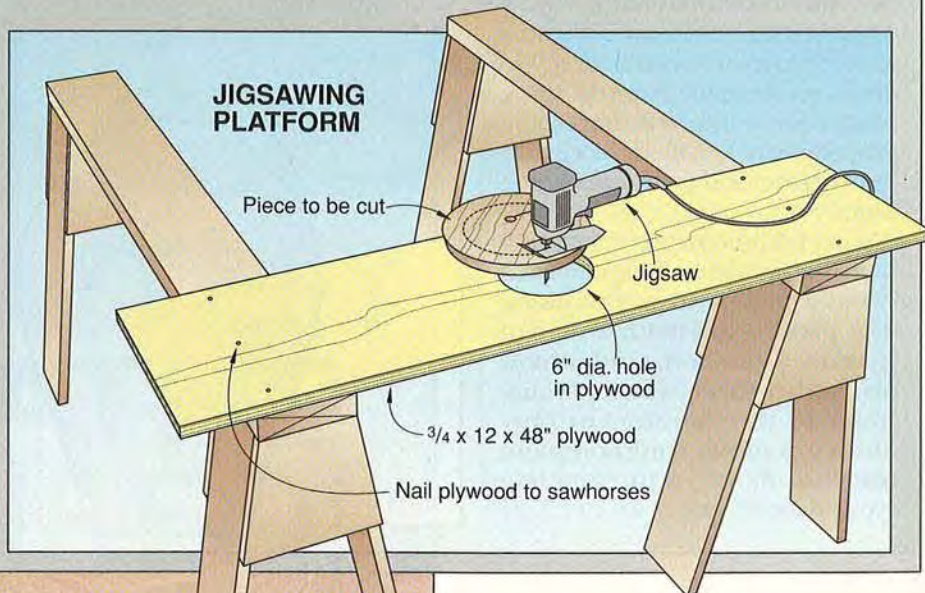
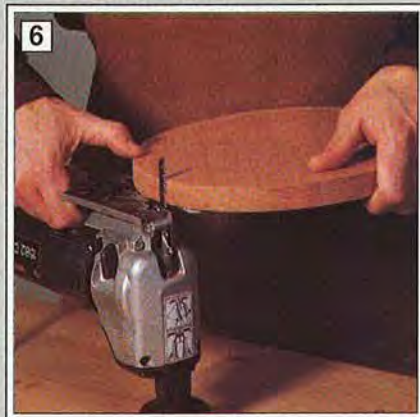
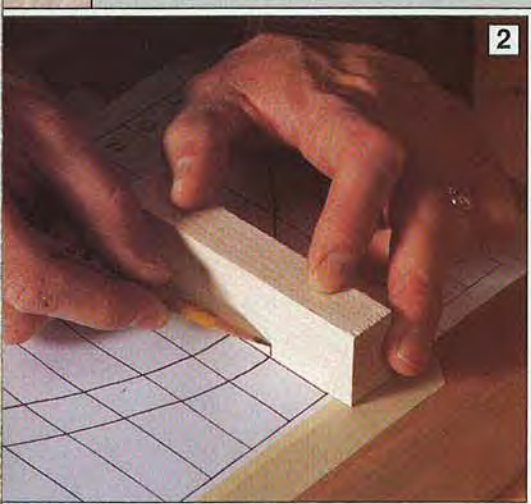
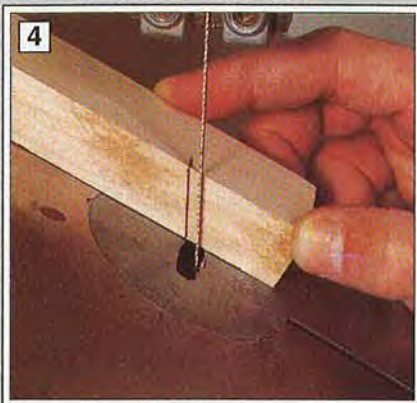
connects these two points as shown in *Photo 3*.

Adjust your bandsaw table to this angle as depicted in *Photo 4*. Keeping the blade on the "uphill" side of the workpiece, cut the outside profile as shown in *Photo 5*.

(We used a 1/8"-wide, 14-teeth-per-inch blade.)

To cut the inside profile, adjust the base of your jigsaw so the saw blade parallels the outside-profile cut as shown in *Photo 6*. Drill a starting hole for the saw blade at the necessary angle on the inside of the ring. To make the cutting as smooth as possible, use a jigsawing platform like the one shown *below*. (The base, which you'll cut later, is not truly a "ring," so it does not require an inside jigsaw cut.)

After cutting each ring and the base, mark a line centered on the end grain on the outside of each piece. These marks will help you line up the layers in the same grain orientation in the next step.



Let's glue, stack, and clamp the rings

To clamp the rings together you need a length of 1/2" all-thread rod that's at least 4" longer than your vessel's height, two 1/2" flat washers, two 1/2" nuts, and two pieces of 3/4" plywood at least as wide as the top and bottom of your vessel. These components go together as shown below.

To use this clamping setup, first thread the bottom nut completely onto the all-thread rod and secure the nut in a bench vise with the all-thread rod pointing up. Stack

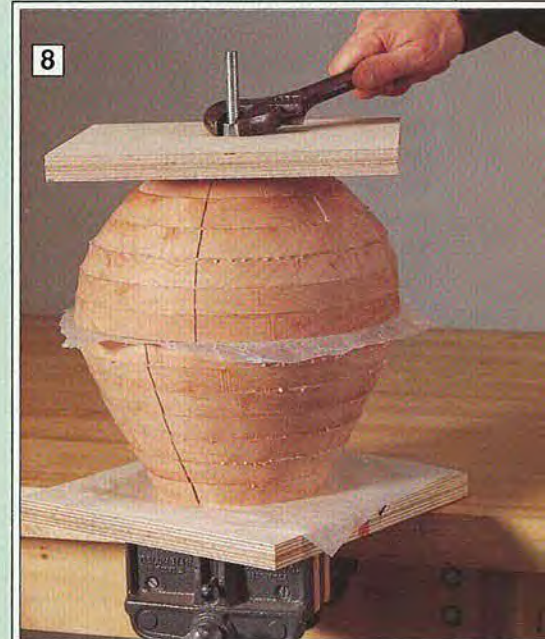
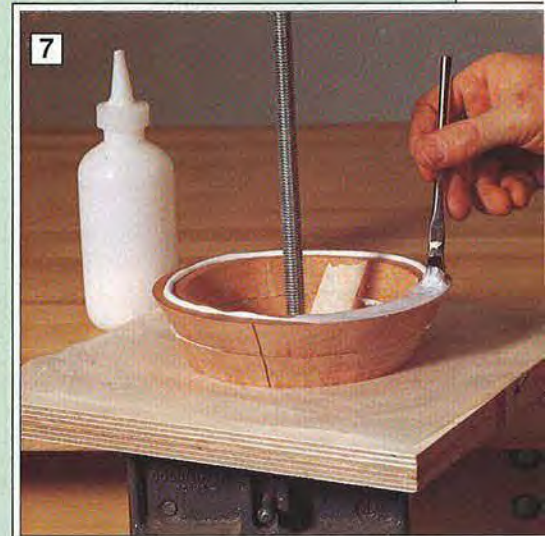
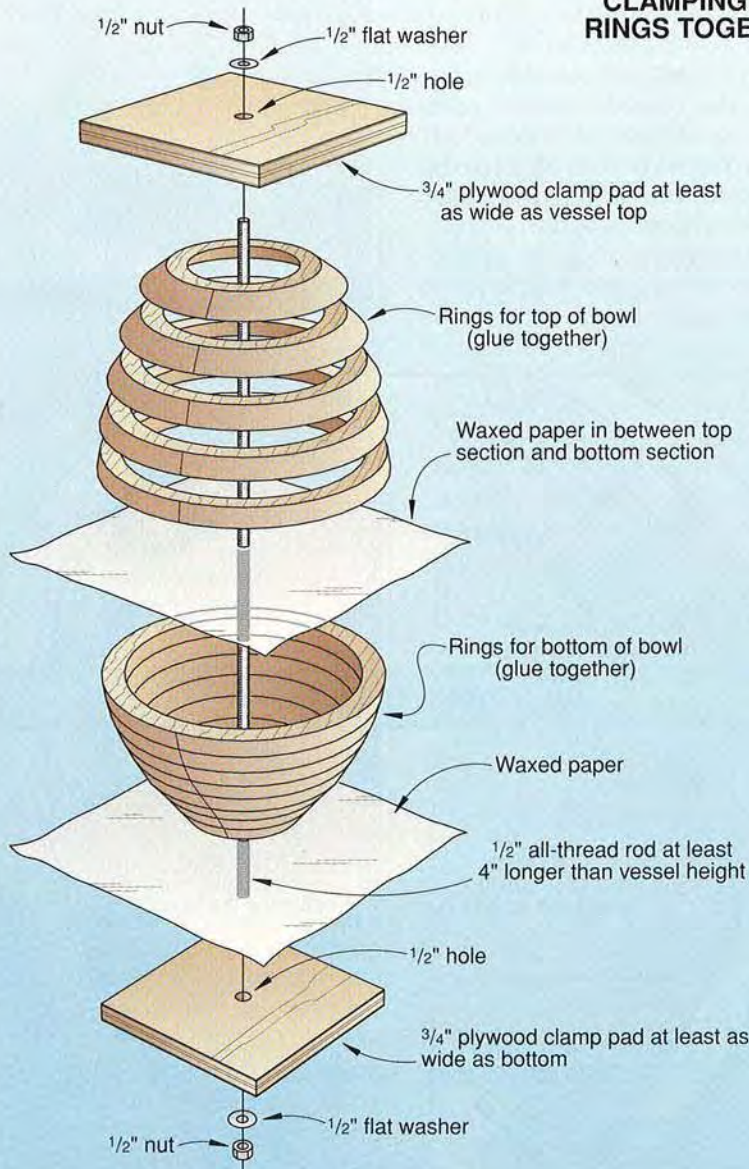
the bottom washer, clamp pad, and waxed paper onto the rod.

Now, set the vessel base (layer 1) aside, and center the bottom ring (ring 2) on the waxed paper. Apply a thin, uniform coat of white woodworker's glue to the top surface of this ring and to the bottom surface of the adjoining ring (no. 3). Stack the pieces and proceed with the rest of the rings as shown in *Photo 7*. Line up the end-grain marks as you stack, and apply short pieces of masking

tape over the inside joint lines to keep the rings centered and aligned. Repeat this procedure for all of the bottom-half rings, but do not apply glue to the top surface of the top layer in this half.

Apply a piece of waxed paper onto the top of the bottom half. Then, glue and stack the top-half rings. Clamp all of the rings by adding the top plywood pad, washer, and nut. Tighten the nut as shown in *Photo 8*, and allow the assembly to dry overnight.

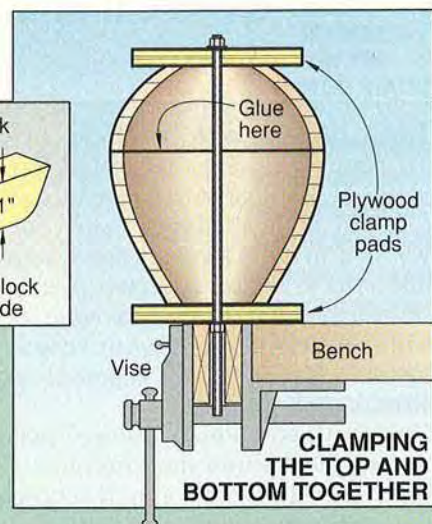
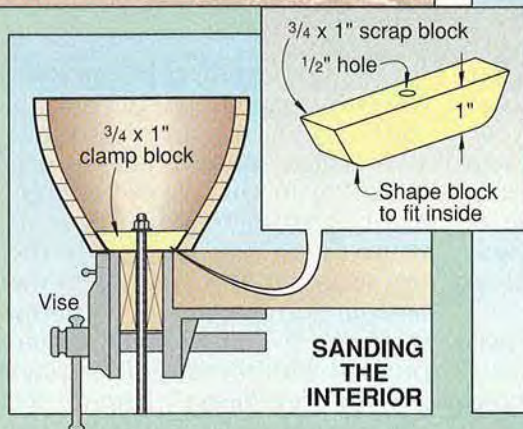
CLAMPING THE RINGS TOGETHER



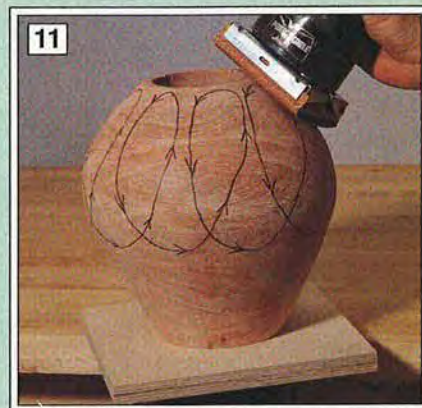
STACKED-RING VESSELS

Use these tricks to smooth the vessel

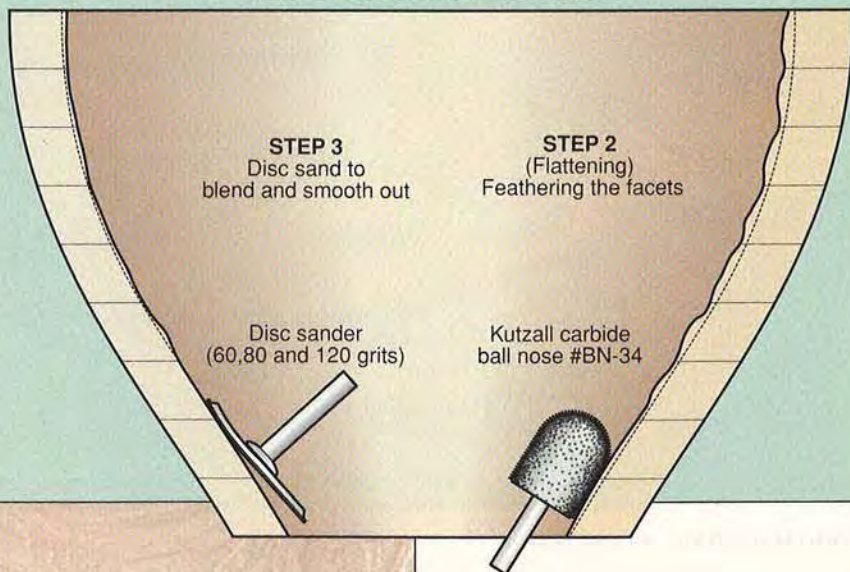
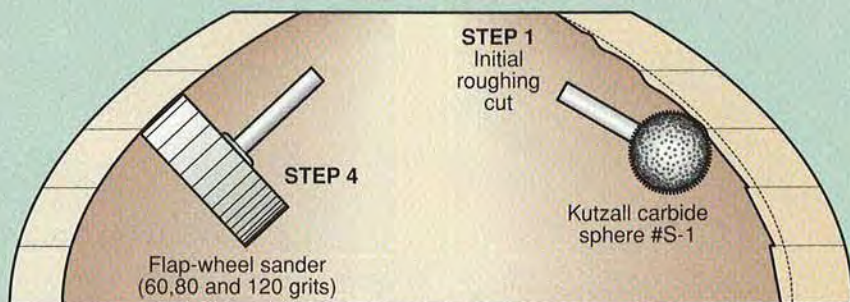
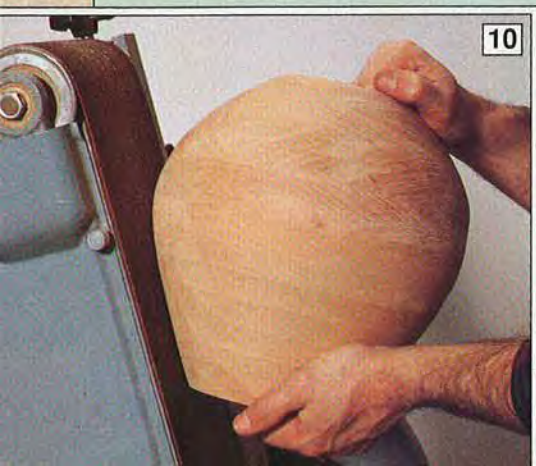
Smooth the inside of each vessel half by first securing it in your vise as shown *near right*. Then, use an electric drill and the smoothing accessories shown in the Smoothing the Interior drawing *below* to complete the job. (The Kutzall carbide cutters are made by L.R. Oliver Company. Call 810/725-1230. We obtained the flexible "Power Lock" sanding discs from The Woodworkers' Store. Call 800/279-4441.) Deep vessels may require that you use a drill-bit extension as shown in *Photo 9*. At these times, use a wooden block with a hole drilled in it to steady the extension.



To finish-sand the outside surface, secure the vessel to your bench vise as you did when smoothing the interior. Working through a succession of 80-, 100-, 150- and 220-grit sandpapers, smooth the outside with a palm sander as shown in *Photo 11*. Smooth the top half by moving the sander as shown by the arrows in the photograph. Then, turn the vessel upside down, secure it in the vise, and smooth the other half.



With the inside surfaces smoothed, glue the two halves together as shown *top, far right*. After the glue dries, use a stationary belt sander to rough-sand the outside of the vessel as shown in *Photo 10*. Remember to keep the vessel moving at all times to avoid flat spots. Check the shape of the vessel frequently by holding it at arm's length.

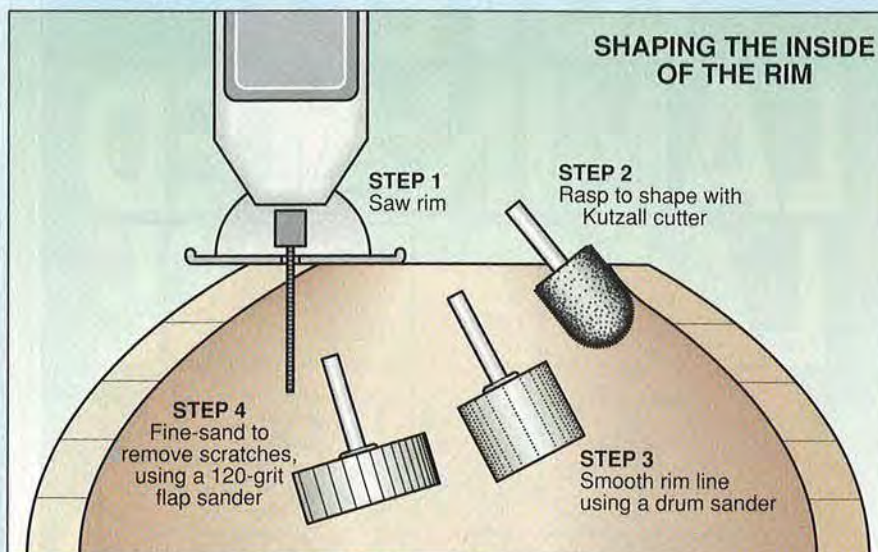


From top to bottom: Shape the rim and add the base

At this point, the top rim of your vessel probably appears a little ragged and oblong. No problem. To give your vessel a "just-turned" look you need to shape the rim so it appears perfectly round. To do this, adjust a compass to draw the largest-possible circle that will fit on the vessel's top. Mark this circle (the outside rim line) onto a piece of cardboard. Then, draw another circle (the inside rim line) $\frac{3}{8}$ " inside the larger circle. Cut the cardboard carefully along the outside circle. Center this circle on your vessel's rim, and trace its outline as shown in *Photo 12*. Then, cut along the inner circle and transfer it to the rim as depicted in *Photo 13*.

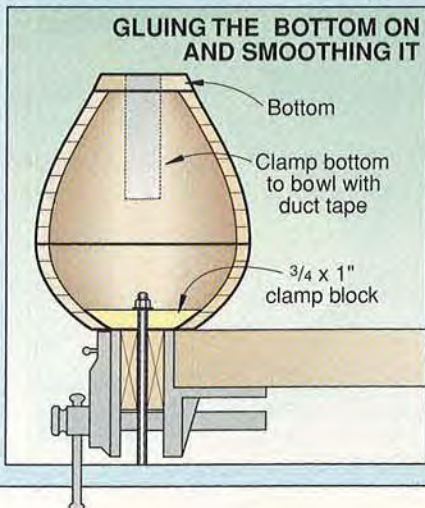


With a portable belt sander, remove the stock outside of the outer circle and blend the rim with the rest of the vessel. Smooth the outside of the rim with a palm sander. Now, using the inner circle as a guide, follow the steps in the Shaping the Inside of the Rim drawing *top* to finish the rim of your vessel.



