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See our cradle project on page 60



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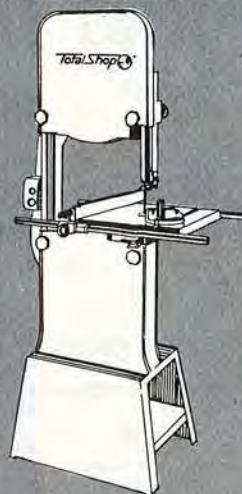


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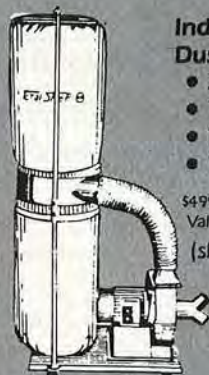


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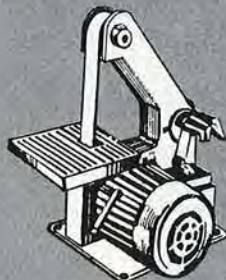
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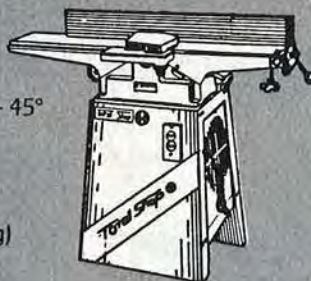
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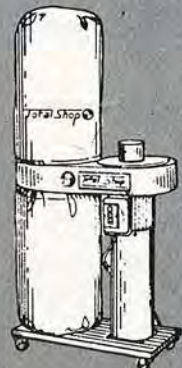
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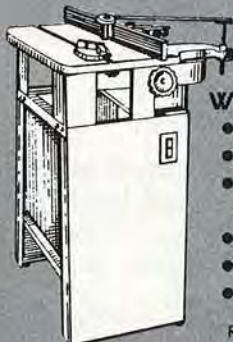
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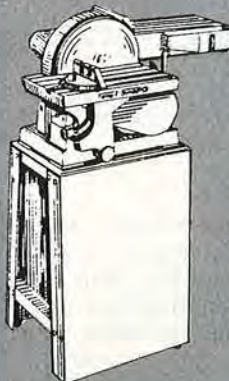
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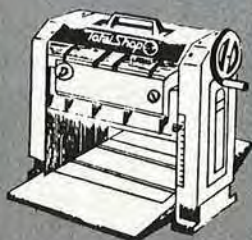
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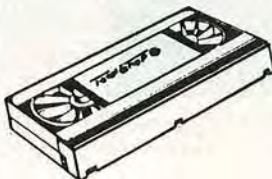
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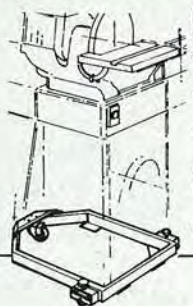
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WOOD®

THE #1 MAGAZINE FOR HOME WOODWORKERS

This issue's cover wood grain: bird's-eye maple

AUGUST 1989

ISSUE NO. 30

WOOD PROFILE

MAGNOLIA—THE WOOD THAT SETS BEES BUZZING 29

Long recognized as the most splendid tree growing in America's forests, magnolia also earns high marks for its smooth grain and stability.

CRAFTSMAN CLOSE-UP

THE 400-FISH-FILLET KNIFE WITH THE MIRACLE-WOOD HANDLE 30



Walt Easley knows hunting and fishing inside and out—and appreciates the value of a good knife. We spent two days in Walt's shop to find out why outdoorsmen like Virgil Ward and Willie Nelson depend on Easley knives.

CABINET CLEANUP TRICKS 34

Jim Boelling, *WOOD®* magazine's project builder, shares tried-and-true preparation techniques he learned in a cabinetmaker's shop. Follow Jim's suggestions and assemble professional-quality cabinetry every time.

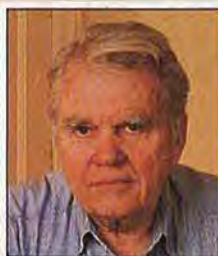


SHAKER SIMPLICITY 38

Here it is: We promised a Shaker-style chair to complement the trestle table featured in our April issue. With a router's help, you can build these ladder-back chairs using oak dowels.

PRESSURE-TREATED WOOD: WHAT YOU SHOULD KNOW BEFORE YOU NAIL 46

If you're itching to complete an outdoor project, read about safety concerns and construction suggestions before building with "green wood."



LIMELIGHT ON THEIR FACES, SAWDUST IN THEIR VEINS 48

Have you ever thought about why you love woodworking so much? Well, Andy Rooney has! Find out why he and five other notable woodworkers just can't stay out of the woodshop.

WHAT'S NOT ON A LABEL 52

Avoid the finishing catastrophe one of our readers shared with us. Tips from industry experts help you overcome labeling loopholes.

TOOL BUYMANSHIP

PORTABLE BELT SANDERS 54

Nearly five years have passed since we last tested portable belt sanders. Oh my, has the market changed! You're going to love all the features available today.



DOLL CRADLE 60

Here's a classic in the making. Our adaptation of a traditional Scandinavian design certainly will become a heirloom. And, you'll find lots of drawings to ease you into construction.



DEVELOP YOUR SHOP SKILLS

BLOW OFF THE DUST AND PUT THOSE PIPE CLAMPS TO WORK 66

Clamps represent a sizable, yet under-used investment in your shop. Don't overlook the tasks we've put together for these workshop workhorses.

FISHERMAN'S ROD RACK 68

Catch some shop time and build this dazzler for your fishing rods. It's just about as rewarding as any fish worth mounting.



HOMEMADE TOOLS STRIP SANDER 71

Here's a specialized sander that you can put to work right away for your next cabinet cleanup project. You'll find plenty of opportunities to use this 1 1/2"-wide dandy.



DRILL PRESS HEROICS—PART II 74

One year after publishing 17 nifty drill-press techniques, we want you to see five more top-notch tips submitted by fellow readers.

CARVING PATTERN

CARVE A WHALE 76

As a kid, Bruce Stamp chopped up a table leaf for a woodworking project. Now he carves whales from Mozambique and other interesting woods.



SHORT-SUBJECT FEATURES

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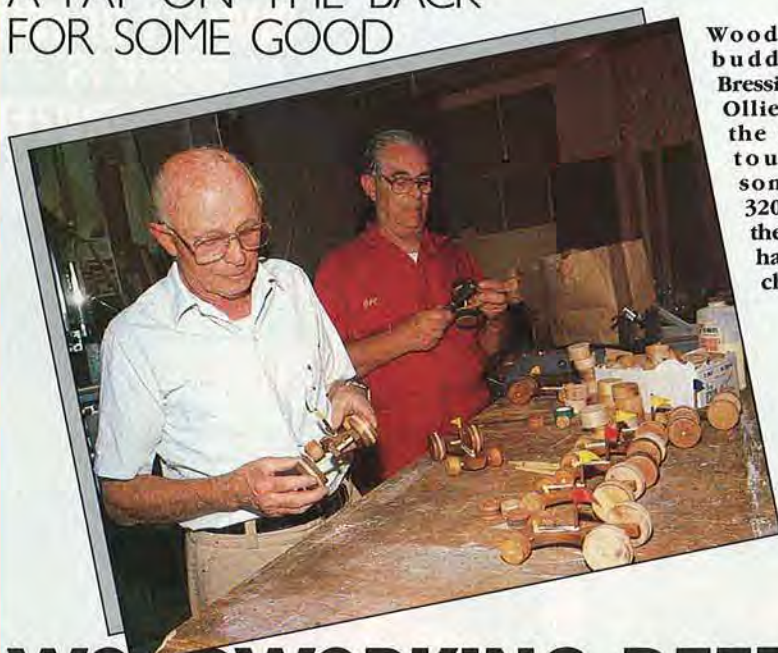
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A PAT ON THE BACK FOR SOME GOOD



Woodworking buddies Carl Bressie, left, and Ollie Coté put the finishing touches on some of the 320 dragsters they built for handicapped children.

WOODWORKING DEEDS

Of all the traits I admire about woodworkers, the one I respect most has to be their willingness to get involved with good causes and lend a helping hand. That's why I've decided to devote this month's column to some achievements that richly deserve mention.

First, the *WOOD*® magazine staff and I would like to say a great big **THANKS** to all of you who entered our Design-A-Toy Contest. When you readers found out that needy children would benefit from the competition, you opened up your hearts and sent in a total of 425 handcrafted toys. Now, that's something of which we can all be proud. (By the way, watch for the announcement of the winning entries in the October issue.)


Congratulations also to woodworkers (and Kiwanians) Carl Bressie, Ollie Coté (shown above), and Frank Imper from Tigard, Oregon, who built 320 of the rubber-band-powered dragsters (featured in our April 1987 issue) for kids attending the Kiwanis Camp for Handicapped Children near Mt.

Hood. Whew! What a great project! It took these guys about 400 hours to do their good deed, but that's nothing compared to the hours of fun they made possible for their young friends.

Carl, who just turned 78 this year and who also claims a 44-year perfect attendance record in Kiwanis, reports that "the kids went crazy over the dragsters." He also mentioned to me that he has just finished building another 500 small projects that will be sold shortly to raise money for the same camp. (You'll never guess the motto of Kiwanis International—it's appropriately "We Build.")

And a big round of applause for toymaker Wes Booth, a *WOOD* magazine reader from Yakima, Washington, who since his retirement five years ago, has made and donated about 1,800 small toy cars and trucks a year to local hospitals and to the Salvation Army. Incredible, wouldn't you say? "All of this gives me great pleasure and something to do with my retirement," says Wes.

I rest my case! See you next issue.

 Print this article

Larry Clayton

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VENEER	3-5
CHIP BOARD	5-6
PLASTICS	3-5
STEEL	3-6
PAINT REMOVAL	3-6

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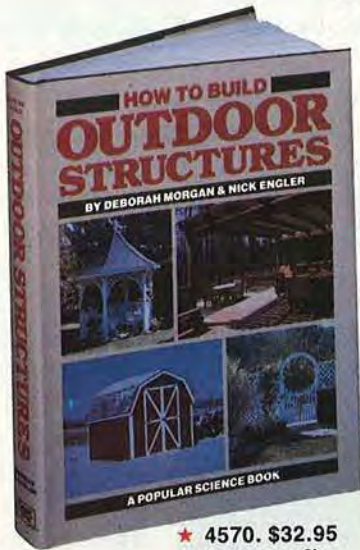
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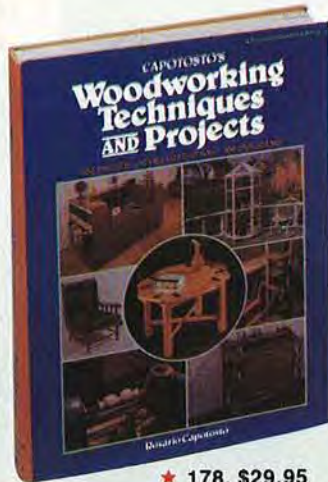
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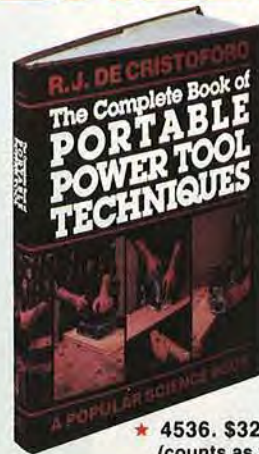
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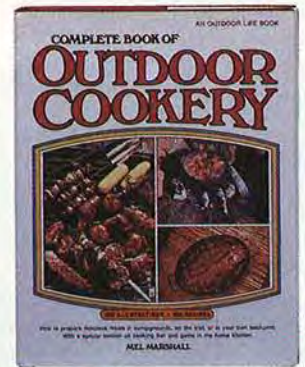
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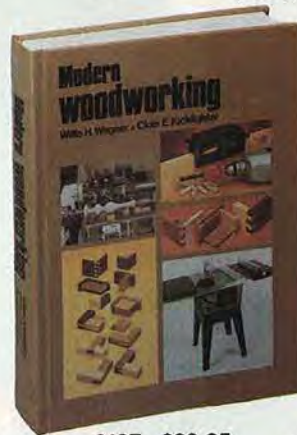
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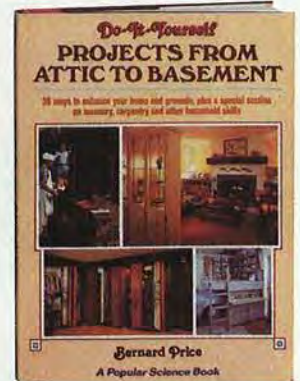
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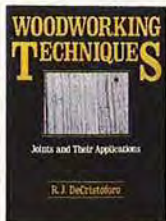
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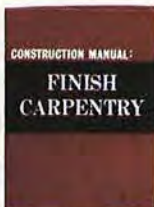
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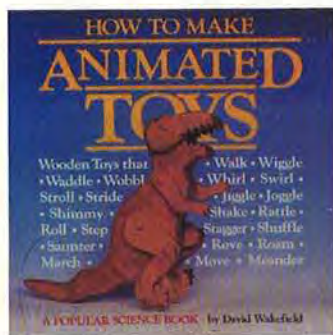
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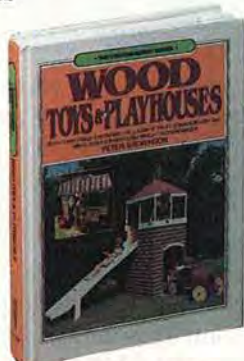
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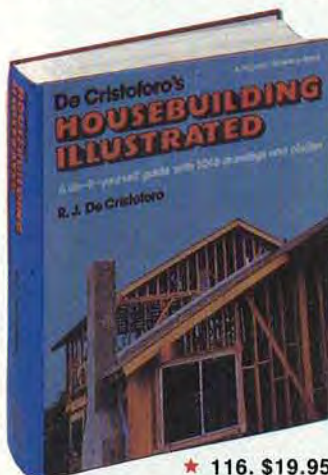
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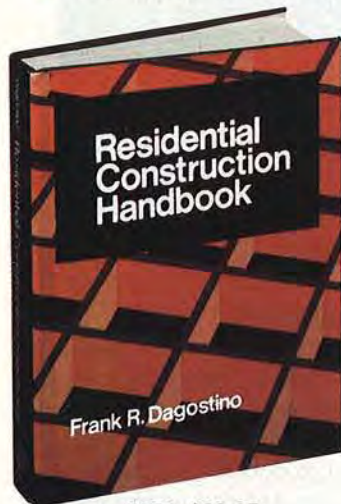
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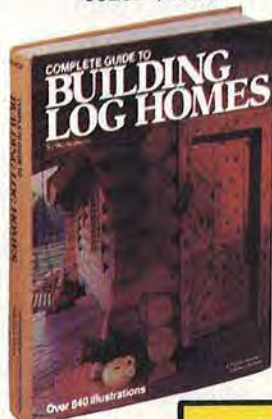
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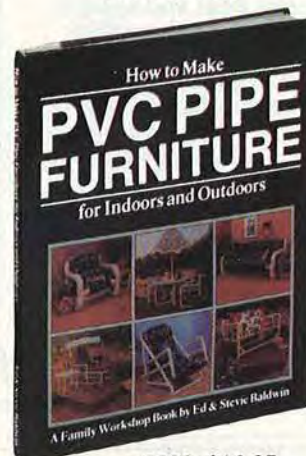
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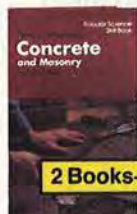
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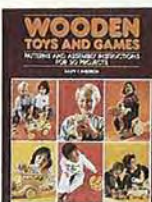
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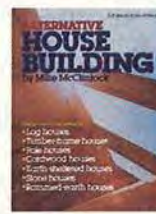
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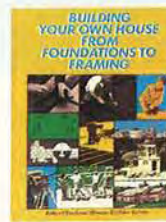
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TALKING BACK

We welcome comments, criticisms, suggestions, and even an occasional compliment. The volume of mail we receive makes it impossible to answer every letter, but we promise to do our best. Send your correspondence to: Letters Editor, Better Homes and Gardens® WOOD® Magazine, Locust at 17th, Des Moines, IA 50336.

SOLVING PROBLEMS WITH THREADED INSERTS

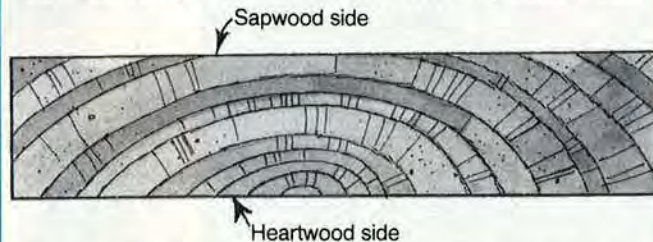
I enjoyed making your blade height gauge in the April 88 issue of WOOD magazine. But, I ran into a problem when installing the 1/4" threaded insert. Your instructions say to drill a 1 3/32" hole for the insert. Since I don't have a bit that size, I used a common 3/8" bit to drill the hole, then a 7/16" tap. The threads match the insert exactly and make it easy to install them without splitting the wood.

—David Brooke
Newton, Ill.



MORE ON HEARTWOOD AND SAPWOOD

Two readers have questioned us about a statement in the relief-carving article we published in the February 1989 issue. We reported that Jim Rose, our consultant on the article, has had his best results carving on the sapwood side of a board to counteract the natural tendency of wood to cup toward the heartwood side. That's incorrect as John Sillick of Gasport, N.Y., and Ron Genge of Edmonton, Alberta, pointed out.



In separate letters, both woodworkers make a good argument about wood naturally cupping toward the sapwood side. We've found others—including the Forest Products Institute—who agree that young cells on the outside of the tree generally shrink quicker than denser heartwood cells and cause a board to shrink toward the sapwood or bark side. Jim Rose still stands firm on his experience: He has fewer shrinking problems by carving on the sapwood side. And, because the heartwood side has more growth rings, gouges have more chances to shoot off course.

Continued on page 12

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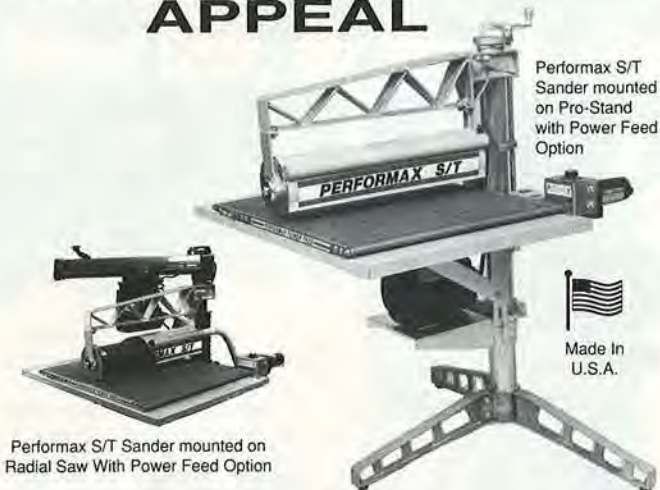
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TALKING BACK

Continued from page 10

POACHING PINK IVORY TREES?

The April 1989 issue of *WOOD* magazine had an item titled "Out of Africa" about Carlton McLendon, *right*, and his pink ivory. This article particularly disturbed me, since it condones bribing political officials for personal gain. That's wrong! Explain the difference between this and ivory poachers.



—Glenn Maynard, Independence, Iowa

*Pink ivory may be considered a rare wood, only because it doesn't grow in commercial quantities. We stated that 50 pink ivory trees were all that were left in the land inhabited by the Zulus. Instead, Glenn, we should have stated that 50 mature pink ivory trees would be about all that could be expected to grow there at any time, according to our sources. Indeed, few trees of any type grow in the arid, savannah-type land preferred by the pink ivory tree (*Rhamnus zeyheri*). The bottom line: Pink ivory isn't facing extinction. More accurately, it's rarely cut.*

Here's why. Zulu tribal law stipulates that it's a crime punishable by death for anyone but a Zulu chief to possess it. Zulu tradition says that only a chief may cut down a pink ivory tree, and then only when his son reaches manhood. As the story goes, the son then fashions a spear from the wood, and the remaining wood decays. Tribal members may not even burn pink ivory for fuel, or ZAP!

Pink ivory appears in small pieces at wood auctions. And, members of the International Wood Collectors Society occasionally list small amounts of it for sale in mail-order auctions. Other than McLendon's story, we're not sure how trickles of this wood reach the international marketplace.

Carlton McLendon says he did not bribe a member of South African parliament—the wood was a gift. Carlton, as a wood collector as well as a wood retailer, was thankful for the present, and sent some knives in appreciation. We believe we only reported on an interesting story about how rare—not endangered—wood gets into circulation.

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For more information, contact 3M at 800-842-4946. *WOOD* magazine tested the new 3M finish remover in the February 1989 issue. ♣

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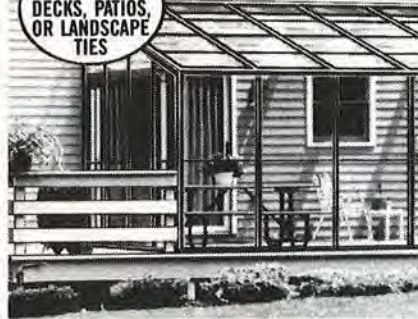
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WORKMATE EXTENDER EARNS READER A PRIZE

Black & Decker Workmates make great shop helpers, but how often have you wished its jaws would stretch a little further to hold that wide workpiece for sanding, drilling, or routing?

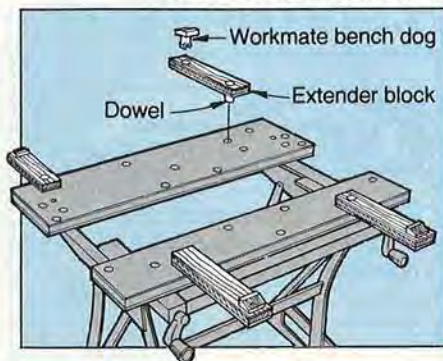
TIP: If you'd like to increase the holding capacity of your Workmate, just add extender blocks to the work surface. From ¾" ply-

wood, cut four 1¾×8" pieces. Bore ¾" holes in both ends of each piece and glue a 1¼" length of ¾" dowel in one end, as shown below. Insert Workmate dogs in the remaining holes. Now, your Workmate will hold a workpiece as wide as 23". You can make the extenders even longer for more holding capacity.

—Robert K. Graul, Alton, Ill.



For his tip, Robert receives a Bosch model 1611 3-hp plunge router.

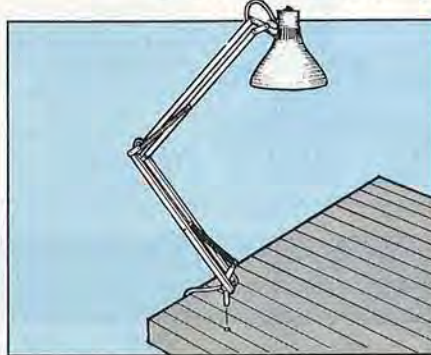


SHED SOME LIGHT ON THE SUBJECT

Overhead lighting often does not offer adequate illumination for doing fine closeup work. Adjustable reading lamps help, but positioning them where needed can tie up a lot of clamps, not to mention your patience! Here's a smarter way.

TIP: It's easy to add an adjustable reading lamp to a work bench as shown below. Simply drill holes of the appropriate diameter to accept the shaft that normally goes into a clamp fitting. Drill these holes wherever you need the illumination. This arrangement provides a handy light that you can quickly reposition or remove as needed.

—Carlos Voss, Colton, Calif.



CAUTION FLAGS FOR LONG CLAMPS

Long pipe clamps and bar clamps often stretch well beyond the confines of the stock being held together. In fact, far enough to stick right into the path of some of us who have a knack for bumping and plowing into most anything (make that everything!) that gets in the way. Too often, we pay the price for this shortcoming in scrapes, bruises, and torn clothing.

TIP: Drape brightly colored rags over clamp ends to warn everyone to steer clear of the protrusion.

—From the WOOD magazine shop

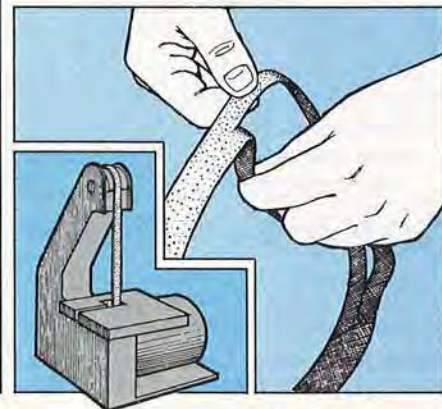


NARROW SANDING BELT REACHES TIGHT SPOTS

One-inch-wide sanding belts do an excellent job of smoothing a variety of wood surfaces, including gentle curves. But when it comes to constricted openings and some small workpieces, an inch-wide belt may be too wide.

TIP: Slit the belt in half lengthwise to create a half-inch-wide sanding belt. Start by piercing the center back side of the belt with a sharp knife. Then grab the sanding belt on both sides and tear down the center as shown below.

—Terry Fenimore, Waukee, Iowa






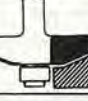









Continued on page 16

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	#056	Tongue & Groove (FOR WOOD THICKNESS FROM 1/2" to 1")		1-5/8"	1"	\$30.00
	#24	1/4" Straight Bit		1/4"	3/4"	\$ 7.00
	#25	5/16" Straight Bit		5/16"	1"	7.00
	#26	3/8" Straight Bit		3/8"	1"	7.00
	#27	1/2" Straight Bit		1/2"	1"	7.00
	#28	3/4" Straight Bit		3/4"	1"	10.50
	#13	1/2" FLUSH TRIM		1/2"	1"	\$ 8.50
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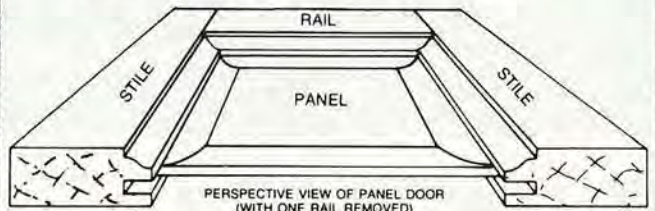
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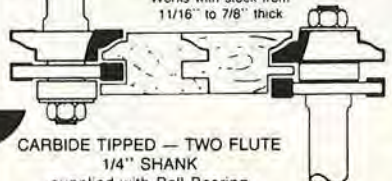
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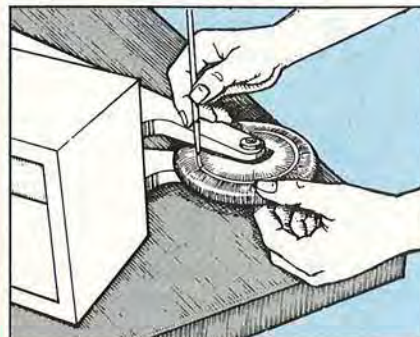
A Pentair Company

TIPS FROM YOUR SHOP (AND OURS)

Continued from page 14

YOU CAN PINSTRIPE WITH A PROFESSIONAL FLARE

Using short strokes, it's practically impossible to paint a neat pin-stripe of consistent width on a wheel or other circular object.



TIP: First, attach the object to its actual axle or a temporary one. Then, with your hand resting in a fixed position, slowly rotate the wheel and apply the stripe by holding the brush at a right angle to the wheel. Be sure to use a thin, high-quality brush and practice both thinning the paint to a suitable viscosity and handling the brush. The paint must be thin enough to flow, but not run.

—Jim Wilhoit, Aiken, S.C.

MIXING EPOXY WAS NEVER SO EASY

Many people try to match the size of two mounds of resin and hardener when mixing epoxy. This method can lead to weak, sticky bonds. The key to success: achieving correct proportions of the two materials, usually 1:1.

TIP: Run one bead of hardener next to a bead of resin of approximately the same width and length



as shown above, and then mix together. This technique will give a ratio very close to 1:1.

—From the WOOD® magazine shop

Continued on page 18

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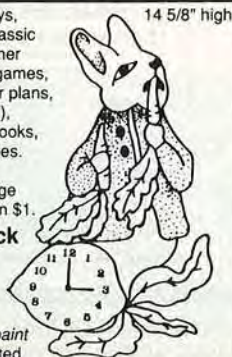
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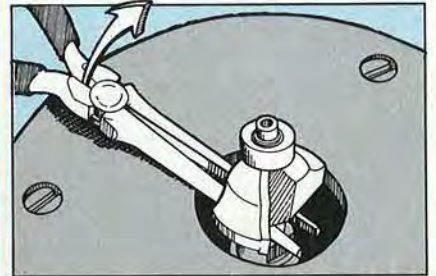


TIPS FROM YOUR SHOP (AND OURS)

Continued from page 16

HELP FOR REMOVING STUBBORN ROUTER BITS

Sometimes burred bit shafts or a pinched collet make it difficult to remove a bit from your router. Attempting to force such a bit loose can result in damaging it or the router itself.

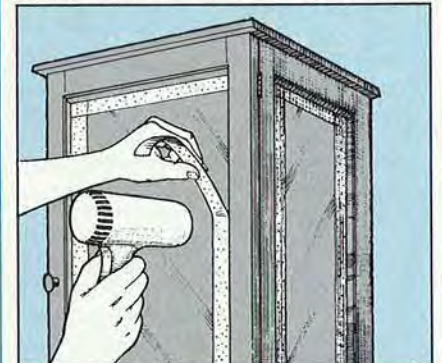


TIP: Leave about 1/8" of clearance on the shaft in the collet when you install the bit. This gives you room to insert the tips of a needle-nose pliers which will act as a lever when you back off the locking nut. Be careful not to damage the cutting edges, especially with carbide-tipped bits.

—Buddy Munro, Little Neck, N.Y.

PUT SOME HEAT ON TAPE SO IT RELEASES CLEANLY

Applying masking tape to glass before finishing or painting frames makes cleaning up quick and easy. The hitch: removing the tape. Once it's been in place for a few days, the adhesive clings to the pane so tightly that the tape tears when you try to pull it up.



TIP: Use a hand-held hair dryer to warm the tape slightly beforehand and it will peel off cleanly without tearing.

—Ray Ferreri, Stormville, N.Y.

Continued on page 20

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SPECIFICATIONS:

- Construction Cast Iron
- Throat depth 15"
- Max depth of cut 2"
- Machine weight 43 lbs
- Motor - Heavy duty totally enclosed fan cooled 110-120V, UL listed, ball bearing induction motor
- Blades - uses 5" standard & pinend
- Stroke length 3/4"
- Table tilt 0 - 45° to left

OPTIONS:

- Dust Blower • 37" Saw Stand

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12 Blade Assortment \$ 3.50 value
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& patterns..... 25.00 value
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Saw & Accessories Price List

	PRICE	(UPS)
Super 15" Scroll Saw	\$129.95	(10.00)
Dust Blower	15.00	(*)
Saw Stand - 37" high	26.00	(4.00)
4 dz blades (2dz pin, 2dz #9)	14.00	(*)
2 dz Spiral blades (size #2)..	10.00	(*)

(*) No freight chg if ordered with Saw, \$3.00 for any combination of these accessories ordered separately

Super 125 Planer

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- Size 15-1/2"H X 22"W X 21" Bed
- Max Depth of cut 3/16"
- Machine Weight 65 Lbs

Planer & Accessories Price List

	PRICE	(UPS)
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Extra Set of 2 Knives	25.00	(*)
Dust Chute for vacuum	24.00	(3.00)
Planer Stand	44.00	(6.00)
Heavy Duty, 27-1/2"high		
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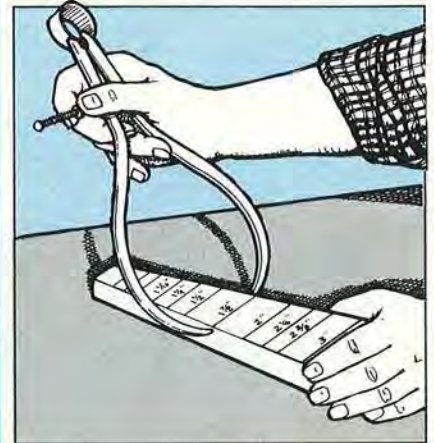
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TIPS FROM YOUR SHOP (AND OURS)

Continued from page 18

SET CALIPERS QUICKLY WITH THIS GAUGE

Constantly resetting calipers can prove to be a monotonous chore that requires a lot of time and poses the possibility of making incorrect settings.