Before attaching the bottom, you need to shape its edge so it fits the contour of the vessel as closely as possible. Do this by placing the vessel onto the bottom and tracing the perimeter of the vessel onto the bottom's top surface. Adjust the table of a stationary disc sander according to the bevel on the base and carefully sand up to your traced line as we're doing in *Photo 14*.

Then, turn the vessel upside down as shown in the drawing *below*, and apply a thin coat of woodworker's glue to both mating surfaces. Clamp the base on by tightly stretching two crisscrossing pieces of duct tape across the bottom. After the glue dries, smooth and blend the edges of the bottom with a palm sander.



The final touches

As you know by now, smoothing the interior of the vessel is considerably more work than smoothing the outside. So, with vessels having narrow openings (such as those shown in the opening photo), you may elect to not completely smooth the inside. We don't blame you! To make such a rough interior less visible to the eye, apply flat-black paint to the inside of the vessel after applying a clear finish to the outside. Now, you're ready to show off your masterpiece to your woodworking friends. 🌲

Written by Bill Krier with Jim Boelling
Illustrations: Kim Downing
Photographs: John Hetherington

LOVELY LAMINATED LAMP BASE

OUR NOVEL
TECHNIQUE
GIVES IT SHAPE

You don't need a lathe to produce this handsome hardwood lamp base. Using our bandsawing, laminating, and sanding techniques, you're only one board away from this sure-to-be noticed tabletop project.

Note: To build this lamp base, we followed the process described in the technique article starting on page 38. However, to save time and unnecessary labor and to ensure a heavy, stable end product, we didn't remove the inside of each disc as was done in the technique article.



Print this article

Mark and cut the discs from solid stock

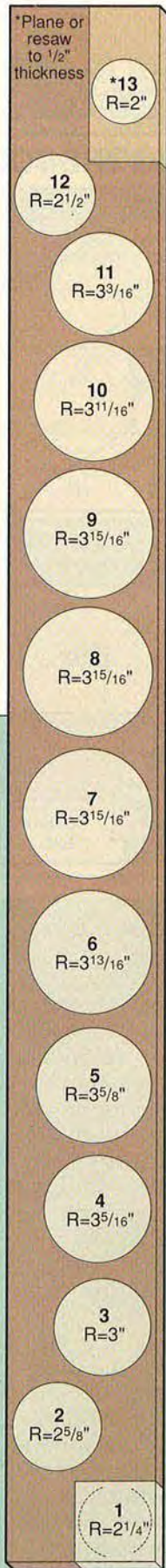
1 Using a compass and radii on the Cutting Diagram, mark 13 circles on solid stock (we used walnut). Note that disc 13 is $\frac{1}{2}$ " thick and all the rest are $\frac{3}{4}$ " thick. For tight glue joints later, select uncupped, warp-free stock. (Note that you're marking the large diameter of each disc.) For ease in assembling the discs in the proper sequence later, number each disc's top face.

2 Cut between the marked discs on the board so each disc is on a separate piece of wood (this makes them easier to cut on the bandsaw in the Step 6).

3 Drill a $\frac{1}{2}$ " lamp-pipe access hole through the center (where indented with the compass in Step 1) of each wood disc.

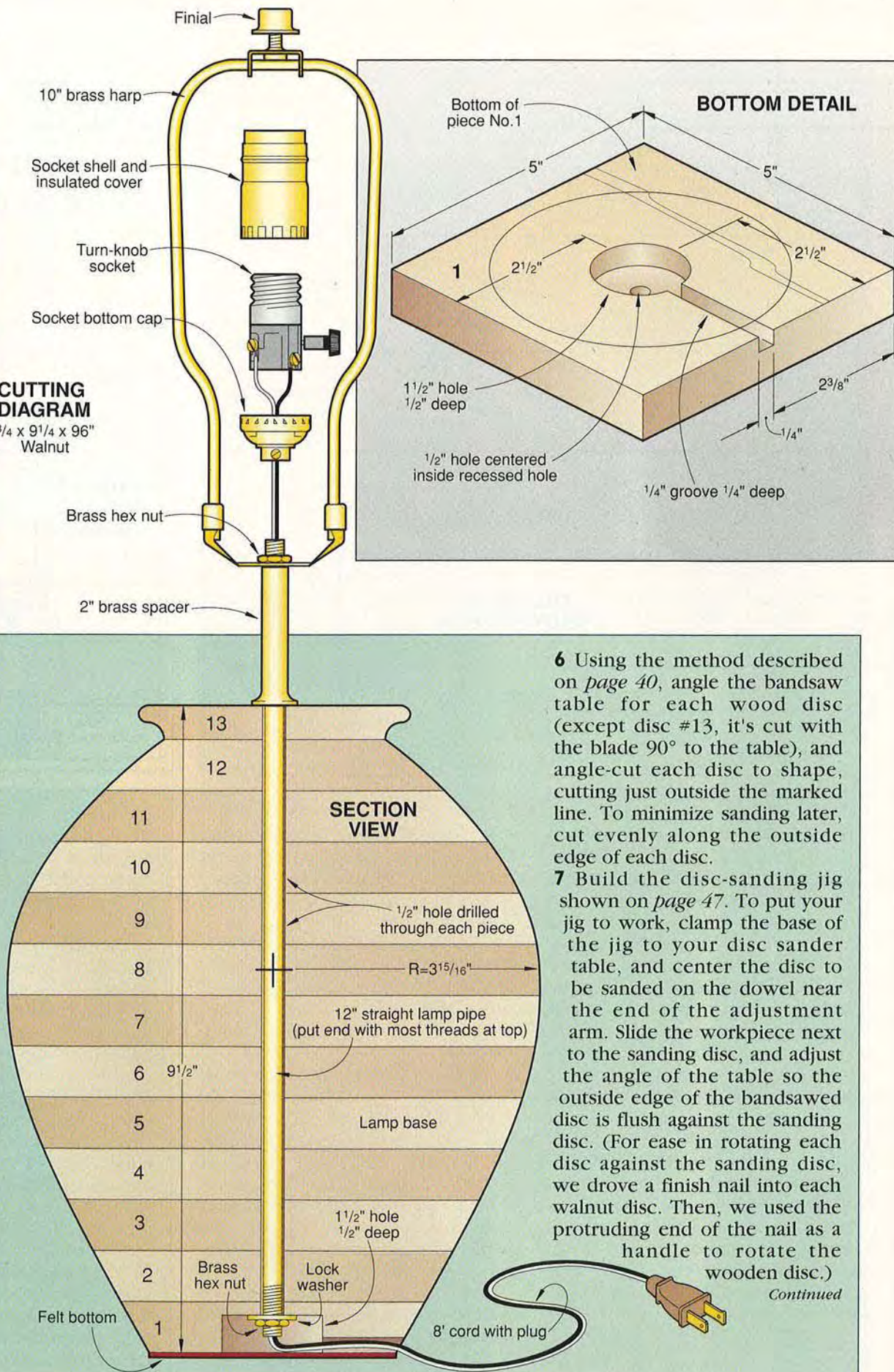
4 Switch to a $1\frac{1}{2}$ " Forstner bit and bore a $\frac{1}{2}$ "-deep recess on the bottom side of disc #1.

5 With double-faced tape, secure the bottom disc (#1) to your workbench top, and rout a $\frac{1}{4}$ " groove $\frac{1}{4}$ " deep where shown on the Bottom View detail for housing the electrical cord later.



CUTTING DIAGRAM

3/4 x 9 1/4 x 96" Walnut

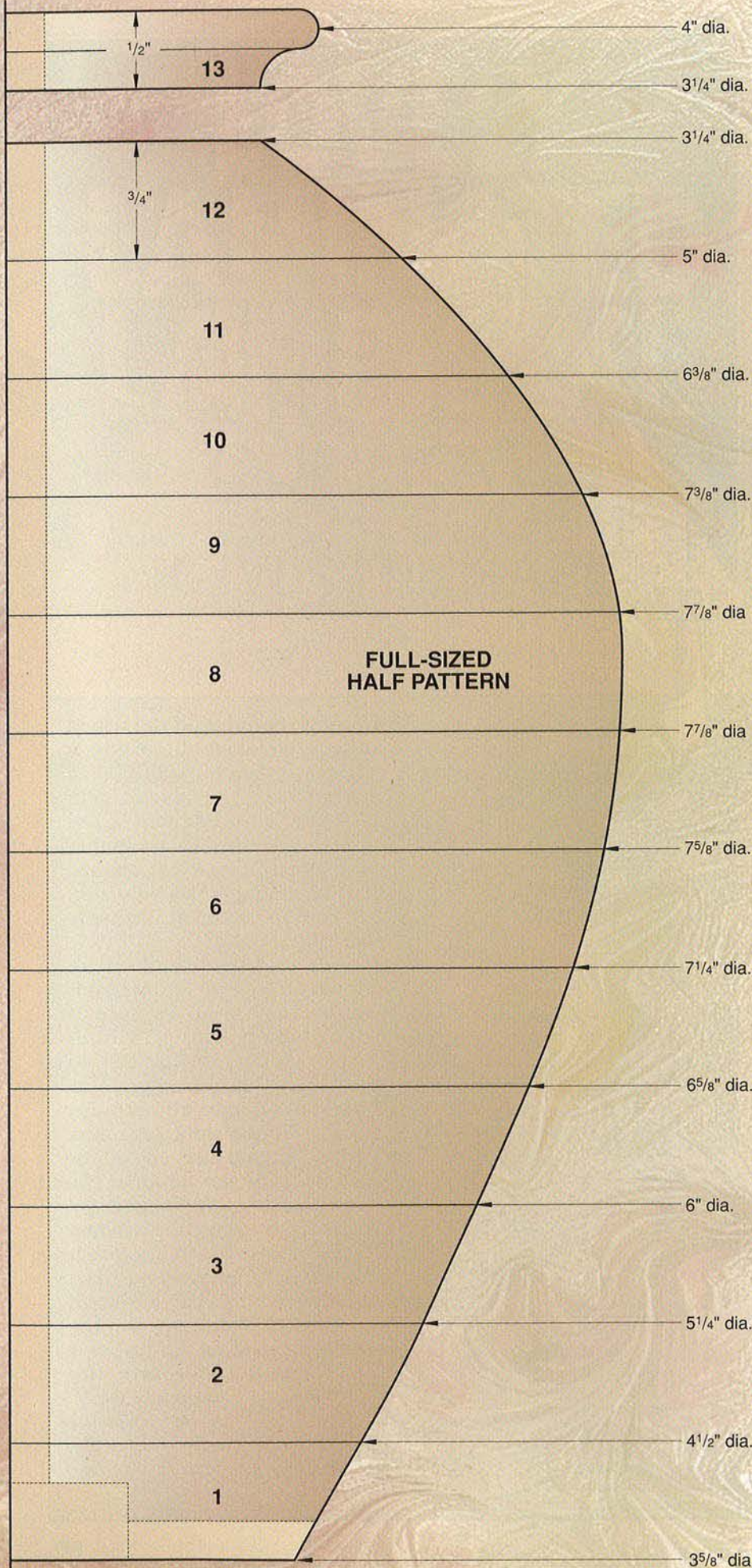


6 Using the method described on page 40, angle the bandsaw table for each wood disc (except disc #13, it's cut with the blade 90° to the table), and angle-cut each disc to shape, cutting just outside the marked line. To minimize sanding later, cut evenly along the outside edge of each disc.

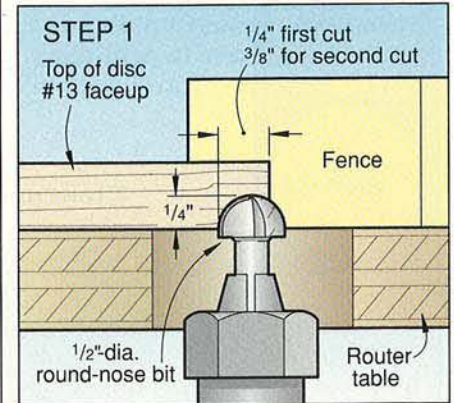
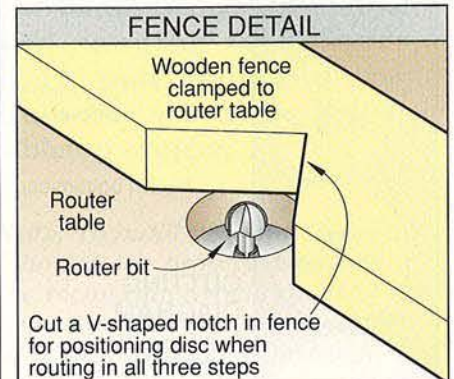
7 Build the disc-sanding jig shown on page 47. To put your jig to work, clamp the base of the jig to your disc sander table, and center the disc to be sanded on the dowel near the end of the adjustment arm. Slide the workpiece next to the sanding disc, and adjust the angle of the table so the outside edge of the bandsawed disc is flush against the sanding disc. (For ease in rotating each disc against the sanding disc, we drove a finish nail into each walnut disc. Then, we used the protruding end of the nail as a handle to rotate the wooden disc.)

Continued

LAMP BASE



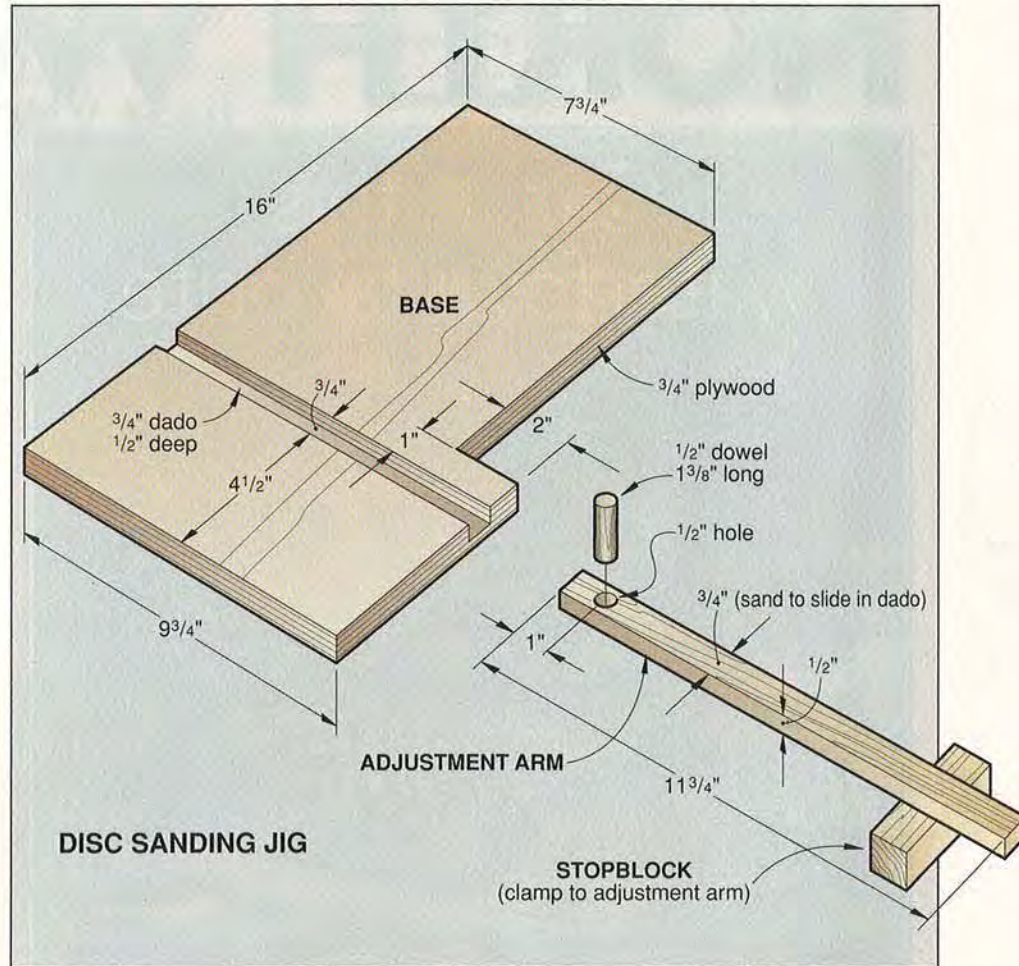
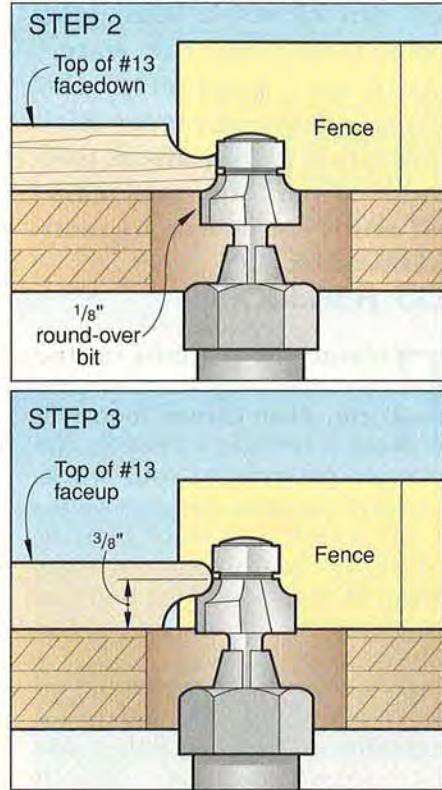
ROUTING THE TOP



8 Start the sander, and slowly slide the adjustment arm with attached wood disc into the sanding disc until the disc sands to the marked line. Turn the sander off, clamp the stopblock to the adjustment arm, turn the sander on again, slide the adjustment arm until the stopblock makes contact with the base, and slowly rotate the workpiece against the sanding disc as shown in the photo *at right*. After sanding each disc, position it against its mating disc with the grain of both aligned, to check for flushness of the mating sanded edges. Resand if necessary for flush edges. It's easier and much faster to sand the individual discs now for a flush fit, than to try to palm-sand the glued-together lamp base later.

9 Sand the edge of the top disc with the stationary disc sander table 90° to the sanding disc.

DISC TO SHAPE



Use the disc-sanding jig to support the wood disc while sanding to the marked circumference line.

Next, using the three-step process on the drawing titled Routing the Top Disc to Shape, rout the top and bottom edge of the top disc (#13). We used a flat board with a V-shaped notch bandsawed into it to safely rout the pieces.

10 Position disc #13 on top of disc #12, and check that the mating edges are flush. If not, resand disc #12 or rout a bit deeper with the round-nose bit along the bottom edge of disc #13.

11 Mark a line centered on the end grain on the outside of each disc. The marks will help you line up the discs when gluing the pieces together.

Laminating the discs comes next

1 Spread an even coat of white glue (white glue provides more workable open time than yellow glue) on the mating surfaces. Then, working from the bottom up, glue and clamp the hardwood discs together using a 1/2" threaded rod 18" long (see the photo on page 41 for reference). Work carefully to keep the edges of the discs flush and the end grain marks aligned when gluing. Again,

take your time—the more flush the edges, the less time you'll need to spend sanding later. Use a damp cloth to wipe off the glue squeeze-out. It's easier to wipe off the wet glue now than to have to sand it off later.

2 Using a palm sander and 80-, 100-, 150-, and finally 220-grit sandpaper, sand the lamp base smooth. Apply a clear finish (we used Deft aerosol lacquer).

3 Add the hardware, felt, and wire the lamp as shown in the Section View drawing.

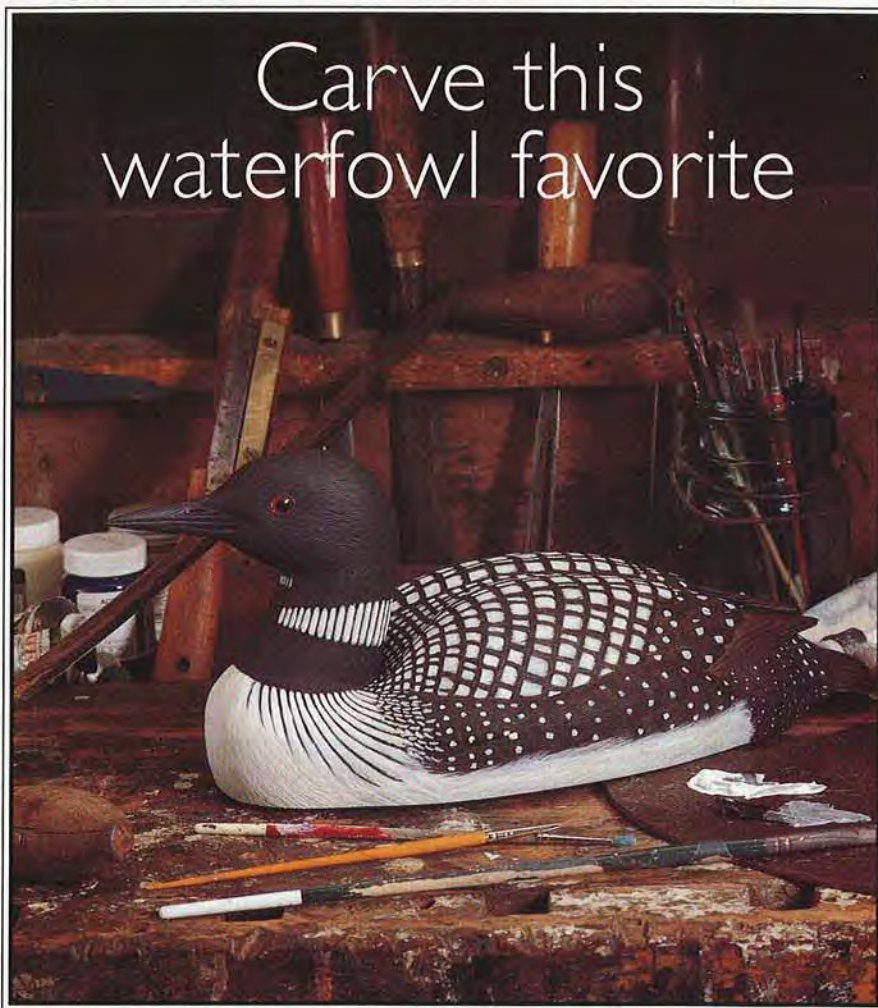
BUYING GUIDE

Lamp kit. Parts needed to wire the lamp, plus felt. Kit no. 3406, \$9.95 plus \$3.50 shipping. Meisel Hardware Specialties, P.O. Box 70W, Mound, MN 55364-0070. Or call 800/441-9870 to order. ♣

Project Design: James R. Downing
Illustrations: Kim Downing
Photographs: John Hetherington

NORTH WOODS

Carve this waterfowl favorite



Here's classic waterfowl art you can carve—a loon gliding serenely on the water. Captured perfectly by Wisconsin woodcarver Rick Beyer, this loon delivers one-hundred percent pure carving enjoyment, not to mention beauty.

Enlarge the patterns on the opposite page at 200 percent. (The carved loon will be about $\frac{2}{3}$ life size.) Transfer the enlarged patterns to your stock. Bandsaw the side and top views of the head and body blanks. Follow the outer pattern lines except at the back of the body on the side view; there, follow the dotted cutting line.

Draw a lengthwise centerline on top of the body. Parallel to the centerline and $1\frac{1}{2}$ " on either side of it, add two more lines. On each edge of the blank, draw a line parallel to the bottom and $1\frac{3}{8}$ " above it. Then, sketch in the neck location where shown by the Body Top View pattern.

Continued on page 50

We used these tools and supplies

Stock: Basswood or other carving wood, $2 \times 5\frac{1}{2} \times 4$ " for the head, $3\frac{1}{2} \times 6 \times 13$ " for the body (see Buying Guide below for bandsawed blanks).

Power carving equipment: Flexible-shaft rotary carving machine or rotary hand tool

Bits



Carbide-tooth tapered burr, $\frac{1}{2}$ or $\frac{3}{4}$ " (Kutzall silver T-12 or T-34)



Fluted carbide burr, $\frac{1}{4}$ " inverted cone, $\frac{1}{4}$ " or larger



Ruby carver, flame point, small and large

Knife: Bench knife or X-Acto knife

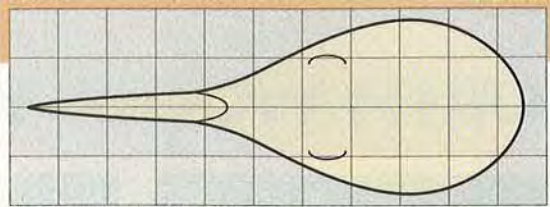
 [Print this article](#)

Buying Guide

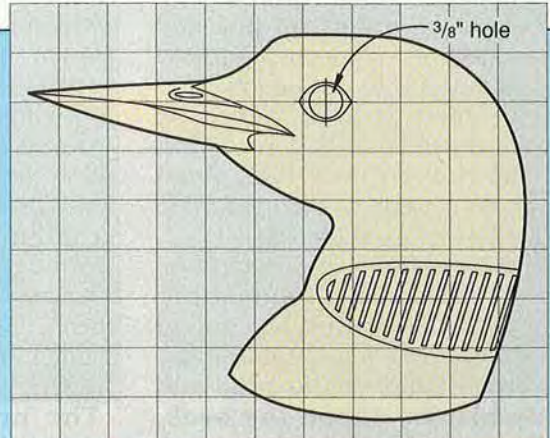
Loon kit. Bandsawed head and body blanks with detailed painting instructions, \$29.95 ppd. in U.S. Wisconsin residents add \$1.50 sales tax. Order from R.J. Beyer Galleries, 1115 N. Main St., Racine, WI 53402, 414/633-7172.

Painting guide. Detailed painting instructions alone, \$6.95 ppd. in U.S. Wisconsin residents add 35¢ tax. From R.J. Beyer Galleries, address above.

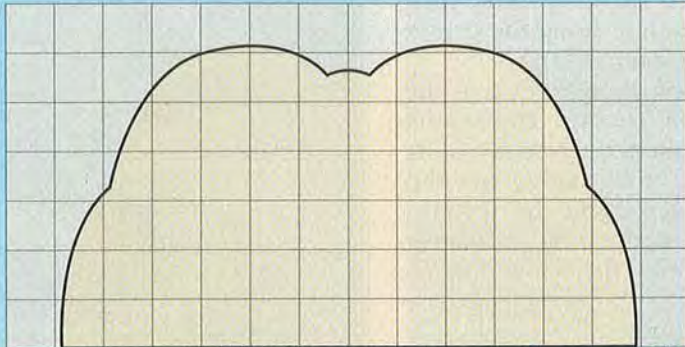
NESTER



HEAD TOP VIEW

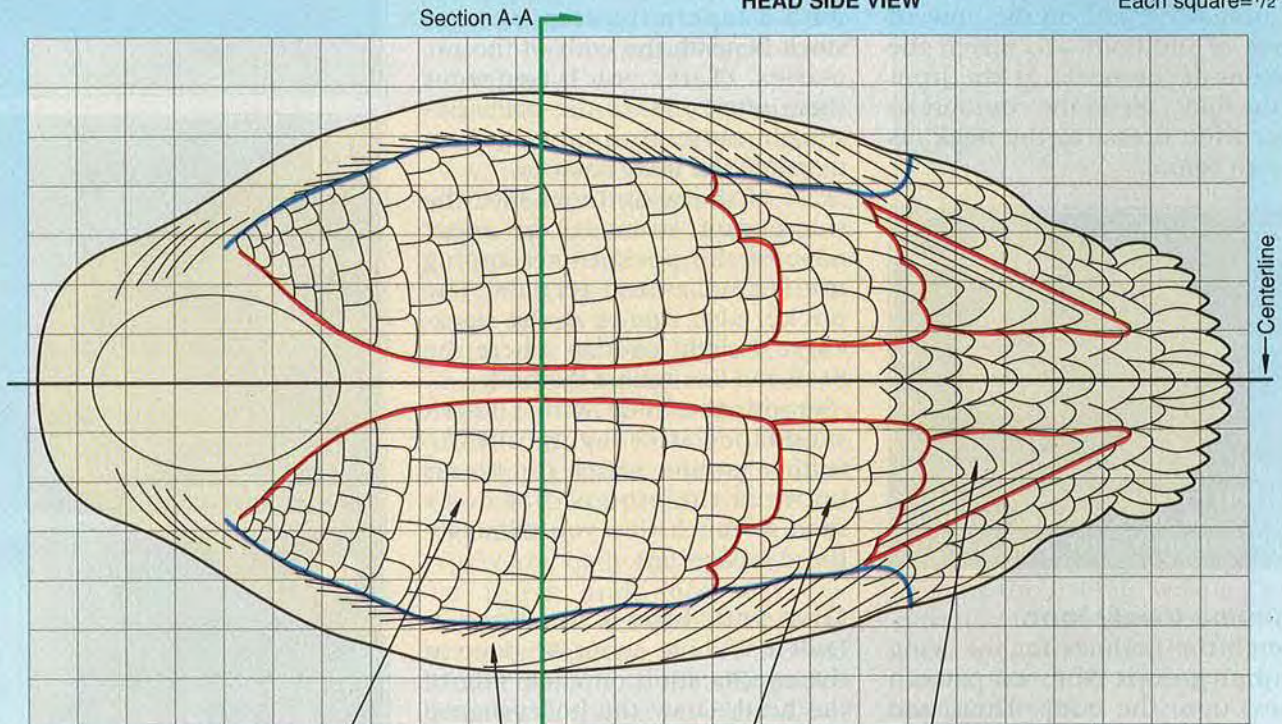


HEAD SIDE VIEW



BODY CROSS SECTION A-A

Each square=1/2"



BODY TOP VIEW

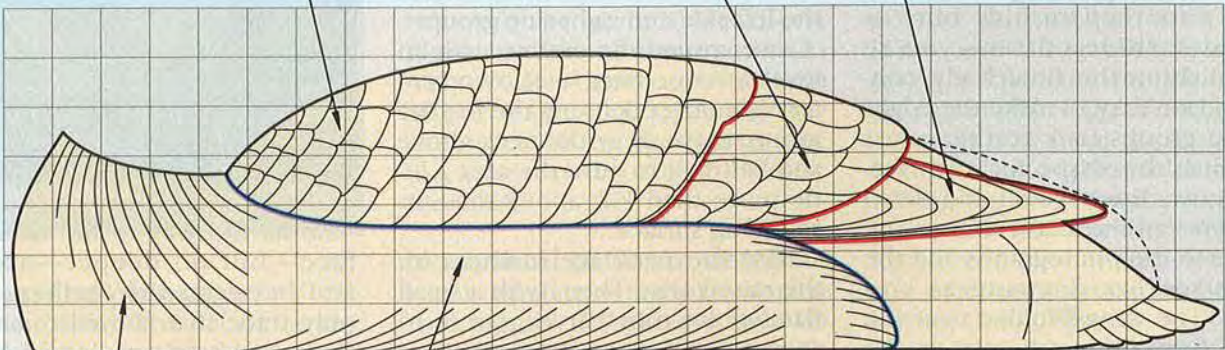
Each square=1/2"

Scapulars

Side pocket

Tertials

Primaries



Neck feathers

Side pocket

BODY SIDE VIEW

HALF-SIZED PATTERNS

NORTH WOODS NESTER

Bevel the top of the body blank by cutting away the wedge between the outer top line and the edge line. Tilt your bandsaw table about 45° to do the job.

In the same fashion, bevel the square corners of the head (but not the beak). Cut to lines about ½" on either side of the centerline and about ½" from the top.

With a rasp or a rotary power-carver fitted with a toothed carbide cutter (Kutzall type), round the sharp corners and smooth the sawed surfaces of the head and body blanks. Shape the beak. Hollow out the back of the neck location—the part on the upward curve of the body—to match the bottom of the neck. At the front of the body, blend the contours to match the breast to the neck, as shown *below*.



A Guidelines show feather groups for carving. When fitting the head, slope the flat top of the head to match the angle at the rear of the body.

Shape a lovely loon

Sketch the outlines for the wing feather groups (the red pattern lines) onto the body. Then, add the blue-outlined side pockets.

Now, carve the feather groups. Take care as you shape the areas with a toothed carbide burr or fluted carbide cutter—you're establishing the final body contours. Don't try to make the edges of the groups look feathery, just establish the shape for each feature now. Later, you'll add detail to represent the feathers.

Refer to the photographs and the cross-section drawing as you work. The wings, folded over the body, form distinct humps on the bird's back. The body itself curves

smoothly from behind the neck up to the high point on the back (which is at the wide point on the body), then down to the tail. Establish that line along the center of the loon's back.

As you carve, remember that the wing groups overlap. The scapulars, the feathers nearest the body at the front of the wing, overlap the next layer back, the tertials. The primaries, the long feathers at the outer end of the wing, emerge from beneath the tertials at the back of the body.

The primaries don't lie flat against the body at the back. So, with a tapered cutter, remove stock beneath the ends of the primaries. (Later you'll undercut them more.) Make the primaries straight rather than curving them to match the body contour.

Part of the wing tucks into the side pocket, so model the upper edge of the pocket overlapping the scapulars and tertials. The pocket also opens at the back. Carve a slight overlap where the back end lies against the body.

Smooth the body with 100-grit sandpaper after laying out the feather groups. Soften the breaks between the groups, but don't sand so much that you eliminate those separations.

Give your loon a necklace

Drill a ⅜" hole about ⅜" deep at the eye location on each side of the head. Draw the bullet-shaped necklace-feather group on each side of the neck. At the back of the neck, leave about ⅜" between the left-side and right-side groups.

Carve around the outline with an inverted-cone burr, as shown *center right*. After defining the feather group, carve away the neck above and below it to raise the area a little more than ½" above the surrounding surface.

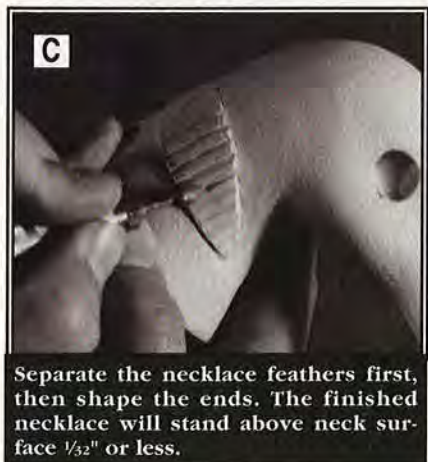
Draw the necklace feathers on the raised area. Then, with a small flame-point ruby carver, cut in to separate and shape the feathers as shown *bottom right*.



FRONT VIEW

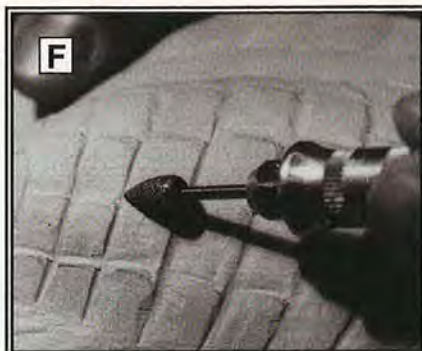
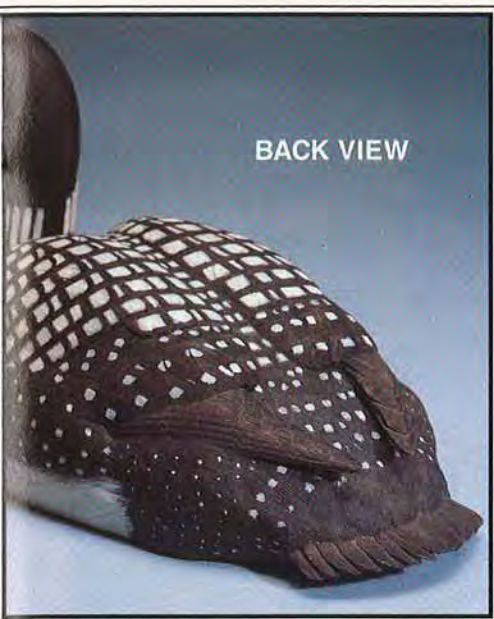


B Raise the necklace-feather area with an inverted cone burr.



C Separate the necklace feathers first, then shape the ends. The finished necklace will stand above neck surface ½" or less.

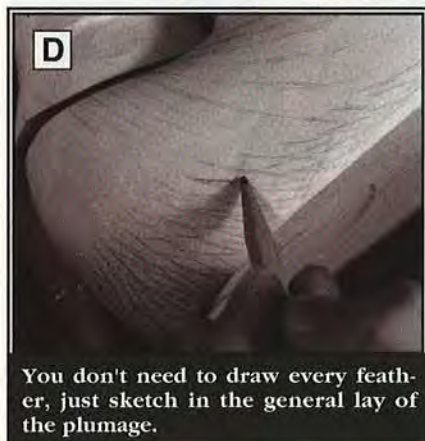
Cut all the way to the neck surface—but no deeper—around and between the feathers. The only trace that should remain of the raised area you carved earlier is the necklace of feathers.



After delineating the feathers, establish the layered look by grinding down the front of each segment slightly with a ruby carver.



Instead of modeling each individual feather on the breast and sidepockets, suggest them by carving soft, flame-like streamers.



You don't need to draw every feather, just sketch in the general lay of the plumage.



Rough in the tail feathers about 1/8" thick. Finished feathers display a convex upper surface, a flat or slightly concave bottom.

Put on the plumage

Starting from the front of the body, pencil in the feathers, as shown *center above*. Refer to the

photographs and patterns. (You may want to gather some additional book or magazine photos of loons, too.)

Sketch in the neck feathers where shown, curving them downward and back on each side of the body. Breast feathers flow down the front. You can resolve a lot of feathering questions by imagining the loon facing directly into a strong wind.

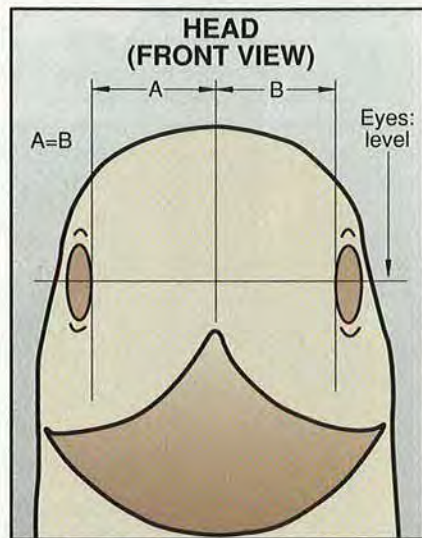
With the inverted-cone cutter, shape the tail feathers as shown *below left*. Note that the feathers slant from the left edge down to the right edge on the left side of the tail, the opposite way on the right side.

Carve the body feathers with fluted burrs and ruby carvers. Separate the feathers within the wing groups as shown *above*. Model the tips of the side-pocket feathers as shown *top right*. Don't carve too deeply—you're representing feathers, not shingles.

Refer to the patterns and photos to carve the primary feathers. Then, undercut the primaries with a knife. Undercut to a depth of 1 3/8" at the outside, all the way to the tertials on the inside. The thickness at the tip should be about 1/8".

Now, tend to some details

Mix a small amount of two-part epoxy putty. Fill the eye hole on one side with putty, then press in a 10 mm red glass eye. Install the



other eye, and check them for symmetry as shown *above*.

Sculpt the eyelids with a knife, referring to the photographs. Cut the elongated nostrils into the upper mandible with a knife or small rotary bit.

Attach the head to the body with woodworker's glue and a dowel. After the glue dries, grind a V-groove around the neck-body joint, and fill it with two-part epoxy putty. Sand the joint, then sand the entire loon as necessary.

You can now paint the basic loon in a black-and-white scheme, following the photographs. Or, for a more detailed carving, refer to Rick's comprehensive detailing and painting instructions (see the *Buying Guide*). 🌿

Photographs: John Hetherington; Harvey Nyien
Illustrations: Kim Downing



SUNNY-DAY



Hey parents and grandparents, are you looking for the perfect way to keep your kids off the streets and out of trouble? We've got the perfect solution. Our sandbox/toy storage center will keep your kids, and probably many of your neighbors' kids, happily occupied for many fun-filled hours all in the safety of your backyard. And as you can see by looking at the drawings here, this kid-pleasing project is a breeze to build. We completed ours (not including the painting) in just a day. You can, too!