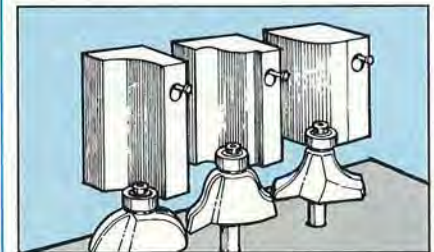


TIP: Cut a piece of stock that tapers from 1/2" to 3 1/2" wide for a gauge to set your calipers. Draw lines at widths you commonly use and label them as shown above. This provides a quick gauge for flawlessly setting calipers.

—David L. Wisely, Waters, Mich.

AT-A-GLANCE PROFILE OF ROUTER BITS

Because the profile of a router bit appears to be the opposite shape of the cut it makes, it often takes a second glance to select the correct cutter for the desired shape.



TIP: For a reference of the bit profile, shape an 8" length of scrap material with each bit. Trim the profile to a shorter length and hang the profile near the respective bit as shown above. Hold the profile to the end of your workpiece before you make any cuts.

—From the WOOD® magazine shop.

Continued on page 22

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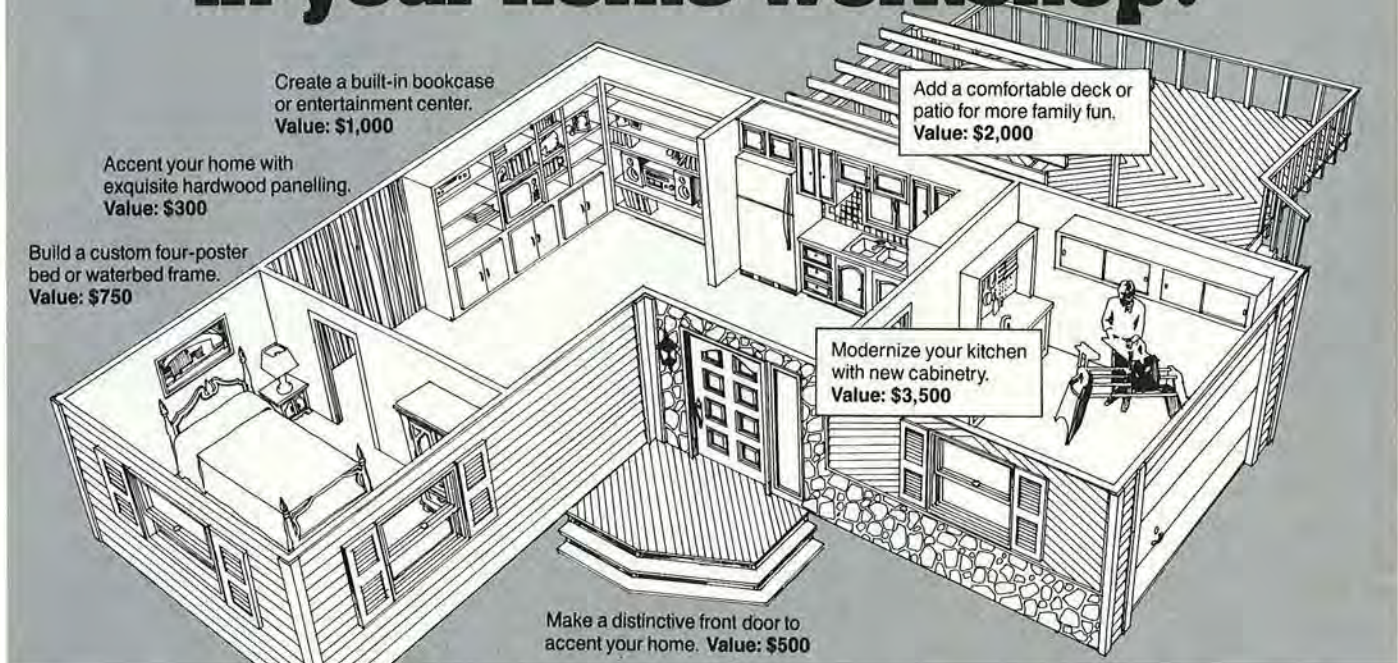
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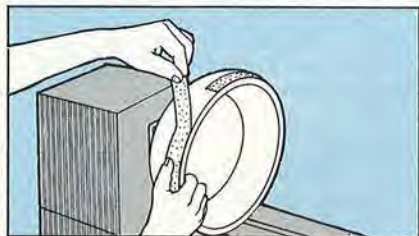
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Continued from page 20

TAPE GIVES STIFF UPPER LIP TO TURNED BOWLS

It's a challenge to turn a wooden bowl with thin walls and remove interior stock without cracking or breaking the bowl's outside edge.

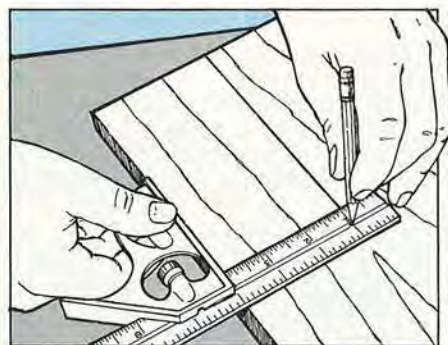


TIP: After turning the lip of the bowl, reinforce the lip with a strip of masking tape before turning the rest of the interior. Be sure the tape doesn't unravel by wrapping it in the opposite direction that your lathe rotates.

—David Arnall, Berkeley Vale, New South Wales, Australia

GET DOUBLE DUTY FROM A COMBINATION SQUARE

Some tasks require using a combination square for measuring and for drawing perpendicular lines, and a marking gauge for drawing lines parallel to an edge on a work surface. Wouldn't it be nice if one tool could do both jobs?



TIP: Drill a 1/16" hole through the center of the guide slot in the blade at the 1" mark as shown above. You can insert a pencil tip or a scribe through the hole for marking. Remember to subtract 1" from the distance shown on the scale where it intersects the crosspiece.

—R. L. Watkins, Naches, Wash.

LIGHT COAT OF FINISH LETS YOU CLEARLY SEE DEFECTS

In the final stages of sanding a turning project, minor scratches in the surface can be practically impossible to detect. It's really disappointing to start applying the finishing material only to discover imperfections you missed earlier.



TIP: With an aerosol finish, spray on a light coat while the piece rotates on your lathe. This will quickly reveal hard-to-see faults such as fine scratches and chip-outs along glued joints when working them out is still fairly simple. Also, you may want to use a piece of cardboard to catch the overspray and protect your equipment.

—From the WOOD® magazine shop

MORE SUPER TIPS FROM OUR WOODWORKING PROS

You'll find other useful shop tips scattered throughout this issue of WOOD magazine:

- Make easy work of drilling multiples holes in exact locations using our tip on page 42.
- Use your router and a simple jig for forming tenons on the ends of dowels as described on page 44.
- Even if you don't own a lathe you can produce simple turnings on your drill press. Find out how on page 73.
- If you've had less-than-satisfactory results with your belt sander, try our belt-sander checkup on page 80.
- Use the four-step process on page 35 to make joints flush. ♣



Woodworking



Shape Solid Surfacing Beautifully.

5 bits in 16 sizes handle solid surface undermount bowl and decorative edge routing with micro-grain carbide-tipped efficiency. Line includes 15° bevel, rounding over, ogee, no drip and edge inlay bits.



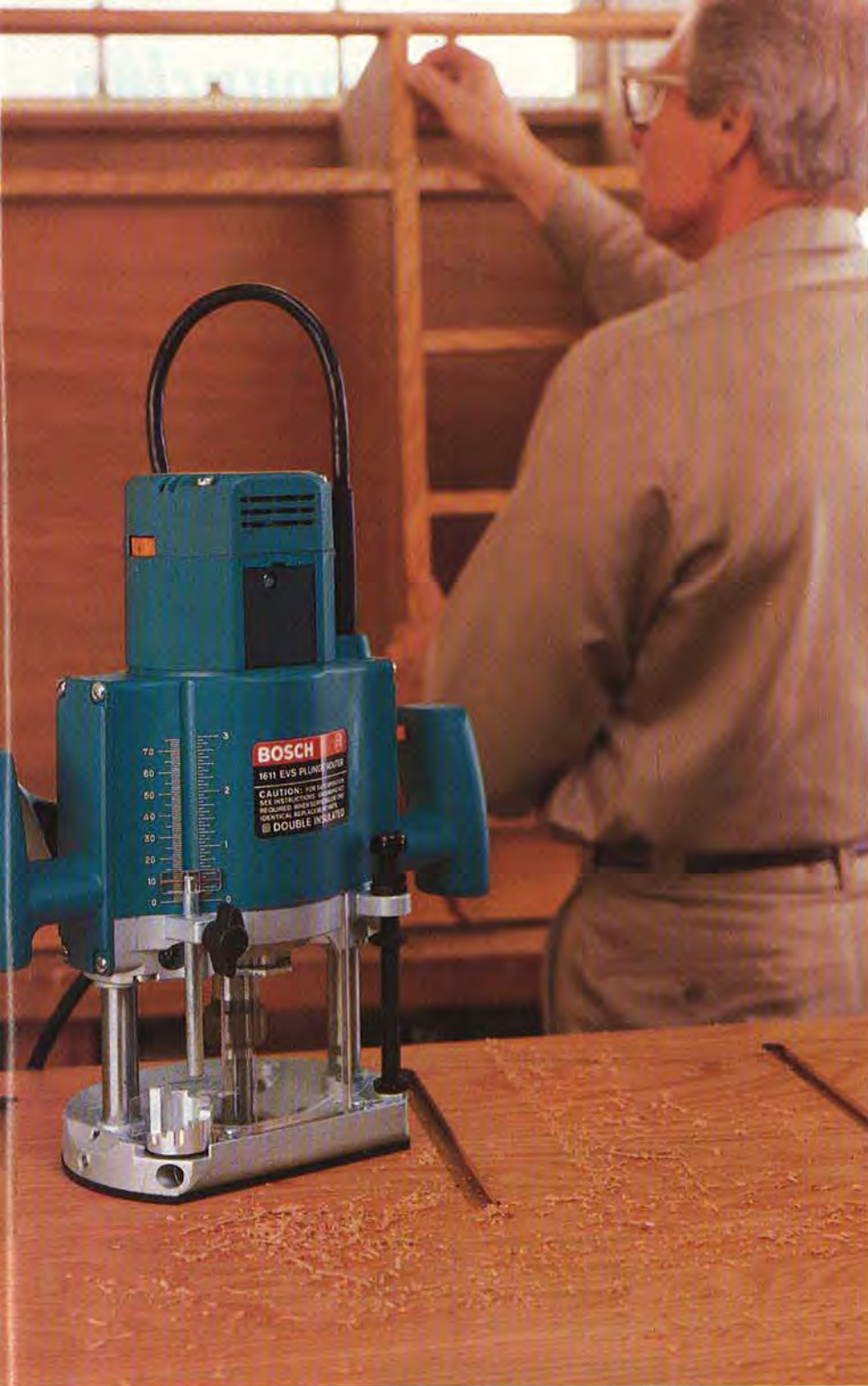
Trimming Laminates or Veneers?

Bosch 1608 Laminate Trimming System includes 5.6 amp motor and complete set of accessories for virtually all shop, installation tasks. Includes standard, tilting and offset bases.



Sander Features Exclusive Belt Tracking/Tensioning.

Model 1273 and companion models have unique belt centering system. Rated super duty for high production, the unit also has pinch point guards for safety and lever action for easier belt changes.



The Speed Varies So The Results Won't.

The new 3.25 H.P. Bosch electronic variable speed plunge router lets you make perfect plunge cuts time after time, no matter what the material or bit size. That's because it puts you in total control of speed, cutting depth, and the router itself, due to an

excellent ergonomic design.

The Advantages Of Variable Speed.

Select any speed, from 12,000 to 18,000 RPM, to match your material

and bit size — and get far better cutting results.

1611EVS electronics give you two more big advantages, too. "Soft start" when you press the trigger — no jarring "torque twist" means better control. And by monitoring RPM and feeding power as needed, it keeps you from bogging down, even in the toughest cuts.

Master Of Ergonomics.

From the first moment you get your hands on the variable speed model 1611EVS or the single speed model 1611, you'll know what separates it from other plunge routers. The handle grips feel like they were molded especially to fit your hands. The trigger switch, built into the right handle, and the plunge lock mechanism by your left thumb, let you reach these controls without taking your hands off the router.

Then press the trigger and take the plunge. Feel the housing glide down, and the ample power at your command as the bit slices effortlessly into your workpiece. Release the spring-loaded plunge lever and the housing locks firmly into position. And you can use the multiple-step depth-stop to make progressively deeper cuts with precision.

Both models accept the full array of 1/2", 3/8" or 1/4" shank bits. And with their built-in, spring-loaded shaft lock, changing bits is fast and simple.

The Bosch models 1611EVS and 1611 are available in cooler running, higher horsepower 220V models, too. Ask about them and the complete line of fine Bosch power tools for woodworkers, at your nearest Bosch power tool distributor. He's listed in the Yellow Pages under "Tools — Electric."



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Get the plans to build this Harvest Table. Measured and drawn by master-woodworker Carlyle Lynch, these plans make it easy to build this authentic reproduction of this antique drop-leaf table.



Materials List

PARTS

A. Back legs (2)	1 1/2" x 2 1/2" x 30"
B. Front legs (2)	1 1/2" x 2 1/2" x 25 1/2"
C. Back braces (2)	1 1/2" x 2 1/2" x 26 1/2"
D. Slats (8)	1 1/2" x 3 1/2" x 25 1/2"
E. Upper back support	1 1/2" x 3 1/2" x 25 1/2"
F. Arms (2)	1 1/2" x 1 1/2" x 20"
G. Arm braces (2)	1 1/2" x 2 1/2" x 7"
H. Lower back support	1 1/2" x 1 1/2" x 20"
J. Back seat (1)	1 1/2" x 2 1/2" x 25 1/2"
L. Back seat side	1 1/2" x 2 1/2" x 25 1/2"
M. Seat slats (6)	1 1/2" x 1 1/2" x 25 1/2"

HARDWARE

#12 x 2 1/2" Flathead wood screws (26)
#10 x 1 1/2" Flathead wood screws (2)

Step-by-step instructions

No more guesswork! Every project is thoroughly explained, one step at a time.

Expert Answers When a special technique is called for, we'll show you how to do it right—the first time.

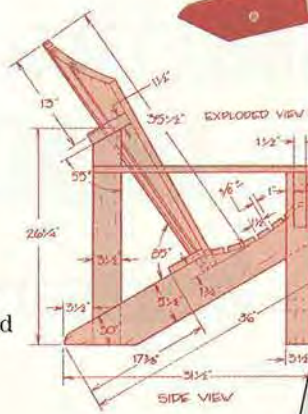
Close-ups show details Even intricate handwork is made simple with close-up photos and detailed drawings.

Exploded illustrations You'll see exactly what to do with the help of carefully detailed drawings.

Photo of finished project You'll see exactly what your final project will look like.

No-nonsense writing We've taken out the jargon and made things easy to read and understand.

Top-quality projects Each project is designed for good looks and sturdy performance.



TRY THIS! You can scribe the arcs on the back supports and seat rail with a compass made from string. But you'll find it easier and more accurate if you use a wooden yardstick instead. A compass is a wooden yardstick is ideal. Drill small holes at intervals along the length of the board. Use the string as a compass, put a finishing nail through one of the holes in the compass stick, measure along the string from the finishing nail to another hole, and insert the sharp end of a pencil through that second hole. Then swing the arc.



A—Adirondack chairs are timeless and attractive. See page 116 for complete details on building one for your yard.



B—For courting or contemplation, this contoured porch swing will turn any house into a country home. See page 24.

C—This garden bench, with its gently curving arms, gives you a comfortable place from which to enjoy the beauty of your yard. Step-by-step details start on page 54.



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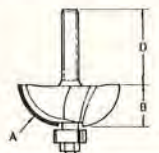
PART NO.	D	PRICE
802	3/8"	\$7
804	1/2"	\$7
* 804-1/2	1/2"	\$7
806	9/16"	\$8
810	3/4"	\$9
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* 812-1/2	1"	\$12

Flush Trimming



PART NO.	A	PRICE
S8012Y	3/8"	\$7
S8016Y	1/2"	\$8
* S8016Y 1/2	1/2"	\$8
S8020	5/8"	\$10
* S8020 1/2	5/8"	\$10

Cove Bits



PART NO.	A	PRICE
S702Y	1/16"	\$12
S704Y	1/8"	\$12
S706Y	3/16"	\$12
S708Y	1/4"	\$13
S710Y	5/16"	\$14
S712Y	3/8"	\$15
S716Y	1/2"	\$16
* S716Y-1/2	1/2"	\$16
* S724Y-1/2	3/4"	\$28

Corner Round



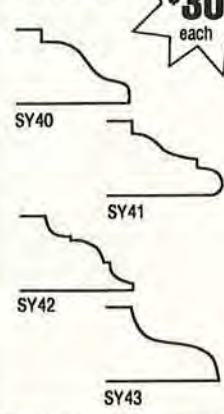
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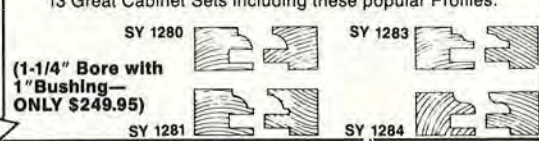
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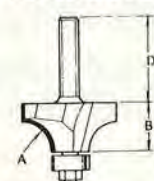
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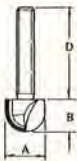
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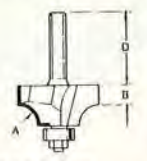
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S502Y	1/16R	\$11
S504Y	1/8R	\$11
S506Y	3/16R	\$11
S508Y	1/4R	\$12
S510Y	5/16R	\$13
S512Y	3/8R	\$15
S516Y	1/2R	\$16
* S516Y-1/2	1/2R	\$16
* S520Y-1/2	5/8R	\$20
* S524Y-1/2	3/4R	\$20
* S528Y-1/2	7/8R	\$34
* S532Y-1/2	1R	\$34
* S536Y-1/2	1-1/4R	\$40

Core Box



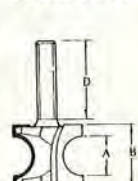
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S408	1/4	\$10
S412	3/8	\$10
S416	1/2	\$12
S420	5/8	\$14
S424	3/4	\$15
* S424-1/2	3/4	\$15
* S432-1/2	1	\$18
* S450-1/2	1-1/2	\$30

Beading



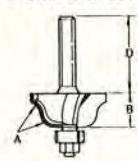
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S602Y	1/16R	\$11
S604Y	1/8R	\$11
S606Y	3/16R	\$11
S608Y	1/4R	\$12
S610Y	5/16R	\$13
S612Y	3/8R	\$15
S616Y	1/2R	\$16
* S616Y-1/2	1/2R	\$16
* S624-1/2	3/4R	\$20

Bull Nose



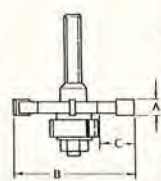
PART NO.	A	PRICE
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* SY9-1 1/2	1/4	\$14
SY9-3	3/8	\$15
* SY9-3 1/2	3/8	\$15
SY9-4	1/2	\$15
* SY9-4 1/2	1/2	\$15
SY9-5	5/8	\$16
* SY9-5 1/2	5/8	\$16
SY9-6	3/4	\$16
* SY9-6 1/2	3/4	\$16
* SY9-8 1/2	1	\$18
* SY9-9 1/2	1-1/8	\$30
* SY9-10 1/2	1-1/4	\$35
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* SY9-12 1/2	1-1/2	\$40

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* S5705Y 1/2	5/32	\$16
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* SY7004 1/2	5/32 (4mm)	\$22
SY7006	3/16	\$22
* SY7006 1/2	3/16	\$22
SY7008	1/4	\$24
* SY7008 1/2	1/4	\$24

* Indicates 1/2" shank.

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Referring to the tree's large and showy blooms, botanists call magnolia the most splendid tree in America's forests. Early settlers, though, were more impressed with practicality than beauty. In the southern reaches of the Allegheny Mountains, these hardy pioneers collected the conelike fruits that followed magnolia's flowers, then steeped and distilled them into a medicine said to ward off "autumnal fever."

In far more ancient times, the magnolia and its blooms actually played a major role in the evolution of hardwood trees. It seems that conifers, the dominant tree in primeval woodlands, relied on the whims of the wind for pollination and survival. The magnolia, however, developed the trait of producing fragrant flowers that attracted voracious beetles. Then, just as bees do now, the beetles traveled from tree to tree, reliably pollinating and propagating the species.

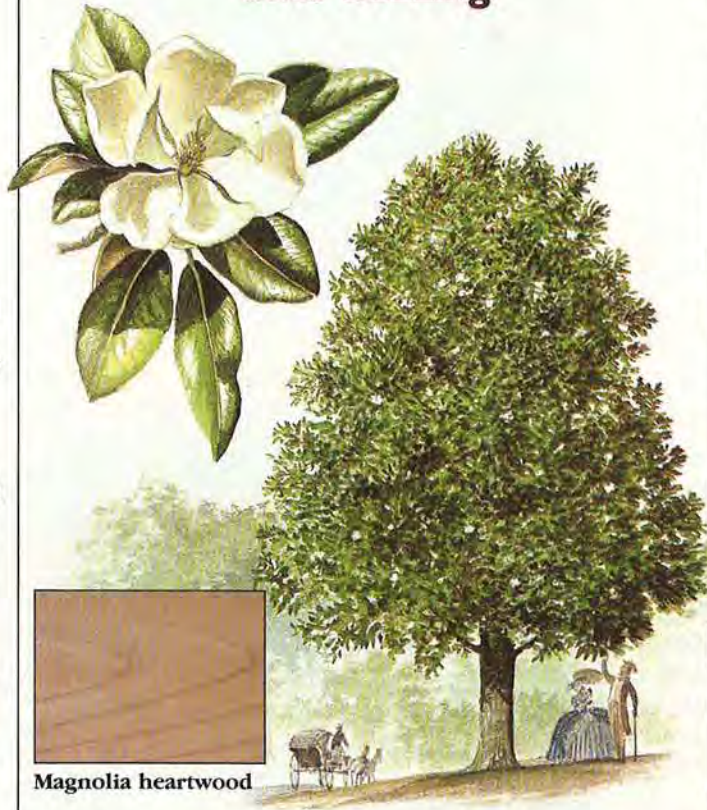
Today, southern magnolia and cucumber, its cousin, represent a significant slice of the southeastern hardwood lumber industry. Marketed as magnolia, both woods find their way into the hands of knowing craftsmen.

Wood identification

You'll find cucumber (*Magnolia acuminata*) in mixed hardwood

MAGNOLIA

The hardwood that sets bees buzzing



Magnolia heartwood

stands from southern New York to Florida, and west through Illinois to Iowa and Texas. Southern magnolia (*Magnolia grandiflora*) prefers the warmer areas of the range. Other species of magnolia, cultivated as ornamentals due to their blooms, may grow as far north as Wisconsin, but not in commercial quantities.

In the forest, cucumber can measure 100' tall and 4' or more in diameter. Its brown, deeply furrowed bark resembles that of elm. In late May and June, the tree sports greenish-yellow flowers

hiding amidst its leaves. Southern magnolia, with its scaly, light gray-green bark, averages only 80' tall and seldom attains 3' in diameter. Fragrant, creamy white flowers, often 10" across, decorate its branches from June through October.

Similar in weight to cherry, the wood of both magnolias is light yellowish-brown and plain-featured. Sometimes, it contains purple-colored mineral streaks that add interest.

Working properties

Magnolia has hard, fine-textured, straight-grained

wood that some people might mistake for maple. And, like maple, magnolia works easily with power tools. It also won't warp when thin-sawed, turns well, and steam bends.

Because magnolia resists splitting and glues exceptionally well, you'll have no trouble joining it. You can plane the wood to a smooth surface that requires little sanding. Due to its fine grain, you won't have to fill before finishing with your choice of paint, stain, or clear coatings.

Uses in woodworking

Because magnolia remains stable after seasoning, it was once the standard wood for venetian-blind slats. That same stability makes it an acceptable substitute for yellow poplar. Cabinet carcasses and furniture, toys, and interior trim, all fair well when made of this widely unappreciated wood. Use it for turned bowls and other food containers, too, since it doesn't impart a taste or carry an odor.

Cost and availability

Where it's sold, magnolia usually costs the same as yellow poplar, about \$1.25 per board foot. In the South and Southeast, you'll find it more readily available, and in boards up to 2" thick. Four-inch square turning stock also is marketed. Due to lack of demand, magnolia isn't made into veneer. 🌿

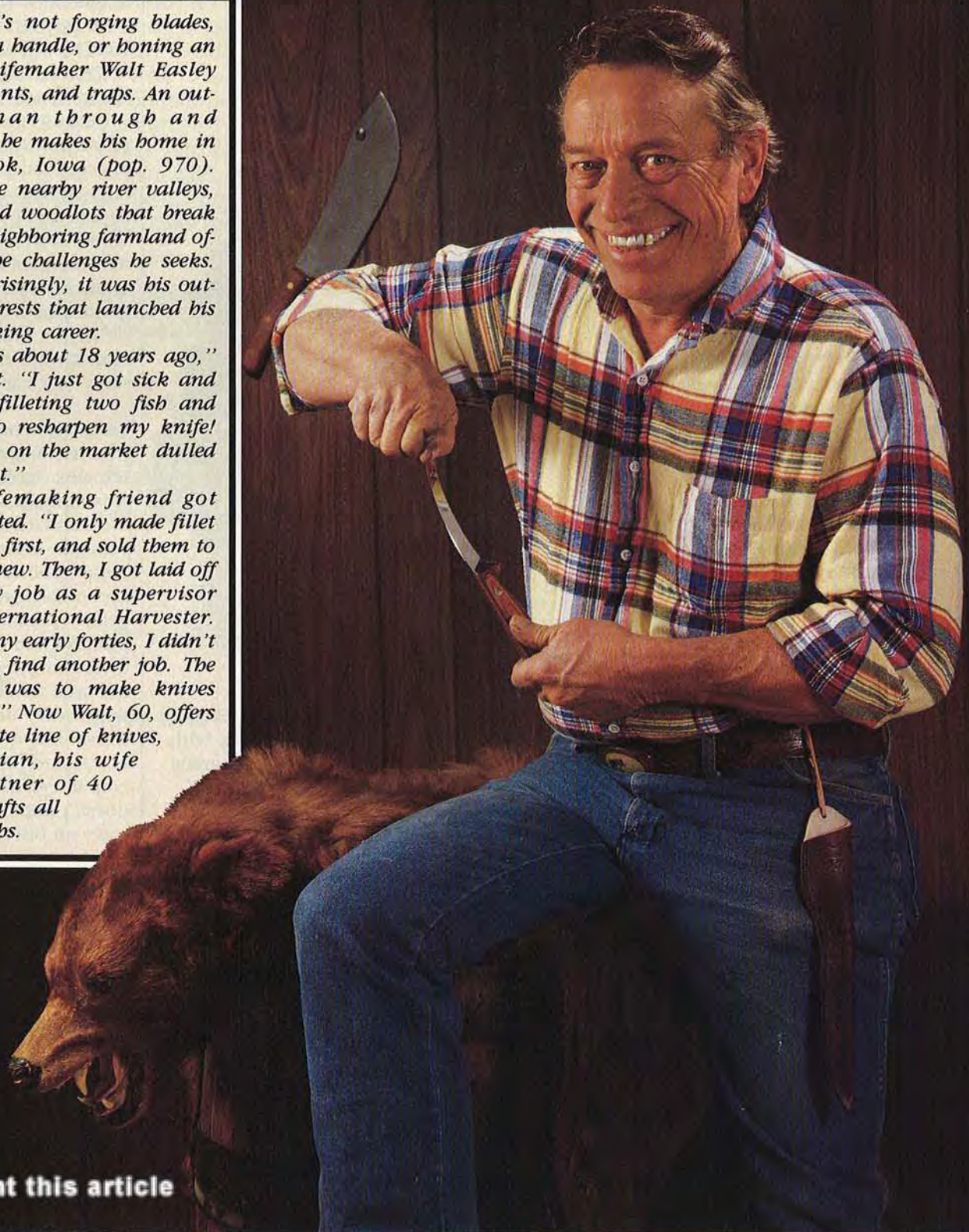
Illustration: Steve Schindler
Photograph: Hopkins

KNIFEMAKER WALT EASLEY FORGES AHEAD IN PREMIUM THE 400-FISH FILLET KNIFE WITH

When he's not forging blades, shaping a handle, or honing an edge, knifemaker Walt Easley fishes, hunts, and traps. An outdoorsman through and through, he makes his home in Gladbrook, Iowa (pop. 970). There, the nearby river valleys, lakes, and woodlots that break up the neighboring farmland offer all the challenges he seeks. Not surprisingly, it was his outdoor interests that launched his knifemaking career.

"It was about 18 years ago," says Walt. "I just got sick and tired of filleting two fish and having to resharpen my knife! Anything on the market dulled pretty fast."

A knifemaking friend got Walt started. "I only made fillet knives at first, and sold them to folks I knew. Then, I got laid off from my job as a supervisor with International Harvester. And, in my early forties, I didn't think I'd find another job. The solution was to make knives full-time." Now Walt, 60, offers a complete line of knives, and Lillian, his wife and partner of 40 years, crafts all the sheaths.



Print this article

THE MIRACLE-WOOD HANDLE

Iowa knifemaker Walt Easley claims, "The handle of a knife is 75 percent of its appeal." Yet, that appeal helped sell about 1,000 fillet knives last year from his line of sporting blades and cutlery.

Willie Nelson totes one of Walt's knives on fishing trips. So does Willie's hunting and fishing buddy, fellow country singer Eddie Rabbit. Television fishing show stars Virgil Ward, Greg Ward, Tony Dean, and Gary Roach own and use them, too. And, at fishing tournaments, you're likely to spot Linda England and Freida Lee, known on the professional fishing circuit as "The Bassin' Girls," carrying Easley knives in their tackle boxes.

How can you identify one of Walt's fillet knives? By the handle, of course.

HIGH-TECH WOOD HANDLES THAT TAKE ABUSE

Walt's years of knifemaking have encompassed lots of research and quite a few experiments. He's toyed with different types of steel, blade shapes, and handle contours to improve his line. Perhaps his most remarkable discovery, though, was

the high-tech, miracle wood that he forms into handles on 95 percent of his blades.

"I've used walnut, rosewood, ebony, cocobolo, Osage orange, tulipwood, antlers, horn, and ivory. You name it and I've probably made a knife handle out of it," says Walt. "That was, of course, before I found out about Pakkawood®."

About five years ago, Walt and Lillian were displaying their wares at a Kansas City gun show, when he spotted a piece of unusual, multicolored wood on another exhibitor's table. "I asked the gun dealer about it, and he said the product was sometimes used for gunstocks and compound bows. I bought a chunk, took it home, and made a knife handle," Walt remembers.

Since then, he's become a real fan. "Ebony makes really good handles, and rosewood, too, but you have to seal them or any wood with oil or polyurethane," Walt notes. "And whatever finish you use will eventually wear off and have to be renewed. Pakkawood doesn't require a finish, and there's no wood that can stand up to the abuse it will take."

As raw stock, Pakkawood hardly resembles wood at all. That's because it's made of ultra-thin (about 1/32") real wood veneers vacuum impregnated with dyes and phenolic resins, then pressed together under 2,000 pounds per square inch pressure. When worked, though, the grain becomes bold and exotically patterned. The colors

grow vivid, and depending on the colors of the combined dyes, naturally complementary to each other or strikingly con-

trasted. Textureless and rock-hard, the substance doesn't feel like wood, either. "The manufacturing

process makes the wood veneers about 200 percent stronger than solid wood," he states.

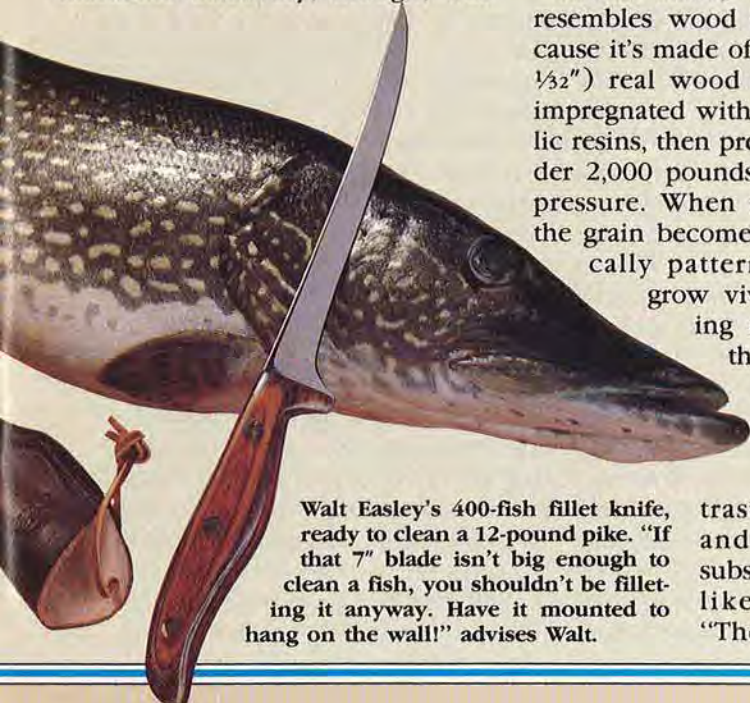
"Nicks and scratches buff out. And, when Pakkawood gets wet, you can actually grip it better, due to the resin count," Walt continues. "Water won't hurt it—we put one of my kitchen knives (shown below) in the dishwasher for three months with no effect!" (For more information about this material, see the end of the article.)

GETTING A GRIP ON A KNIFE

According to Walt, a knife fits when you can grasp it in your palm without the handle rubbing the heel of your hand. "I have a pretty average-sized hand, so I grip every knife I make to see how it feels because I'm trying to hit a happy medium. For the fillet knives, I make handles in a variety of sizes because I want them to fit a variety of people," he explains. "When someone comes to me to order a knife, I check out their hands while we're talking. If they're larger than mine, I make the handle a little bigger, and vice versa."

Sportsmen's knives, both for skinning and filleting, should be "handle-heavy," notes Walt. "That's so if

Continued



Walt Easley's 400-fish fillet knife, ready to clean a 12-pound pike. "If that 7" blade isn't big enough to clean a fish, you shouldn't be filleting it anyway. Have it mounted to hang on the wall!" advises Walt.



"Kitchen cutlery to match the best available—and dishwasher-safe to boot." That's what Walt claims of his new line of knives. The "peapicker" at bottom sells for \$13; the cleaver, \$66.

you should lose your grip, the blade won't fall from your hand."

With his line of kitchen cutlery, Walt opened a new chapter on handles. "I found out that large-handled kitchen knives don't give you any leverage for slicing. I made mine narrow in profile so when the thumb rests on top to push or guide, the fingers tuck up against it. They're different, but comfortable."

STEEL BENDS FULL CIRCLE

Unlike many sportsmen, Walt's not prone to bragging. He'll tell you flatly, though, that his blades do hold an edge for a long time.

"That fillet knife is probably good for 400 fish between sharpenings," he says, with nothing except honesty showing on his wind-and-sun-hewn face. "Nevertheless, I always say about 40." Longlasting sharpness should be a hallmark of any fine quality knife, but a working fillet knife must be even more. "A filleting blade must have body to cut through a fish's ribs, yet enough flexibility to cut flat," says Walt. "If the blade won't flex, then the handle and your hand get in the way."

If flex is that important, Walt's fillet knives just may be overqualified. His will bend full circle, then spring back to original shape! Not that Walt advises buyers to mistreat an Easley knife—there's a limit to what his knives can do. "A lady sent one of my knives back for replacement under my guarantee," he recalls. "The tip was broken completely off. It looked as if she had pried something with a back-and-forth motion until the tip broke. I sent her a new knife, along with a screwdriver to use next time."

NO TO-DO OVER STAINLESS

Finding high-quality steel strong enough to hold an edge, yet springy enough to bend without breaking or taking a set was a definite challenge in Walt's knifemaking. Add to that the fact that most buyers also want blades that won't rust or stain, and Walt had, for awhile, a real dilemma going.



In the foreground, stamped, tempered blades ground to rough profile. Standing in back, fillet and hunting knives from Walt's product line.

"I wanted a high-carbon steel that would hold an edge, but high-carbon steel will eventually rust," he explains. "Stainless won't rust or stain, but I couldn't heat treat it so that it would hold an edge for very long. There's lots of talk about how good stainless is, but if it is so tough, why don't they make saw blades from it?"

Finally, Walt settled on a high-carbon tool steel. "In the trade, it's called 'Ten-nine-five' [1095]—10-grade steel, and .95 percent carbon," he notes. "Hard, to hold an edge, but not brittle. Then, to keep it from staining and rusting, I alloyed it with vanadium."

Walt's vanadium blades test about 54–56 on the Rockwell scale. Some knives by other makers test out higher. He's satisfied, however: "The trouble with a high Rockwell-rated blade is brittleness—the edge doesn't roll, it breaks."

Sharp blades start with quality steel. But, there's many a step from

the raw steel to the blade.

Walt once forged all his blades himself. Now, he has them forged and tempered in a nearby city by someone he trained and trusts. The blades come to him black and hammered, but at his grinder, each one takes on its final profile. He smooths their surfaces and shapes the angle of their cutting edges at his stationary belt sanders, progressing from 60-grit to 300-grit metal-grinding belts. For a final polish, Walt buffs them on a muslin wheel with a talc-like compound.

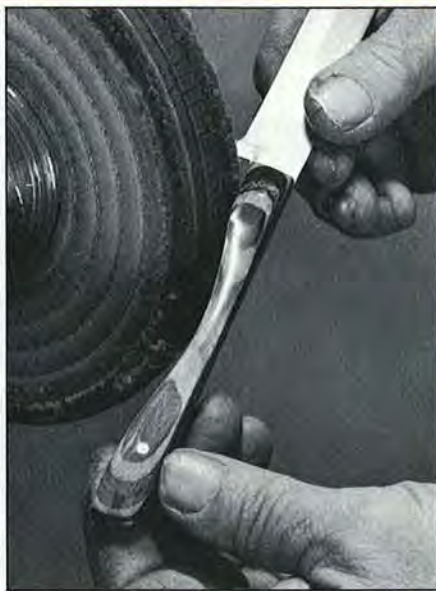
THE HANDLE BEFORE THE EDGE

Fitting and shaping the handle takes but a few minutes. For fillet and hunting knives, Walt rivets-on the $\frac{3}{8}$ "-thick handle stock. To withstand the ravages of water and washing, Walt pins and epoxies the handles on his kitchen cutlery.

Back at the grinder again, he takes down the stock, conforming



With a 60-grit belt, Walt grinds the laminated wood handle of a large meat slicing knife.



At the buffing wheel, the knife handle and blade take on a high luster. Pakkawood requires no finish.

it to the handle shape on the blade's tang (see photos, *above*). Now smooth and contoured, the handle takes on a high sheen at the muslin wheel.

He's now ready for the final touch: sharpening. "I do all the sharpening on the fine grinding belt, by eye," he says. "I grind fillet knives at about an 18-degree bevel so the edge slides into the cut. The others get about a 20-degree angle. Too wide an angle, the edge wedges and creates resistance.

"After sharpening," adds Walt, "I buff the blade. Then, I engrave my signature on it."

NOT A MISTAKE, JUST A NEW KNIFE

Walt won't show or sell a knife with a flaw. "I never have any seconds. If I mess one up, I grind it

down for another style of knife, or, it goes in the garbage."

Grinding down a mistake was, in fact, how Walt stumbled upon the tiny paring knife he calls the "pea picker." As he explains, "I ground too deep in the handle of a knife, so I continued to grind, as kind of an experiment. Finally, it got quite tiny and I could barely hang on, so I buffed it up and gave it to Lil. Well, she had just gotten 18 pounds of fresh strawberries that morning. Turns out, she stemmed all 18 pounds with that little knife, then told me I'd better start making them. I did."

For more about Pakkawood, write: Adam's Pakkawood Corp., Dept. WE, P.O. Box 831, Holyoke, MA 01041.

WALT'S TIPS ON BLADE CARE

- "A ceramic sharpening stick will bring an edge back. A sharpening steel only straightens an edge. If a knife gets real dull, use an Arkansas stone."
- "To sharpen a fillet knife, lay the blade almost flat on the stone. It has to have a flat angle or it will have too much resistance when you cut."
- "You have to protect high-car-

bon knives from rusting and pitting. A sheath, for instance, should be only lined with vegetable-tanned leather. Regular leather has salt in it."

- "Kitchen knives shouldn't go into the dishwasher. The moisture isn't good for traditional wood handles. And, the changing temperature dulls a blade by rearranging the steel's molecules."



WANT TO MAKE A FIRST-RATE EASLEY KNIFE?

We liked Walt Easley's knives at first glance. Later, after we tried out a few, the fillet knife especially impressed us. "Why not give *WOOD*® magazine readers a chance to make one?" we thought. Now, you can, and at half retail price!

Walt has assembled a kit (shown *above*) to make his \$40 fillet knife. It includes:

- a polished and honed vanadium steel blade pre-punched for rivets;
- pre-bored and countersunk Pakkawood handle stock (in three colors, *below*);
- five brass rivets for attaching



handle (includes two extra);

- complete assembly and finishing instructions.

Walt has priced the complete kit at \$20 ppd. For an additional \$6.50, you'll receive one of Lillian's top-grain leather sheaths for your knife.

To order: Send check or money order for total amount payable to Easley Knives, to *Walt Easley, Knifemaker, Box 478, Gladbrook, IA 50635*. Specify color (Lava, Red-White-Blue, Mesquite). Allow 4-6 weeks for delivery. ♣

Written by Peter J. Stephano
Photographs: Hopkins Associates



CABINET CLEANUP TRICKS

FROM OUR RESIDENT WOODWORKING PRO

Contrary to what you might expect, savvy cabinetmakers don't put off sanding, scraping, and other cleanup work until after they have completed a project. The real pros plan for cleanup as part of the building process. Why? "Because it makes for a better end result, and when you're woodworking for hire, it's results that count," according to Jim Boelling, our *WOOD*® magazine project builder. And he should know because he's built more than his share of cabinets for us and for others during the past 20 years.

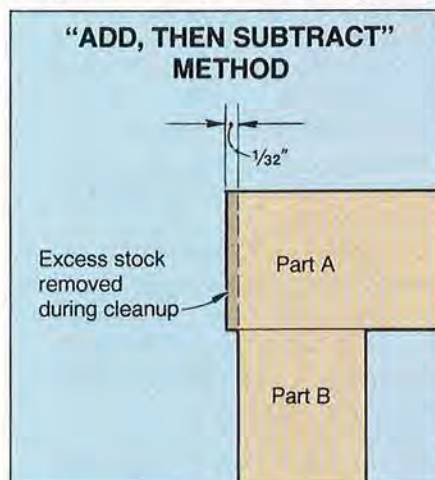
We followed Jim around the shop one afternoon not long ago, and listened and watched as he explained his tried-and-true techniques for prepping his work for the final finish. And, we weren't surprised when he gave us more than our money's worth in woodworking wisdom, which we'd now like to pass on to you.

THINK CLEANUP FIRST, THEN START BUILDING

Before cutting your first piece of wood for any project, anticipate which parts you will cut strong (oversized). Doing this provides you a small margin (about $\frac{1}{32}$ ") of waste material at joints. Why? You achieve a clean, flush joint by removing extra stock during the cleanup process.

The drawing *above right* shows how this "add, then subtract"

method applies to a simple butt joint. "I cut the cabinet top (part A) so it will overlap the cabinet side (part B) by about the thickness of a dime after assembly. This margin enables you to clean up any



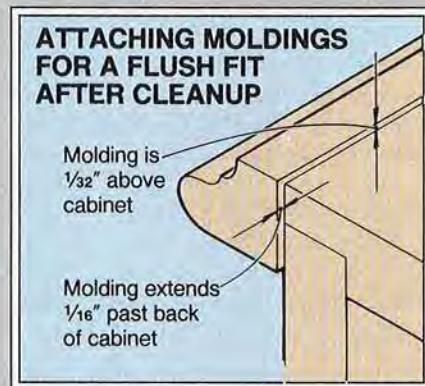
saw marks and hardened glue squeezeout after assembly," Jim says. You can use this process throughout the cabinet construction process. For instance, it also pays to leave cabinet shelves about $\frac{1}{32}$ " wide before positioning them between two cabinet sides, then work the shelves flush.

It's especially important to leave yourself this margin if you're using thin-veneer plywood. For example, if you assemble the joint in the illustration *above* perfectly flush to begin with, you might end up sanding through the veneer on part B when you clean up part A.

HOW TO MAKE A MOLDING FLUSH WITH A SURFACE

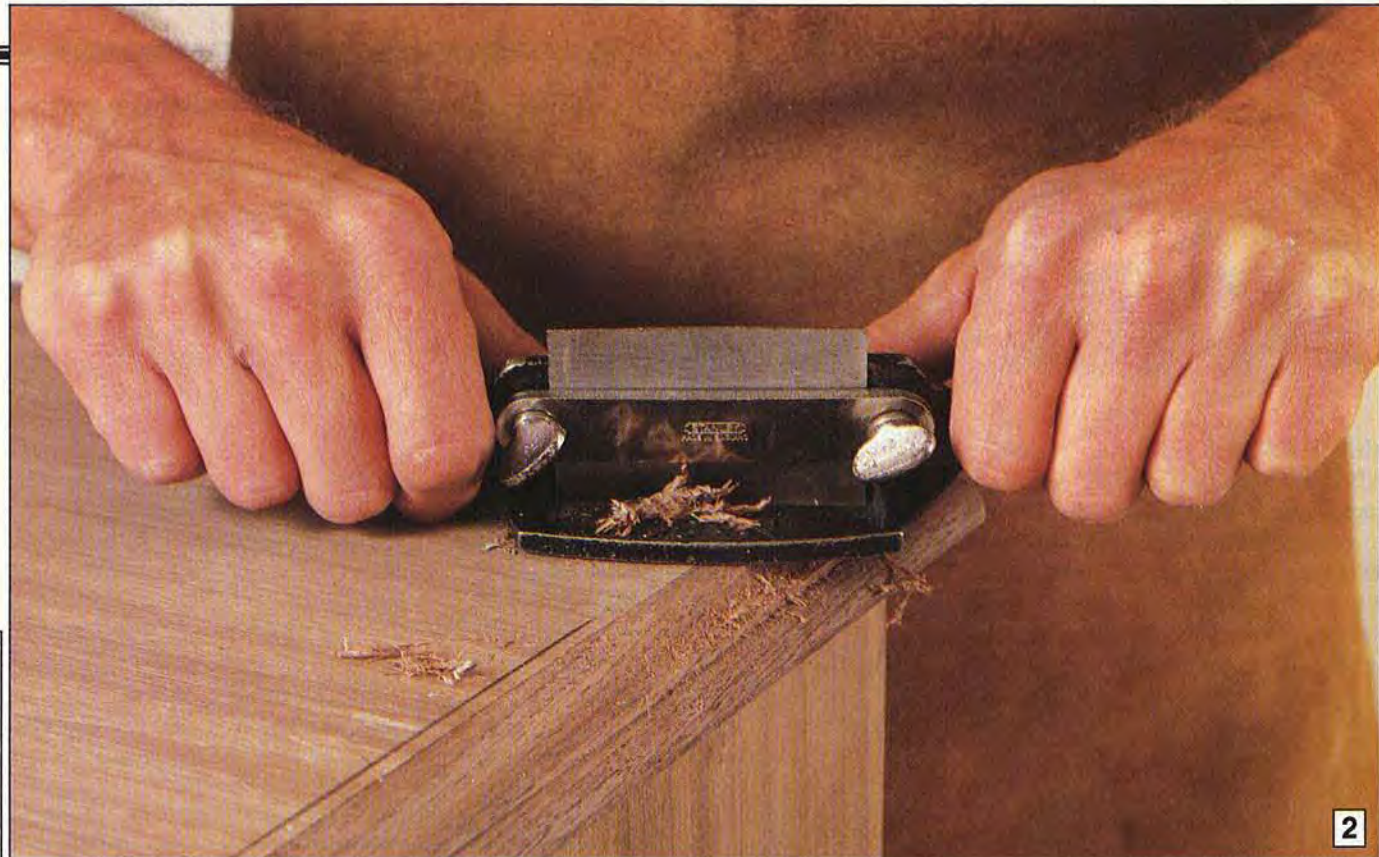
You can use the same "add, then subtract" method described at *left* to work moldings flush to a cabinet top. The tools and techniques shown in the sequence at *right* also apply to other exposed joints.

First, cut all the mitered ends of the moldings and test them for fit. Then, glue molding onto the carcass approximately $\frac{1}{32}$ " high to provide waste along the top edge of the cabinet as shown *below*. After

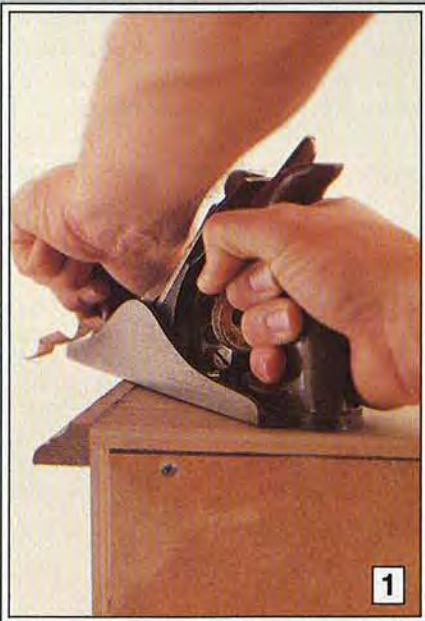


the glue skins over (about 30 minutes), remove squeeze-out with a hand scraper. Then, use a smoothing plane to remove most of the waste, as shown at *right*. "Stroke the plane at an angle toward the outside edge of the molding, and stop when the surfaces are almost flush," Jim advises.

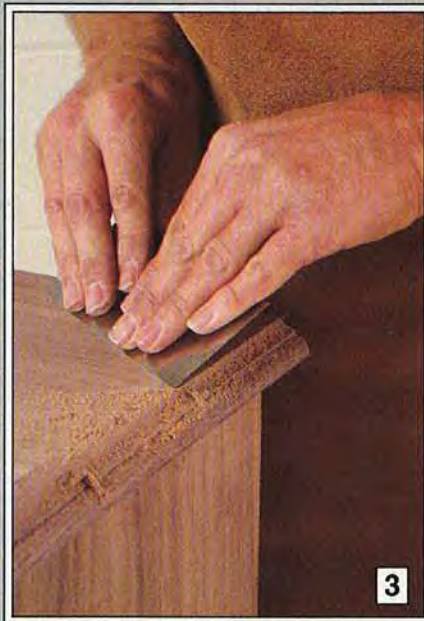
Now, mark a pencil line on the cabinet top about $\frac{1}{4}$ " away from



2



1



3

◀ *Step 1:* To work the molding flush with the cabinet top, start with a smoothing plane for fast stock removal.

▲ *Step 2:* Next, draw a pencil line running parallel to the joint and use a cabinet scraper until the line disappears.

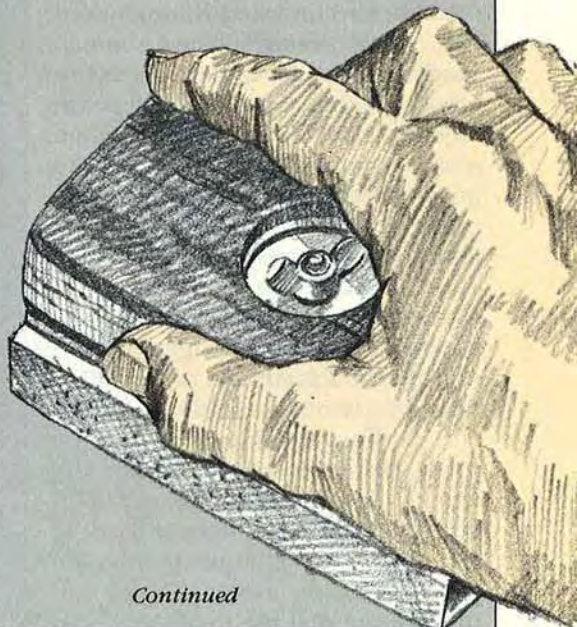
◀ *Step 3:* If you notice any minute imperfections after sanding, remove them with a hand scraper.

the joint line and parallel to it. Next, with a sharp cabinet scraper, bring the joint flush and remove marks left by the plane as shown *top*. When the pencil line disappears, quit scraping.

Then, sand the joint smooth with a hardwood sanding block such as the one shown at *right*, using a succession of 180- and 220-grit papers.

Sand with the grain of the cabinet top—not the molding—and be careful not to round over the outside edge of the molding.

If minute sanding marks remain, follow up with a hand scraper as shown *above*. “With a scraper, you can quickly remove small scratches without introducing more sanding marks to the surface,” Jim says.



Continued



DON'T SAVE THE SANDING FOR LATER

After cutting and milling all of your project pieces, clean up those parts and surfaces that would be difficult—or impossible—to do after assembly. Such parts might include the inside surfaces of the carcass and drawers, the edges of a raised-panel insert, and “plant-on” parts, such as moldings, decorative plaques, and filigrees.



After scraping the beveled portion of a raised panel, we switched to a hardwood sanding block.

As shown *above*, it pays to finish up the beveled edges of a raised panel before inserting it into a door frame. After using a hand scraper, sand with a hardwood sanding block to achieve a smooth, flat surface and crisp edges. Sand through a succession of 100, 150, and 220-grit papers. Because cross-grain edges require more sanding than other edges, clean up those first. Then, smooth the remaining two edges by lowering those to the profile of the cross-grain edges. Finally, smooth the flat surface of the panel with the same succession of grits. “It’s also a good idea to stain the panel before inserting it into the frame,” our resident pro adds. “If you stain the panel after it’s in the frame, it may shrink across the grain, exposing a thin line of unstained wood along the edges.”



Sand convex surfaces by wrapping sandpaper around a felt pad.



Sand inside and outside corners with a hardwood sanding block to maintain

A PRO'S PROCEDURE FOR SANDING PROFILES

Whether you buy milled moldings or shape your own, the profile always needs touching up. First, sand all the concave (inward curved) surfaces.

To do this, wrap the sandpaper around a dowel that's long enough to fit comfortably in your hand (4–6") and that's equal to or slightly smaller than the radius of the surface being sanded as shown on the opposite page. If you use a larger-diameter dowel, it will flatten the sharp profile edges and you'll lose the original molding shape.

Then, sand the convex (outward curved) surfaces, wrapping the sandpaper around a piece of ¼"-thick sheet cork (available at many hardware and craft stores) or the rib of a felt chalkboard eraser as shown at *left*.

Finally, clean up the flat shoulders (outside corners) and inside corners with a hardwood sanding block as shown *below*. Using the block ensures sharp, crisp lines.

sharp lines. The block should have square bottom corners for best results.



Judicious sanding will give mismatched miters a matched look.

HOW TO MANAGE A MISMATCHED MITER

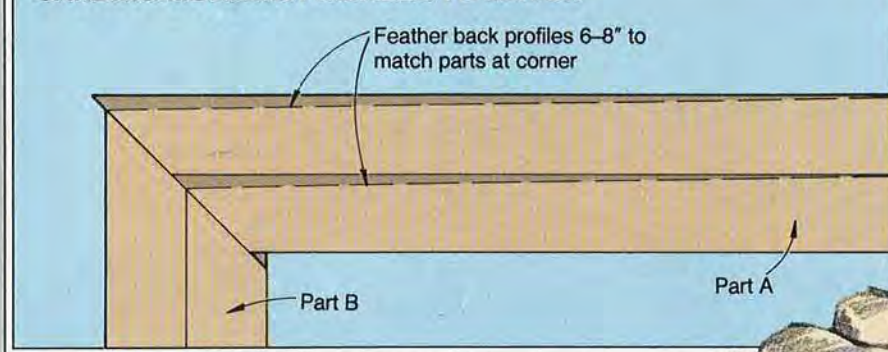
It's not easy to cut and assemble a perfectly mitered joint. You can make exact and true cuts, but one or both of the pieces may creep out of alignment after you've glued and clamped them in position. Even an expert like Jim Boelling admits to the occasional mismatched miter. His advice: Take care of any problem miters before cleaning up molding profiles as described on the previous page. Here's how Jim handles troublesome miters.

First, determine if you can true-up the mitered corner without

ruining the appearance of the project. "If the mismatch is, say, more than $\frac{1}{16}$ ", remove the offending part before the glue dries and try again. You'll be happier in the long run," Jim advises.

To correct minor mismatches like the one shown *above*, follow the procedure illustrated *below*. First, sand off the projecting tip of Part A to make it flush with the outside edge of part B. While sanding, gradually feather back the profile about 6" to 8" from the corner. Sand the length of pieces less than 8" long.

SANDING MOLDING PROFILES TO MATCH



THE FINISHING TOUCHES

Even if you put meticulous care into cleanup at every step, there are always some final touches to add. After cleaning up the molding profiles, "break" (round over) all the sharp edges with fine sandpaper (220- or 320-grit). Hold the paper in your hand and use a light touch to remove a minimum of stock.

Finally, sand the back end of the molding (leave the molding $\frac{1}{16}$ " long during construction as shown in the drawing on page 34) and back edges of the cabinet carcass flush with the hardboard back as shown *below*.



Hold the belt sander at an angle to avoid splintering the end of the molding.

Once finished with the carcass, repeat the final cleanup process on the doors, drawers, and any other subassemblies, removing stock as required to ensure a proper fit. Then, vacuum or blow excess dust off the cabinet and wipe down all surfaces with a rag dampened in mineral spirits. This reveals any fine scratches, glue marks, or other minor imperfections you may have missed, and removes most sanding dust from the the wood pores. After removing these blemishes, vacuum any remaining dust from the surface of the cabinet. Finally, apply the finish of your choice.

You can bet your next project will have a professional appearance if you follow these proven suggestions. ♣

Written by Jim Barrett

Illustrations:

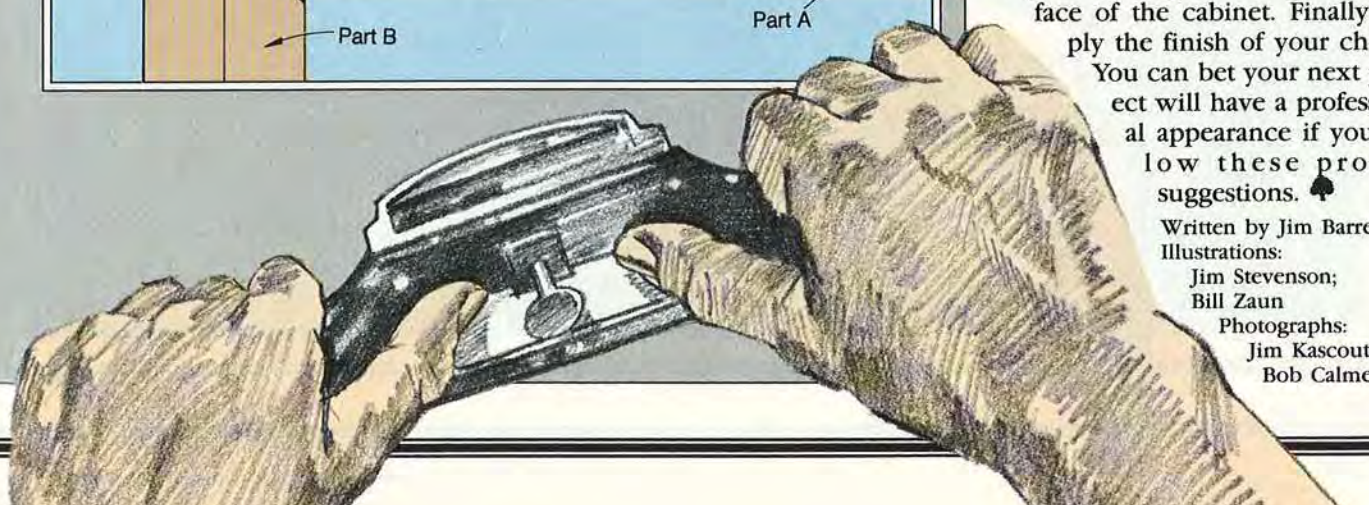
Jim Stevenson;

Bill Zaun

Photographs:

Jim Kascoutas;

Bob Calmer



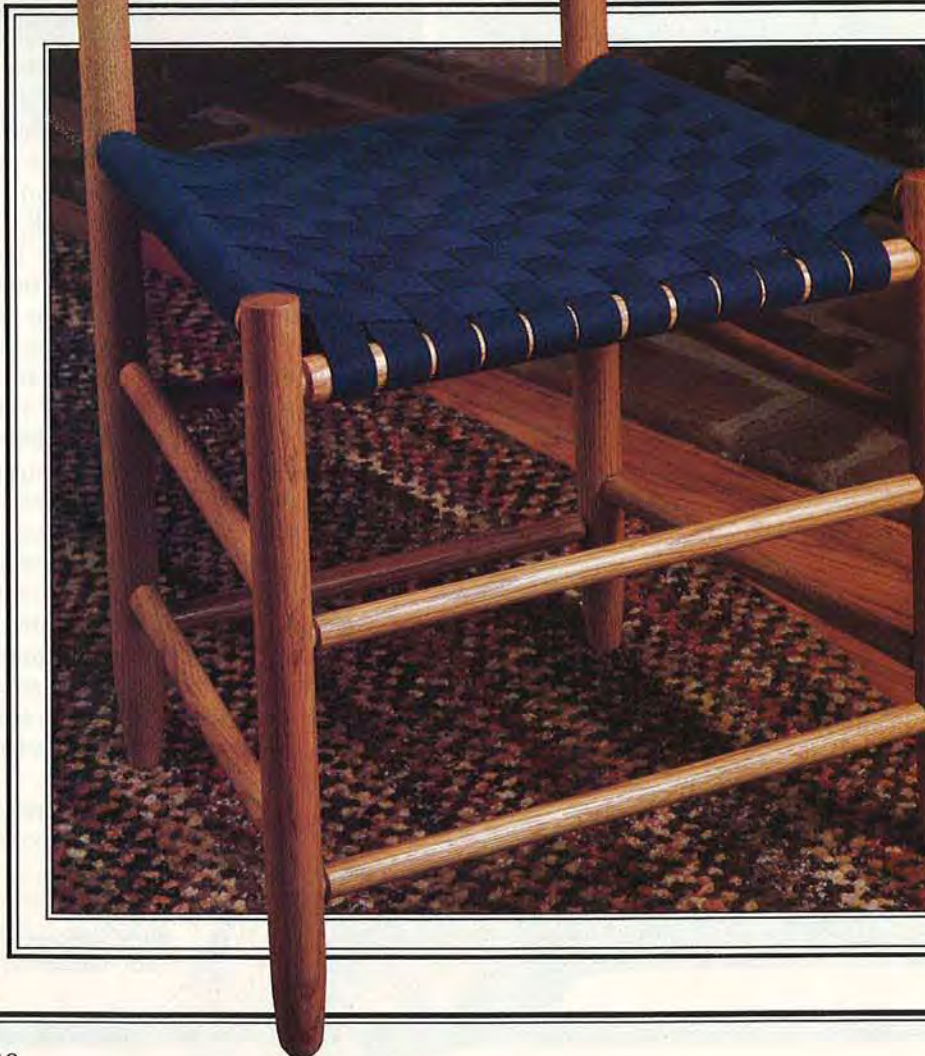
SHAKER SIMPLICITY

Of all the magnificent designs Shaker furnituremakers left behind as a testament to their skills, none is more universally recognized than the ladder-back chair. Not only was this the most widely sold chair they made, I think it's also one of their most handsome.