Print this article

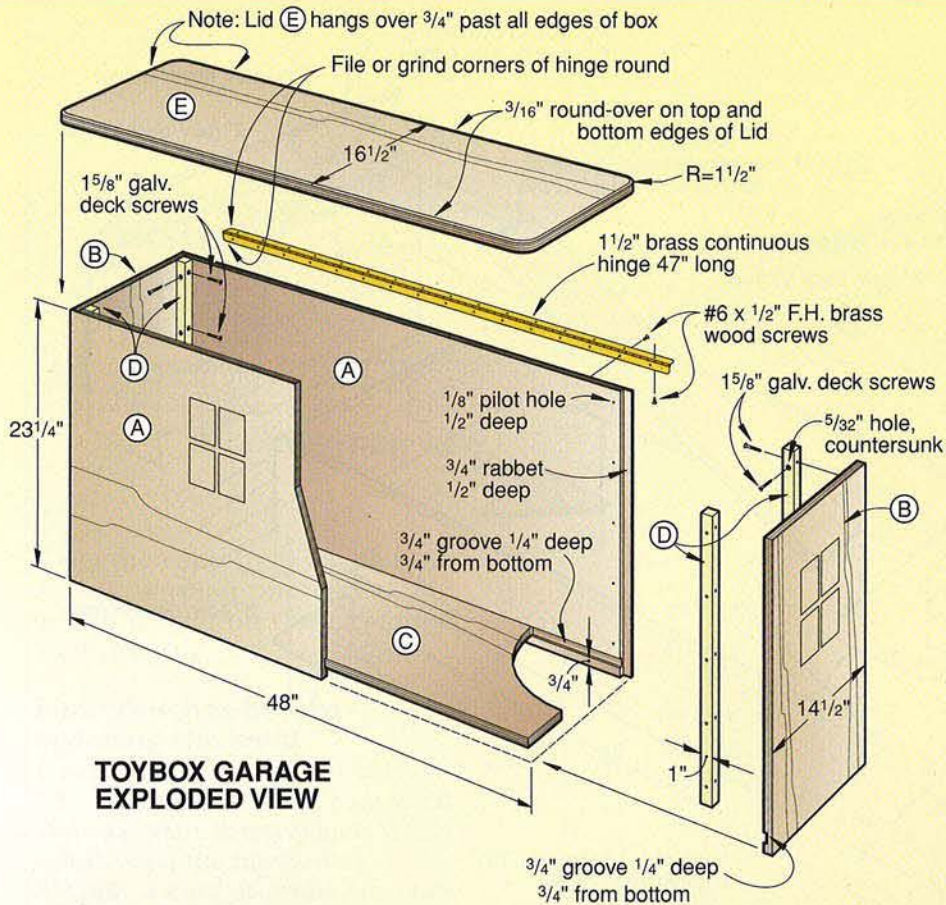
Start with the toybox garage

1 From $\frac{3}{4}$ " exterior plywood, cut the front and back (A), ends (B) and bottom (C) to the sizes listed in the Bill of Materials.

2 Cut a $\frac{3}{4}$ " groove $\frac{1}{4}$ " deep $\frac{3}{4}$ " from the bottom edge of the front, back, and end plywood panels (A, B). Cut a $\frac{3}{4}$ " rabbet $\frac{1}{2}$ " deep across both ends of the front and back panels.

Continued on page 54

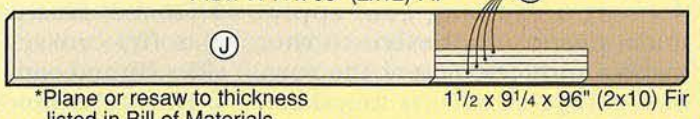
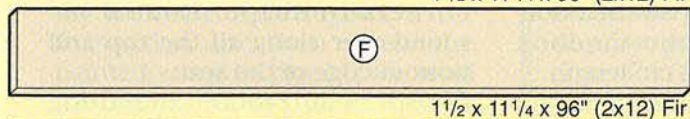
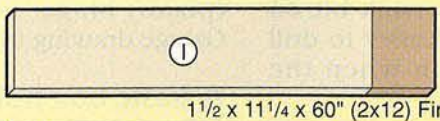
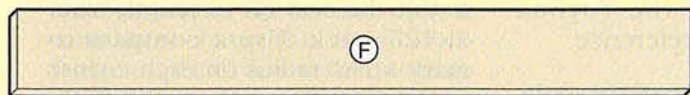
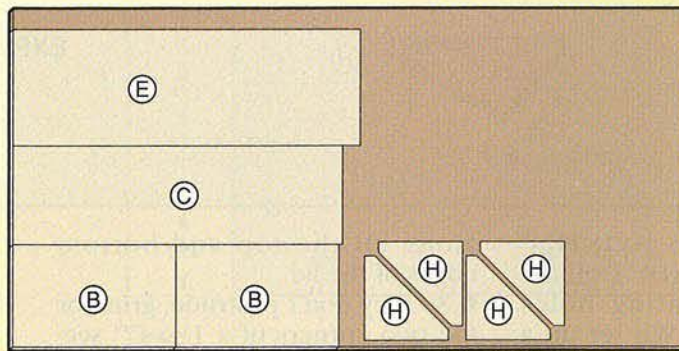
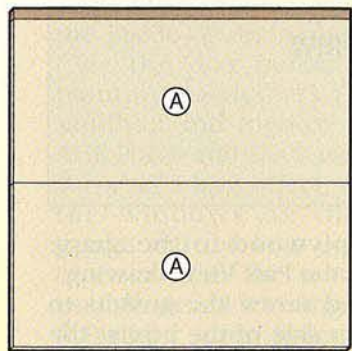
SANDBOX



Bill of Materials						
Part	Finished Size			Mater.	Qty.	
	T	W	L			
TOYBOX GARAGE						
A	front & back	3/4"	23 1/4"	48"	XP	2
B	ends	3/4"	14 1/2"	23 1/4"	XP	2
C	bottom	3/4"	14"	47"	XP	1
D	cleats	3/4"	1"	21 3/4"	C	4
E	lid	3/4"	16 1/2"	49 1/2"	XP	1
SANDBOX						
F	sides	1 1/2"	11 1/4"	96"	C	2
G	ends	1 1/2"	11 1/4"	45"	C	2
H	gussets	3/4"	12"	12"	XP	4
I	seat	1 1/2"	11 1/4"	51"	C	1
J	ramp	1 1/2"	9 1/4"	60"	C	1

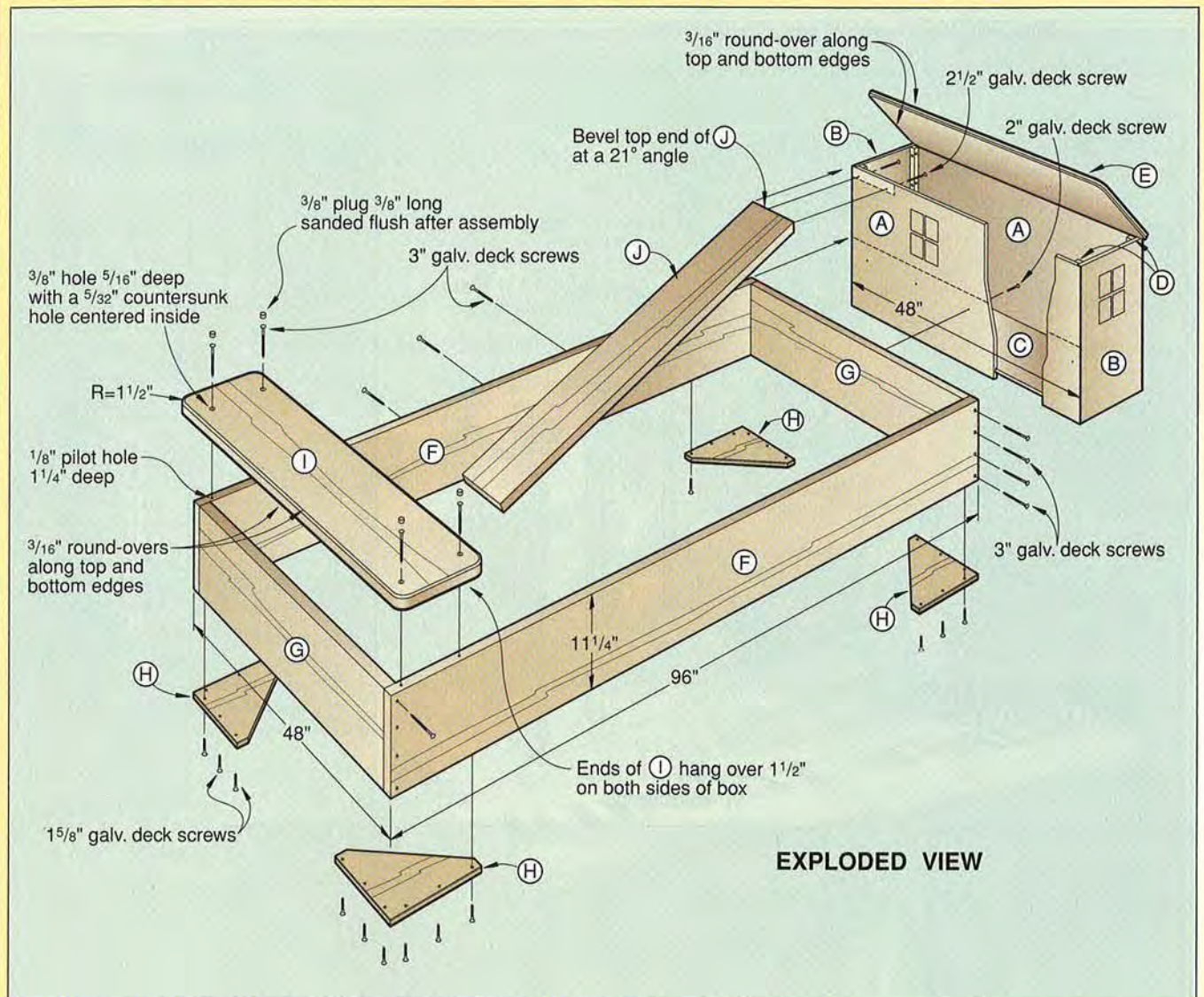
Materials Key: XP—exterior plywood
C—choice (fir, spruce, pine, redwood)

Supplies: 1 5/8", 2", 2 1/2", and 3" galvanized deck screws, multi-purpose adhesive, 1 1/2 x 47" brass continuous (piano) hinge, #6 x 1/2" flathead brass wood screws, enamel paints.



CUTTING DIAGRAM

SUNNY-DAY SANDBOX



EXPLODED VIEW

3 Cut four pieces to $\frac{3}{4} \times 1 \times 21\frac{3}{4}$ " for the corner cleats (D). Drill the countersunk mounting holes through the cleats. (We set up a fence and drilled the holes with a combination countersink bit on our drill press.) It's easier to drill the holes now than when the cleats are glued in place.

4 Using a caulking gun, apply multi-purpose adhesive to the mating surfaces. Screw the toy-box garage (A,B,C,D) together, checking for square.

5 Cut the lid (E) to size from $\frac{3}{4}$ " exterior plywood. Mark and cut a $1\frac{1}{2}$ " radius on each corner of the lid. Now, rout a $\frac{3}{16}$ " round-over

along all the top and bottom edges of the lid.

6 So they don't protrude, grind or file two corners of a $1\frac{1}{2} \times 47$ " section of the brass continuous (piano) hinge. See the Toybox Garage drawing for reference.

A basic box holds the sand

1 From 2x12 stock (we used douglas fir) crosscut the sandbox sides (F) and ends (G) to length.

2 Drill pilot holes, and glue and screw the sandbox pieces (F, G) together, checking for square.

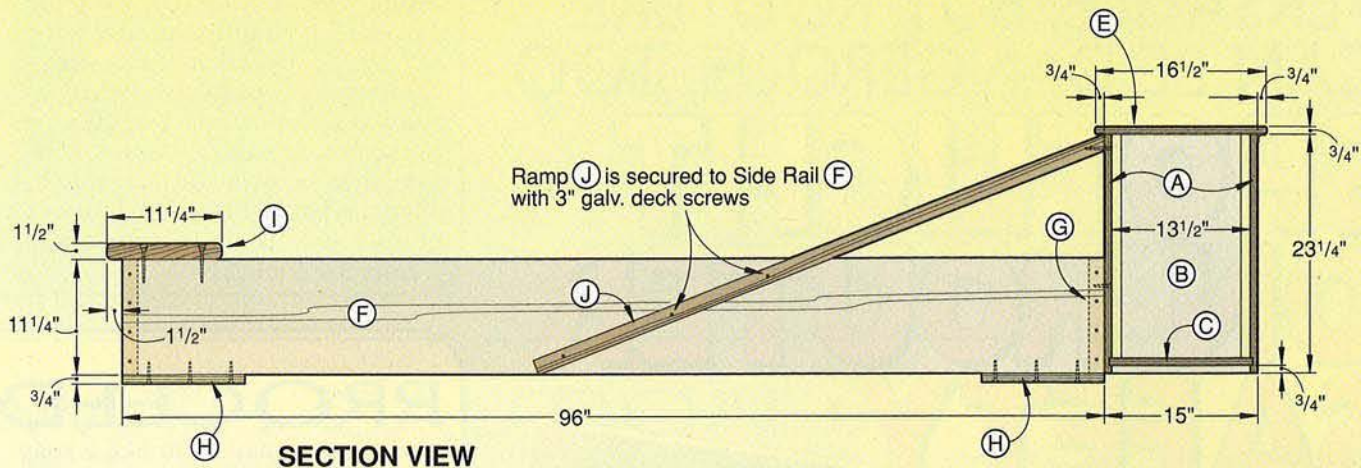
3 To form the gussets (H) to reinforce the corners of the 2x12 box, cut four pieces of $\frac{3}{4}$ "-thick

exterior plywood to the shape shown on the Part View drawing.

4 Glue and screw the gussets to the bottom side of the box at the four corners.

5 Cut the seat (I) to length from 2x12" stock. Use a compass to mark a $1\frac{1}{2}$ " radius on each corner of the seat. Cut and sand the seat corners to shape. Rout a $\frac{3}{16}$ " round-over along all the top and bottom edge of the seat.

6 Drill counterbored mounting holes to the sizes listed on the Exploded View drawing. Position, then glue and screw the seat to the box. Cut plugs, plug the seat holes, and sand the plugs flush.



7 Cut the ramp (J) to length from a 2x10, cutting one end at 21° where shown on the Exploded View drawing.

Final touches before ordering the sand

1 Sand the sandbox and toybox. Fill any imperfections (we used Minwax High Performance Wood Filler). Sand the filled areas.

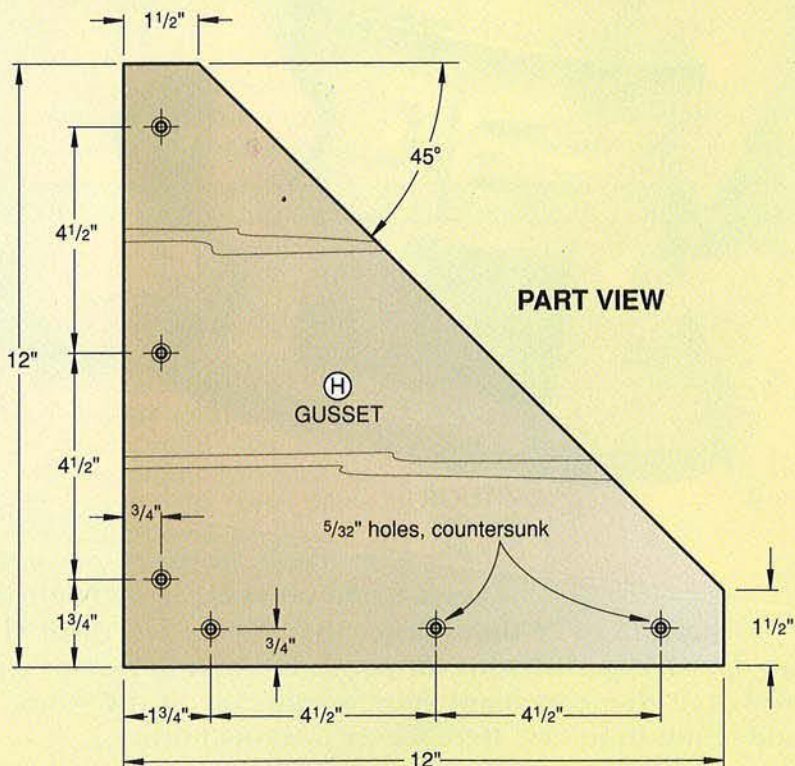
2 Apply a coat of primer to both assemblies (don't forget to paint the inside of the toybox garage). (See the box *below right* for painting particulars.) Paint the sandbox and toybox. (We used ACE Porch and Deck enamel).

3 For an added effect, detail-paint the windows on the toybox garage and the logo on the sandbox seat. For the seat logo, we used 5" stencil lettering.

4 Drill the screw holes and screw the toybox garage to the sandbox.

5 Position the lid on the toybox, and then clamp the continuous hinge in place. Screw the hinge to the bottom side of the lid and to the back side of the toybox.

6 Position and then screw the painted ramp in place. (We used galvanized screws to fasten the ramp to the garage front and to the side of the sandbox.)



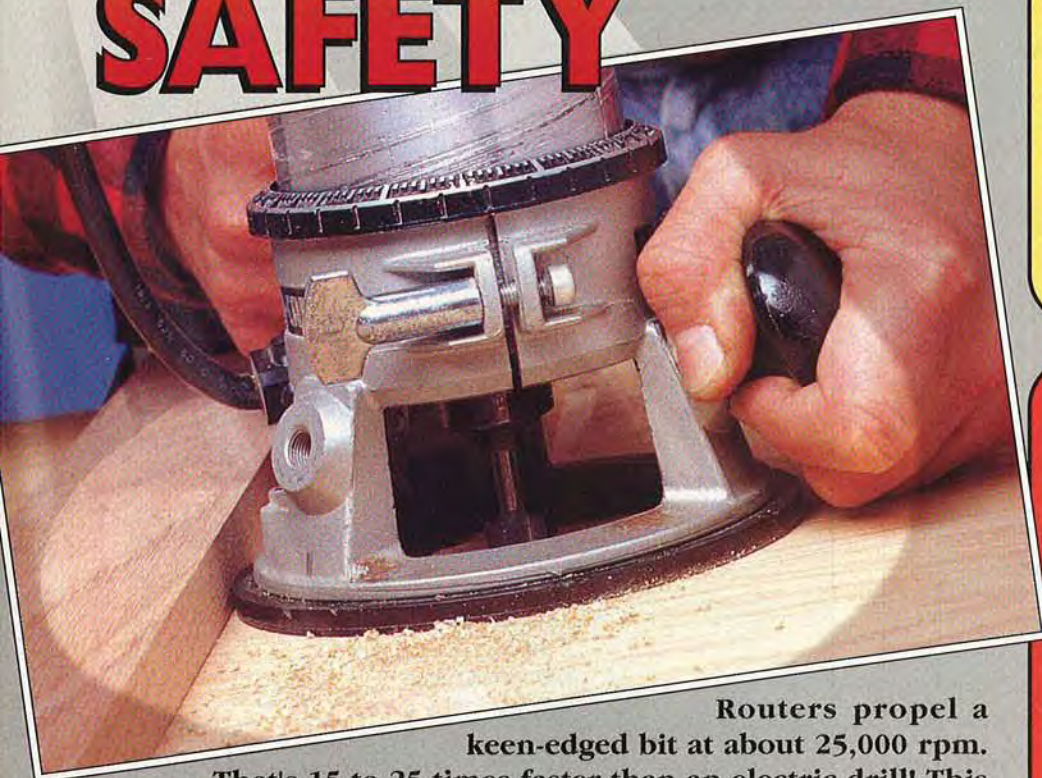
How we painted our sandbox

We first primed the toybox garage and sandbox pieces with one coat of an oil-based primer. We then applied two coats of an industrial oil-based enamel, letting each coat dry at least 24 hours. For the lettering and windows, we used an enamel paint. To paint the windows, we masked the outlines with masking tape, and removed the tape within an hour after painting. Left on too long, the tape will leave a sticky residue that's hard to remove. 🐜

Project Design: James R. Downing
 Illustrations: Kim Downing
 Photograph: Wm. Hopkins Photography

THEY'RE QUICK, EASY, AND VERSATILE, BUT ROUTERS CAN BE DANGEROUS, TOO.

SPOTLIGHT ON ROUTER SAFETY



Routers propel a keen-edged bit at about 25,000 rpm. That's 15 to 25 times faster than an electric drill! This high speed, coupled with torque, can result in loss of control that at the least mars your workpiece. At the worst, it could result in injury. Here's how to avoid both.

National statistics compiled by the U. S. Consumer Products Safety Commission point to routers as the cause of accidents for 2,500 emergency-room users in a recent year. Nearly two percent of these required hospitalization. Of course, those statistics scarcely stack up to yearly accidents attributed to the table-saw—nearly 30,000. Yet, surgeons who face workshop injuries in operating rooms agree

that routers generally inflict more difficult-to-repair wounds.

To help you get full enjoyment from your woodworking—and peace of mind while using your router—here's sound advice assembled from the safety professionals at the Power Tool Institute, a national trade association for tool manufacturers. We have also drawn from our own workshop experience here at *WOOD*® magazine.

SAFETY

Inside your shop, what you wear can directly contribute to your safety. So by all means, dress comfortably, but follow the rules.

- Always don safety goggles or prescription safety glasses with side shields, or a full-face shield. (Even with protection, always keep your face and eyes away from a spinning bit.)