Our chair derives its enduring utilitarian lines from a Harvard Shaker chair built around 1850. I adhered closely to measured drawings, but raised the seat about 1" for comfort, and eliminated finials from the chair back for simplicity.

After you construct our jig and drilling guide, you can build a set of chairs with ease. The chairs match well with the trestle table featured in our April 1989 issue.

J. R. Oving, Design Editor



Bill of Materials

Part	Finished Size			Matl.	Qty.	
	T	W	L			
JIG AND DRILL GUIDE						
A	bottom layer	3/4"	9"	46"	P	1
B	second layer	3/4"	3 7/8"	46"	P	2
C	third layer	1/2"	3 7/8"	46"	P	2
D	top layers	3/4"	1 1/2"	46"	P	4
E	dowel clamp	3/4"	1 1/2"	2 1/4"	M	1
F	drill guide	3/4"	*	11"	P	2

Material Key: P-plywood, M-maple
 *This dimension will depend on the diameter of your router base. See End View and Drill Guide drawings and read the instructions for determining this dimension.

Supplies: 6d finish nails, #8 x 1 1/2" flathead wood screws, finish.



Print this article

SHAKER SIMPLICITY

6 Center the hole in the dowel clamp against the 1¼"-wide recess, and screw the clamp to the end of the jig (see the End View for reference). Set the jig aside for now.

BUILD THE DRILL GUIDE

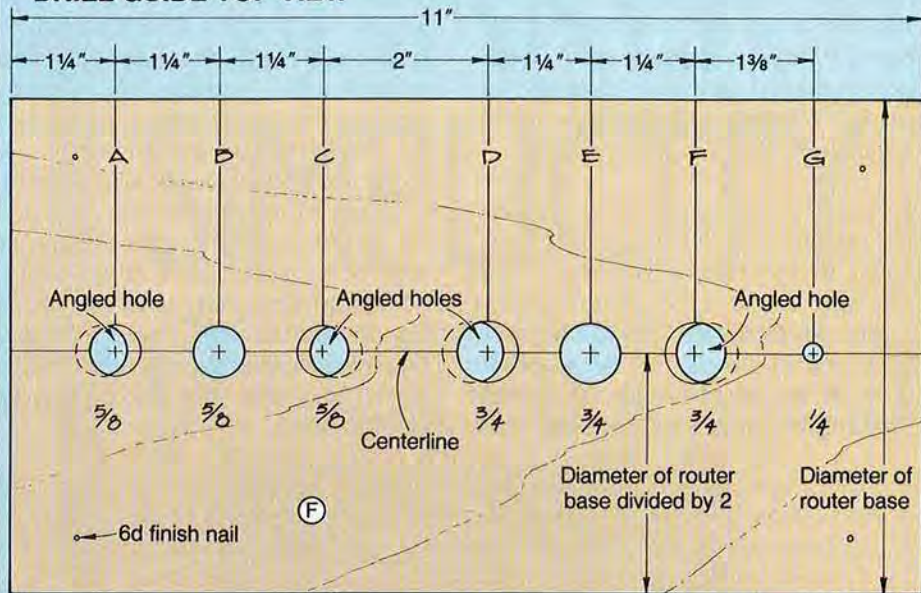
1 From ¾" plywood, cut the two guide pieces (F) 11" long and as wide as the diameter of your router base. Glue and nail the pieces together with the edges and ends flush. Later, scrape off the excess glue and check the fit of the guide in the chair-leg jig.

2 Mark a centerline along the length of the drill guide where shown on the Drill Guide Top View. Mark reference lines perpendicular to the centerline to locate centerpoints for the ¼", ⅝", and ¾" holes where shown on the drawing. Mark the letters and hole sizes on their corresponding reference lines where shown below.

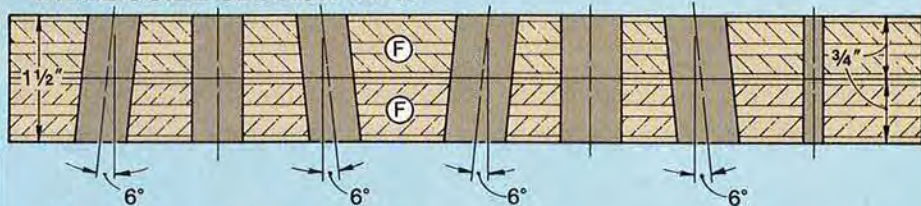
3 Using brad-point drill bits and your drill press, bore the nonangled holes (B, E, G) through the guide.

4 To bore the angled holes, first cut a pair of wedge-shaped blocks to the size shown on the drawing below. Position the blocks under the drill guide on your drill-press table. With the wide end of the blocks nearest the end with hole A, drill the angled holes C and F. Rotate the blocks so the widest end is nearest the G hole, and drill the angled holes A and D.

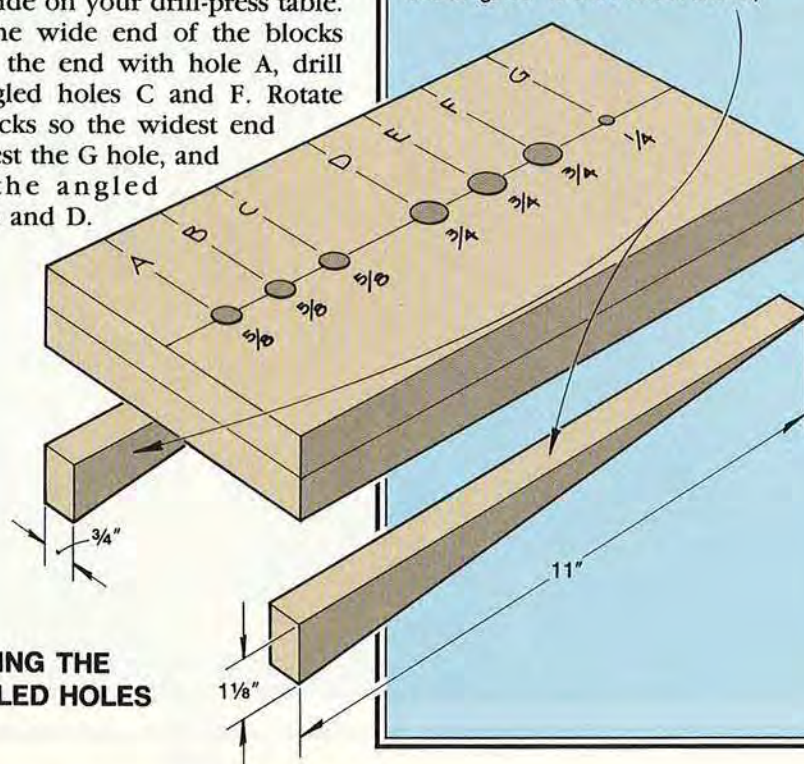
DRILL GUIDE TOP VIEW



DRILL GUIDE SECTION VIEW



Wedge blocks positioned for drilling holes C and F. (Place 1 1/8"-high end under opposite end of guide to drill holes A and D.)

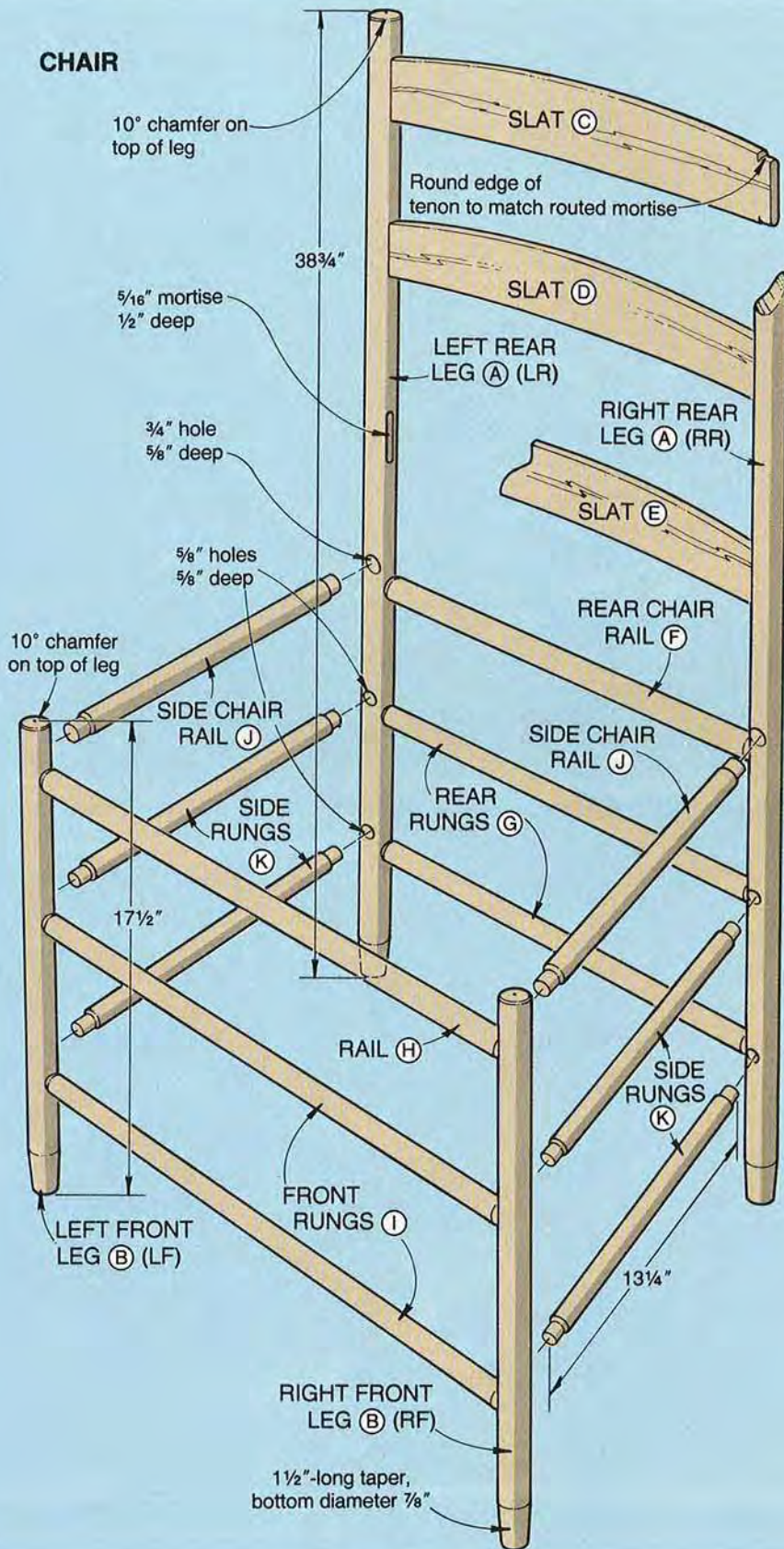


Bill of Materials

Part	Finished Size			Materl.	Qty.	
	T	W	L			
SHAKER CHAIR						
A	rear legs	1 1/4" diam.	38 3/4"	OD	2	
B	front legs	1 1/4" diam.	17 1/2"	OD	2	
C	top slat	1 1/16"	3 1/2"	13"	O	1
D	middle slat	1 1/16"	3 1/4"	13"	O	1
E	bottom slat	1 1/16"	2 3/4"	13"	O	1
F	rear rail	1" diam.	13 1/4"	OD	1	
G	rear rungs	3/4" diam.	13 1/4"	OD	2	
H	front rail	1" diam.	16 3/4"	OD	1	
I	front rungs	3/4" diam.	16 3/4"	OD	2	
J	side rails	1" diam.	13 1/4"	OD	2	
K	side rungs	3/4" diam.	13 1/4"	OD	4	

Material Key: OD-oak dowel, O-oak

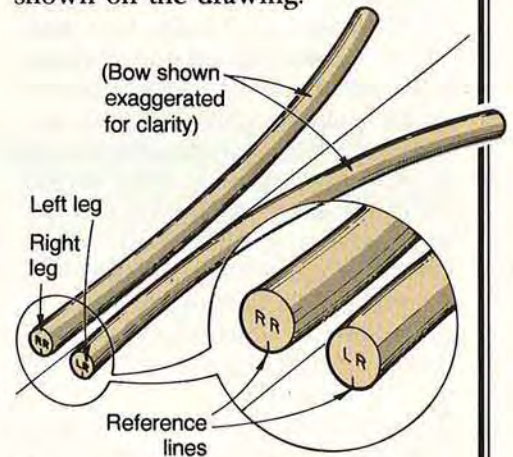
CHAIR



NOW, LET'S START BUILDING THE CHAIR

Note: The instructions, Bill of Materials, Buying Guide, and Cutting Diagram give the directions and number of pieces needed to build a single chair. To make additional chairs, be sure to machine all identical pieces at the same time to ensure uniformity.

1 Select the two straightest 48"-long dowels for the back legs (A). (We've noticed that nearly all of them have a slight bow—see the Buying Guide for our source.) To make sure both back legs bend in the same direction on the finished chair—toward the back—lay the dowels on a flat surface and position the bows as shown on the drawing below. Mark a reference line on one end of each dowel at the 6 o'clock position where shown on the drawing.



2 Mark RR (for right rear) on the same end as the reference line on one oak dowel, and LR (for left rear) on the second dowel.

3 Slide the RR dowel into the 1 1/4" recess in the jig and into the dowel clamp until the marked end of the dowel is flush with the outside face of the dowel clamp. Rotate the dowel to align the reference line on the dowel with reference line A on the dowel clamp as shown in the photo on the following page. The top edge of the dowel should be flush with the top face of jig parts C. You might have to tap the dowel in place with a rubber mallet.

Continued

SHAKER SIMPLICITY

4 Using a handscrew clamp, tighten the dowel clamp to prevent the dowel from turning in the jig when drilling the holes in the next step.

5 Position the drill guide in the jig, aligning reference line B on the drill guide with the marked number 1 on the jig as shown in the photo at *right*. Clamp the guide to the jig. Using a $\frac{5}{8}$ " brad-point bit, bore $\frac{5}{8}$ " deep into the dowel.

Note: To prevent enlarging or changing the angle of the holes in the drill guide, lower the bit through the hole until it makes contact with the dowel. Start the drill and bore the hole. Stop the drill before removing it from the guide. (To drill the right depth, we wrapped tape on our bits.)

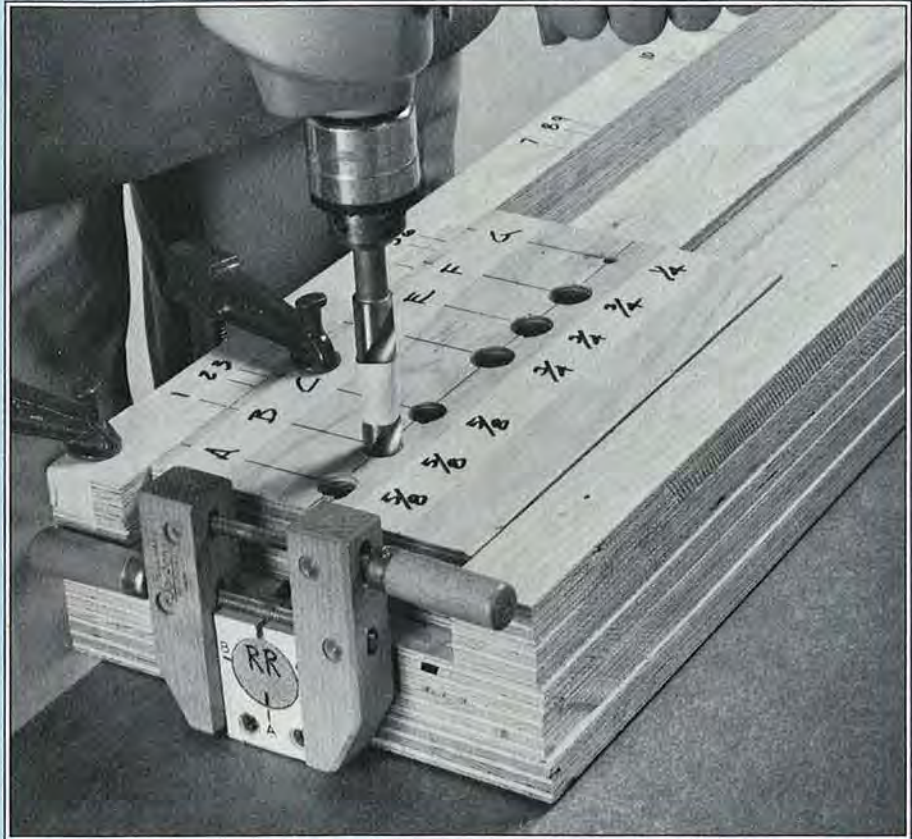
6 Referring to the Drilling Guide Chart, move the drill guide to the second setting (B4), and drill a second $\frac{5}{8}$ " hole. Continue moving the jig and drill holes E7, G10, G11, G12, G13, G14, and G15 to the sizes noted on the chart.

7 To create the $\frac{1}{2}$ "-deep mortises for the chair-back slats, chuck a $\frac{5}{16}$ " straight bit into your router. As shown in the photo at *right*, slowly lower the rotating bit into one $\frac{1}{4}$ " hole and rout to the next $\frac{1}{4}$ " hole. Be sure to grasp the router firmly—it tends to jerk entering the second $\frac{1}{4}$ " hole when finishing the cut. Repeat this routing procedure to form the other mortises.

8 Remove the handscrew clamp from the dowel clamp. Twist the chair-leg dowel until the marked reference line on the end of the dowel aligns with reference line C on the dowel clamp. Again, secure the dowel in the dowel clamp. Drill holes C2, C5, and F8 as noted on the chart for the RR dowel.

9 Remove the RR leg from the jig and cut the top end for a finished length of $38\frac{3}{4}$ ". Using the Drilling Guide Chart, follow the same procedure used above to drill the holes in the left rear leg.

10 Cut the front legs (B) to length ($17\frac{1}{2}$ "). Mark a reference line on one end of each leg, and use the chart to bore the holes in both legs.



Align the $\frac{5}{8}$ " hole (reference line B) in the drill guide with the marked number 1 on the chair-leg jig, and drill a $\frac{5}{8}$ "-deep hole.



Lower the $\frac{5}{16}$ " straight bit into the $\frac{1}{4}$ " hole, and rout between a pair of $\frac{1}{4}$ " holes to form the $\frac{5}{16}$ "-wide mortises for the backrest slats.

DRILLING GUIDE CHART

Dowel-Clamp Setting	Jig—Guide Setting	Hole Size
RIGHT REAR LEG		
A	B1	5/8"
A	B4	5/8"
A	E7	3/4"
A	G10	1/4"
A	G11	1/4"
A	G12	1/4"
A	G13	1/4"
A	G14	1/4"
A	G15	1/4"
C	C2	5/8"
C	C5	5/8"
C	F8	3/4"
LEFT REAR LEG		
A	B1	5/8"
A	B4	5/8"
A	E7	3/4"
A	G10 thru G15	1/4"
Same Drilling Sequence as Right Rear Leg		
B	C2	5/8"
B	C5	5/8"
B	F8	3/4"
RIGHT FRONT LEG		
A	B1	5/8"
A	B4	5/8"
A	E7	3/4"
B	A3	5/8"
B	A6	5/8"
B	D9	3/4"
LEFT FRONT LEG		
A	B1	5/8"
A	B4	5/8"
A	E7	3/4"
G	A3	5/8"
C	A6	5/8"
C	D9	3/4"

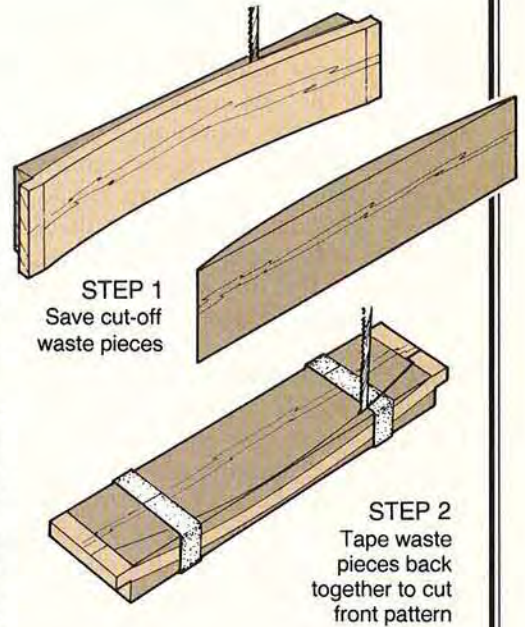
SHAPE THE SLATS AT THE BANDSAW

1 From 1 1/16" oak (5/4 stock), cut the top slat (C), middle slat (D), and bottom slat (E) to the sizes listed in the Bill of Materials.

2 Cut a 1/2" rabbet 3/4" deep across the ends on the back face of each slat blank. (See the Top View on the Backrest Slats Drawing below for reference.)

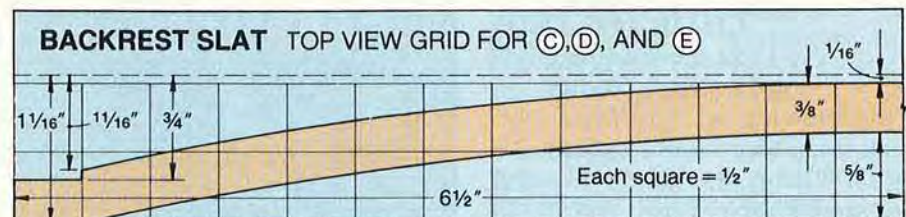
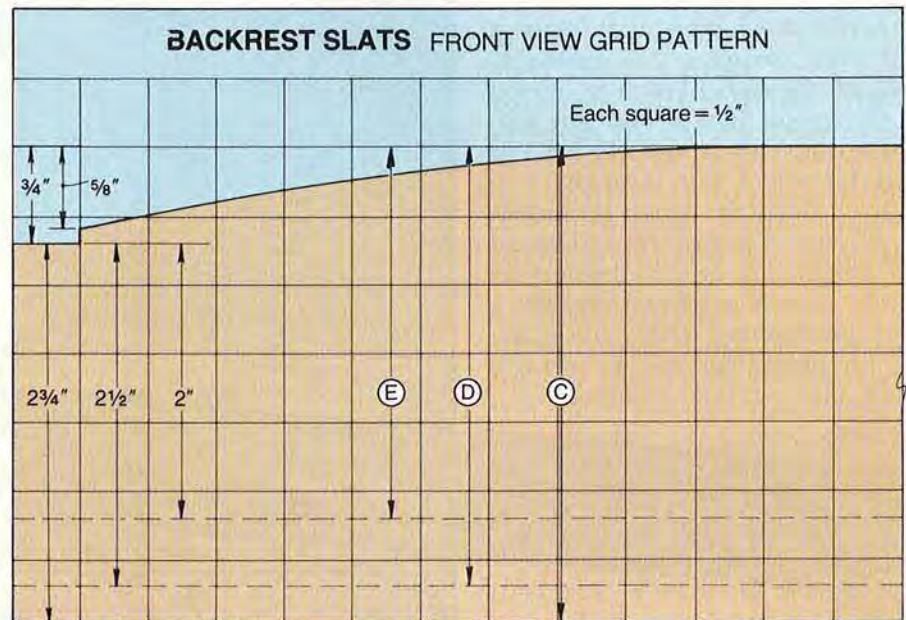
3 Transfer the cutlines to the top edge of each slat blank, using the Top View for reference. (We transferred the cutlines to a piece of 1/4" hardboard. Then, we cut the hardboard to shape and used it as a template to mark all the slat tops.) Bandsaw the front and back of each slat to shape as shown on Step 1 of the two-step drawing at right. Tape the front and back scrap pieces onto the bandsawed slat—it's easier to mark and cut the slats with a flat front and back edge.

4 Using the Front View for reference, mark the cutline on the scrap front face of each slat. Now, band-



saw the top edge of each slat to shape as shown on Step 2 of the drawing above. Remove the taped-on scrap pieces. (Again, we used a piece of 1/4" hardboard as a template to mark the curved portion along the top of each slat.)

Continued



SHAKER SIMPLICITY

5 As shown at *right*, sand each slat to remove the saw marks.

6 Sand a slight round-over along the top and bottom of the tenons on each slat. (See the Chair Drawing for reference.) Check the fit of the slats into their corresponding mortises in the rear chair legs. Do not glue them in place yet.

TENON THE RAILS AND RUNGS WITH YOUR ROUTER

1 Cut the rear rail (F) and rungs (G), the front members (H, I), and the side members (J, K) to the lengths listed in the Bill of Materials from $\frac{3}{4}$ " and 1" oak dowels.

2 Cut and shape a V-grooved block like the one shown at *right*.

3 Chuck a $\frac{1}{2}$ " straight bit into a table-mounted router and position the fence where shown on Step 1 of the three-step drawing *above right*. Rotate the dowel by hand to rout $\frac{1}{8}$ " into the ends of rails F, H, J. Check the fit of the tenons in their mating holes. (We practiced routing scrap dowel stock until we had the settings right.)

4 Adjust the router bit to make a $\frac{1}{16}$ " cut, leaving a $\frac{5}{8}$ " tenon $\frac{5}{8}$ " long on the ends of each $\frac{3}{4}$ " dowel as shown on Step 2. Rout the tenons on the chair rungs (G, I, K) as you did before with the rails.

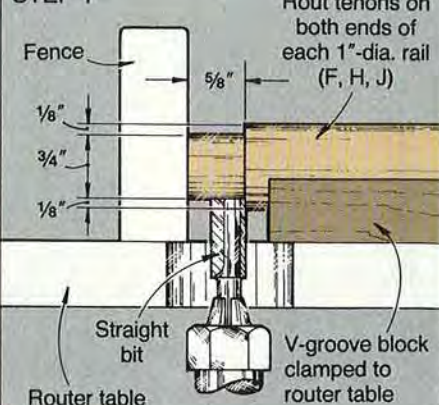
5 To chamfer the tenon shoulders, switch to a V-groove bit and adjust the height to rout the chamfers on the 1" dowels as shown on Step 3 of the drawing. Then, adjust the bit height for the $\frac{3}{4}$ " dowels and rout their chamfers.



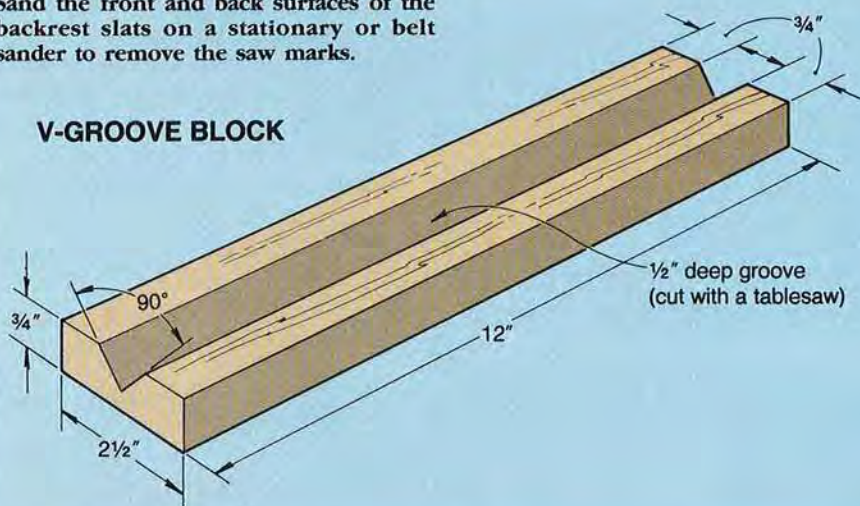
Sand the front and back surfaces of the backrest slats on a stationary or belt sander to remove the saw marks.

ROUTING THE TENONS

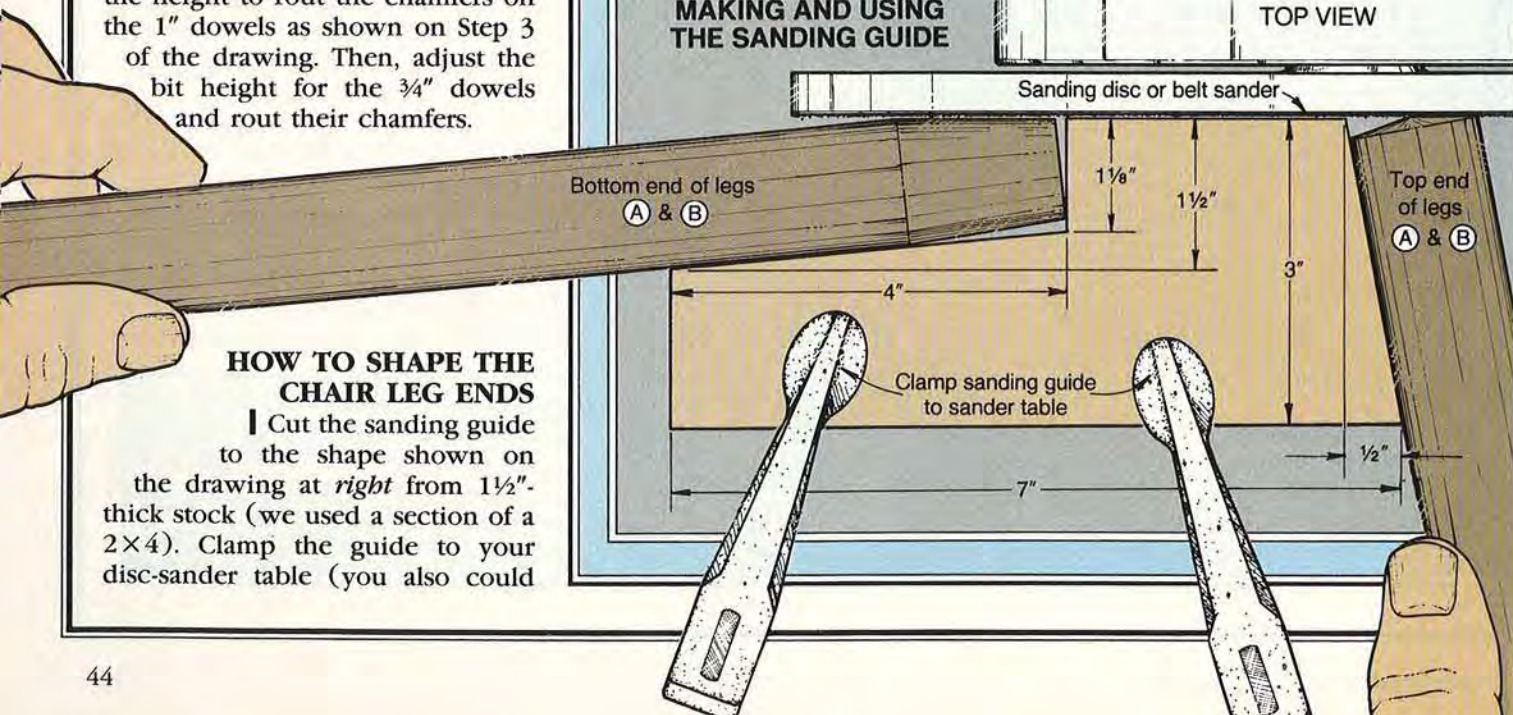
STEP 1



V-GROOVE BLOCK

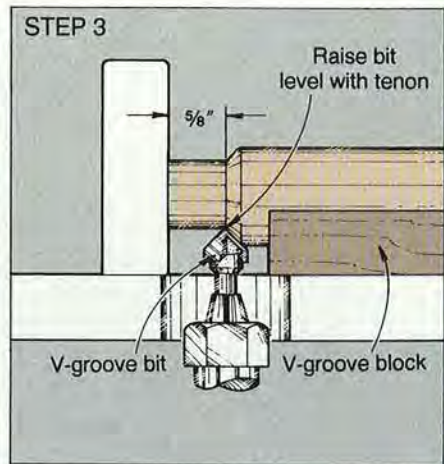
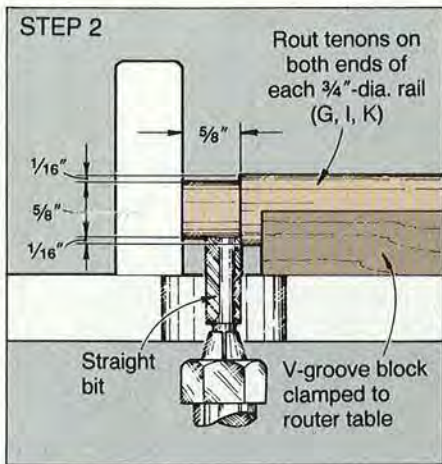


MAKING AND USING THE SANDING GUIDE



HOW TO SHAPE THE CHAIR LEG ENDS

1 Cut the sanding guide to the shape shown on the drawing at *right* from $1\frac{1}{2}$ "-thick stock (we used a section of a 2×4). Clamp the guide to your disc-sander table (you also could



WEAVING THE SEAT

STEP 1. Cut 2" radius from front corners of foam cushion. Tape cushion in place. Remove tape after completing Step 4.

STEP 2. Nail end of fabric tape to bottom side of top back rail. Wet cut end of tape with glue to prevent fraying.

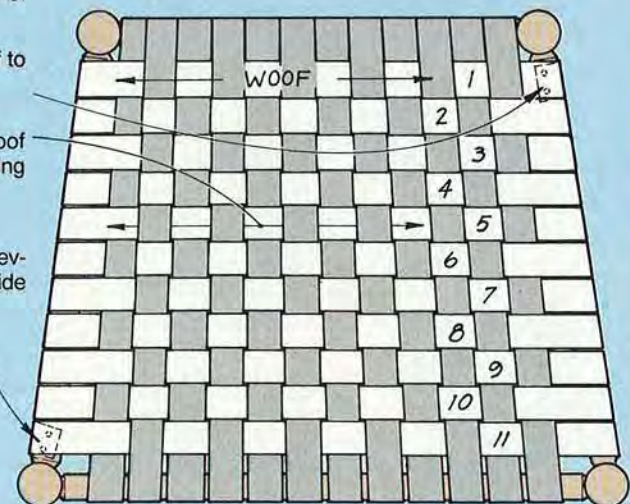
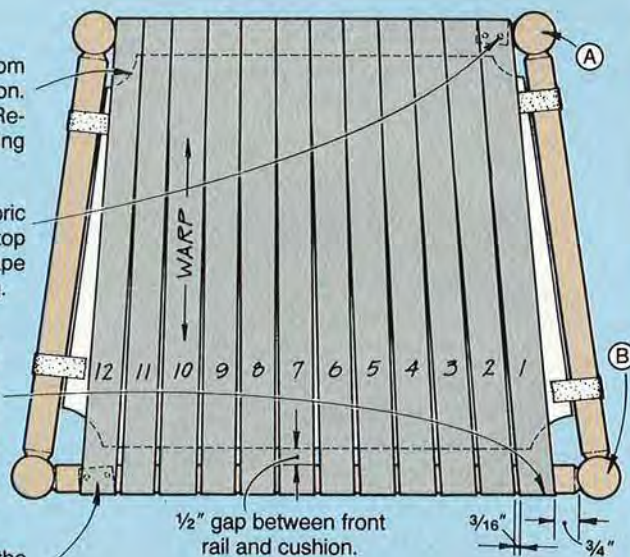
STEP 3. Pull the warp over the top of the front top rail, then back around under the bottom of the rear rail. Repeat all the way across the width of the chair, keeping the warps tight.

STEP 4. Nail the end of the twelfth warp to the bottom of the rail.

STEP 5. Nail end of woof to bottom side of side rail.

STEP 6. Weave woof through the warps, keeping the woofs tight.

STEP 7. Nail end of eleventh woof to the bottom side of the side rail.



use a belt sander on a stand). Using the Top-View Drawing for reference, sand a 10° chamfer on the top end of each chair leg (A, B)
2 Sand a 1½" taper on the bottom of each chair leg where shown on the Top View Drawing.

ASSEMBLE AND FINISH YOUR SHAKER CHAIR

1 On a flat surface, glue and clamp together the chair-back assembly (A, C, D, E, F, G). (We used clamp blocks to prevent denting the oak dowels.) With a framing square, check for square and wipe off excess glue with a damp rag.

2 Use the same procedure to assemble the front (B, H, I).

3 Glue the side rails and rungs (J, K) between the front and back assemblies. (Because of the angled front and back, we used band clamps—bar clamps have a tendency to slip on the angled legs.)

4 Later, remove the clamps and finish-sand the chair. Apply stain and finish (we used polyurethane).

ADD THE WEBBING AND TAKE A SEAT

Note: The seat weaving kit described in the Buying Guide comes complete with weaving instructions. Although you can follow their instructions, we have simplified the procedure as shown at left.

BUYING GUIDE

• **Oak dowels.** Three 1¼ × 48" oak dowels, two 1 × 36" oak dowels, and four ¾ × 36" oak dowels (enough for one chair). \$29.80 ppd. from Woodworks, 4500 Anderson Blvd., Fort Worth, TX 76117. Or, call 817/281-4447.

• **Seat-weaving kit.** 25 yards of 100% cotton webbing, foam cushion, tacks (enough for one chair). Call for list of chair tape colors. \$25 ppd. from Shaker Workshops, P.O. Box 1028WM, Concord, MA 01742. Or, call 617/646-8985.

Produced by Marlen Kemmet
 Project Design: James R. Downing
 Photographs: Hopkins Associates
 Illustrations: Kim Downing; Bill Zaun

PRESSURE-TREATED

WHAT TO KNOW BEFORE YOU NAIL

A scary thing happens every time we answer a question about pressure-treated wood in our "Ask WOOD" department: Without fail, each answer sprouts at least three more questions. We've often wondered out loud if we could ever satisfy all reader questions about this topic.

Knowing that many of you build outdoor projects, we feel it's high time we all became more knowledgeable about pressure-treated wood—green wood as some call it. This article focuses only on lumber treated with chromated copper arsenate (CCA)—the most common wood preservative homeowners handle. Later, you'll read more about wood-preserving chemicals.

Since its introduction more than 50 years ago, pressure-treatment has been wood's best friend for defending attacks from termites, other insects, fungal decay, and rot. Not surprisingly, use of treated wood—both indoors and outdoors—has continued to grow to nearly 300 million cubic feet annually. But

perhaps because the Environmental Protection Agency (EPA) didn't issue its final determination on treated wood until 1984, myths swirled around the safety of treated wood. Some rumors still exist.

"If you treat garbage wood, you'll have garbage wood that will last a long time."

*David Hoak,
owner of a pressure-treating facility*

INSIDE A TREATING PLANT

Most of the pressure-treated lumber available to homeowners contains chromated copper arsenate (CCA). Chromium fixes the chemicals in the wood fiber, copper acts as a fungicide, and arsenate is toxic to wood-gobbling termites.

Arsenate sends shivers up some people's backs, but CCA-treated wood contains inorganic pentavalent arsenate or arsenic pentoxide—not the deadly trivalent arsenic used in *Arsenic and Old*

Lace, for example. Small amounts of arsenate appear naturally in shrimp, tomatoes, corn, and other foods.

Here's how the chemical solution becomes bonded in the wood:

Wood must be dried to 25 percent moisture content or lower before it can be properly treated. At the pressure-treating facility, employees slide a stack of dried dimensional lumber into a steel pressure cylinder (an average cylinder holds up to 30,000 board feet of lumber). After tightly sealing the tank, a vacuum pump sucks air from the cylinder—and the wood cells. Within minutes, the preservative solution floods the cylinder.

Next, a pressure pump forces more solution into the cylinder—and deep into the wood—until the cylinder pressure reaches 140–180 pounds per square inch. The entire process, called a charge, takes from one to two hours.

After pumps draw off excess solution, the cylinder opens and the stickered wood begins kiln- or air-drying to about 19 percent. The lumber has a yellow cast when it leaves the cylinder. Within hours, though, the wood color changes to the familiar green shade. As the lumber dries, the preservative components react chemically with each other and bond in the wood cells.

When CCA lumber first appeared in the 1930s, some people occasionally noticed an undesirable greenish-white salt residue. Later, the Koppers Company (now the Hickson Corporation) altered their Wolman formula to eliminate the residue. In addition to appearance benefits, metal hardware and fasteners last longer in CCA oxidized-treated wood than with the salt process. Major firms, including Weyerhaeuser and Osmose, followed suit.



At Doyle Lumber Company in Henderson, North Carolina, 4×4 posts treated with Osmose chemicals leave a state-of-the-art indoor treatment facility.

WOOD



HOW SAFE IS PRESSURE-TREATED WOOD?

Earlier this year, we bought a treated 2×4×8' board at five lumberyards and home centers. Through an industry-wide voluntary consumer awareness program, retailers *should* offer EPA-approved "Consumer Information Sheets" to purchasers of treated lumber. These sheets outline safe use of CCA-treated wood. However, two home centers didn't offer the information. Two lumberyards did furnish the sheets, and one home center prominently displayed a sign: "Ask for Information about Treated Lumber."

The biggest treated-wood concern we've noted revolves around leaching questions. After a 10-year study, the EPA ruled CCA-treated wood safe for interior use, play structures, garden edging, and tomato and vineyard stakes. It's safe to eat at CCA-treated picnic tables, but the EPA doesn't recommend CCA-treated wood surfaces for *daily* food preparations such as countertops or cutting boards. And, unless you eat wood, it's unlikely exposure to CCA-treated wood will increase one's risk of cancer.

No, CCA-treated wood doesn't emit vapors or odor. However, the ash from burned treated wood could present a health or environmental hazard if not properly handled. For this reason, you should dispose of scraps and sawdust through trash pickup services. The consumer information sheets do warn of inhaling treated-wood sawdust and recommend wearing dust masks and washing hands after handling treated wood—as you should with any nontreated wood.

LET THE BUYER BEWARE

You do yourself a disservice by specifying only for treated wood at

the lumber counter. Ask questions!

What species? Southern pine has become a leader in treated wood because its cell structure seems ideally suited to accept the solution. However, treaters in the West use a lot of ponderosa pine. But, not all lumber treats as well as these two species. Each piece of wood you buy should have a grade stamp that tells the species, grade, and moisture content when inspected.



Treated wood must be identified with a stamp or tag, such as this stamp.

For deck flooring, some lumberyards recommend only #1 lumber. Because the top grade has fewer knots and flaws, it should be less susceptible to warping and twisting. For a 12×12' deck, the additional cost between #2 and #1 grades should be less than \$20. We think it's money well spent for the better grade—and fewer problems.

If you buy CCA-treated wood at an unbelievable low price, don't be surprised by the quality. In fact, you may have a hard time finding a

grade stamp on some bargain-priced lumber. According to David Hoak, who owns a CCA-treating facility in Rock Island, Illinois, "If you treat garbage wood, you'll have garbage wood that will last a long time."

Also, consider 5/4×6 radiused lumber for decking material. In addition to saving money, this treated wood earns high marks on appearance without giving up strength to span typical deck configurations.

What retention level? Look for a second stamp or tag that tells who treated the wood. You'll learn the retention level by reading the treater's stamp. Wood treated for above-ground use will have 0.25 pound per cubic foot of oxides. Wood intended for ground contact will have in excess of 0.40 pound per cubic foot of oxides—roughly 2 ounces in a 2×4×8'.

Apparently because the 0.40 lumber has nearly twice the oxides of 0.25 lumber, some woodworkers incorrectly use the term "double-treated." In practice, after treated lumber dries, it isn't treated again to a higher level. Be sure to look for a stamp or tag that indicates appropriate use on each piece you buy.

DECK-BUILDING TIPS

Before you start nailing down treated wood, review the consumer information sheet and study the installation pamphlets provided by the treater. Many do-it-yourselfers have found out—too late—that they overlooked these important treated-wood guidelines:

Check local building codes. Before you drive the first nail, make sure you build according to your municipal or county regulations.

Fasten bark-side up. Lee Gatzke, *WOOD* magazine's art director, can

Continued on page 79

LIMELIGHT ON THEIR FACES,

Woodworkers, as a rule, pursue their passion in the solitude of their shop. For many, that's part of the beauty in the hobby they love.

But don't think for a minute that you're in this avocation by yourself. We've found out that more than 11 million Americans and a surprisingly large number of Canadians claim woodworking as a hobby. And, from what we've seen in our travels, there's a lot of creativity expressed in garage and basement shops across North America—that's where we find many of the projects featured in *WOOD*® magazine.

We've uncovered lots more than just interesting projects and ideas when talking to woodworkers. It's the people—all kinds of them—that intrigue us most.

The passion for woodworking seems to span the entire occupational spectrum. And, it encompasses even those people you might assume would be too busy for such a pastime. Such is certainly the case with our subjects for this article: Bill Garrett, editor-in-chief of *National Geographic* magazine; Bob Lilly, former defensive tackle with the Dallas Cowboys; Andy Rooney, *60 Minutes* commentator and author; Edgar Struble, musical director for country music star Kenny Rogers; John Vernon, television and movie actor; and Ted White, Hollywood stuntman and director.

But as you'll find out, these notable people enjoy woodworking every bit as much as you do.

CBS-TV doesn't own the walnut desk Andy Rooney relaxes behind for weekly commentaries. Rooney made that desk in his own shop.

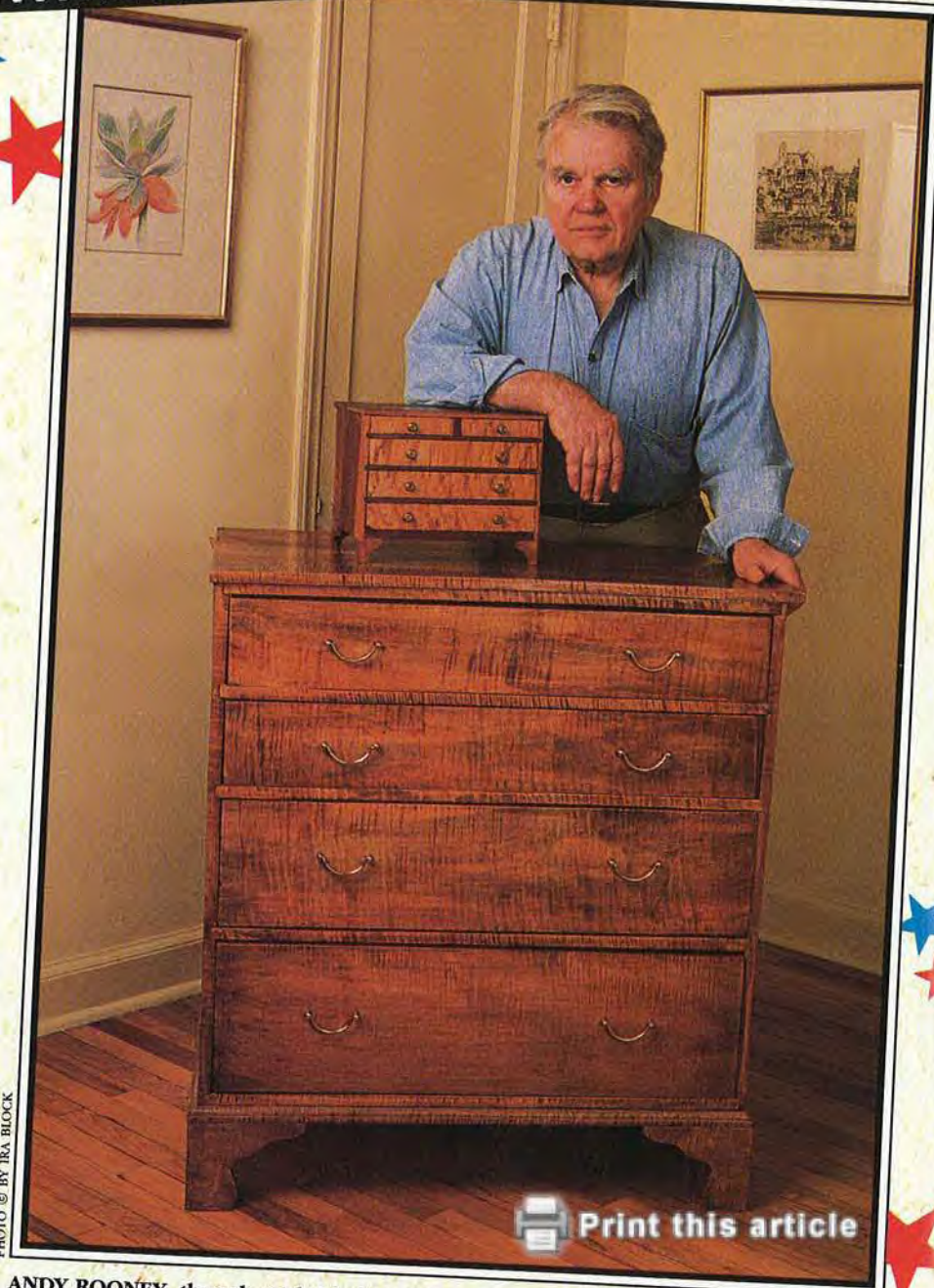


PHOTO © BY IRA BLOCK

ANDY ROONEY, though probably best known for his cryptic, humorous commentaries on the CBS news show, *60 Minutes*, also writes books and newspaper columns. He and his wife, Marge, divide their time between their Connecticut house and a country home in upstate New York. He's leaning over two projects he built.

Yes, Andy Rooney, who wonders about lots of things, has thought about why he loves woodworking. "I can't put my finger on *why* I enjoy woodworking so much. But

when I have a project going, I just can't wait to get up to my shop on weekends. I wake up in the middle of the night and think about it," he admits. Yes, he's just like us.

 [Print this article](#)

SAWDUST IN THEIR VEINS

Rooney goes on to say, "It's interesting to me how closely my wood-working mirrors my character. The same strengths and weaknesses come out that I notice in my writing. I am not very careful. I don't do things as precisely or finish things as well as I should."

"I'm quite creative with the product, but the workmanship isn't as good as it should be. I often look at a piece three years later and think, 'I should have spent another five hours sanding.' I think a person's character is reflected in anything he does."

FISHING WITHOUT WATER

Hollywood stuntman Ted White succinctly describes what brings him back to his shop hour after

hour: "It's fishing without the water." White frequently brainstorms ideas with his friend, actor John Vernon, who expresses his satisfaction in a different way. "Each cut is a separate thought, and each piece takes on a life of its own," Vernon says. "Consequently, if you make something, it's really yours."

Vernon became interested in woodworking when his son, Chris, brought home a desk set he had made in shop class. The gift intrigued Vernon enough to sign up for an adult education course. From that point, he was hooked on wood. Reel in another one!

A SATISFYING HOBBY

Edgar Struble, musical director for Kenny Rogers, learned woodworking as a 10-year-old 4-H Club member in Michigan, and his interest has never subsided.

"If I weren't a musician, I'd probably be a full-time woodworker," he remarks. "I made a little stamp holder for my desk, and I often find myself fingering it while I'm working. It gives me pleasure and helps me understand who I am."

Rooney came to woodworking almost by accident. "About 35 years ago, I was standing in the yard and saw a wonderful piece of wood. I brought it home and started sawing it up to make a box for the foot of the bed. My wife, Marge, was appalled. I made my first woodworking mistakes on that box and I've made a lot of them since."

FOOTBALLS TO FRAMES

Football hall-of-famer Bob Lilly got into woodworking through high school FFA classes and now finds fulfillment designing and building pieces not available elsewhere. The former Black & Decker spokesman spends his time making frames, easels, and modular storage units for his art gallery and new home in New Mexico.

Woodworking has become a meaningful way for Lilly to spend time with his children, too. But unlike the dad-teaches-son tradition, Bob's youngest son, Mark, takes lessons from a master woodworker, and the son then teaches dad.

IT DOESN'T GET ANY BETTER THAN THIS!

For some, the act of creation ends with a feeling of accomplishment somewhat akin to the end of the creation story when God sat back and said, "It is good."

"There is nothing like the moment I'm in my shop alone with a piece of wood and know it's done—it's finished," Rooney said. "After that, there's also some satisfaction in people marveling at it. I've made some very sophisticated stuff, like unusual little stepladders, and people are amazed that I can do them at all—they think it's out of character."

For White, the enjoyment extends far beyond the time of completion. "About 11 years ago I built a teak dining room set with eight chairs. It was one of my most difficult and time-consuming projects, but they look better now than they did the day I finished them," he said with pride.

Whenever Bill Garrett, editor-in-chief of *National Geographic* magazine, pours a cup of coffee at home in the morning, he can admire the cherry kitchen cabinets he made 15 years ago. "Our kitchen is very

Continued

★ **BOB LILLY** made gridiron history while playing defensive tackle for the Dallas Cowboys. Since retiring from football 12 years ago, he has devoted energy to his gallery of Southwestern photography and art in Mesilla, New Mexico. He lives with his wife, Ann, and the youngest of their four children, 13-year-old Mark, right.



PHOTO © BY DAVID GUIFFRÉ/ADOBE SHUTTER

large, and the planing and finishing took an enormous amount of time. It was worth it, because not a single drawer has warped. I still feel good whenever I look at them."

Because he views his avocation as rest and relaxation, Garrett ignores the last seven letters of woodworking. "When I get busy woodworking, it puts me in another world, away from what I do," explains Garrett. "It takes my mind off the things I don't want to think or talk about."

THAT DEVIL, TIME

No matter how much most of us enjoying woodworking, we struggle to find time to tie on the shop apron. Our six subjects share the same lament of most home woodworkers: Time isn't on their side.

In his characteristically sardonic manner, Rooney complains he has a problem with time—even on vacation. "I get up early, write for two hours, then go to my shop. Before long, somebody will want me to play tennis and I have to change into my tennis stuff. Then I need to take a shower and put my woodworking clothes back on, and pretty soon it's time to eat or drink something and I've got to change clothes again."

Garrett, because of his hectic travel schedule, has had to choose his projects carefully. Yet, he claims as his proudest woodworking achievement a 20×30' inlaid herringbone hardwood floor that he toiled on for 100 hours.

"Every piece had to be custom cut and fitted. I had to allow for the inconsistencies of the floor as well as the expansion coefficient so it wouldn't buckle," he explained. It was very challenging to tongue-and-groove each piece with a router, but it turned out beautifully."

THE FUN SIDE

When Lilly talks about woodworking, he peppers his language so frequently with "fun" that you immediately feel his lifelong affair with wood. "It's *fun* to work with

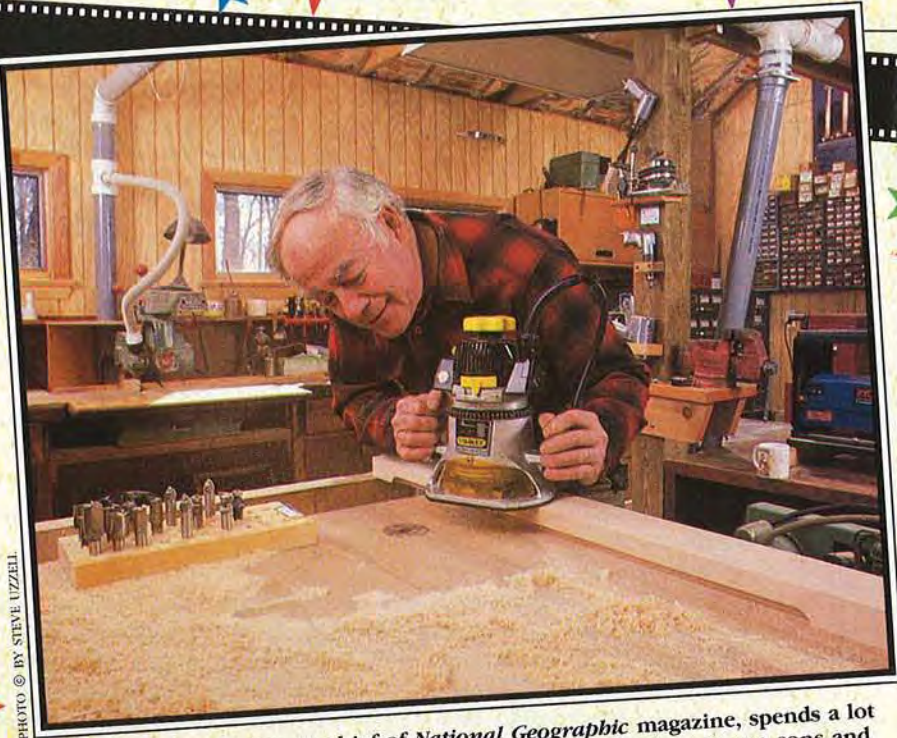
my hands. It's *fun* to chew holes in wood. You can build a lot of things from plans—and that's *fun*."

But Lilly doesn't always follow a game plan. "I build more out of necessity," he explains. "I'm always lookin' for an odd space to fill with a project. I couldn't buy these pieces because I design them to complement the specific space. That's easier for me than trying to follow directions."

GENEROUS GIVERS

When he's not on the road with Kenny Rogers, there's a good chance you'll find Struble building a project for his family or friends. Struble glows about a rocking giraffe he built for a fellow musician's son. "It turned out as cute as a button. I also made a gorgeous butcher block out of maple, oak, and walnut for my wife. But, when we

PHOTO © BY STEVE UZZELL



BILL GARRETT, as editor-in-chief of *National Geographic* magazine, spends a lot of time traveling, but enjoys working in his shop. He has two grown sons and lives with his wife, Lucy, on their 21-acre property near Washington. "Maybe I've become cynical because I travel so much, but one of the greatest joys of woodworking is not having to go to an airport to do it," Garrett admits.

Silverscreen buddies JOHN VERNON, left, and TED WHITE often talk woodworking when they get together. Vernon, born and raised in Canada, made a name as an actor in Canada's award-winning TV series, *Wojek*. Since then, he has starred in more than 200 TV shows and movies, including *Animal House*. White, who doubled for John Wayne and Clark Gable, has appeared in more than 350 major films.

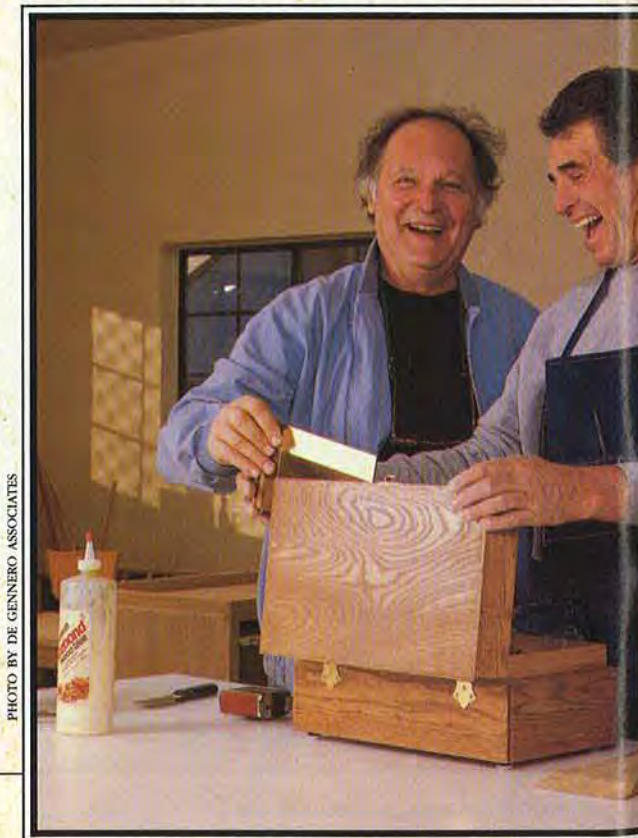


PHOTO BY DE GENNERO ASSOCIATES

EDGAR STRUBLE, musical director for Kenny Rogers, arranges scores for Kenny's country band, plays the keyboard, guitar and percussion, and occasionally conducts. He also is a composer, an agent for musical talent, and an antique car collector. When he's not on tour, he lives outside Nashville in Hendersonville, Tennessee.

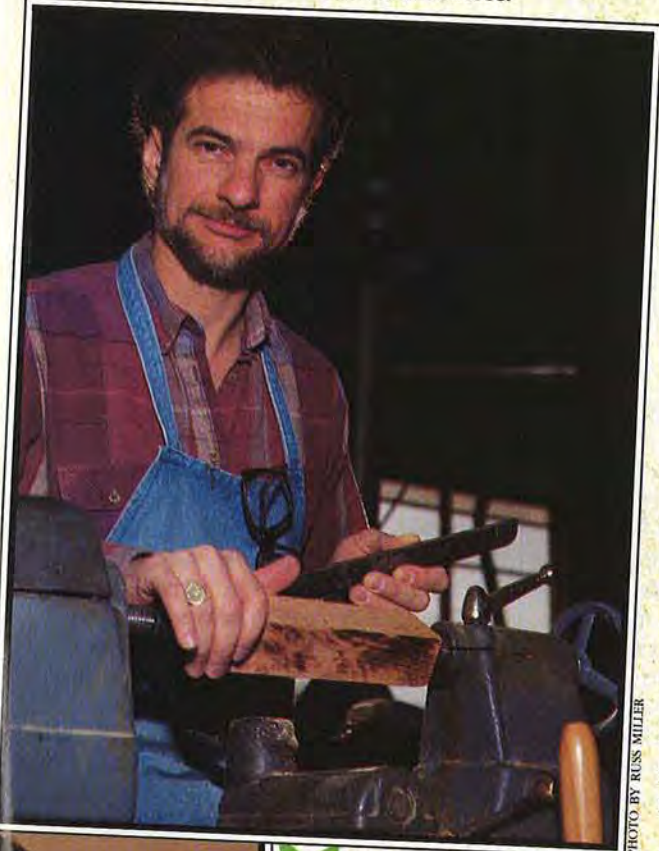


PHOTO BY RUSS MILLER

got divorced, she wouldn't give it back to me for love nor money."

THE CHEST NO ONE WANTED

Vernon, Garrett, and White make furniture for their grown children, and Rooney says he gives furniture to his kids, "If they'll take it." He admits projects occasionally turn sour.

"My *most* unsuccessful project was a pyramid-shaped chest. It is five and a half feet high, and the 30-inch base tapers to 18 inches at the top. There are six drawers which, of course, are pyramid shaped, making each one different. I was quite proud to have finished it, but nobody wanted the chest. I keep it in my little writing room next to my shop."

SOUND ADVICE

Struble doesn't consider himself a woodworking expert, but he uses his "ancient" hand plane a lot. He believes beginners should become adept with basic hand tools before progressing to power tools.

"It's like learning to play scales before playing compositions on the piano. Just as you play better if you learn scales first, you'll do better work with bigger tools if you master the small ones first. I enjoy using power tools, but I feel that working with hand tools gives me more personal involvement."

WOOD AT THE DOORSTEP

Fortunately for Garrett, Rooney, and Struble, they all live in wooded areas. "It's really fun when you can go out and get your own wood and not have to buy it," said Struble who spends as much time as he can on his Lean Acres Ranch in Tennessee.