PROCEED

Your router may seem like a snap to operate, but looks can be deceiving. So before you begin cutting, become familiar with the parts of your router as diagrammed in the owner's manual, then follow these precautions:

- Be sure that your router is unplugged—not just turned

BEWARE:

There isn't a power tool that compares with a router's usefulness when it's used properly. However, there are few tools that can surprise you more. So, like a scout, be prepared.

- Secure all clamping devices on your workpiece—as well as those that hold your workpiece—before doing any freehand routing. Likewise, secure all fences and jigs before routing on a router table.

- If you use your router mounted in a router table, make sure the tool is tightly fastened in place, with guards in position and a pushstick and/or pushblock close at hand.

- Always check to make certain that the router's clockwise rotation is cutting with the grain of the wood, or like a car that suddenly gains traction in the mud, it can leap. This will help you remember: In freehand routing, when you hold the router before you on the stock (you, the

CAN BE FASHIONABLE

•Wear hearing protection, even for short periods of router use. A router's screech can permanently damage your hearing. OSHA noise level charts indicate that a 105-dBA level (a special decibel measurement for noise) results in some hearing loss after even only one hour's exposure. Routers typically produce from 105-110 dBA.

And they really wail when a bit starts to dull!

The type of protection you choose must therefore have a high enough noise-reduction rating (NRR) to lower the router's ruckus to a safer plateau. So you'll need hearing protection with at least a 20 NRR to reduce the sound to an acceptable 90 dBA.

(Hearing protection, from plugs to muffs, carry their NRR printed on the packaging.)

•Never wear gloves, loose clothing, jewelry, or dangling objects (even hair) that may catch in rotating parts or accessories.

Now that you know how to dress for safety, here's how to get started with your router.

WITH CAUTION

off—when you change bits or set the depth of cut. And clear your worktable or router table of all tools and debris.

•Follow the tool manufacturer's recommended procedures for setting your router's depth of cut, and be sure to tighten all adjustment locks.

•Use the wrenches provided with your router to install router bits, and carefully read the owner's manual regarding the method.

•Be sure that the cutter shaft is properly engaged in the collet. Usually, that means bottoming out the bit in the collet, then raising it $\frac{1}{16}$ ". An improperly installed bit

can come out and be propelled at great speed in any direction.

•Flick the switch to the "off" position before you plug the router into the electrical outlet and when you disconnect it.

With these points under your belt, you're almost ready to rout. But there are still tips to follow.

ROUTER IN USE

router, the stock), it should always move from *left to right*. On a router table, because the tool is inverted and the stock is directly in your hands (you, the stock, the router), you move the stock from *right to left*. Paint a feed-direction arrow on your router table as a direction reminder.

•Keep your hands away from the cutter area when you plug the router in and turn it on.

•Because of the torque a router produces, keep a firm grasp with both hands *only* on the handles and gripping surfaces provided by the manufacturer.

•On some types of cuts, table-mounted routers can pull your fingers into the bit. The drawings, *right* show you two safe setups that avoid this possibility.

•If possible, always turn the cutter opening on the router away from your body while routing. If your router has a chip shield over the opening, see that it is properly and securely installed.

•Never use a dull bit. It adds to the router's work load, and if pushed, it may break and fly off.

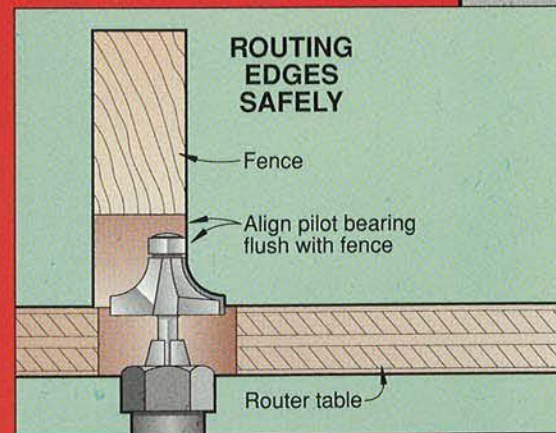
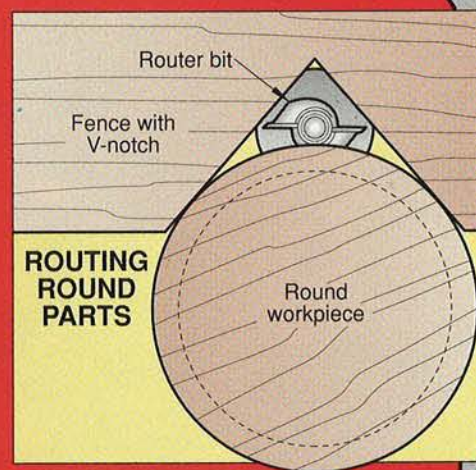
•With a carbide cutter bit, start the router beneath the workbench or workpiece to protect yourself from a flying cutter piece should the carbide be cracked.

•For greatest control, allow the router to reach full speed before feeding it into the wood. Never begin routing with the bit in place against the wood, and never force a router into the wood when you're making a shaping cut.

•Never attempt to remove debris from a spinning bit router with your fingers.

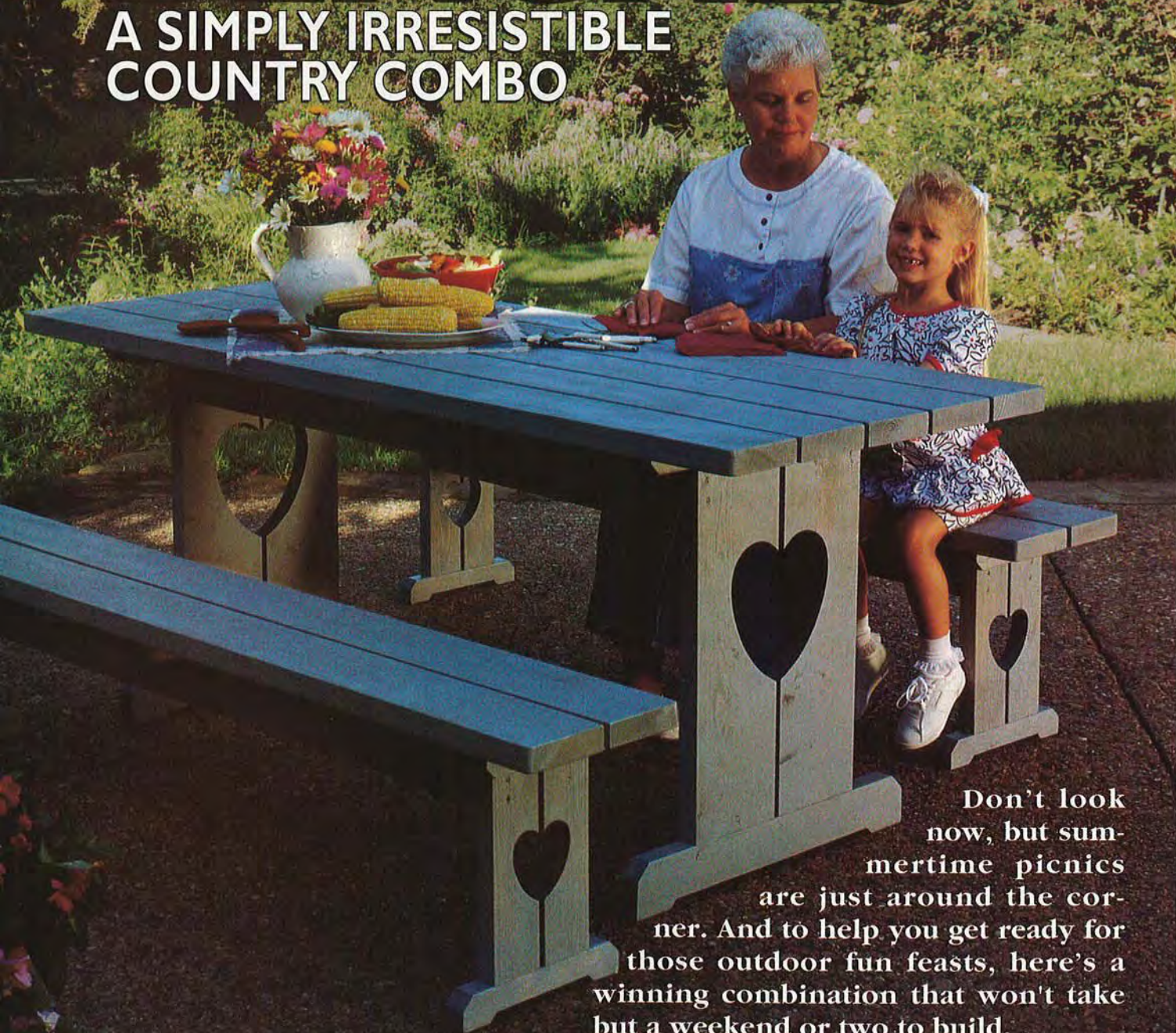
•Keep the base of the router and its whirling cutter bit away from you when removing it from the workpiece. Let it come to a full stop before setting it down, and then always lay the router on its side clear of any clutter.

•Let the bit and collet cool down after routing and before making any changes. ♣



PICNIC-PERFECT TABLE AND BENCHES

A SIMPLY IRRESISTIBLE
COUNTRY COMBO



Don't look now, but summertime picnics are just around the corner. And to help you get ready for those outdoor fun feasts, here's a winning combination that won't take but a weekend or two to build.

Note: For our picnic table and benches, we hand-picked fir 2× stock. Pine, spruce, or redwood also will work well. For joints that will stand up to the extremes of Mother Nature, use Titebond II water-resistant glue, slow-set epoxy, or resorcinol glue.

Begin with the table end panels

- 1 From 2×8 stock, cut the end uprights (A) to length.
- 2 Transfer the larger full-sized heart half-pattern onto a piece of

heavy paper or poster board. Cut the full-sized template to shape.

- 3 Position the template, and trace the heart outline on all four uprights (A) 10⁷/₈" from the bottom edge of each where located on the Table End Section View drawing. Cutting just inside the marked outlines, cut the half patterns to shape on a bandsaw or jigsaw. Then, drum-sand to the line to remove saw marks.

- 4 Cut the feet (B) and top rails (C) to the lengths listed in the Bill of Materials from 2×4 stock.

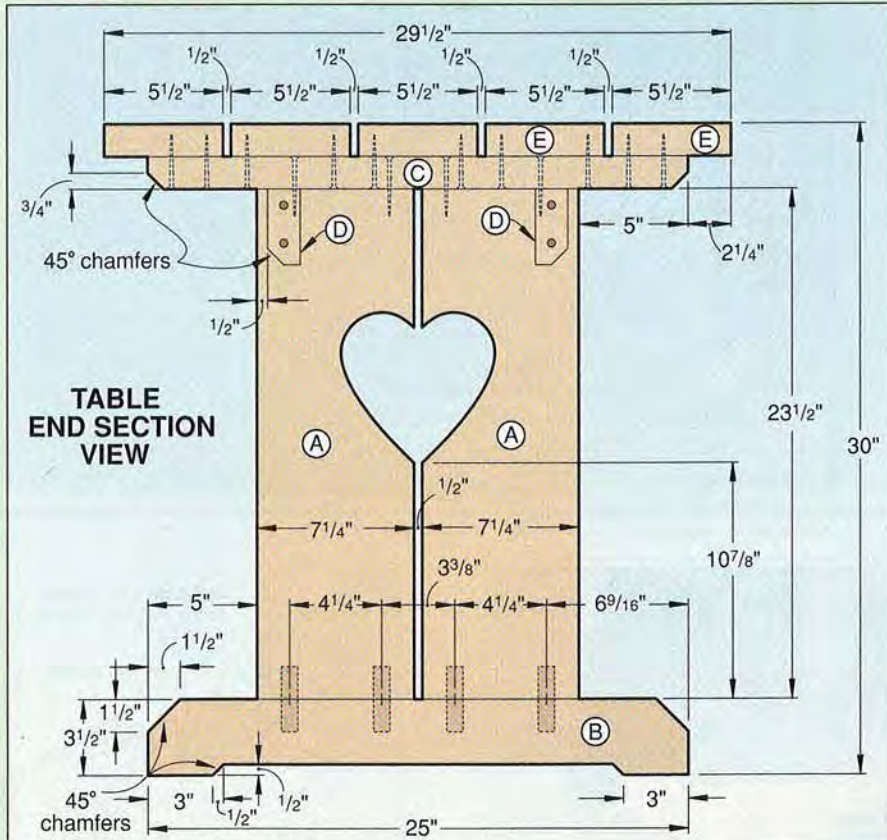
- 5 Mark the cutlines and cut the ends and bottom of the feet to shape. Chamfer the ends of the top rails where shown.

- 6 Clamp each matching pair of uprights (A) together, heart edge to edge, with the top and bottom edges flush and a couple of 1/2" spacers between the parts. Using the dimensions on the Table End Section View drawing, mark the dowel-hole centerlines on the bottom ends of the uprights. Using a square, transfer the dowel-hole centerlines to the mating top edges of the feet. Drill the mating holes in the top edges of the feet (we used a spade bit).

- 7 Crosscut eight 3" lengths of 3/4" dowel stock. For ease of insertion, sand a chamfer on both ends of each dowel.

- 8 Glue, dowel, and clamp each pair of uprights (A) to the feet (B).

- 9 Clamp the top rails to the top end of the uprights. Drill the mounting holes, and screw the rails to the uprights. Set the middle top rail (C) aside for now; you'll add it later.



Add the stretchers and tabletop pieces

- 1 Cut the stretchers (D) to length from 2×4 stock and the tabletop pieces (E) from 2×6 stock.

- 2 Bevel-rip a 45° chamfer along one edge of each stretcher where shown on the drawing at left.

- 3 Rout or sand 1/8" round-overs along all edges and ends of the tabletop pieces.

Continued

Bill of Materials

Part	Finished Size			Mati.	Qty.
	T	W	L		
TABLE					
A uprights	1 1/2"	7 1/4"	23 1/2"	2x8	4
B feet	1 1/2"	3 1/2"	25"	2x4	2
C top rails	1 1/2"	3 1/2"	25"	2x4	3
D stretchers	1 1/2"	3 1/2"	51"	2x4	2
E tabletop	1 1/2"	5 1/2"	72"	2x6	5

Materials Key: choice of fir, pine, spruce, or redwood

Supplies: 3/4" dowel stock, 2 1/2" deck screws, 3" deck screws, 3 3/4" deck screws

BUYING GUIDE

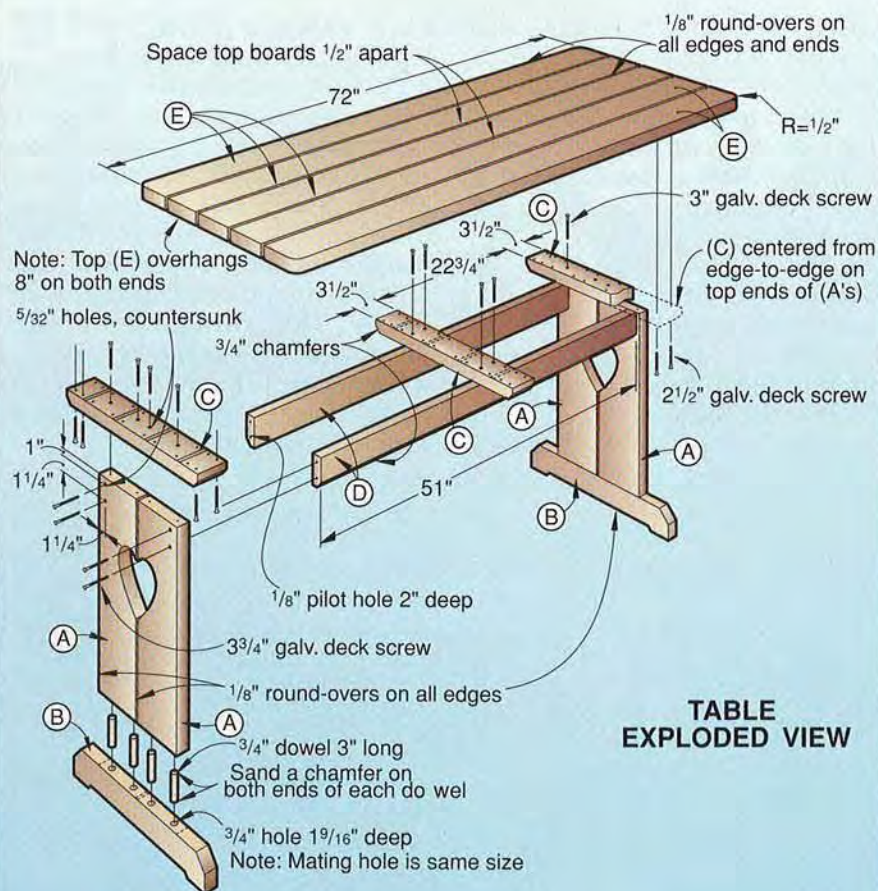
Bench, chair, and table plans. For a 17×22" plan of the three accompanying pieces, send \$9.95 to Comfy Country Trio WOOD PLANS, P.O. Box 9255, Dept. WD-23, Des Moines, IA 50306 (shipping and handling, plus state and local taxes if applicable included).



4 Clamp the stretchers between the end panels where shown on the Table End Section View and Table Exploded View drawings. Drill mounting holes and screw the stretchers in place to complete the base assembly.

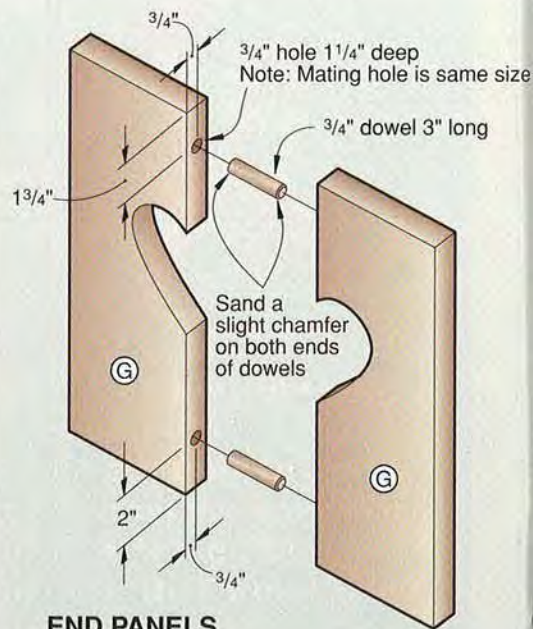
5 Position the tabletop pieces *good face down* on sawhorses or on your workbench. Using $\frac{1}{2}$ " spacers between the 2x6s, clamp the tabletop pieces together with the ends being flush. Position the base assembly, also upside down, centered from side-to-side and end-to-end on the tabletop pieces. Now, clamp the top rails (C) to the tabletop pieces. Drill mounting holes and screw the two assemblies together. Clamp the remaining top rail (C) centered on the bottom of the tabletop pieces. Drill the pilot holes and screw it in place. Position the table upright on the floor.