"There are a few species of native wood that I especially like to work with because they're not found in other places," he remarks. "One is hackberry, which most people call a junk tree because it grows in such abundance. Nobody uses it for anything—it just grows. After the branches lie on the ground for awhile, they become spalted. When I turn these pieces and get a cross-section of the grain, the figuring looks like someone took loops out of the grain and colored it in. A lot of woodworkers use spalted maple, but I don't know too many of us who use spalted hackberry!"

Garrett cuts wood on his property near Washington, D.C. "A few years ago, I cut down a walnut tree and rented a stump remover. I managed to clean out the root system so that I had six square feet of planks from wood that was below the ground. I've dried it for three years, and it's beautifully burlled."

Hardwoods surround Rooney's country home in New York State, too. "Somebody is always cutting down a walnut tree, and I've got a lot of cherry and maple, too. My wife says I have more wood than I have time left in my life to make anything out of it."

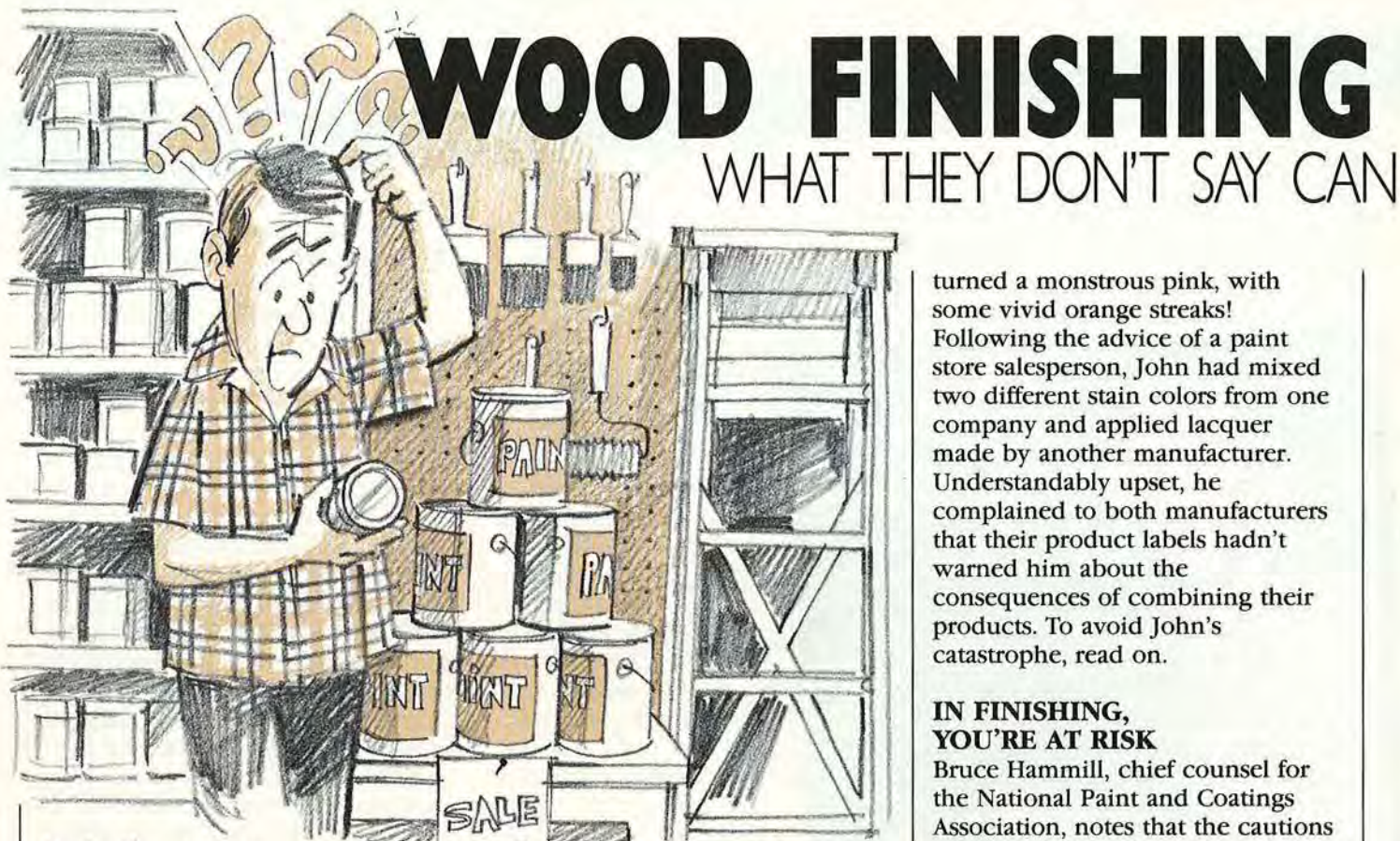
WOODWORKING: LIKE A GOOD MARRIAGE

Regardless of the degree of fame and fortune a person achieves, the passion for wood leaves an indelible mark on every woodworker's life. Vernon acknowledges that he can't look at furniture without thinking about how it was made.

More intangibly, woodworking offers a creative outlet, a release from stress, and a continuity to life. White equates it with marriage. "I've been married for 42 years and worked with wood for over half a century. The longer you're in it, the better it gets and, like my wife, wood is always there." 🌲

Written by Joan Lindroth Designed by C. L. Gatzke





WOOD FINISHING

WHAT THEY DON'T SAY CAN

Only the company chemists formulating the products you apply to your woodworking projects know exactly how they'll perform. **WOOD®** magazine reader John Aversa found this out the hard way—on a kitchenful of newly installed solid pine paneling. Here's his story, plus some tips from industry insiders that will help you avoid finishing failures.

John Aversa, an experienced, Palisades Park, New Jersey, woodworker, was so mad he saw red—well, bright pink anyway. He had spent many, many hours installing solid pine paneling in his kitchen, and had painstakingly worked out a blend of stains that produced the desired gray. Then, he stained the wood, waited a few days, and one evening brushed on a lacquer topcoat. It looked great. The next night, he applied more lacquer. Daybreak brought surprise—and dismay. John's new paneling had

turned a monstrous pink, with some vivid orange streaks! Following the advice of a paint store salesperson, John had mixed two different stain colors from one company and applied lacquer made by another manufacturer. Understandably upset, he complained to both manufacturers that their product labels hadn't warned him about the consequences of combining their products. To avoid John's catastrophe, read on.

IN FINISHING, YOU'RE AT RISK


Bruce Hammill, chief counsel for the National Paint and Coatings Association, notes that the cautions on labels address health and fire hazards, as required by federal, state, and city laws. You'll also find content weight and measure information listed on labels. No regulations, however, require label information about product performance. Therefore, manufacturers feel that when a consumer uses different brands of finishing products together, as did John Aversa, they are absolved from *any* responsibility when the combination fails.

"If manufacturers covered all the ramifications of how not to use a

TIPS FOR A TOP-NOTCH FINISH

The experts *WOOD* magazine talked to offered some tips to assure you a top-notch finishing job. Here's what they had to say: **Wipe down the surface.** After a thorough fine-sanding, wipe down new wood with a clean rag dampened in mineral spirits before sealing or staining. James Brown, of Deft, Inc., cautions, though, against using commercially prepared tack rags, especially those claiming to be new or improved.

"Too often, these contain chemicals and oils that contaminate the surface," he notes. **Never assume a clean surface.** Even after sanding, wood that has had a previous finish may still have wax or silicone particles embedded in the pores that can lead to problems in the new finish. Remove these contaminants by scrubbing the wood surface with a solution of one tablespoon trisodium phosphate (TSP) and

 [Print this article](#)

one tablespoon of household ammonia per gallon of water. After scrubbing the piece, rinse it thoroughly with clean, warm water. Sponge off remaining moisture, and allow the wood to completely dry before a final sanding. Then, just before finishing, thoroughly wipe the wood with a soft cloth dampened with mineral spirits. **Test the finish.** Take a scrap of the wood you're going to finish and go

PRODUCT LABELS

BE HAZARDOUS TO YOUR FINISHING SUCCESS

finishing product, they'd have a label large enough to cover a 55-gallon drum on every half-pint," says Kevin Ostby of Davis Paint Co. in North Kansas City, Missouri. "Basically, a label should describe how to use a product as it comes off the shelf, such as what to do if the pigment settles."

WHERE TO TURN FOR THE RIGHT INFORMATION

With so many finishing products on the market, all with so little practical information on their labels, how do you know which ones will be best for your job?

"As a rule, clerks in private-brand paint stores know their products better than those in discount stores and home centers, mainly because the employee turnover is so great in the latter," comments Joe Wolf of The Sherwin-Williams Company.

"Watch the mode of response when you ask for help," Joe advises. "If a clerk responds right away and recommends some products, he or she probably knows the right products and techniques. Conversely, if the salesperson hesitates and reaches for a can, that person probably doesn't know more than you do."

Jonathan Kemp, of H. Behlen &

Bros., Inc., advises craftsmen to research: "Woodworkers read all the books and manuals on how to build the project and the best wood to buy. But, when it comes time to finish, they don't read."

Other reliable sources include local professional furniture refinishers and other woodworkers whose work has impressed you. You also can go directly to the manufacturer. Some companies maintain "hot lines" and toll-free telephone numbers to answer consumer questions. If you don't find a number listed on a label or product brochure, get it from the dealer, through the Yellow Pages, or from long-distance information. Then, call the company, ask for customer relations, and state your problem or what you want to do.

BEWARE THE DANGERS OF MIX-AND-MATCH

The label on Brand A stain recommends following it with Brand A varnish. Does the manufacturer just want you to buy its products? "Sure, that's part of it," explains John Moser of Wood Finishing Supply Company, "but each manufacturer has its own formulation for certain products. For instance," he points out, "there can be different proportions of hot

solvents, such as toluene, that have a real low flash [evaporation] point and high volatility. Therefore, his lacquer may react quite differently from another brand under certain conditions."

Bruce Jackson, a wood-finishing specialist teaching at Pittsburg State University in Kansas, elaborates, "A product may contain from three to seven different solvents. To work properly, they must flash off in a progression. If they all flash too soon, the finish could look flaky; not fast enough, the material might trap solvents."

"Stick with the same product line," stresses Behlen's Kemp. "That should ensure that Step 1 and Step 2 will work together. If they don't, there's only *one* manufacturer to deal with."

Incidentally, after a six-month delay, John Aversa completed his kitchen project. The stain manufacturer suggested he resand the wood—and offered a can of stain. The lacquer manufacturer was, from John's point of view, more understanding. They sent him \$400 to cover half of all the materials involved.

In light of his experience, John advises, "Double-check everything. And, definitely don't believe just anyone's recommendations."

through the steps, A to Z. Do the same with multi-coat finishing systems because the first coat may look fine, but problems could show up in following coats.

Don't shake finishes. Shaking can create tiny bubbles that often can't be brushed out. Instead, gently stir the contents with a lifting motion to mix agents settled to the bottom.

Stir stain every five minutes.

Keeping pigments mixed gives you a more uniform wood color.

Brushing takes technique.

It's best to apply varnish or polyurethane with a natural bristle brush. But, apply the finish by brushing in only one direction. Dip the bristles halfway into the varnish and touch the ends against the side of the can to drain excess. Don't drag the bristles across the can—this creates bubbles.

Know how to quit. When staining or applying a topcoat, don't quit in the middle of a large area because

the eye will detect a change in color or finish. If you find a sag in a surface of varnish that has started to set up, don't rebrush. With satin-finish varnish, this causes glossy spots. Wait until it dries to apply a second coat.

Don't hurry the job. "Wait at least 24 hours" means just that. Adding a second coat too early results in a slow-drying, tacky topcoat. 🐌

Written by George Brandsberg
Illustration: Jim Stevenson

PORTABLE BELT

Since we last tested portable belt sanders about five years ago, improved designs and attachments have changed this market completely. Now, you can choose from more models—that do more things—than ever before. Here are the nitty-gritty differences.

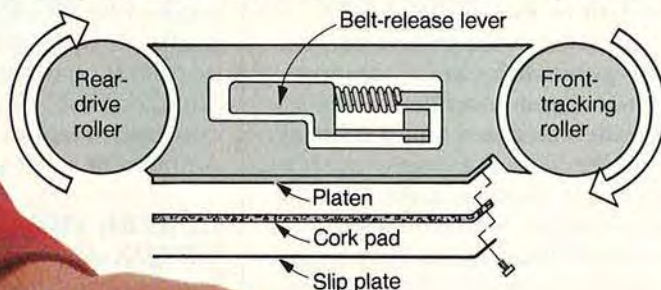
Like a sports car, the portable belt sander will take you quickly to your destination—usually a flat, smooth surface on stock glued up for width. You can even use it, when mounted in an accessory stand, as a benchtop sander to shape small parts. However, as handy as these tools can be, in our tests we came across several units that didn't measure up to our expectations. What gives? Stay tuned and we'll let you know how to avoid buying a "problem," and offer a few solutions in case you already own one.

LET'S CHECK UNDER THE HOOD OF A BELT SANDER


When you flip the switch of a portable belt sander to its "on" position, you fire up a universal motor that sets a pair of rollers into motion. These rollers, in turn, move a continuous abrasive belt over a flat surface referred to variously as a **base, pad, or shoe**.

Base designs differ, but on most sanders, a **cork pad** and **slip plate** fit between the **platen** and the **sanding belt** as shown *below*. The platen establishes a rigid, flat surface for the pad and plate to

THE "BUSINESS END" OF A BELT SANDER: ITS BASE



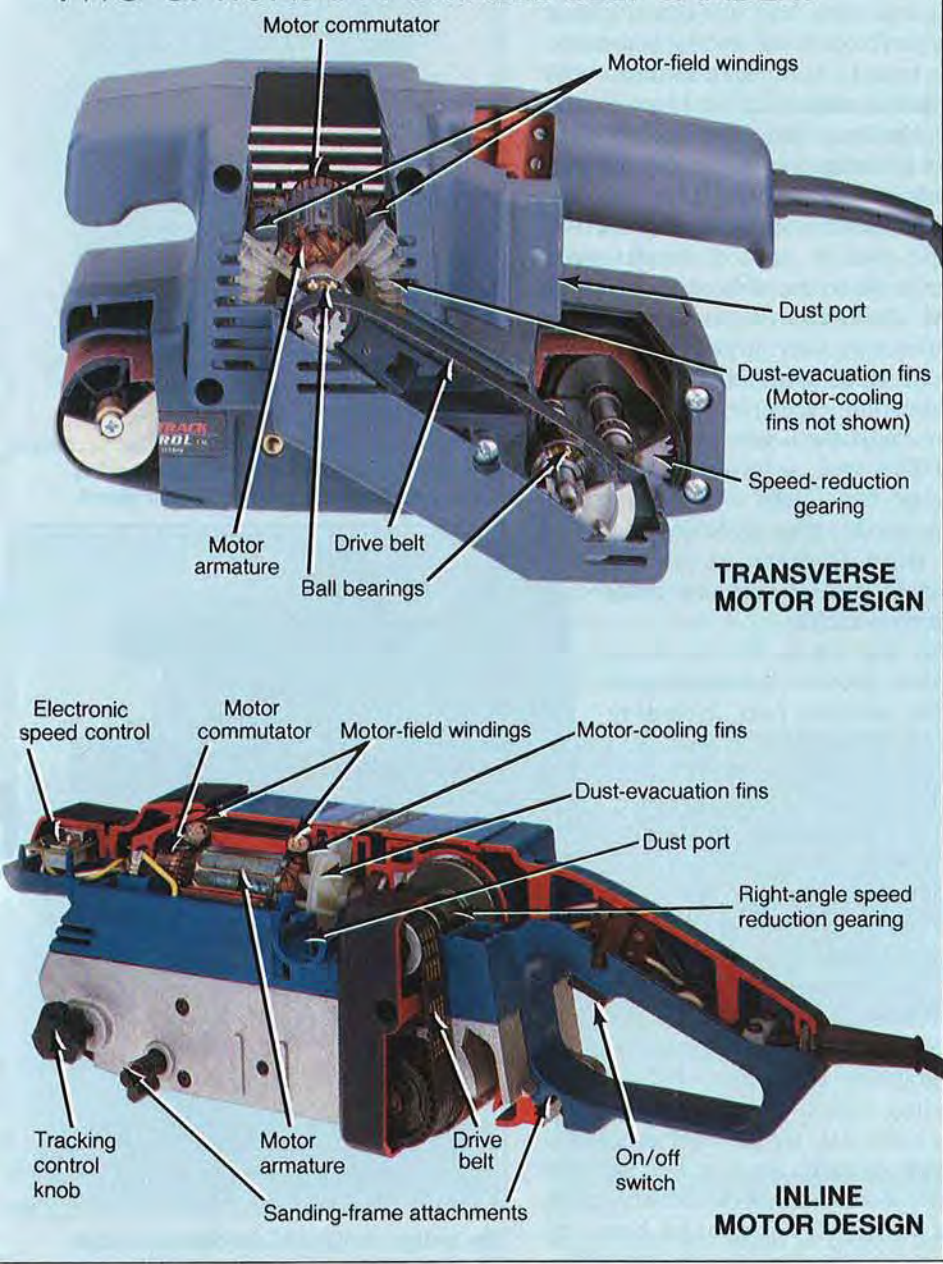
With its sanding frame attached the AEG HBSE 75S will help you sand surfaces with ease.

 [Print this article](#)



SANDERS A WHOLE LOT OF CHANGES GOIN' ON

TWO OPTIONS IN PORTABLE BELT SANDERS



sit on. Because a sanding belt would wear the platen over time, a replaceable slip plate or graphite pad contacts the back side of the belt on most sanders. The cork pad helps the slip plate conform to the shape of the platen.

Depending on which model you select, the sander will have one of two motor configurations: **transverse** or **inline**. How do they differ? Transverse machines, such as the Skil model 7313 shown *above left*, have motors mounted across the width of the machine, so the arbor turns in the same direction as the rollers.

Like the Ryobi model BE-321 shown *below left*, inline sanders have motors mounted parallel to the length of the machine. Because the arbor turns at 90° to the rollers, inline sanders have **right-angle speed reduction gearing** to transfer the motor's power to the **drive belt**. For information on how the motor configuration affects performance, see the section **Balance and Handling: a Weighty Matter** on page 57.

Both types of machines have a fan with two sets of **fins**: One set cools the motor and the other evacuates dust out through a **port** and into a bag. To regulate the speed of the motor, some machines come equipped with **electronic speed control** (see page 58 for more about this handy feature). At any speed, you need a means of keeping the belt centered on the rollers, so most machines have a **tracking control knob**.

Continued



AEG HBSE 75S



Ryobi BE-321



Freud LC75

BELT SANDERS

HOW MUCH BELT SANDER DO YOU NEED?

As you can see by looking at the chart on page 59, most manufacturers offer several sizes of sanders, most typically 3×18", 3×21", 3×24", and 4×24". Generally, machines with longer and wider belts will sand faster than smaller machines. But, for your home shop, a 3×21" or 3×24" sander will perform nearly every task in a reasonable amount of time.

When considering belt sizes it makes sense to pay just as much attention to the size of a machine's platen. Why? It's the size of the platen that determines how much sandpaper comes in contact with the work surface at any one time. For example, the Milwaukee model 5920 3×24" sander, with a 3×6½" platen, will remove stock much faster than the 3×24" Black & Decker model 7451 with a 3×4½" platen. See the buyanship chart on page 59 for the sanding area of 30 top-selling sanders.

THE LEVEL FACTS ABOUT FLAT BASES

No matter how much quality a manufacturer builds into a particular tool, a sander must have a flat base before you can do quality work with it. Most typically, a sander with a faulty base will cut deeper near its front and back with little stock removal near its middle. We first noticed this while testing 14 different models for this article. As we moved each running sander from side to side on a piece of polyester-coated particleboard, its sanding pattern appeared. The photo *above right* shows both an even and an uneven pattern. We found that the Bosch model 1273DVS, Hi

tachi SB10T, Makita 9900B, Milwaukee 5920, Ryobi BE-321, and Skil 7313 had either less-than-flat platens, or slip plates that bulged where they mounted to the platen.

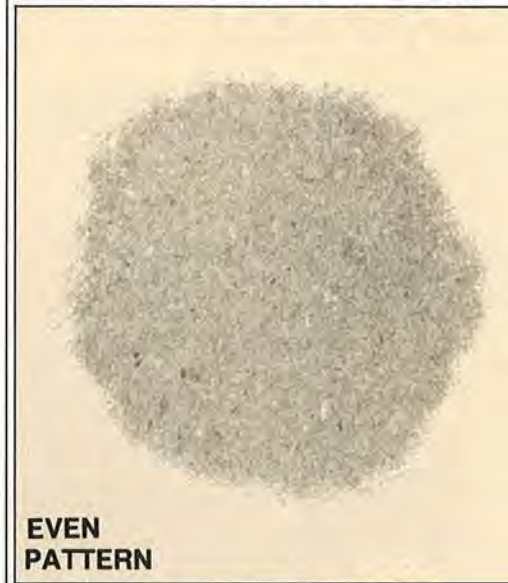
Representatives of these companies said they had not heard about this problem from their customers. Our hunch: Many belt-sander owners never realize the problem exists, and chalk up less-than-desirable results to their own operating habits.

Interestingly enough, when we tested an identical Bosch unit, we found that it sanded much more evenly than the first one we had tried. This leads us to believe that results can vary greatly from one machine to another of the same model. For example, after hearing from us, Hitachi tested three model SB10T's and acknowledged that one of them had a bad base. To their credit, they promised to relay these findings to company officials at their Japanese manufacturing facility.

On the other hand, several sanders produced exceptionally flat, uniform cuts, including the AEG model HBSE 75S, Black & Decker 7451, Elu 4024, Freud LC75, Metabo 0775, Porter-Cable 351, and Wen 3600.

What can you do to protect yourself from the problem we uncovered? Before buying any sander, if possible remove its belt and hold a straight-edge against the surface (slip plate or graphite pad) that contacts the sanding belt. If you detect a surface that's not flat, try another machine. If you already own a belt sander that's outlived its warranty, and you suspect it has a faulty base, try our quick-fix remedy on page 80.

WHAT OUR



The Black & Decker model 7451 sanded a flat, uniform test pattern into a sheet



The inline design of the Ryobi model BE-321 (*right*) makes that sander less



Skil 7313



Wen 3600



Metabo 0775



Makita 9900B

TEST REVEALED



**UNEVEN
PATTERN**

of polyester-coated particleboard (*left*);
the Ryobi model BE-321 didn't (*right*).



tipsy than the transverse design of the
Milwaukee model 5920.

BALANCE AND HANDLING: A WEIGHTY MATTER

Just as a tightrope walker has to balance his weight directly over the highwire, good belt-sander balance depends on how much of the sander's weight sits directly over the sanding belt. As shown *below left*, the low center of gravity and weight placement of inline sanders make them less prone to side-to-side tipping than most transverse belt sanders.

Transverse sanders have certain advantages here, too. For example, you can control most of these machines on and above surfaces with one hand as shown *below*. Also, we judged the D-shaped handles on transverse units more comfortable than those on inline machines.

Among the inline sanders, we found the Ryobi BE-321 the easiest to control, due in part to the flat shape of its front handle. We felt less-in-control when operating sanders with round front knobs such as those found on the AEG, Freud, and Metabo units.

Woodworkers we've spoken to seem to be split on their preference for a light- or heavyweight sander. If you do almost all your work on horizontal surfaces such as table-tops, a heavy machine (over 10 pounds) can be a plus. How come? You don't have to exert force on a heavy sander (which could cause the machine to tip slightly) because its own weight helps the machine sand efficiently. However, if you'll be operating a belt sander on vertical surfaces, buy the lightest sander you can find. Tipping the scales at just over 6 pounds, the Elu models 4023 and 4024 pack plenty of quality in the lightest packages on the market.

DUST COLLECTION: YOU CAN'T LIVE WITHOUT IT

There's no way around it: Belt sanders kick out a lot of airborne dust that is none-too-healthy to breathe. That's why we recommend that you buy a sander with a dust collection bag.

Continued



You'll need two hands to control inline
sanders such as the Freud LC75 (*left*),

but you can one-hand transverse machines such as the Metabo 0775 (*right*).



Elu 4024



Milwaukee 5920



Sears 9R11792C



Black & Decker 7451

BELT SANDERS

When it comes to dust bags, the Elu and Metabo sanders, with bags that mount in the front and rear respectively, top our list. Both bags stay well out of your way. Among the machines with side-mounted bags, we think highly of the Porter-Cable sanders because you can position the bag on any side.

ATTACHMENTS: SANDING FRAMES HEAD THE LIST

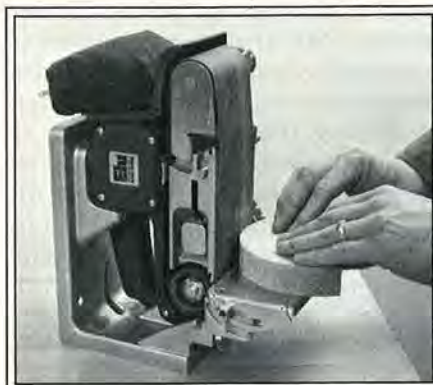
It's a rare occasion when an accessory gets us so excited that we feel all our readers should own one, especially when only a handful of manufacturers include the accessory in their product line. For sanding frames, we make an exception.

A sanding frame works just like the sole of a hand plane in that it holds the sanding belt above the low spots in a surface, just as the plane suspends its blade above these "valleys." Supported like this, the belt sander concentrates its abrasive action on high spots, producing a surface as close to a single plane as possible. Also, the frame prevents the sander from rocking side-to-side or front-to-back, effectively eliminating gouging of the wood surface. The frame even helped iron out some of the prob-

lems that the nonflat bases gave us. Another benefit: As shown on page 54, the sanding frame prevents your sander from doing a "nose-dive" over the edge of a surface.

Currently, six companies make an accessory sanding frame at a wide range of list prices: AEG, \$112; Bosch, \$89; Elu, \$42; Hitachi, \$153; Ryobi, \$55; and Skil, \$6.

As shown *below*, the frames have a variety of materials that contact the wood surface. The frames with plastic bottoms give the sander a solid feel as you glide it over the surface, and we found the moderately priced Elu and Ryobi frames well-matched for home shop use.



The Elu inversion stand doubles the machine's usefulness by enabling you to shape small objects.



Sanding frames come in a variety of designs. From left, Hitachi and Ryobi

(both plastic-on-aluminum bases), Skil (all steel), and AEG (brush bottom).

Although sanding frames wowed us, we also came across a slew of other nifty accessories (see the chart *opposite* for a complete listing). Another favorite gadget: a device that holds the sander in a vertical or horizontal position on a benchtop. These accessories range from a pair of simple clamps to secure the sander on its back (Ryobi, Skil) to stands such as the Elu model shown *below left*.

SPEED CONTROL: A HANDY FEATURE

Fast belt sanders have one advantage over slower units: They remove stock at a quicker rate. But, in certain situations it helps to slow things down, so we're happy to see an increasing number of variable-speed sanders coming onto the market. You'll appreciate this feature when you want to avoid burning a surface, especially with fine-grain belts. Working on a veneer surface, you'll value the control you get with a slow speed.

We especially liked the convenient location of the variable-speed controls on the Bosch 1273DVS and Ryobi BE-321 that allowed us to change speeds while sanding. We had to stop sanding to change the speed of the AEG HBSE 75S.

NOISE: SOME MACHINES WERE A LITTLE ABRASIVE

By their nature, portable belt sanders make a lot of noise. Nevertheless, we comfortably used some, such as the Bosch 1273DVS, Elu 4024, Milwaukee 5920, and Porter-Cable 351, without ear protection. The Freud LC75 and AEG HBSE 75S were another matter. The Freud was loud and the AEG made a noise that wasn't terribly loud—just irritatingly high pitched. 🌲



Bosch 1273DVS



Hitachi SB10T



Porter-Cable 351

VITAL STATISTICS ON 30 TOP-SELLING SANDERS

MANUFACTURER	MODEL	BELT SIZE (width x length, inches)	SANDING AREA (width x length, inches)	SPEED (feet per minute) ¹	MOTOR POSITION ²	AMPS	BEARINGS ³	BELT CHANGE ⁴	DUST COLLECTION (Y/N)	STANDARD ACCESSORIES ⁵	AVAILABLE ACCESSORIES ⁵	SANDS FLUSH (Y/N)	CORD LENGTH (feet)	AUTHORIZED SERVICE CENTERS ⁶	COUNTRY OF ORIGIN ⁷	NET WEIGHT (pounds)	SUGGESTED LIST PRICE ⁸
AEG	HBSE 75S	3x21	3x5¼	660-1,250	I	7.8	B	L	Y	B, DB, HS	F, SF, VA	Y	12	180	WG	8.4	\$249
Black & Decker	7447	3x21	3x4½	600	T	3.4	B, S	P	N	B		Y	6	215	USA	7	78
	7451	3x24	3x4½	1,200	T**	5.2	B, S	L	Y	B, DB		Y	6		USA	8.75	198
	2732	3x24	3x4¾	1,180-1,475	T	8.7	B, R	L	Y	B, DB		Y	8		J	9.7	290
Bosch	3270D	3x21	3x6¾	1,080	I	5	B, R, S	L	Y	B, DB	F, VA	Y	8	184	S	7.9	219
	1273DVS	4x24	4x6	1,150-1,550	T	10.5	B, R, S	L	Y	B, DB	SF, HS, VA	Y	8		USA	14.8	339
Elu	4023	3x21	3x5¼	1,100	T	5.2	B, R	L	Y	B, DB	F, HS, SF, VS	N	10		S	6.2	261
	4024	3x21	3x5¼	475-1,100	T	5.2	B, R	L	Y	B, DB	F, HS, SF, VS	N	10		S	6.2	289
Freud	LC75	3x21	3x5¼	1,475	I	9.6	B, R, S	L	Y	B, DB		Y	8	70	SP	10.75	228
	LC110	4x24	4x6¾	1,475	I	9.6	B, R, S	L	Y	B, DB		Y	8		SP	11.62	305
Hitachi	SB75	3x21	3x4¾	1,180; 1,475	T	8.7	B	L	Y	B, DB	HS	Y	8½	167	J	9.7	261
	SB10T	4x24	4x6½	1,150; 1,380	T	8.7	B	L	Y	B, DB	HS, SF	Y	8½		J	11.7	317
Makita	9900B	3x21	3x5	1,180	T	7.8	B, R	L	Y	B, DB		Y	17		J	10	254
	9924B*	3x24	3x6½	1,300	T	7.8	B, R	L	N*			Y	17	140	J	10.2	241
Metabo	0775	3x21	3x5¼	1,300	T**	5.5	B, R	K	Y	B, DB		Y	14	111	WG	10	283
Milwaukee	5920*	3x24	3x6½	1,400	T	10	B, S	L	N*	B		N	8	262	USA	13.5	315
	5931*	4x24	4x6½	1,400	T	10	B, S	L	N*	B		Y	8		USA	14.25	326
Porter-Cable	351*	3x21	3x5	1,300	T	7	B, R	L	N*	B		Y	7	138	USA	10.75	207
	361*	3x24	3x5¾	1,550	T	10.5	B, R	L	N*	B		Y	7		USA	13.75	282
	363*	4x24	3x5¾	1,550	T	10.5	B, R	L	N*	B		Y	7		USA	12	302
Ryobi	B-7075	3x21	3x5¼	1,180	T	8.4	B, S	L	Y	DB	CC	Y	8	153	J/USA	9.6	219
	BE-321	3x21	3x5¼	775-1,148	I	5.4	B, S	L	Y	B, DB	F, HS, SF	Y	8		J/USA	7.9	244
	B-7100	3x24	3x6¾	1,500	T	8.4	B, S	L	Y	DB		Y	8		J/USA	9.7	281
Sears	9R11715	3x21	3x4¾	1,300	T	7.5	B, R	L	Y	DB	CC, F, VS	Y	6	900	USA	12.7	78
	9R11792C	4x21	4x4¾	1,300	T	7.5	B	L	Y	DB		Y	10		USA	18	98
Skil	7102	2½x16	2½x4½	600	T	2.8	B, R	L	N	B	VA	Y	8	141	USA	5.75	65
	7313	3x18	3x5	700	T	4.5	B, R	L	Y	B, DB	F, HS, SF	Y	8		USA	6.75	70
	7621	3x21	3x5¾	775-1,150	I	6	B, R	L	Y	B, DB	HS	Y	8		J	8	269
	7724	3x24	3x7	1,500	T	9	B, R	L	Y	B, DB		N	8		J	9¼	269
Wen	3600	3x18	3x3	1,000	T	4	S	P	Y#	B	VA	N	6	1	USA	6.5	79

* Same model available with dust evacuation and dust bag

** Motor mounted between rollers

Only with vacuum hose attached

1. Machines with listed speed ranges indicate variable speed capability

2. (I) Inline; (T) Transverse

3. (B) Ball; (R) Roller; (S) Sleeve

4. (K) Knob; (L) Lever; (P) Push on front roller

5. (B) Sanding belt; (CC) Carrying case;

(DB) Dust bag; (F) Fence;

(HS) Horizontal support;

(SF) Sanding frame;

(VA) Vacuum attachment;

(VS) Vertical support

6. Notes about authorized service centers:

- Elu tools serviced at

Black & Decker centers.

- If a Sears service center cannot

repair a tool, the tool will be sent

to one of three specialty repair centers.

- Wen tools must be mailed to one

service center in Chicago.

7. Ryobi portable belt sanders may be

manufactured in the U.S. or Japan

at the discretion of the company.

(J) Japan; (S) Switzerland;

(SP) Spain; (WG) West Germany

8. Tools often discounted 10-50%

below list price.



THEY DON'T BUILD 'EM LIKE THIS ANYMORE

DOLL CRADLE

Thank goodness for a photographer's attentive eye! William Hopkins, Sr., who often shoots photos for *WOOD*® magazine, recently spotted an antique doll cradle while on assignment for another magazine. And fortunately for us, he decided to jot down the dimensions and build one for a gift. When we saw Bill's handiwork, we fell for the project immediately. We think you will, too.

EDGE-JOIN STOCK TO FORM THE WIDE PANELS

Note: The cradle sides (A), back (B), front (C), base (D), and hood parts (E, F) require wide panels. When you edge-join boards to form these panels, we recommend using 4" or narrower boards to reduce the chance of warpage.

1 Glue and clamp enough 3/4" cherry to form the following: two panels measuring 12x27 7/8" for the cradle sides (A). A 9 3/8"x12 1/2" panel for the cradle back (B), an 8x12" panel for the cradle front (C), a 12x25" panel for the cradle base (D), and two 6 1/4"x12" panels for the hood parts (E, F).

After the glue dries, remove the clamps and sand each panel.

2 Resaw the two 6 1/4"x12" panels for the hood parts (E, F) so you end up with four 1/4"-thick panels. Sand each resawed panel smooth.

3 Cut the hood support blank (G) to 2 1/2"x13 1/2". And cut two rocker blanks (H) to 3x18".

THE COMPOUND ANGLES: EASIER THAN YOU THINK

1 Make a mark on the inside face of the front, back, and side panels as well as the hood support blank.

2 As shown on Step 1 of the three-step drawing below, tilt your table-saw blade 10° right of vertical. Next, with the marked inside face down, cut a 10° bevel along the bottom edge of the sides (A), back (B), and front (C).

3 Using the dimensions on the Cradle Side, Back, Front, and Hood Support drawings, mark the angled cutlines on the inside face of these pieces. When making the cuts shown on Steps 2 and 3, save the cutoff end pieces from parts B and C; you'll use them later as clamp blocks when assembling the cradle.

4 Tilt your tablesaw blade 3° right of vertical, and angle your miter gauge 10° from square where shown on Step 2. With the inside face up, cut the compound angle

along the right-hand side of pieces A, B, C, and G where marked.

5 With the inside face of each piece up, follow Step 3 to cut the compound angle along the opposite end of each piece.

NOW, MARK AND CUT ALL THE PIECES TO SHAPE

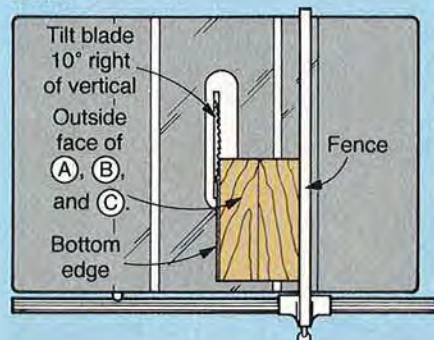
1 Using the dimensions on the Cradle Side Drawing and accompanying Grid Pattern, mark the layout for the top edge of one side panel. To enlarge the grid pattern for the curved portion of the sides, cut a piece of heavy paper to 3x6", and draw a 1" grid on the paper. Using the Grid Pattern as reference, lay out the curved outline on the marked grid. To do this, mark the points where the pattern outline crosses each grid line. Finally, draw lines to connect the points. Cut the paper pattern to shape, and use it as a template to mark the curved portion on each cradle side.

2 Bandsaw the top edge of the cradle side panel to shape. Trace its outline onto the other cradle side, and cut its top edge to shape.

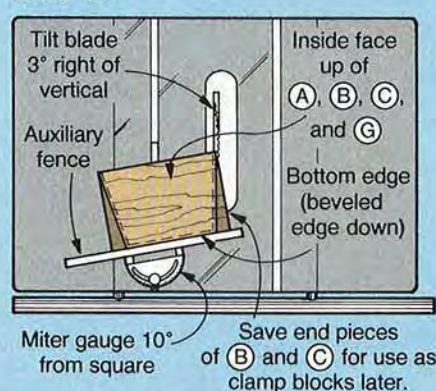
3 Repeat the process in Step 1 above to mark the contoured-top shape of the cradle back (B), front (C), hood support (G), and rockers (H). Cut the pieces to shape and sand smooth.

Continued

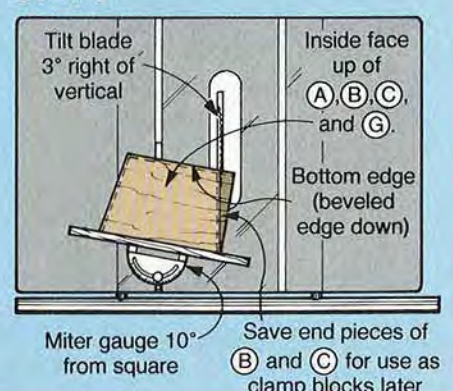
STEP 1

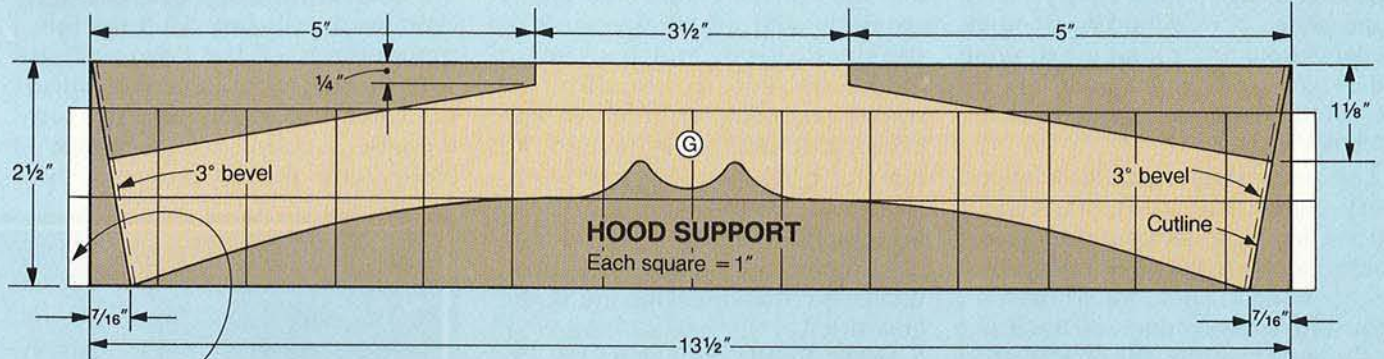
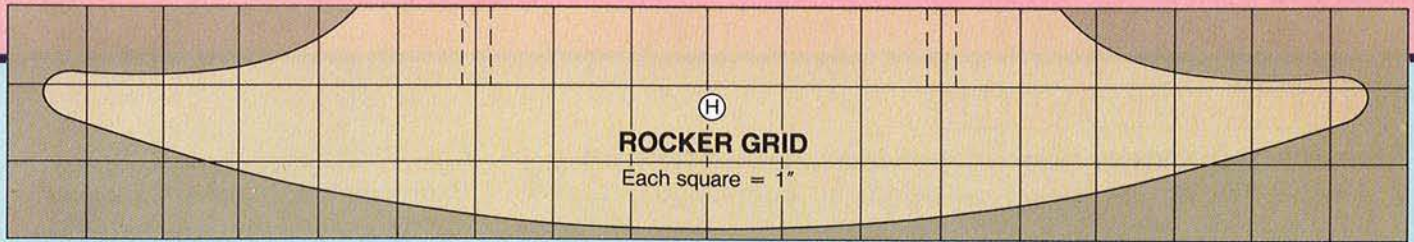


STEP 2



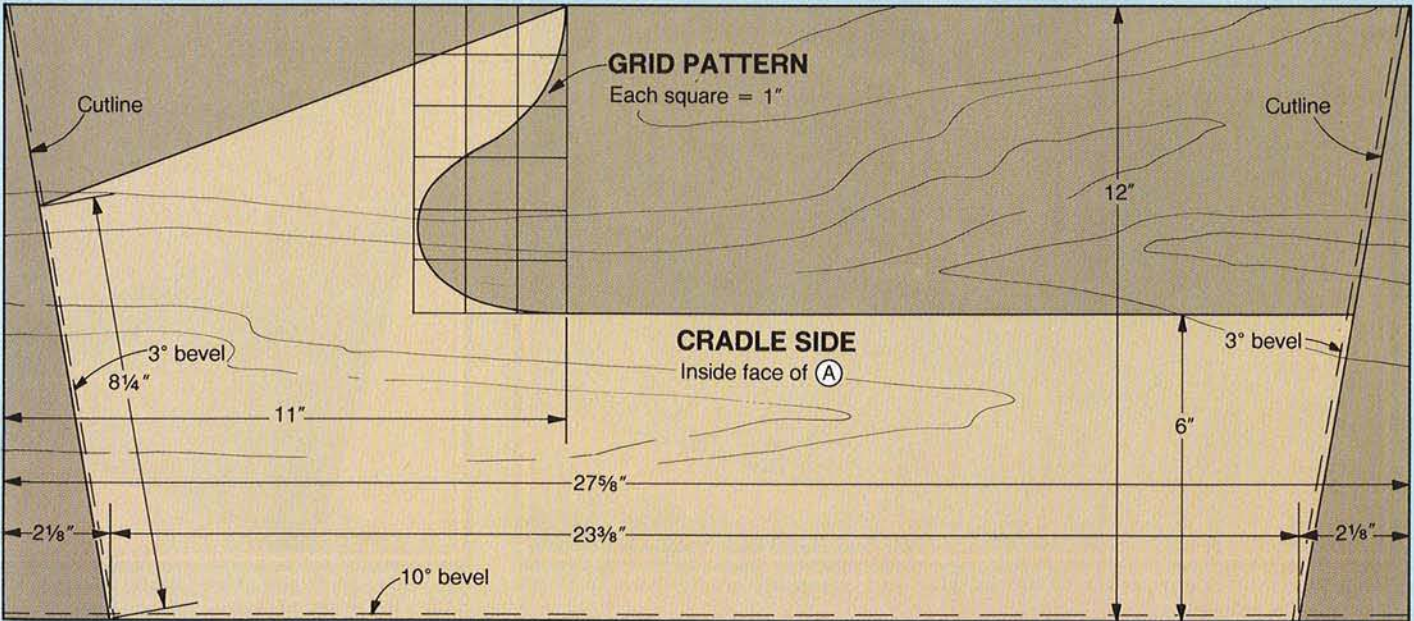
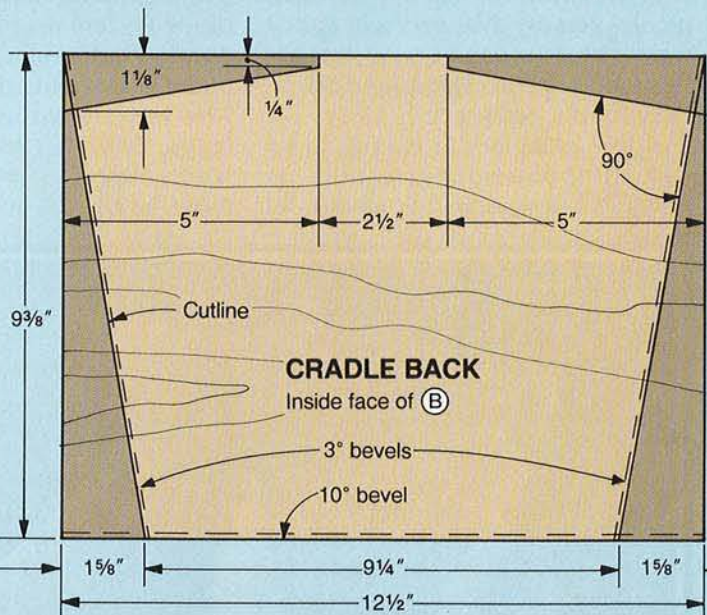
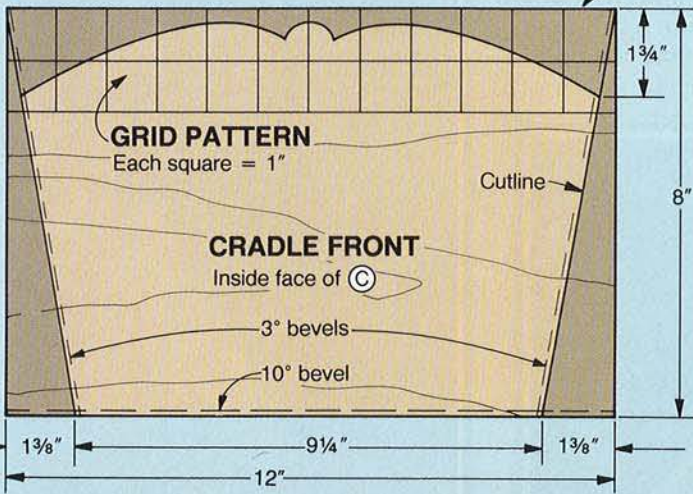
STEP 3





Grid pattern overhangs 1/4" on both ends

Top of grid is flush with top of stock



Continued

DOLL CRADLE

THE CRADLE BEGINS TO TAKE SHAPE

1 Cut the cradle base (D) to size from the edge-joined cherry panel, and rout $\frac{1}{4}$ " round-overs along all edges. Rout $\frac{1}{4}$ " round-overs along the *bottom* edge of each rocker (see the Exploded-View Drawing for reference).

2 Using masking tape and a helper, dry-clamp the front, back, and hood support between the cradle sides to check the fit; trim if necessary. Mark a slight round-over on the top corner edges of the front (C) where they meet the side pieces. Remove the tape, and cut or sand the round-overs to shape. (Again, see the Exploded-View Drawing for reference.)

3 Apply glue to the mating areas (set the hood support aside for now). As shown in the photo *be-*

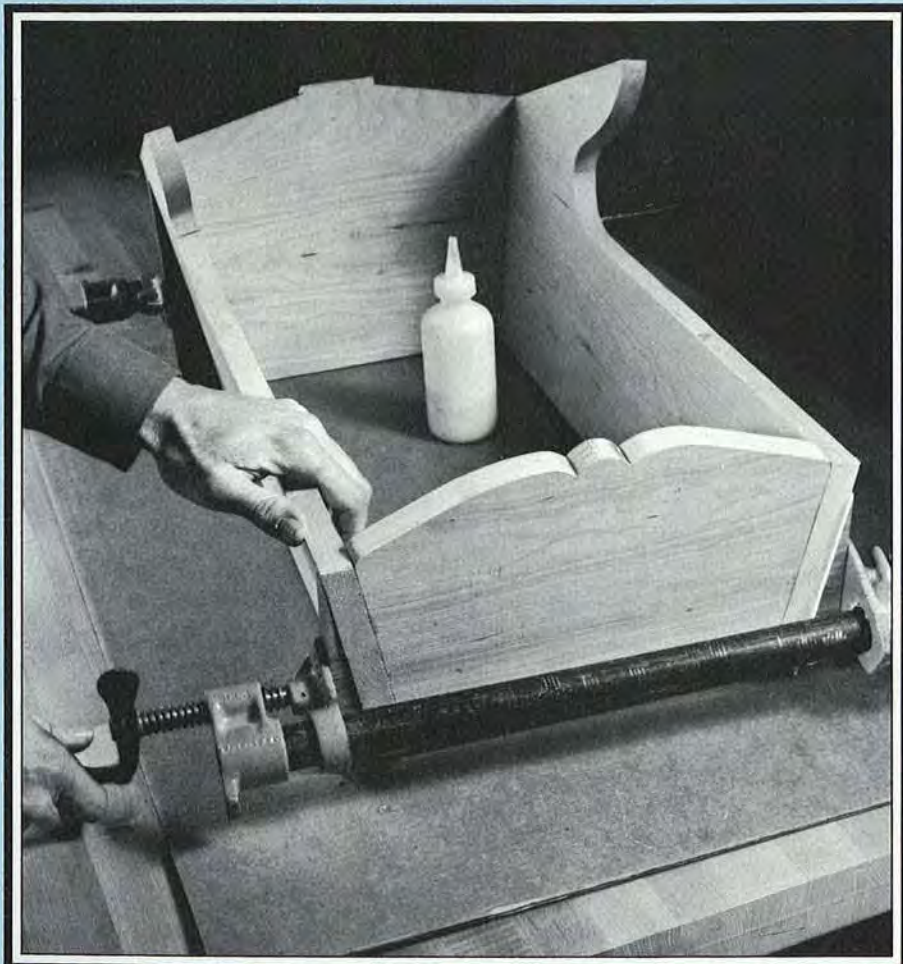
low, clamp the assembly together, using the cutoff end pieces as clamping blocks. Make sure that the ends of the cradle side pieces are flush with the outside faces of the cradle front and back. Also check the cradle assembly for square. Immediately remove any excess glue with a damp cloth. After the glue dries, remove the clamps and sand smooth.

4 Now, glue the cherry hood support in place (we held ours in position with masking tape until the glue dried).

5 Using the dimensions on the Exploded-View Drawing, mark the dowel centerpoints on each side piece (each side has five holes). Now, as shown in the photo at *right*, drill $\frac{3}{8}$ " holes $1\frac{1}{2}$ " deep where marked (we used a brad-point bit).

6 From $\frac{3}{8}$ " birch dowel stock, cut 10 dowels $1\frac{1}{16}$ " long. Sand a chamfer on one end of each dowel. Glue the dowels in place, inserting the chamfered ends first. Sand the protruding ends of the dowels flush with the surface of the cradle sides.

7 Center the cradle assembly on the base. Lightly trace the cradle's outline onto the top surface of the



Using the cutoff scraps as clamp blocks, glue and clamp the cradle front and back between the side pieces.



Carefully mark the dowel hole centerpoints on each side panel. Then, using a

base. To prevent the joints from cracking later due to expansion and contraction, apply glue only to the bottom of the side pieces—do not glue the bottom edges of the front and back to the base. Using clamp blocks, clamp the assembly onto the base where marked. Immediately wipe off any excess glue with a damp cloth.



portable electric drill and a brad point bit, drill $\frac{3}{8}$ " holes $1\frac{1}{2}$ " deep.

“As we do with all our projects, we built this cradle in our shop to check the procedure, dimensions, and angles. In fact, we ended up building several cradles to ensure accuracy and provide you with the best instructions possible.” *Marlen Kemmet* **How-To Editor**

ATTACH THE ROCKERS

1 Using the dimensions on the Rocker Hole Detail accompanying the Exploded-View Drawing, mark and drill four $\frac{3}{8}$ " holes $\frac{1}{2}$ " deep in the bottom face of the base.

2 Insert a pair of $\frac{3}{8}$ " dowel centers in the holes in one end of the base. Hold a rocker in position on the bottom side of the base (see the Rocker Hole Detail for location). Squeeze the rocker against the base to transfer the hole centerpoints to the rocker. Repeat for the second rocker. Drill a pair of $\frac{3}{8}$ " holes $1\frac{1}{2}$ " deep in each rocker where indented. (We used a doweling jig when drilling the dowel holes.)

3 Cut four $\frac{3}{8}$ " dowels to $1\frac{3}{8}$ " in length. Sand a chamfer on both ends of each dowel.

4 Glue, dowel, and clamp the rockers to the bottom of the base.

THE HOOD TOPS OFF THE CRADLE ASSEMBLY

1 Using the dimensions on the Hood Center Drawing, mark the outline and cut the hood center (F) to shape.

2 Bevel-rip the inside edge of each of the hood sides at 10° . (See Step 1

on the three-step drawing on page 61 for help with this if necessary.)

3 Glue and clamp the hood sides (E) to the top edge of the side pieces. To allow the hood side pieces to expand and contract without splitting, *do not* glue them to the back or the hood support. The back edge of the hood sides should overhang the back edge of the cradle by $\frac{1}{2}$ ". (We used masking tape to hold the pieces in place until the glue dried.)

4 Glue and clamp the hood center in place; it also overhangs the back edge by $\frac{1}{2}$ ".

ADD THE FINISH AND THE DOLLY

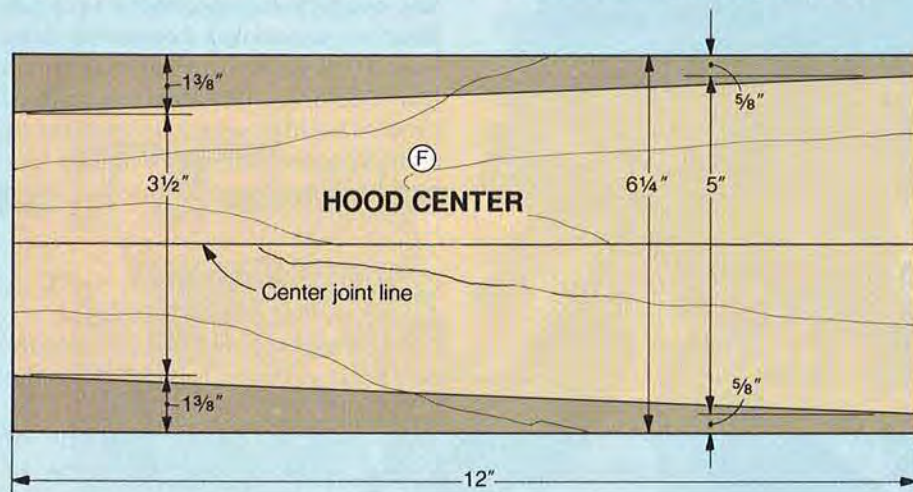
1 Finish-sand the entire cradle. Stain as desired. (We used a cherry stain. Since cherry darkens with age, we avoided using dark stains.)

2 Apply the finish (we used polyurethane sanding sealer and three coats of semigloss polyurethane). Wrap a ribbon around the cradle and present it to a lucky child. 🎁

Produced by Marlen Kemmet

Photographs: Hopkins Associates;
Bob Calmer

Illustrations: Kim Downing; Bill Zaun



BLOW OFF THE DUST AND PUT

At \$10-\$20 each, the pipe clamps in your shop represent a sizable investment. So, it makes good sense to get maximum use from these tools. As you're about to see, they can do a lot more than just join large workpieces.

1 BUY THE PIPE LENGTH YOU REALLY NEED

Before you spend up to \$1 per foot for threaded black pipe—the best type for this purpose—allow for the length of pipe inside the head and tail jaws. As shown below, the two jaws on our clamps eat up 4½" of pipe. You'll have to measure your own clamps, then add that amount to your desired clamping capacity before ordering pipe from your friendly plumber or hardware store. Now, you'll have pipe clamps long enough for the job when it comes time for the assembly of your project.

After purchasing your pipe clamps, take a few seconds to mark the capacity of each clamp on one of its jaws. Use a permanent, felt-tipped pen as shown in the inset illustration below left. With that done, you shouldn't make the mistake of grabbing a pipe clamp that's too small for your project.

2 YOU'RE ALL WET IF YOU DON'T DRY-CLAMP

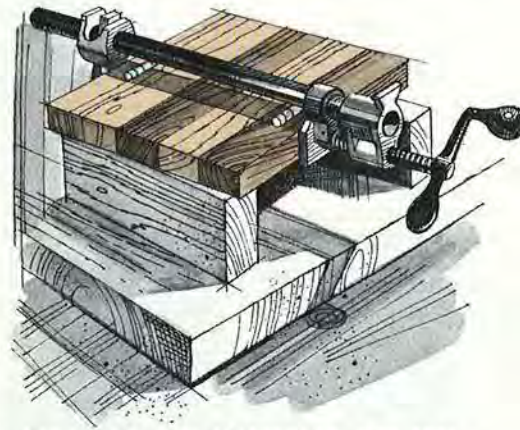
Before you apply glue, dry-clamp your project to check the fit of the joints. Remachine and adjust the part(s) as necessary. As shown in the illustration below, we discov-



ered a gap between two boards after dry-clamping this cutting board. Excessive clamping pressure would have brought the joint together, but would have resulted in a weak joint, so we took a couple of minutes to recut the mating edges. As Jim Boelling, *WOOD* magazine's project builder says, "No amount of clamping pressure has ever made a bad joint into a good one."

3 FOR STARTERS, GET A GOOD LINE OF PULL

A pipe clamp places pressure or "pull" directly in line with the screw on the head jaw. So, be sure to center this line of pull on the thickness of

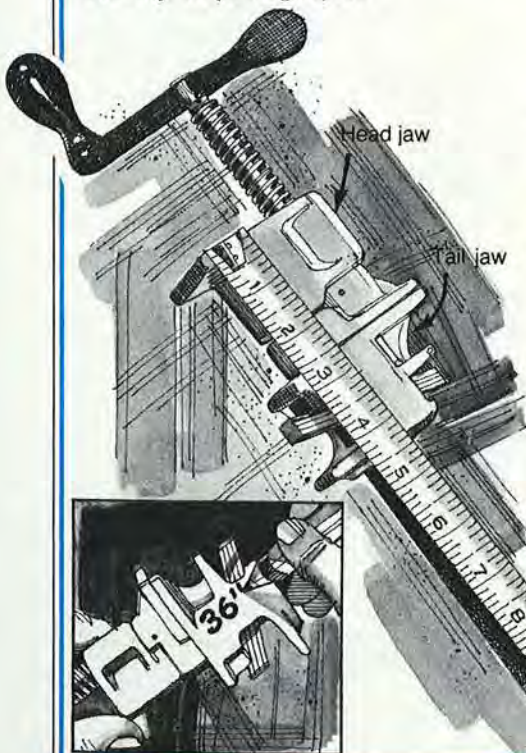
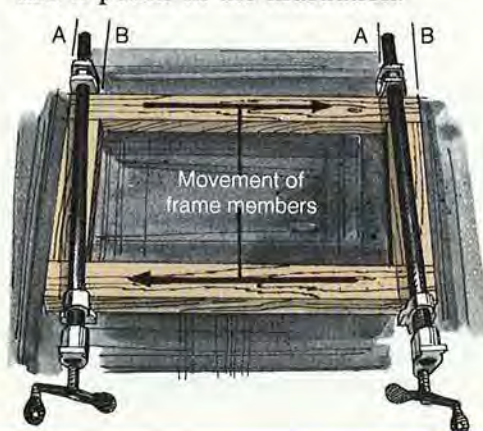


the workpiece. Otherwise, you run the likely risk of cupping or bowing the glue-up.

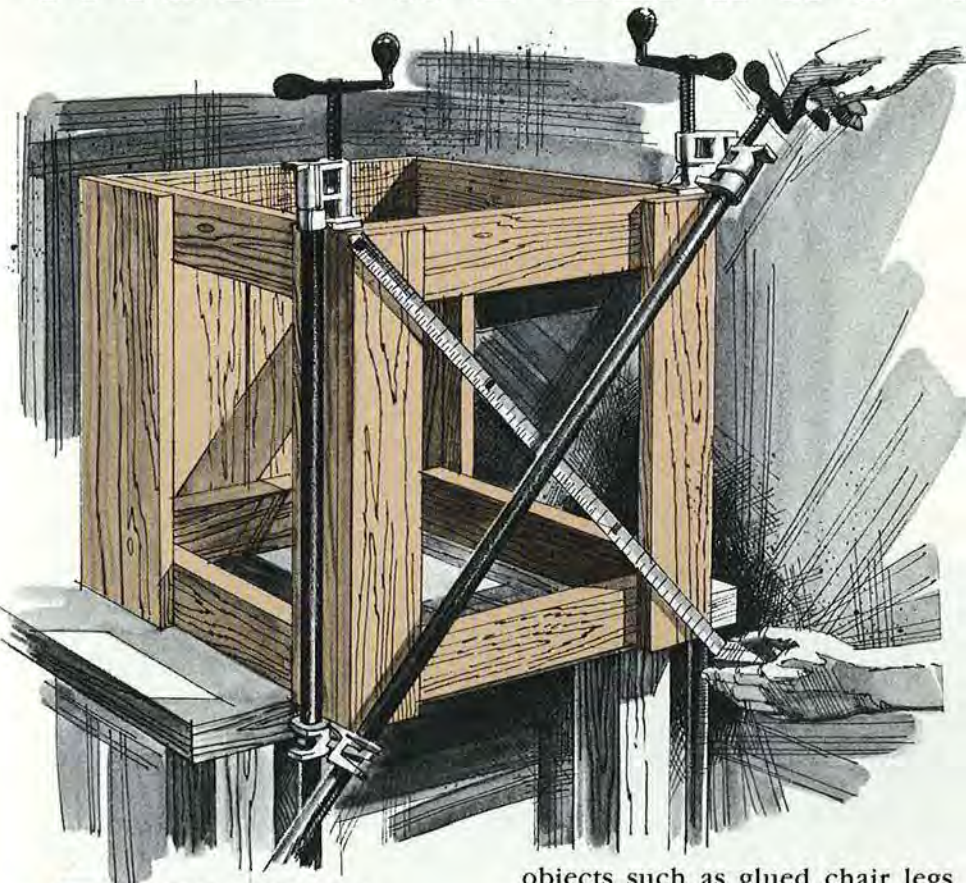
To avoid this problem, use this little trick when edge-gluing boards for width. As shown above, suspend the workpieces on two 2x4s, then place a piece of dowel under both ends of each clamp to center the screw in line with the edge of the workpieces.

4 A CURE FOR SMALL SQUARING PROBLEMS

It's not unusual to pull a frame together, only to find out that it's slightly out of square. Sometimes, you can correct this by just slanting the direction of your pipe clamps as shown below, making what may seem like a bad line of pull actually work for you. Remember, this procedure works only for minor corrections—don't try to place the clamp jaws beyond the A and B points in the illustration.



THOSE PIPE CLAMPS TO WORK!