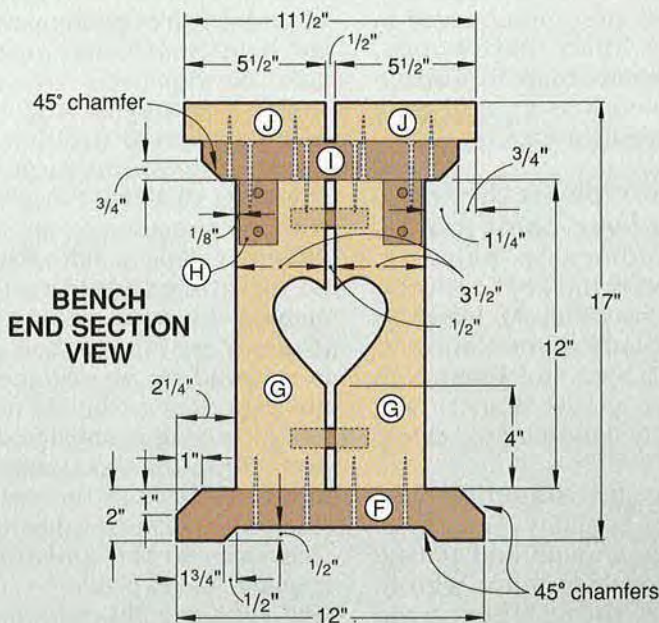
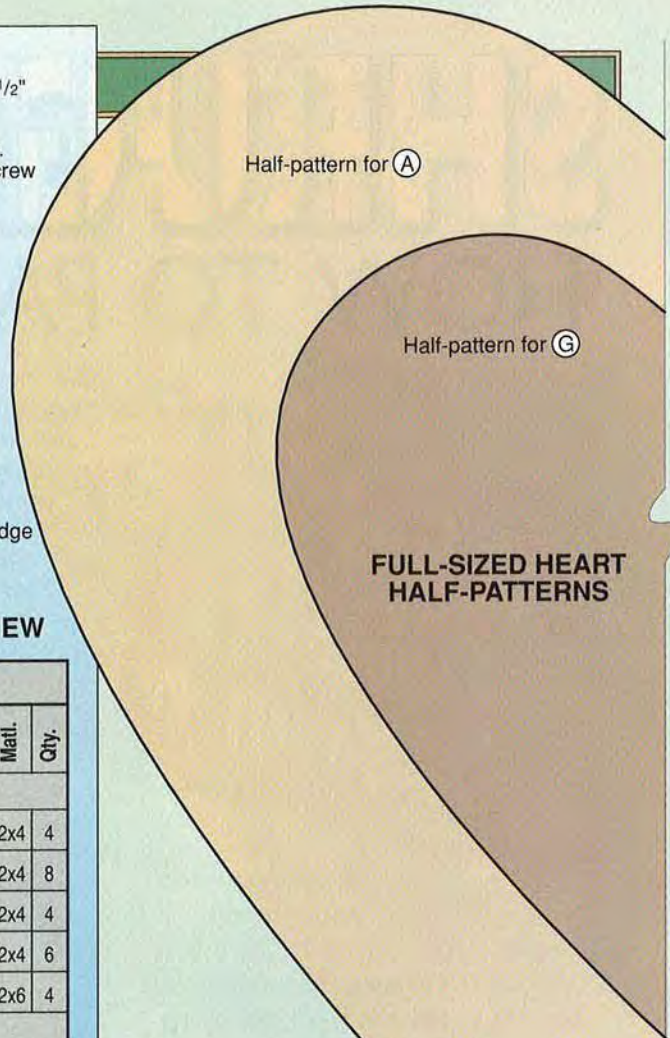
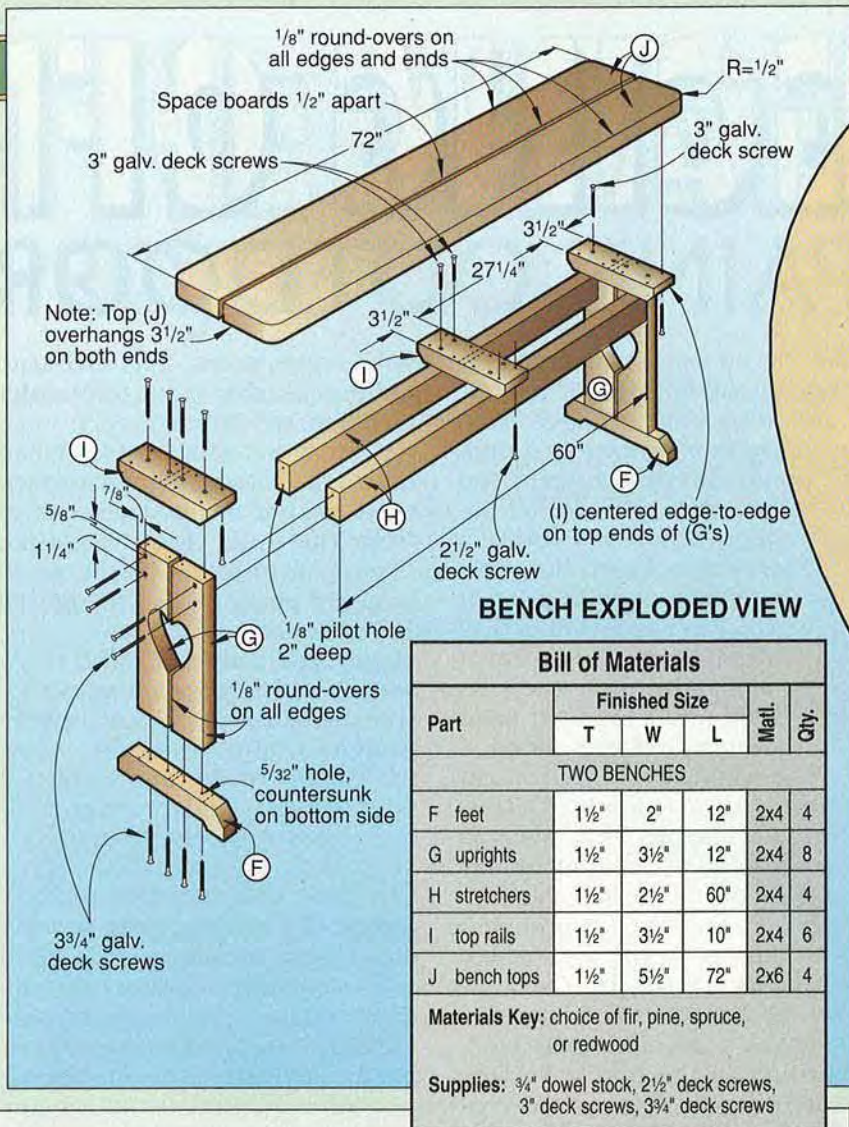
6 Mark and then cut a $\frac{1}{2}$ " radius on each of the four corners of the tabletop. Sand each corner smooth to remove the saw marks. Rout $\frac{1}{8}$ " round-overs on the four radiused corners.



The built-to-last benches come next

To make the benches, use the same construction process used to build the picnic table. See the Benches Bill of Materials for sizes. Note that the narrower feet (F) on the benches allowed us to go with screws instead of dowels to secure the feet to the bottom end of the uprights (G). See the photo *at right* for reference. Also, parts F and H are ripped to width from 2x4 stock. Finally, use the small heart pattern on the *opposite page* for the bench uprights (G).





Finish the projects

1 Sand the table and benches smooth (we used a palm sander with 100- and 150-grit sandpaper). Be sure to sand off any visible grade stamps marked on the boards.

2 Apply a finish. If you decide to paint your pieces, either an oil-based enamel or water-based latex will protect them. Regardless of your paint selection, be sure to apply a prime coat compatible with the top coat. Also, be sure to apply several coats to the porous end grain. For a more natural look, apply an exterior stain and several coats of spar varnish or other exterior sealer compatible with the stain. Be sure to choose an exterior finish with an ultra-violet inhibitor. ☀

Produced by Marlen Kemmet
Photographs: John Hetherington
Illustrations: Kim Downing; Roxanne LeMoine

SHRUGGING OFF

HOW TO PAINT OUTDOOR

What woodworkers need to know

You may not think of your yard as a harsh environment. But for wooden things, it sure can be. Try these tips to help protect your outdoor projects with paint.

A durable paint job starts with lumber selection

How well your paint job lasts depends in part on the first decision you make when you start a project—which wood to use. Some woods just hold paint better than others, according to data from the Forest Products Laboratory, operated by the U.S. Department of Agriculture Forest Service in Madison, Wisconsin. The table on the *opposite page* ranks some common softwoods and hardwoods for their paint-holding ability, with group I being the best.

Softwoods with narrow bands of summerwood (the dark portion of the grain, also known as “late-wood”) and fine-grained hardwoods (those with small pores) generally hold paint better. So do superior lumber grades—stock without pitch streaks and pitch

pockets and with fewer knots.

Knots may fall out, of course, and large ones usually crack.

Being mostly exposed end-grain, they absorb paint and create dull spots in the finish, the Forest Products Laboratory points out. And, pitch can discolor paint. If you can't avoid knots, seal them with shellac or a sealer-bonder such as XIM (available from paint dealers) before painting.

The wood's moisture content affects paint longevity, too. Painting wood that has over 20 percent moisture content usually results in blistering and peeling. Generally, seasoned wood that has acclimated to the area where it will be used holds paint best.

How the log was sawn into lumber makes a difference, as well, according to the Forest Service researchers. Quartersawn material holds paint best—though the advantage is more pronounced in softwoods than hardwoods. (Lumber dealers refer to quartersawn softwoods as vertical-grain or edge-grain boards).

Preparation paves the way for a long-lived paint job

When it comes to painting, “preparation is the key to success any time,” says Rick Middleswart of Yount-Glade Paint Center, a Benjamin Moore and Pittsburgh Paint dealer in Des Moines. “But it's especially important for exterior painting.”

Wood stretches and shrinks due to changing humidity. Paint must stick tightly enough and remain flexible enough to move with it. Outdoors, things get even tougher. Out there, the paint has to fend off nature's relentless assault—extreme heat and cold,

wind, rain, snow, ice, airborne pollutants, damaging ultraviolet radiation, and more.

“Paint won't stick very well to the hard, glossy, planed surface most lumber has when it comes from the mill,” Rick explains. “You have to rough up the wood to give it some tooth.” Sanding to 100-grit or so will do that.

Applying a paintable water repellent or water-repellant preservative to the bare wood before painting extends paint life. Allow the coating to dry thoroughly—it might take two days or more—before proceeding.

Oil-base primer: the best agent for undercover work

Rick always recommends an alkyd (oil-base) exterior primer for outdoor work on previously unpainted wood. Applied over properly prepared wood, the undercoat provides a sound base for any kind of topcoat. “Don't try to get by with leftover interior wall paint for primer—it isn't up to the task,” he warns.

Apply one smooth, uniform coat of primer onto the dry wood. Cover all exposed surfaces and any parts that will be in contact with the ground.

Whether to paint sides that won't be directly exposed to the elements—the underside of a tabletop, for instance—has always been good for an argument. “In my experience, there's no problem in leaving it unpainted,” Rick says. “True, the wood may absorb moisture through the unpainted side, but it also breathes through that side, so the moisture isn't trapped,” he explains.

Bill Feist, the PhD who heads up exterior paint research at the Forest Products Lab, concurs. He suggests nothing more than a



THE WEATHER PROJECTS

primer coat on unexposed surfaces. "You can prime everything, but don't topcoat those backs and undersides," he counsels.

"If you seal up all of the wood surface with coats of paint, it can't breathe. Then, moisture in the wood will blister and peel the paint," Bill says. If you think your paint job will keep moisture out of the wood, think again. "Moisture *will* get in, no matter how hard you try to keep it out," Bill comments.

Two topcoats provide top-notch protection

Cover the alkyd primer with two topcoats, either latex or oil base. If you want a glossy finish, Rick suggests an oil-base enamel. "Its harder film holds a shine longer outdoors," he maintains. Otherwise, use whatever type of paint you prefer. Bill likes latex topcoats; he says they remain flexible longer.

Brushing usually gives better results than roller, spray, or pad-application, especially for the first coat, studies by the Forest Products Lab indicate. Apply a smooth, even coat, flowing the paint onto the surface rather than scrubbing it into the wood.

And, don't lay on extra-heavy coats, expecting better protection. Thick coats will probably crack, resulting in less protection for your handiwork. Ideally, the dried coating—primer and both topcoats—will be about as thick as a sheet of newspaper.

Expect a gallon of paint to cover about 400 square feet, although that can vary. Heed the paint manufacturer's recommendation for drying time between coats, then put on the final coat. ♣

Illustration: Brian Jensen

ELEMENTS OF A LONG-LASTING EXTERIOR PAINT JOB

START WITH DRY, SOUND STOCK (CHOOSE SPECIES BASED ON PAINT RETENTION RANKINGS)

BRUSHED-ON ALKYD EXTERIOR PRIMER

FIRST TOPCOAT

FINAL COAT

QUARTERSAWN STOCK

SMALL, TIGHT KNOT SEALED BEFORE PAINTING

SURFACE SANDED TO BREAK MILL GLOSS

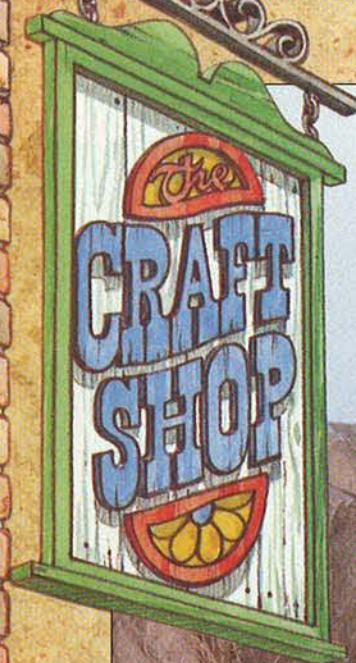
How wood species rank for paint retention

Here's how some popular woods stack up for paint retention, starting with the best.

- I: Cedar, cypress, and redwood.
- II: Eastern white pine, western white pine.
- III: Ponderosa pine, spruce, western hemlock, and white fir (softwoods); aspen, basswood, cottonwood, and yellow poplar (hardwoods).
- IV: Douglas fir, southern yellow pine (softwoods); birch, gum, Lauan plywood, maple (hardwoods).
- V: Ash, elm, oak, and walnut.

A FISH OUT

Daffy, but definitely fun



You'll have a hard time keeping a straight face while you cut out, glue together, and paint this odd cod. Making up stories about it for your friends should be good for a few chuckles, too.

Enlarge the body, leg, toe, and base patterns on the *opposite page* at 200 percent. Trace the patterns, including two long toes and two short toes, onto your stock. (We used standard 1×6 and 1×12 pine for our fish—you could use any ¾"-thick stock, including hardwoods.) Lay out the circles for the eyes on ½"-thick material, such as Baltic birch plywood.

Bandsaw or scrollsaw the parts. A ¼" bandsaw blade will do the job. For scrollsawing the pieces, fit a reverse-tooth blade to the machine for a cut that's splinter-free on both sides.

Mark the angle where shown on the straight end of the toes, and cut or sand to the line. Round over the edges of all parts with a rasp or coarse sandpaper, then finish-sand all parts.

Mark the location for the leg on each side of the body so you can leave unpainted spots to glue the legs to. Mark corresponding areas on the legs.

Glue the toes to the legs where shown. Then, prime all parts, leaving unpainted gluing areas for the

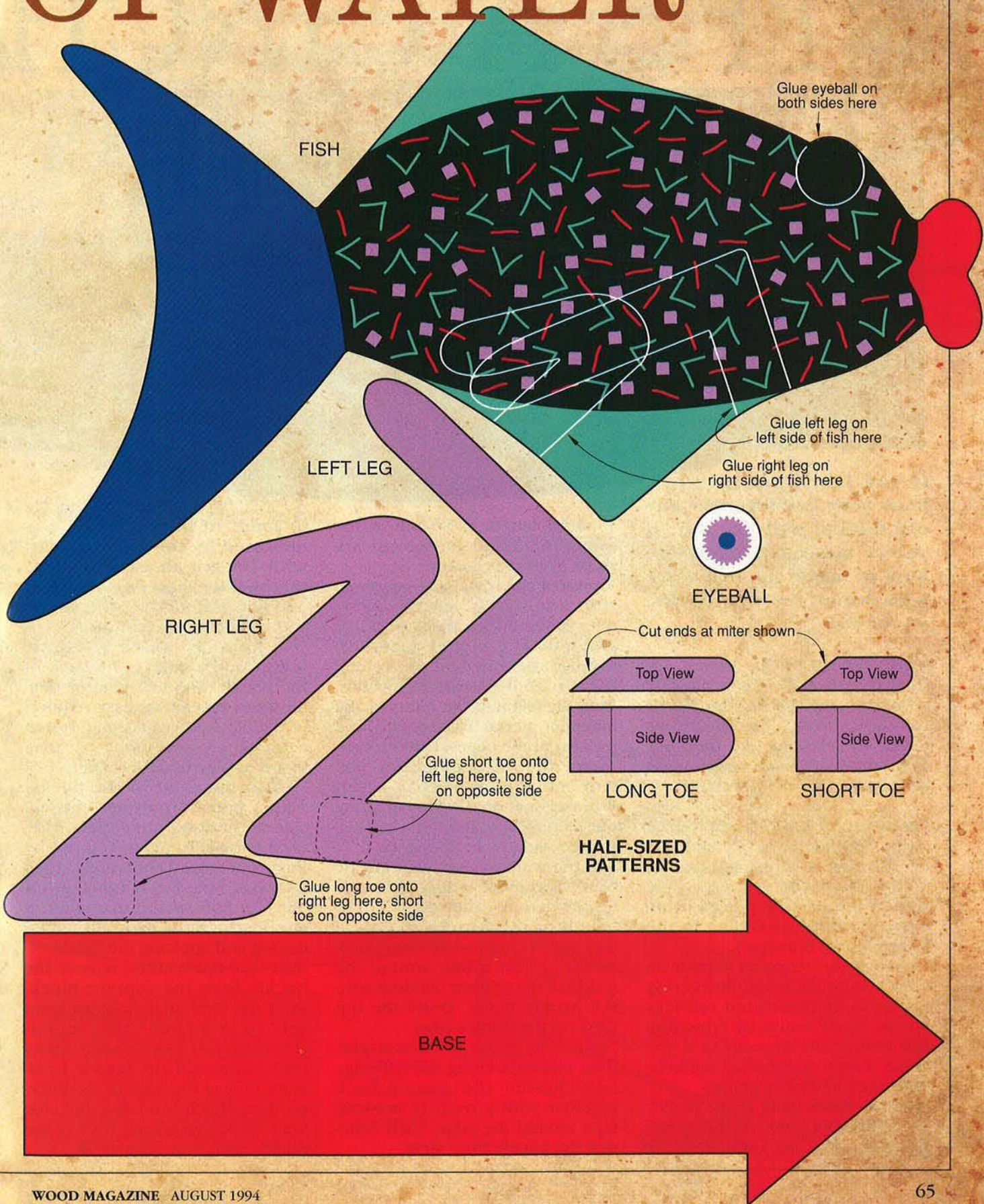
legs and eyes. White acrylic gesso, available from art-supply dealers, works great for a prime coat on wooden projects.

Paint the fish and base with acrylic artist's colors. Follow the color scheme shown or let your own vision guide you as you decorate the fish.

Glue the legs to the fish, taking care to place the feet on the same level. Stand the fish on the base and mark the contact points between the legs and the base. Carefully scrape paint away at those locations, and glue the fish to the base. ♣

Project Design: © Kathleen Sharkey 1992
Photograph: John Hetherington
Illustrations: Kim Downing

OF WATER



FISH

Glue eyeball on both sides here

LEFT LEG

Glue left leg on left side of fish here

Glue right leg on right side of fish here

RIGHT LEG



EYEBALL

Cut ends at miter shown

Top View

Top View

Side View

Side View

Glue short toe onto left leg here, long toe on opposite side

LONG TOE

SHORT TOE

HALF-SIZED PATTERNS

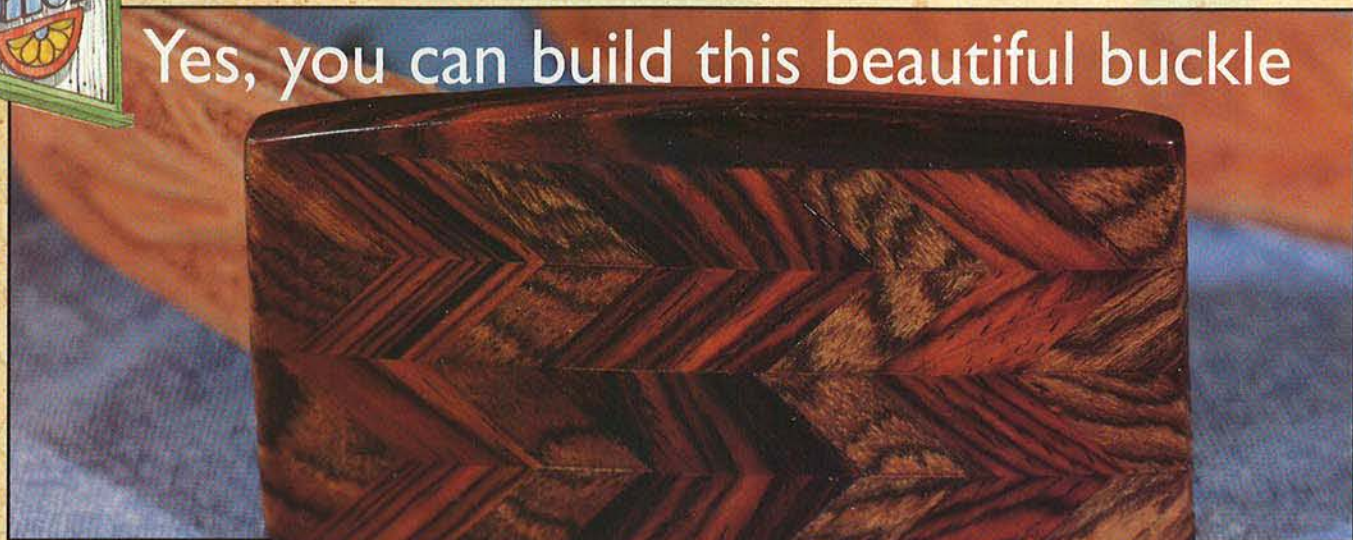
Glue long toe onto right leg here, short toe on opposite side

BASE



IT'S A CINCH

Yes, you can build this beautiful buckle



If you just want to hook your belt together, any old buckle will do. But, if you're aiming to show the kind of magic you can work with wood, try this buckle on for size.

Note: For the buckle shown, we started with 1×3×12" bocote and cocobolo (see the Buying Guide for our source). The blank we glued up yielded two buckles. You can build your buckle with any combination of species.

From the cocobolo, rip three strips ¼" wide, two ⅜", and one ½". Rip two ¼" strips and two ⅜" strips from the bocote. (We ripped the narrow pieces using carrier boards, as shown in the Carrier Board drawing.)

Arrange the strips as shown on the Glue-up drawing. Staggering the ends as illustrated reduces waste, since you'll be trimming the end of the glue-up to a 45° angle. Clean the mating surfaces with acetone before gluing.

Set your saw's miter gauge to 45°, then slice one end off the glued-up stock. Now, set a stopblock for

a cutting length of ⅜" and, at the same 45° angle, miter-cut six strips from the glue-up.

Crosscut the remaining cocobolo strip into two 6" lengths. Now, refer to the Buckle Blank drawing, and glue the pieces together. Arrange the miter-cut pieces and the cocobolo strips as shown, carefully aligning the joints in the miter-cut pieces. Place scrapwood packing at the edges, then clamp.

Trace the full-sized buckle pattern onto a plain piece of paper. With scissors or a knife, cut along the pattern line, leaving a buckle-shaped window in the paper.

Lay the window over your buckle blank, and move it around to center the design. (After the width or length of the pattern slightly if that will accommodate your blank better.) Draw a line around the inside of the pattern window onto the buckle blank. Draw the top view on the blank's edge.

Trim the blank ends straight, then bandsaw along the top-edge line. Fasten the pieces back together with a wrap of masking tape around the edge, then bandsaw the buckle front view.

Sand the buckle to about ¼" thick, curving it as indicated by the pattern. Start with 100-grit abrasive to shape the buckle, then finish-sand to 320-grit. Round over the edges, and corners to prevent snags.

For finishing, attach a ¾×¾×1" scrapwood block to the back of the buckle. Hotmelt glue or double-faced tape allow easy removal of the block after finishing. Fasten each block to a piece of cardboard or plywood for stability.

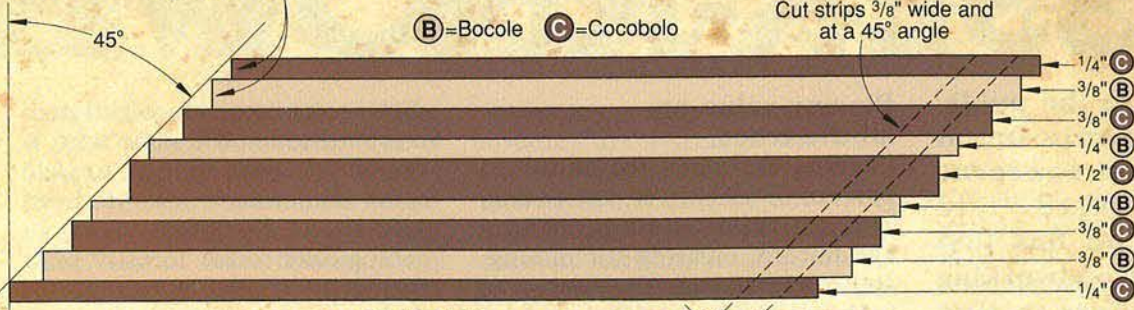
Finish the front of the buckle with a pour-on polymer coating, sold by craft-supply dealers. (We used Ultra-Glo, manufactured by Environmental Technology, Inc., P.O. Box 365, Fields Landing, CA 95537.) Follow the manufacturer's instructions carefully when mixing and applying the finish.

After the finish cures, remove the buckle from the support block. Sand the back of a hook-and-ring set to roughen the metal. (Leathercraft dealers and many craft shops sell the buckle hardware.) Clean the back of the buckle, then attach the hook and ring with epoxy. Finish the back of the buckle with polyurethane. ♣

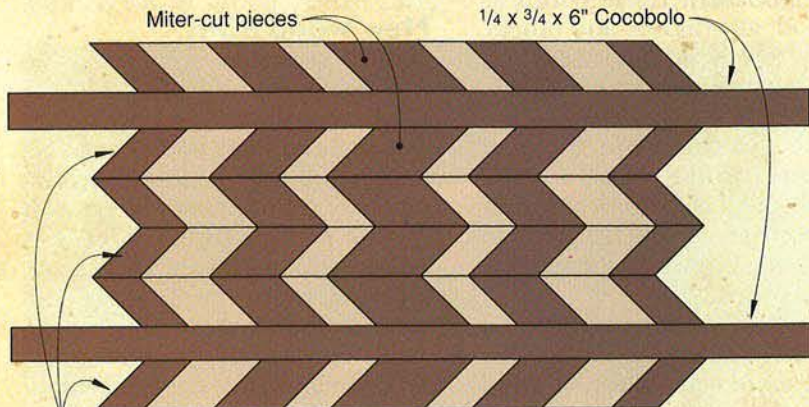
Glue up pieces at a 45° angle for less waste

(B)=Bocote (C)=Cocobolo

Cut strips 3/8" wide and at a 45° angle



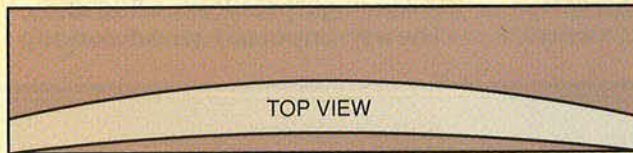
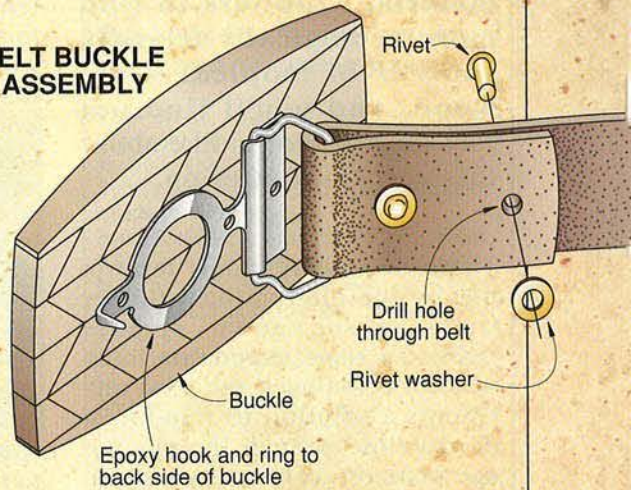
GLUE UP



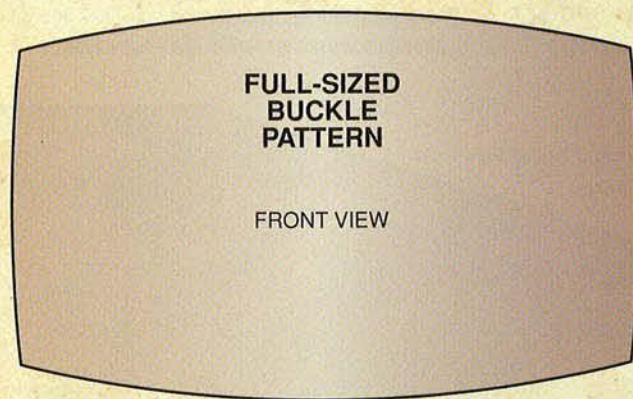
These three flipped over

BUCKLE BLANK

BELT BUCKLE ASSEMBLY



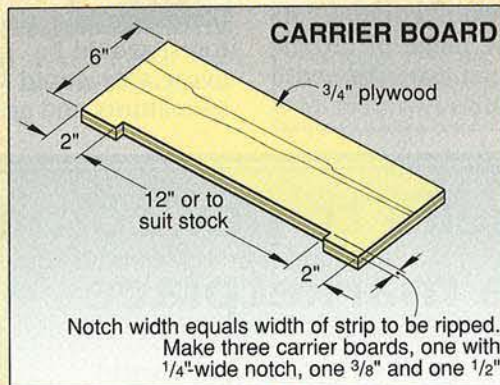
TOP VIEW



FULL-SIZED BUCKLE PATTERN

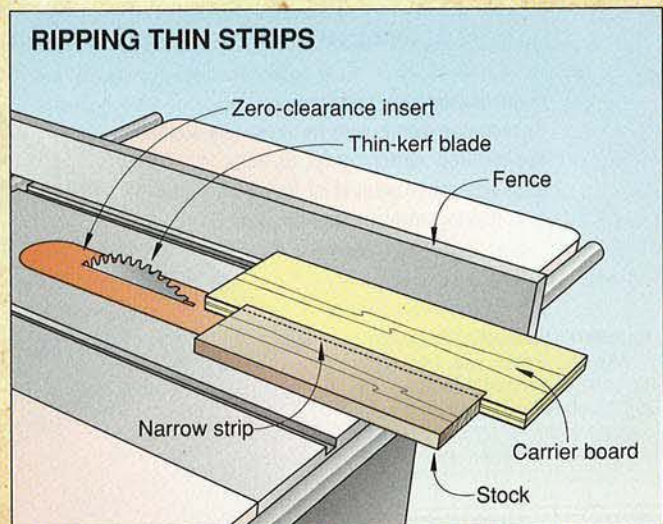
FRONT VIEW

CARRIER BOARD



Notch width equals width of strip to be ripped. Make three carrier boards, one with 1/4" wide notch, one 3/8" and one 1/2"

RIPPING THIN STRIPS



Buying Guide

Stock. Bocote, cocobolo, two 1x3x12" each, \$23 ppd. in U.S. Calif residents add \$1.72 tax. Tropical Exotic Hardwoods, Box 1806, Carlsbad, CA 92018. Or call 619/434-3030

Project Design:
© Frank Aubry
Photograph:
John Hetherington
Illustrations:
Kim Downing

LESSER-KNOWN

In a response to the public outcry against rain-forest destruction and concerns about endangered tree species, a trend has just begun among woodworking material suppliers to find more ecologically friendly sources of tropical hardwood. And you'll find out that there's a lot to like about this new stock offering.



There's a relatively new term in use by the international timber trade—lesser-known species (LKS). To some experts on international economics, the term represents a solution to rain-forest destruction through the encouragement of sustained yield, an environmentally conscious form of forestry. To woodworkers, LKS represent a new range of intriguing stock to use in projects—with no guilt attached.

Placing value on all the trees

Logging accounts for about 25 percent of rain-forest destruction. The rest is due to slash-and-burn agriculture, clearing for mining, and road building. The harvest of tropical trees that does go on focuses on those species generally valued in world trade, such as rosewood, afrormosia, and others, known to woodworkers as exotics. So, with heavy machinery to move the logs and build the roads to get them out, loggers have traditionally cut a wide swath through the tropical forest. Unwanted trees are burned on site, cut into firewood, or just left behind as waste.

But if woodworkers placed a value on these also-ran tree species, more care might be taken to spare and nurture them. In fact, say many experts, if every tree in the forest had a dollar value, the forest would be managed so that every tree could be harvested at its maturity and greatest worth.

Yet, in any natural forest all trees don't mature at the same time. It can be managed, though, to yield some timber each year—forever. And that's sustained yield, an ecologically sound forestry practice well-accepted by responsible timber producers in more technically advanced countries.

New wood from sound sources

Private and non-profit agencies have recently sprung up to certify sustained-yield timber producers around the world as environmentally sound. That's the reason for the sudden surfacing of lesser-known species on the woodworking scene—these sustained-yield lumber sources must necessarily harvest all types of trees. To encourage this environmentally friendly practice, the lesser-known species must be bought, exported, and marketed to woodworkers along with familiar ones.

Although practically all of these newly imported woodworking

Say hello to newcomers in the marketplace

Monkey Pod (*Pithecellobium saman*)

A very stable, moderately hard wood that works easily. Favored for turning, but suitable for all interior projects and applications.

Malas (*Homalium foetidum*)

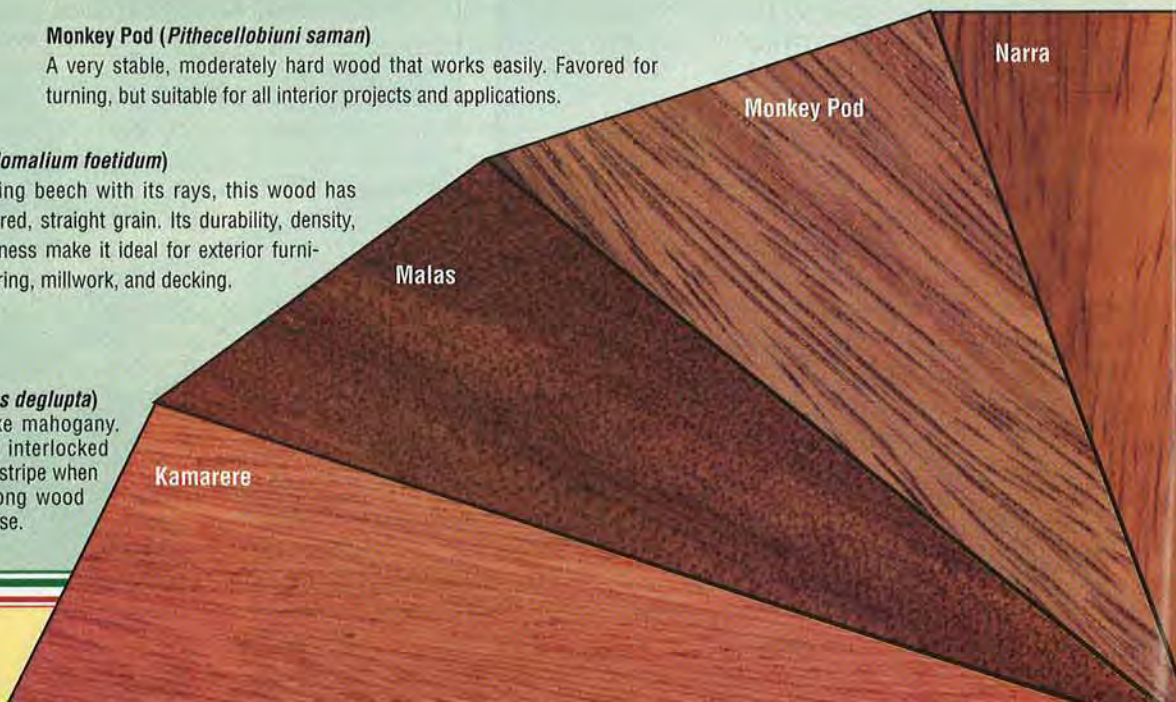
Resembling beech with its rays, this wood has fine-textured, straight grain. Its durability, density, and hardness make it ideal for exterior furniture, flooring, millwork, and decking.

Kamarere (*Eucalyptus deglupta*)

Looks and works like mahogany. Straight but slightly interlocked grain features ribbon stripe when quarter sawn. A strong wood for general-purpose use.

Narra (*Pterocarpus indicus*)

A member of the padauk family, this wood is as durable and good-looking as teak, and machines and finishes the same. Extremely stable. Same uses as teak.



SPECIES YOU MAY WANT TO TRY

woods have or once had traditional uses in their homeland, little is known about them elsewhere, thus their LKS name. On these pages, we'll introduce you to a select few of these lesser-known species from community-based forestry operations in New Guinea, South America, and Mexico. Some suppliers that carry

these and other lesser-known species are listed in the box, *lower right*. Because they are new, and because considerably more effort goes into bringing them to market, retail prices of the species shown range from \$4.50 to \$8 per board foot, or about what you would expect to pay for exotic wood. Remember,

though, that because many of the original sources for these woods are small-sized logging operations, the supply of the wood is often erratic. As a result, the dealers may not have the exact wood you want on hand when you order. 🌲



At a jungle site in Papua, New Guinea, local villagers gather to saw timber into boards for export. Such small operations do little damage to the environment as they introduce new species to the world's woodworkers.

Sources for lesser-known species and other woods

A&M Wood Specialty, P.O. Box 3204, Cambridge, Ontario, N3H 4S6, Canada. Sells environmentally friendly wood from New Guinea and Mexico as well as traditional woods. Write for details.

Berea Hardwoods, 6367 Eastland Rd., Brook Park, OH 44142. Sells ecologically certified Mexican and other hardwoods. Also sells North American hardwoods and standard exotics.

Eco Timber International, 350 Treat Ave., San Francisco, CA 94110-1326. Sells mainly to retailers. Will fulfill orders of 100 board feet or more to individuals and groups. Write for information and species price list.

Pittsford Lumber, 500 State St., Pittsford, NY 14534. Carries certified woods from cooperatives in Peru and Mexico. Write for prices and information.

Wise Wood, P. O. Box 1271, McHenry, IL 60050-4456. Carries a wide selection of wood from ecologically certified sources.

*Spp. indicates one of several species with nearly identical attributes.

Paldao (*Dracontolomelon puberulum*)

Sometimes called New Guinea walnut, this dense, durable, and stable wood from Southeast Asia has a rather coarse grain. Yet it machines and finishes beautifully to become fine furniture and cabinets.

Paldao

Peroba rosa (*Aspidosperma spp.**)

A South American hardwood that's used for everything from flooring to fine furniture in its native land. The heartwood is sometimes streaked with purple or brown, and can have interlocked grain. Otherwise, the wood works fairly easily and finishes well.

Peroba rosa

Sabicu (*Lysioloma spp.*)

A native of Mexico and Central America, this wood was once extensively used in combination with its more expensive look-alike, Honduras mahogany. Its straight grain works easily and it finishes smoothly.

Sabicu

Written by Peter J. Stephano
Photographs: Courtesy of
Wood-Mizer, Inc.; King Au



THE GREAT SCROLLSAW DESIGN CONTEST[®]

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Show us your best work in these three categories

Send us your best original scroll-saw project for a chance at these great prizes. For judging, we'll divide entries into three categories—Put-Together Projects, Clever Cutouts, and Kids' Stuff.

Put-Together Projects will include items assembled from multiple scrollsawed parts, such as boxes or multi-layer plaques. Items may be either functional, such as clocks and weather stations, or purely decorative, such as wall hangings.

Anything cut from a single piece of wood—silhouettes and fretwork, for example—will fall into the **Clever Cutouts** category. A single cutout may be mounted on a base or plaque, and you may use a clock insert or similar hardware. Cutouts can be painted or unpainted.

Kids' Stuff entries may be either assembled projects or cutouts intended primarily as playthings or items for children. Toys, traditional jigsaw puzzles, and decorations suitable for a child's room would be just some of the items eligible for this group.

Five great cash prizes are up for grabs

We'll award five cash prizes totalling \$5,250. Grand Prize, for the single best entry regardless of category, is \$1,500.

In addition, the winner in each of the three contest categories will receive \$1,000. And, the entry that best reflects a holiday theme (any holiday) regardless of category will win \$750

Enter as many items as you like.

If it's scrollsawn, you can enter it

The scrollsaw must be the main or only tool used to build entries. If scrollsaw work merely serves as an incidental element or decorative accent, an item won't qualify.

Be sure to include a separate entry blank *below* (or photocopy of one) for each item entered. Entry deadline is November 30, 1994. Please read the rules on the *opposite page* before entering. Entries cannot be returned.

THE GREAT SCROLLSAW DESIGN CONTEST[®]

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Please place my entry in:

- Put-Together Projects
- Clever Cutouts
- Kids' Stuff

Name _____
Address _____
State _____ ZIP _____
Telephone _____

I certify that the enclosed entry is my original work.

Signature _____

Send to: Scrollsaw Project Contest, 1912 Grand Ave., Des Moines, IA 50309-3379

For best overall entry
GRAND PRIZE \$1,500

Put-Together Projects
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Clever Cutouts
FIRST PRIZE \$1,000

Kids' Stuff
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Best Holiday Theme
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Great Scrollsaw Design Contest Rules

1. Entries must be original, unpublished designs, not to include minor variations on published patterns or plans.
2. The scrollsaw must be the principal or only tool used for construction of entries.
3. Entries must be received at our offices by the end of the business day on November 30, 1994. All entries must be shipped prepaid; we will not accept collect shipments. Enclose an official entry blank (or photocopy) for each item. Label each item with your name and address. Entries cannot be returned.
4. By entering the contest, you grant your permission to use your name, hometown, and photographs of your entry for editorial or promotional purposes. Employees of Meredith

Corporation, its affiliates and subsidiaries and employees' family members are not eligible.

5. Judging will be by a panel including representatives from the sponsoring publications, professional craftspeople, and scrollsaw manufacturers. Entries will be judged on originality and craftsmanship. Judges may reassign an entry to a different category. Judges' decisions are final.

6. Winners will be selected on or about Dec. 15, 1994, and notified by mail on or about Jan. 15, 1995. Taxes are sole responsibility of winners. For a list of winners, send a self-addressed stamped envelope to Scrollsaw Project Design Contest, 1912 Grand Ave., Des Moines, IA 50309-3379.

7. Subject to all local, state, and federal laws and regulations. Void where prohibited. ♣



Super Scrollsaw Patterns™

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A WORD ABOUT JIGSAW BLADES



Tooth set affects the quality and speed of your cut. Flat-set blades (left) cut smoothly. Side-set blades (middle) are best used for rough cuts or speed work. Wavy-set blades (right) work well on metal, plastics, and ceramics

The wrong blade will turn a great jigsaw into a poor performer. To get the most from your jigsaw, you need to match the blade to the work.

Jigsaw blades frequently break, and the best prevention is to stick with bi-metal blades. These combine hard-steel teeth with a softer steel shank that's more flexible.

Blades generally come with 6, 8, 10, 12, or 20 teeth per inch (tpi). The fewer teeth, the more aggressive the cut (but you also get more tearout). An 8-tpi blade works fine for most general purpose cutting, although if your material splinters easily, you may want to use 10-tpi blades.

Blade teeth can be ground flat with no set, with side set, or with wavy set, as shown at left. Flat-ground blades leave little tearout and cut smoothly, but they go

slow and won't cut tight arcs. Side-set blades, with teeth angled out on alternating sides, cut curves and straights equally well, but leave the most tearout and a wide kerf. Wavy-set blades are ground flat and then gently bent in a curved pattern. They corner better than flat-ground blades and leave less tearout than side-set blades, but they run slowest of all. Use wavy-set blades for tight, smooth scrollwork, and for cutting metal, ceramics, plastics, and other non-wood materials.

The width of your blade also affects its ability to cut curves. Skinnier blades turn tighter but they bend easier. For tight scrollwork, buy blades that are from 3/32" to 3/16" wide. For cutting general-purpose cutting, blades that are 1/4" or wider work best.

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LU92M010 10" 60T Corian® 58
LU98M010 10" 60T Laminates 66
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6491 10" Miter Saw w/80T Blade 268
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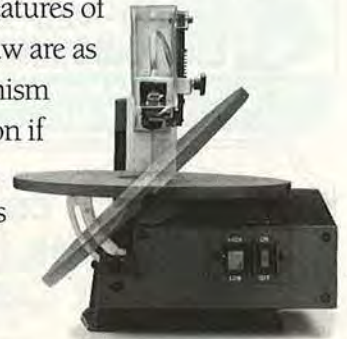
What it takes to cut it as a Consumers Digest Best Buy.

You don't get named a *Consumers Digest* Best Buy without working at it. You have to be an *outstanding* value. That's the Dremel 1671 Scroll Saw.

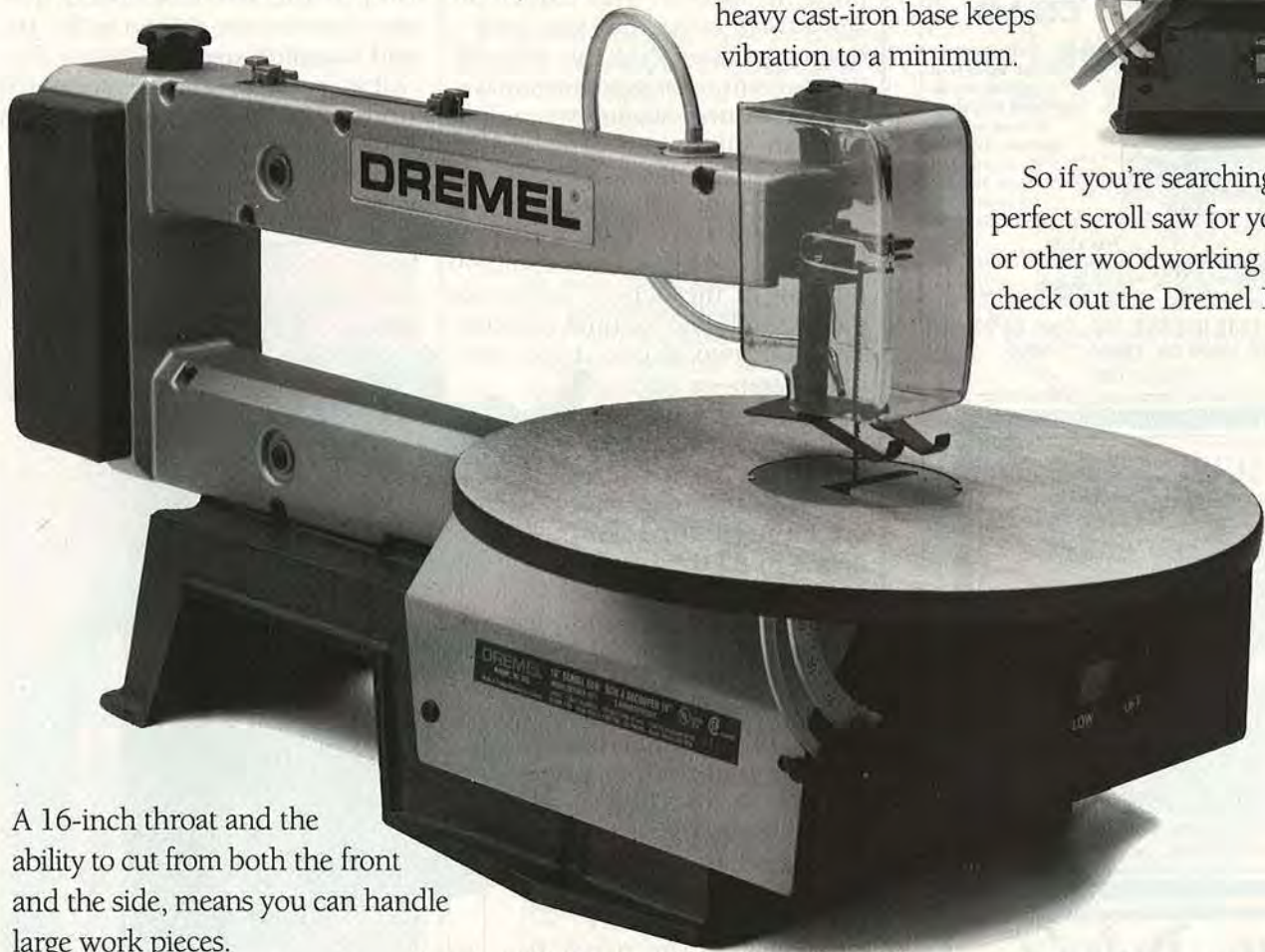
The Dremel 1671 has a lot of features that make it a pleasure to use. It has two cutting speeds and a powerful motor that lets you buzz through wood up to two inches thick, as well as sheet metals and plastics.

The sturdy, 12-inch cast aluminum table is adjustable from 0° to 45° for accurate bevel cuts up to 1-inch thick.

Of course, not all the features of the Dremel 1671 Scroll Saw are as obvious. A special mechanism quickly stops cutting action if the blade breaks. And the heavy cast-iron base keeps vibration to a minimum.



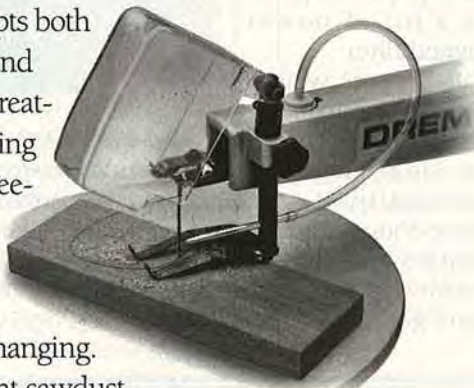
So if you're searching for the perfect scroll saw for your craft or other woodworking projects, check out the Dremel 1671.



A 16-inch throat and the ability to cut from both the front and the side, means you can handle large work pieces.

The saw accepts both plain- and pin-end blades, for the greatest possible cutting versatility. The see-through blade guard pivots out of the way for easy blade changing.

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And see why *Consumers Digest* placed it a cut above the rest.

For a free copy of the *Dremel Scroll Saw Blade Application Guide* write to: Dremel, Dept. S-W, P.O. Box 1468, Racine, WI 53406-1468.

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PRODUCTS THAT PERFORM



Print this article

Top-toting shop vacuum won't scream in your ears

I'll never forget how much simpler clean-up chores became after I bought my first shop vacuum. But I've yet to grow fond of the high-pitched howl these machines produce. This new 12-gallon Shop-Vac QSP cuts the noise level considerably and offers several convenient features.

A top shroud muffles the sound on this new machine and channels the exhaust through two ports in the rear. This baffled air still makes noise, but you hear a low roar rather than the ear-splitting scream most machines make. With this new vacuum running, you can still hold a conversation or listen to a radio.

The machine's three-stage filtering system starts with a disposable paper bag that traps about 99 percent of the debris, much like the bag in home vacuum cleaners. The next two stages of the filtering system—a tightly woven fabric filter and a foam "sock"—cover the motor inlet cage. After you've collected enough dust and debris to fill the large paper bag, just remove it from the canister and throw it away. The bags cost about \$3 each and come in packages of three. To clean the foam and fabric filters, simply wash them and let them dry.

Unlike pleated vacuum filters, the foam and fabric filters stay clean due to the paper bag. So you don't lose a lot of power because of a clogged filter.

This machine also scores well in the user-friendliness department. Rather than having to roll it around, you can single-handedly pick up the vacuum by its top handle. The Shop-Vac QSP also includes side handles and casters, but I found it easier to just grab the top handle and go.

The inlet-port diameter measures 2½", so you can hook up additional accessories that you own in that size, but this model comes with a 1¼" hose and accessories. The 2-hp motor put out enough suction to draw sawdust, shavings and some small nails off my shop floor. And when hooked to my dust-collection system, it easily whisked away the sawdust coming off my power tools. In addition to the model I tested, you also can find the QSP in 6-, 8-, 10-, and 16-gallon sizes.

All these small improvements add up to a lot of convenience, and I found the Shop Vac QSP a pleasure to use.

—Tested by Bob McFarlin



Shop-Vac 12-Gallon QSP, about \$99 at discount, homecenter, lumber, and hardware stores nationwide. Or write to Shop-Vac at: 2323 Reach Rd, P.O. Box 3307, Williamsport, PA 17701-0307. Call 717/326-0502.

Quick-release clamps also sit flat and sturdy

This new C-clamp from Wolfcraft offers a quick-release mechanism and a uniquely flat profile. Most woodworkers appreciate a quick-release button, but the more I used these cast-aluminum clamps the more I found to like about their three flat sides.

The flat sides provide a stable platform, enabling me to join small, light assemblies with just one clamp and stand them up to dry. The clamp won't roll over and knock the workpiece out of kilter. And, you can use two of these clamps as legs to prop up jigs and fixtures.

The narrow profile of the handle also created some new possibilities. I could lay the clamp on its side and hold a workpiece to my tablesaw miter gauge and not worry about a lever-type handle getting caught on the edge of the table. The triangular cross section of the handle (rather than round) enables you to get a good grip for more torque.

Considering the price, you probably won't want to restock your entire C-clamp collection with these. But I found them so useful that I'd recommend a pair or two for anybody's shop.

—Tested by Chuck Hedlund



Wolfcraft Quick-Jaw C-Clamp, in 3", 4", and 6" sizes, about \$13, \$15, and \$18 respectively, at discount, hardware, and homecenter stores nationwide. Or write to: Wolfcraft, Inc., 1222 West Ardmore, Itasca, IL 60143. Call 708/773-4777.

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PRODUCTS THAT PERFORM

Continued from page 75

Steady your work with a grinder tool rest

Most bench grinders come with nearly useless tool rests. The new Veritas Grinder Tool Rest provides a sorely needed solution.

When bolted to my benchtop, this anodized-aluminum tool rest gave my chisels and plane irons steady support. The handles tighten and untighten easily, and you can adjust the tool rest to many different angles or heights thanks to the slotted support arms. The top of the tool rest has a groove for sliding jigs and a hole for rotating jigs.

The tool rest works with 6" and 8" grinders, and a notch in the front straddles wheels up to 1" wide. If you've had trouble keeping tools steady on a standard grinder tool rest, I think you'll enjoy the control and precision you get with this new tool rest.

—Tested by Chuck Hedlund

Veritas Grinder Tool Rest, \$40.45 ppd., from Veritas Tools, Inc., P.O. Box 1720, Ogdensburg, NY 13669-1720. Call 800/667-2986.



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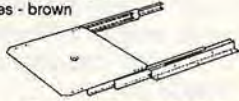
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WHAT YOU SHOULD KNOW BEFORE YOU HAUL

Okay, you're ready to start a project, but worried over how you're going to bring stock home. You don't own a pickup or a van. And, what you plan to buy falls far short of the minimum purchase required for free delivery (normally \$500). What to do?

Never fear, there are ways to haul material yourself, even in the family sedan. But keep the following in mind:

- Always check your vehicle's owner's manual for its maximum load capacity and the suggested tire pressure.

- Spokesmen at two large Midwest home center chains, Menards and Payless Cashways, told us that their liability insurance companies forbid employees to secure purchases to your car, although employees *can* help load.

- Ask for a free red flag if any part of the load extends 3' or more beyond the rear of your car (it's usually required by law.)

Team up with store-bought solutions

If your car has a roof rack, take advantage of it as the basis for all your tie-downs. Or, for about \$30 at auto supply stores, you can purchase a removable top carrier.

There's also a helpful product available through home centers, hardware stores, or mail order, called Timber Tote, shown *right*. Along with the tubular steel "hooks," you get instructions, poly rope for tying, and protective padding. You can order Timber Tote from Jupiter Products, P.O. Box 4367, Centerline, MI 48015, \$28.47 ppd. (\$29.47 in Mich.), or call 800/833-9050.

Try the homespun approach for short trips

If you don't have to haul a great distance, you can safely secure a load with materials you have on hand. First, find an old blanket or

Getting stock to your shop

rug to put on top to prevent marring your car's finish. Then, gather a hammer, a few small common nails, a pocketknife, and a 30' length of nylon or poly rope. (The twine a lumberyard or home center provides isn't strong.) And, if you'll only be buying boards, you'll want a 2x4' piece of plywood to spread the load.

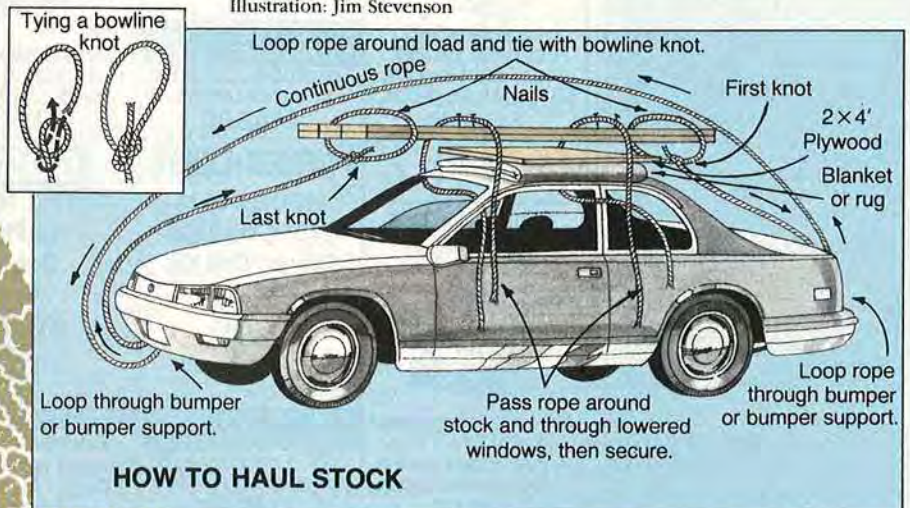
When you load your purchase, first place the padding you brought along on top of the car's roof. On it, lay the 2x4' sheet

good for carrying boards, or place any sheet goods you may have purchased on the padding. Next, add the boards, stacking them evenly two or three wide. Finally, secure the load with three pieces of rope as shown *below*.

To keep the fastened boards from shifting forward or backward, drive two nails into the top board where each of the rope loops circle the material. (You can pull the nails later.)

If thin sheet goods (less than 5/8" thick) are your only purchase, bring along 2x2s or 2x4s to place lengthwise between the panels to stiffen them against wind lift, and then fasten the load as described above. 🍄

Illustration: Jim Stevenson



Accessories such as a top carrier or a rack like Timber Tote, *below*, allow you to transport stock easily as well as safely.



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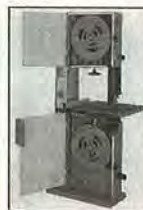
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FINISHING TOUCHES

FAMED STICKMAKER TAKES THE LONGEST WALK



Stickmaker Theo Fossel holds one of his duck-head handled walking sticks.

Theo Fossel, the well-known English stickmaker who founded the British Stickmakers' Guild and was instrumental in establishing a similar North American organization, lost a long bout with cancer last September. He passed on quietly at his country home in Buckinghamshire, England. Theo and his carved walking sticks were featured in the February 1990 issue of *WOOD*® magazine.

The witty 56-year-old master craftsman almost singlehandedly revived the stickmaking art in Great Britain, then got it going in the U.S. Theo's fetching manner and humorous anecdotes also endeared him to novice stickmakers at seminars from Alaska to Louisiana and into Canada.

As Theo liked to proclaim, "A stick makes a jolly good companion." Those who knew him would agree that he made a wonderful companion, too.

Photographer's turning to White House collection

You may not have known it, but 1993 was "The Year of American Craft" as mandated by the President and the U.S. Congress. For semi-retired photographer Bob Hawks, of Tulsa, Oklahoma, however, it was a year to remember.

The *WOOD* magazine staff has known Bob for years in his role as a top-notch magazine photographer. However, few knew of his growing expertise in woodturning, a skill Bob started honing only about six years ago. Others had noticed his work, though, especially Michael Monroe, director of the Smithsonian's Renwick Gallery in Washington, D.C.

As a result, last fall Bob was asked to contribute one of his turned bowls to the permanent



▲Woodturner Bob Hawks and his wife Jan celebrate craft at the White House with President and Mrs. Clinton.

◀Bob's purpleheart, yellow wood, and ebony turning is now part of the White House's craft collection.

White House collection being assembled by the President and Mrs. Clinton. Joining him in contributing were 14 of the nation's top turners—names whose works he had long admired. So what was Bob's reaction?

"I still can't believe it," says Bob. "For the last few years, I've been spending only half my time turning, then one of my pieces ends up in the White House!"

New Zealand Pine Toughens Up

Researchers at the New Zealand Forest Research Institute have developed a process that makes their greatest lumber export, plantation-grown radiata pine (*Pinus radiata*), as tough as oak. As a result, woodworkers and carpenters are now substituting the softwood for hardwoods in flooring, furniture, cabinets, and even benchtops, says the forest products' magazine *New Zealand Pine International*.

The process, which took six years to develop, involves impregnating pine logs with a non-toxic plant substance. Curing the logs with heat forms a strengthening polymer in the wood. Researchers also found that adding color assists the transformation to "hardwood."



HOW MUCH WOOD DOES A WOODWORKER USE, ANYWAY?

Do you ever catch some flack for your woodworking, such as, "You're ruining the environment by using wood!"? Well, here are a few facts writer David Averill dug up for an editorial in *The Tulsa World*. David was defending the use of wooden signs by a local civic organization called "Up With Trees." The non-profit group has been greening up the city with

tree plantings for years, and commemorating the trees' donors with the 5'8"×10' signboards.

David talked with a forestry professor at the University of Oklahoma and found out that one cubic foot of timber produces about 5.5 board feet of sawed lumber. And Oklahoma grows around 196 million cubic feet of timber annually. That's more than

a billion board feet of lumber. Up With Trees' signs—constructed as a community project by the Green County Woodworkers—each require 58 board feet. According to the writer's calculations, that means that Oklahoma grows enough timber in one second to construct nearly 600,000 Up With Trees signs! So, how's that for a renewable resource?🌲

Photographs: Mike Pattison; Jim Caruthers Illustrations: Jim Stevenson



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