5 BE SQUARE ON A BIG SCALE, TOO

You can bet that any cabinet frame or box with equal diagonal lengths between its corners has 90° corners. And, you can apply this idea to making your projects square during clamp-up. Here's how:

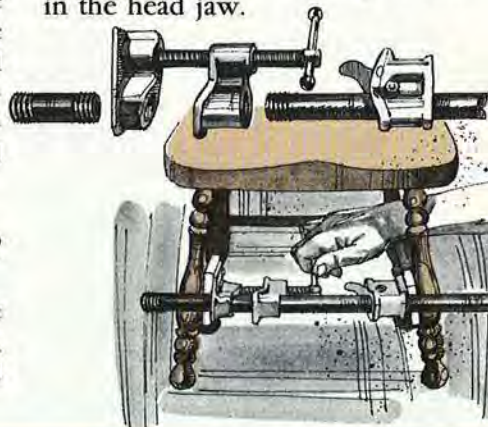
With the frame held together with two clamps, measure the two diagonals. If one measures 26", for example, and the other measures 27", attach a bar clamp across the longer diagonal and hold a tape measure across the short diagonal as shown *above*. Now, slowly tighten the bar clamp on the 27" diagonal until the other diagonal measures 26½". You're square!

6 MAKE A CLAMP THAT PULLS APART OBJECTS

Recently, *WOOD* magazine reader Dewey Fox of Milford, Ind., showed us a slick way to spread

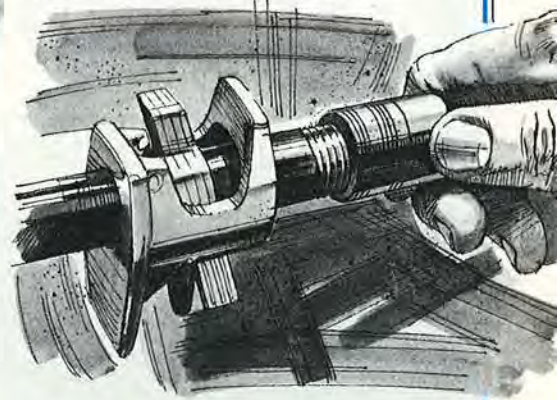
objects such as glued chair legs apart with ½" pipe clamps. While less-rigid than the more-popular ¾" pipe clamps, the ½" models have sliding bar handles that slip past the handle, allowing them to work for this application.

As shown *below*, you'll need to reverse the head and tail jaws, then thread the head jaw halfway onto the pipe. Now, cut a 4" piece of pipe (threaded on one end) and turn it into the remaining threads in the head jaw.



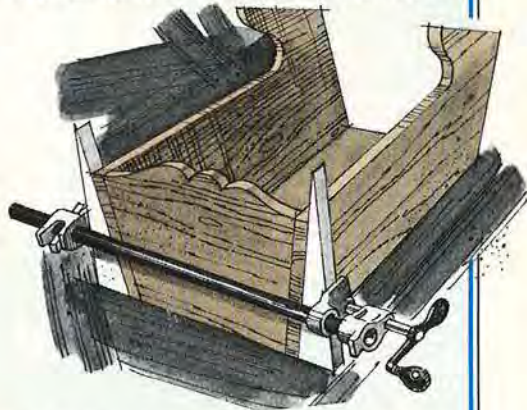
7 COUPLINGS DOUBLE YOUR CLAMP LENGTHS

For less than \$1, you can buy a coupling and attach it to the tail end of your pipe as shown *below*. The coupling will protect the threads and keep the tail jaw from sliding off. And, when you need an extra-long clamp, you can remove the tail jaw, fasten two pipes together, and reattach the tail jaw to the far end of the second pipe.



8 CLAMP ODD ANGLES WITH THIS METHOD

You can clamp two nonparallel surfaces by using wedge-shaped blocks that compensate for the odd angles. As shown *below*, we saved the scrap pieces cut from



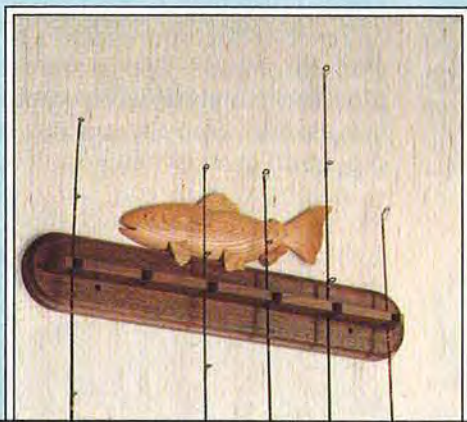
the end panel of the cradle project on page 65, attached those scrap pieces with double-faced tape, and put our clamp into position. This procedure also works with irregular bandsawed pieces. ♣

Illustrations: Jim Stevenson

DON'T LET THIS ONE GET AWAY



FISHERMAN'S ROD



We can report excellent fishing conditions for our anglin' friends: The fishermen are biting on this rod rack idea. In addition to looking like a million bucks, the rack untangles the rod-and-reel mess that bobs up at many homes between outings. And that's no fish story.

Note: For your convenience, we have printed a FREE full-sized pattern of the fish. You'll find ordering instructions at the end of the article. If you can't wait to get started, enlarge the pattern shown here.

NEXT, THE ROD HOLDER AND BUTT-END SUPPORT

1 Cut a piece of $\frac{1}{2}$ "-thick walnut to 2" wide by $22\frac{3}{4}$ " long. If you don't have any $\frac{1}{2}$ " stock, plane or resaw thicker stock to $\frac{1}{2}$ ".

2 Rip a $\frac{1}{4}$ "-wide strip from the $\frac{1}{2}$ " walnut for the rod holder (B). Rip a strip $\frac{1}{8}$ "-wide from the remaining piece for the top retainer strip (C). Repeat the process to rip a $\frac{1}{8}$ "-wide by 23"-long bottom retainer strip (D) from the edge of a $\frac{3}{4}$ "-thick board.

3 Follow steps 1 through 6 on the drawing titled "Forming the Rod Holder" to finish the assembling of the rod holder (B). (You'll do steps 7 and 8 later.)

4 Cut the butt-end support (E) to 2" wide by 23" long. Now, refer to the dimensions on the Base Unit Drawing, and mark the dado locations. Cut the $1\frac{1}{2}$ " dados $\frac{3}{8}$ " deep. Wrap sandpaper around a $\frac{3}{4}$ "-thick piece of scrap, and sand the dado bottoms smooth.

5 Glue and clamp the $\frac{3}{4}$ " retainer strip (D) to the front edge of the butt-end support. Mark and miter-cut the angled ends.

6 Sand both mounting boards, the rod holder, and the butt-end support. Glue and screw the rod holder and butt-end support assemblies to the mounting boards.

START WITH THE MOUNTING BOARDS

1 From $\frac{3}{4}$ " walnut, cut the two mounting boards (A) to 4×24 " long.

2 Mark a centerline the length of each board. Center a compass point on the marked line, and mark a 2" radius on the ends of each board. Cut

the marked ends to shape and sand both boards smooth.

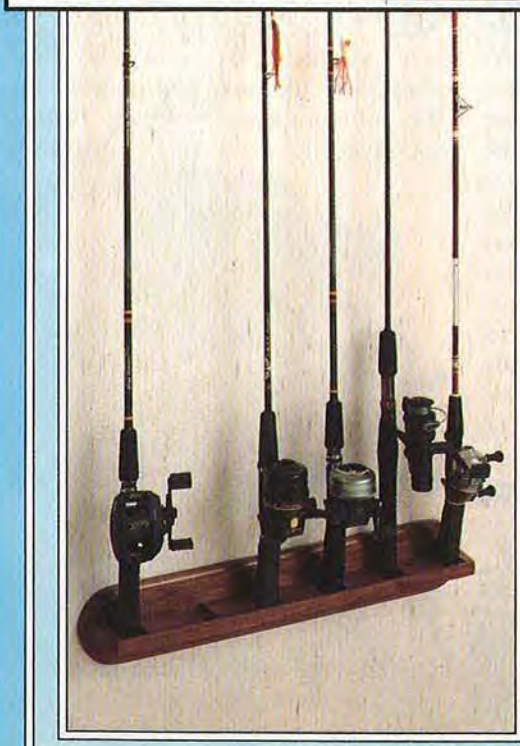
3 Using the dimensions on the Upper and Base Unit drawings, mark three centerpoints on the centerline of each mounting board for the $\frac{5}{32}$ " holes. You'll use these holes later for mounting the rod holder (B) and butt-end support (E). Measure down $\frac{5}{8}$ " from the center of each *outside* centerpoint on the upper-unit mounting board and down $\frac{3}{4}$ " on the base-unit mounting board, and mark a pair of centerpoints on each board. You'll use these holes later for mounting the assemblies to the wall.

Drill a $\frac{5}{32}$ " hole at each centerpoint and countersink where shown on the drawings.

4 Rout a $\frac{1}{4}$ " cove along the front face of each mounting board. Sand both boards smooth.

Note: If you prefer not to spend the time cutting and shaping the fish, skip to the section titled "Finish It, Hang It, And Add The Rods" to complete the rod rack.

Continued



FISHERMAN'S ROD RACK

NOW, SHAPE YOUR FISH

1 Cut a piece of paper to 5×14 ", and draw a 1" grid on the paper. Using the Fish Pattern for reference, lay out the fish outline, eye location, and fin patterns on the marked grid. To do this, mark the points where the pattern outline crosses each grid line. Then, draw lines to connect the points.

2 Cut a piece of $\frac{3}{4}$ " oak to 5×14 " for the fish blank (E). With carbon paper, transfer the fish pattern and eye centerpoint to the oak. Cut the fish to shape, and cut around the fins' outlines to separate them from the body. (We used a scrollsaw.) Cutting the fins from the body allows you to sand the fish body independently of the fins.

3 Using a brad-point bit, drill a $\frac{3}{8}$ " hole $\frac{1}{4}$ " deep for the fish's eye where marked.

4 Chuck a 60-grit drum sander into your drill press or portable drill. Using the Top-View Drawing and the photo *above right* for reference, sand the fish body to shape. (The front end of a belt sander also works well.)

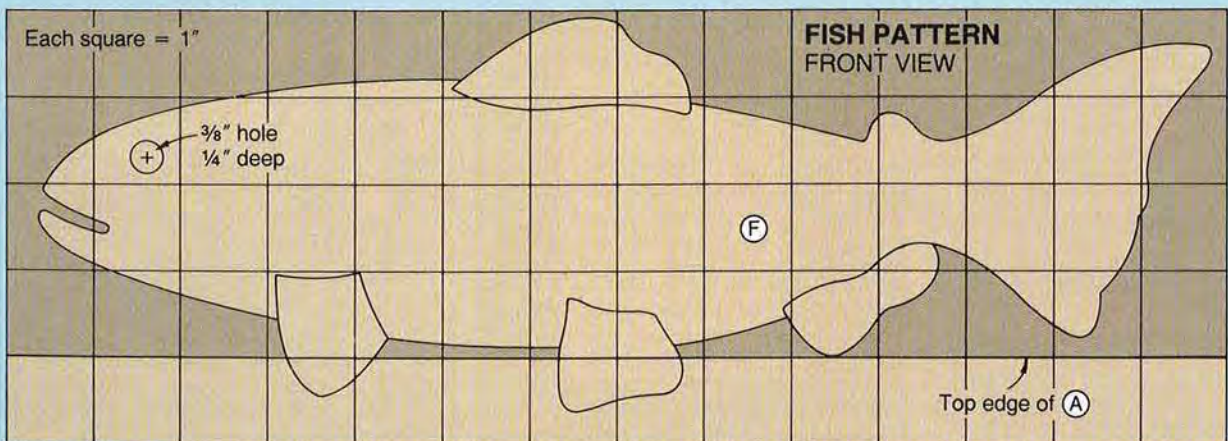
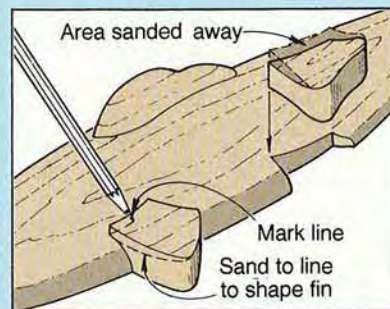
5 To make the back fin appear in motion, sand the back side of the tail fin to the shape shown on the Top-View Drawing.



6 As shown on the drawing *below*, position the fish body on a flat surface. Place each fin into the recess from which it was cut. Mark a line from the bottom outside edge of the fins to the point where the fins meet the contoured fish body. Draw another across each fin as shown. Sand to the lines to shape the fins.

NEXT, MOUNT THE FISH

1 Glue the fins into position against the fish body.



PATTERN OFFER

Full-sized fish pattern. To order, send us a self-addressed, stamped, No. 10 business envelope to:
Something Fishy
WOOD Magazine
Locust at 17th
Des Moines, IA 50336
Offer expires February 15, 1990.

2 Position the fish over the top mounting board, center it between the ends, and trace the two fin patterns onto the top of the mounting board. See the drawing *below* for reference. Cut away the material you just outlined. Glue the fish into place on the top of the board.

FINISH IT, HANG IT, AND ADD THE RODS

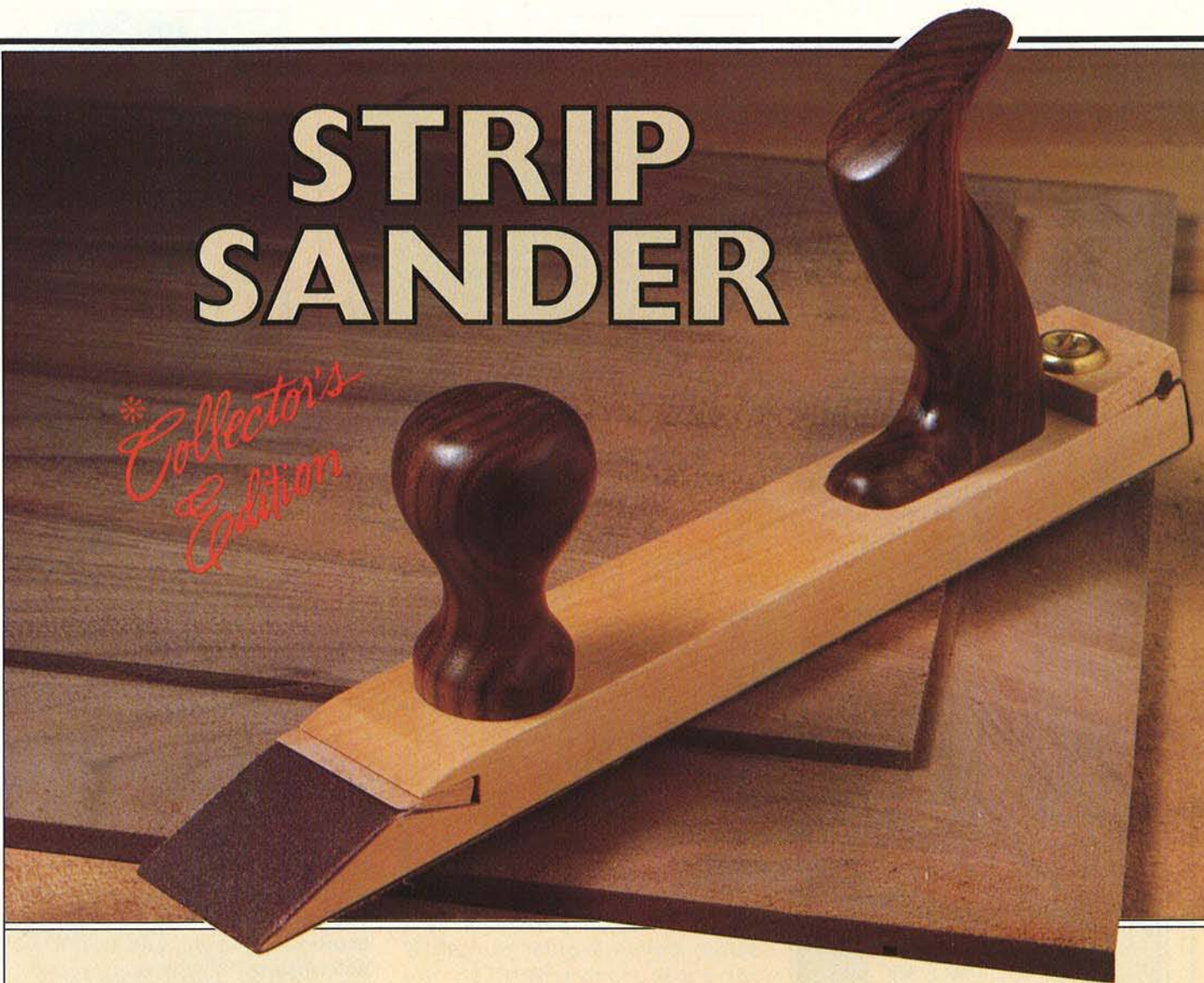
1 Finish-sand all the parts; then apply the finish of your choice.
2 Cut six $2\frac{3}{4}$ "-long pieces from $\frac{1}{2}$ "-wide weather-strip tape. Remove the paper backing, and insert the foam strips into the notches in the rod holder where shown on Step 7 on the drawing titled "Forming The Rod Holder." Using a sharp razor blade, follow Step 8 to cut the ends of the tape.

3 Use 2" drywall screws if you can hit a stud; if not, use toggle bolts and attach the upper and base units to the wall. 🐟

Produced by Marlen Kemmet
Project Design: James Downing
Photographs: Hopkins Associates
Illustrations: Kim Downing

STRIP SANDER

**Collector's Edition*

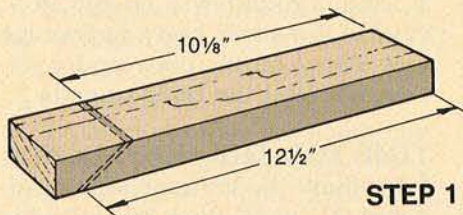


If you're a stickler for details (and every woodworker should be!), we hope you build this terrific walnut and maple strip sander. "It's the perfect tool for cleaning cabinet joinery," says Jim Downing, our design editor. We agree: With this tool, you can sand right up to an edge or corner for the smoothest surfaces imaginable.

Speaking of cabinet clean-up, check out our shop-tested technique article beginning on page 34. It has all kinds of pointers you can put to good use in your woodworking.

LET'S START WITH THE MAPLE BODY

- 1 Rip and crosscut a piece of $\frac{3}{4}$ "-thick maple to $1\frac{1}{2}$ " wide by $13\frac{1}{2}$ " long for the strip-sander body (A).
- 2 Using the two dimensions listed



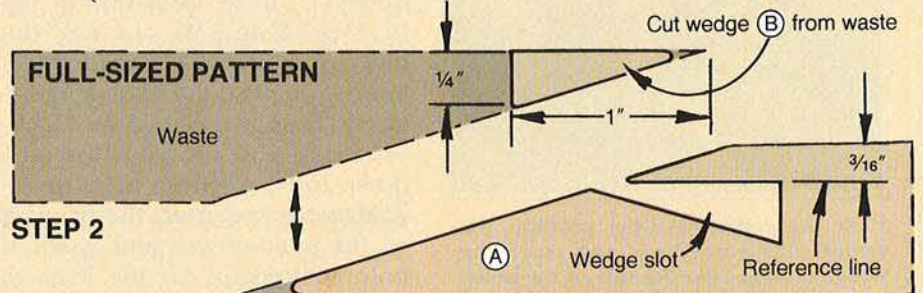
STEP 1

in Step 1 on the drawing *below*, mark an angled cutline on one edge of the maple body. Cut along the marked line. (We used our bandsaw fitted with a $\frac{3}{8}$ " blade.)


3 Following Step 2 on the drawing *below*, cut the wedge (B) from the waste piece of maple.

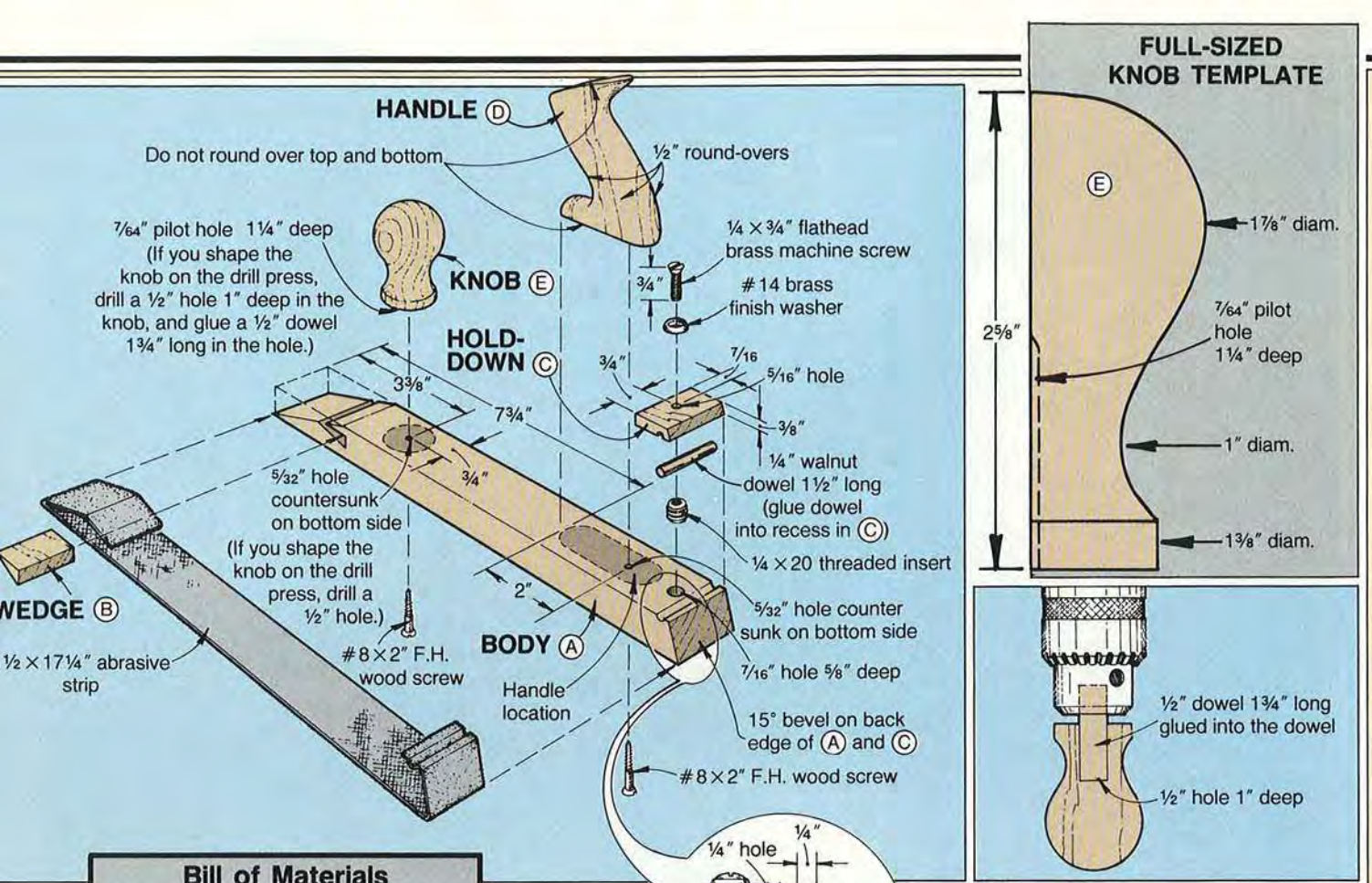
4 Mark a reference line along either side of the maple body $\frac{3}{16}$ " from the top edge where shown on Step 2. Position the maple wedge

Continued



STEP 2

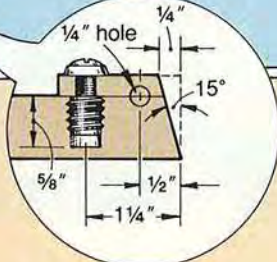
 Print this article



Bill of Materials					
Part	Finished Size*			Mtrl.	Qty.
	T	W	L		
A* body	3/4"	1 1/2"	12 3/8"	M	1
B* wedge	1/4"	1 1/2"	7/8"	M	1
C* hold-down	3/8"	1 1/2"	1 1/2"	M	1
D handle	1 1/16"	3"	47/16"	W	1
E* knob	1 7/8" diam.	2 5/8"		W	1

Material key: M—maple, W—walnut
 *Initially cut * parts oversized. Trim them to finished size according to the how-to instructions.
Supplies: 1/4-20 threaded insert, paraffin wax, 1/4 x 3/4 flathead brass machine screw, #14 brass finish washer, two #8 x 2" flathead wood screws, 1/4" walnut dowel, finish.

THREADED INSERT DETAIL
Section View



along this line as shown in the photo *below left*, and trace its outline onto the side of the maple body. Cut the notch to shape and check the fit of the wedge in the slot; you want it to slide in easily.

5 Sand a round-over on the front edge of the maple body and wedge (see Step 2 on the drawing for reference). Sand the body smooth.

TIME FOR THE HOLD-DOWN

1 Bandsaw the abrasive strip hold-down (C) to 3/8" thick by 1 1/2" wide by 11 1/16" long. (We cut a 3/4"-thick piece of maple to 1 1/2" wide by 12" long—you need the extra length for safety. Then, we planed the stock to 3/8" thick and crosscut the hold-down to length from the strip.)

2 Measure 7/16" from the front end of the hold-down, and mark the hole centerpoint for the brass ma-

chine screw where dimensioned on the Exploded-View Drawing. Secure the hold-down in a small hand-screw clamp, and drill a 5/16" hole through it where marked.

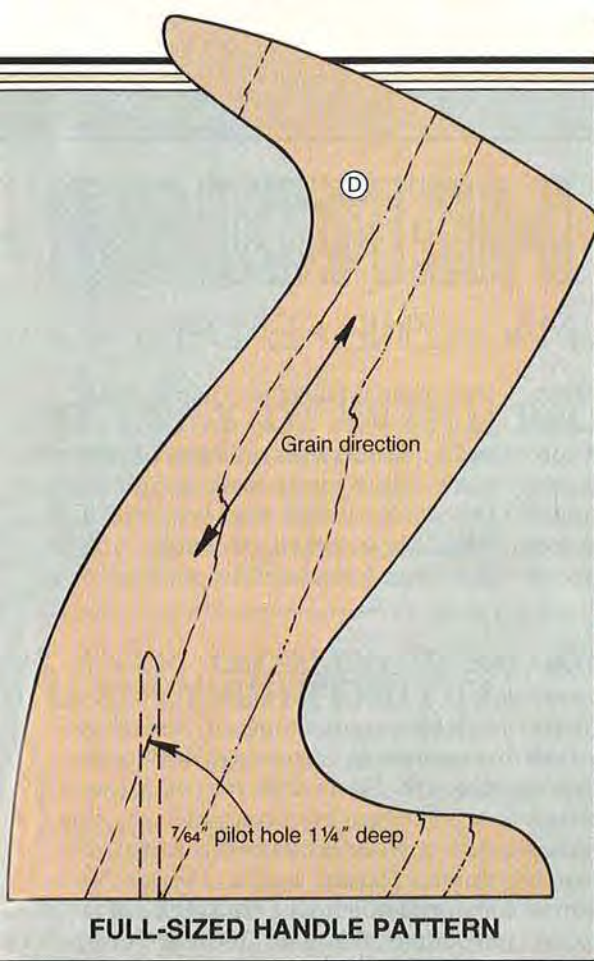
3 Position the hold-down on the body, with the back and side edges flush. Trace the hole location onto the body, remove the hold-down, and drill a 7/16" hole 5/8" deep centered over the drawn circle.

4 Rub the threads of a 1/4-20 threaded insert against a piece of paraffin wax (this makes driving the insert into the maple easier). Using a large screwdriver, drive the insert into the 7/16" hole in the body. (See the tip and photo on page 74 for another method of installing inserts.) With a 1/4 x 3/4" machine screw and #14 finish washer, screw the hold-down to the body.

5 Mark the centerpoint for the 1/4" dowel on the joint line between the body and the hold-down (see the Threaded Insert Detail for exact location). As shown in the photo *above right*, drill a 1/4" hole on the joint line where marked.



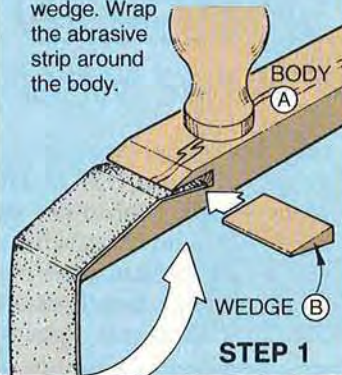
Mark the reference line, position the wedge along the line, and trace the wedge outline onto the side of the body.



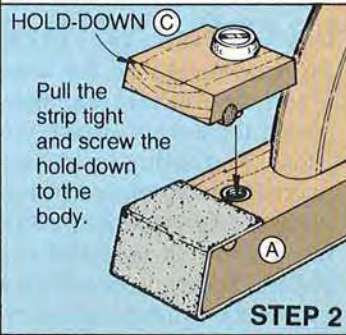
FULL-SIZED HANDLE PATTERN

ATTACHING THE ABRASIVE STRIP

Slip the abrasive strip into the notch and slide the wedge in place. Pull the abrasive strip forward to lock the wedge. Wrap the abrasive strip around the body.



STEP 1



STEP 2



Mark the centerpoint on the joint line, and drill a $\frac{1}{4}$ " hole where marked.

6 Mark the angled cutline along the back side edge of the body and hold-down (again, see the detail). Miter-cut the body and hold-down where marked. Remove the hold-down from the body.

7 From $\frac{1}{4}$ " walnut dowel stock, cut a piece $1\frac{1}{2}$ " long. Glue and clamp the dowel into the groove drilled into the hold-down.

NOW, GET A HANDLE ON THIS PROJECT

1 Using carbon paper, transfer the handle pattern to $1\frac{1}{16}$ " walnut, noting the direction of the grain on the Handle Pattern Drawing. If you

don't have $1\frac{1}{16}$ " walnut, laminate thinner stock to size.

2 Bandsaw the handle to shape. With your table-mounted router, rout $\frac{1}{2}$ " round-overs along the edges. DO NOT rout the top and bottom of the handle. (We stopped routing just short of the top and bottom. Then, we sanded to the top and bottom edges to complete the round-overs.)

3 To mount the handle, first refer to the Exploded-View Drawing for the position of the $\frac{3}{32}$ " mounting hole, and mark its centerpoint. Drill and countersink the hole.

4 Carefully position the handle on the body (see the Exploded-View Drawing again). Stick a nail up through the hole in the body to mark the centerpoint on the bottom of the handle. Drill a $\frac{7}{64}$ " pilot hole $1\frac{1}{4}$ " deep in the bottom of the handle. Sand the handle smooth and set it aside.

TURN THE KNOB TO SHAPE

1 To make the knob (E), begin with a 2" square piece of walnut 3"

long. If you don't have stock this thick, laminate thinner stock.

2 Using carbon paper, transfer the knob template pattern to poster board. Cut the template to shape.

3 Mount the walnut square between centers on the lathe. Turn the knob to shape, using the template. Finish-sand the knob before removing it from the lathe.

Note: If you don't have a lathe, you can drill a $\frac{1}{2}$ " hole 1" deep, centered on the bottom of the knob blank. Glue a $\frac{1}{2}$ " dowel $1\frac{3}{4}$ " long in the hole. Using a rasp and the template, shape the knob on your drill press as shown on the opposite page. To mount the handle, drill a $\frac{1}{2}$ " hole through the body at the same location where you'd drill the hole for the #8x2" wood screw.

4 Referring to the Exploded-View Drawing for positioning particulars, locate and then drill a $\frac{5}{32}$ " shank hole through the body (A); countersink the hole on the bottom side.

5 Hold the knob in a handscrew clamp, and drill a $\frac{7}{64}$ " pilot hole $1\frac{1}{4}$ " deep into the center of it.

ADD THE FINISH AND THE SANDING STRIP

1 Glue and screw the handle and knob to the body. Screw the hold-down in place. Add the finish.

2 Cut a $17\frac{1}{4}$ "-long piece from a $1\frac{1}{2}$ "-wide abrasive roll (see the Buying Guide for our source; you also could cut sanding belts to make the strip). Follow the two-step drawing above left to attach the abrasive strip to the body.

BUYING GUIDE

• **Cloth-backed abrasive shop roll.** $1\frac{1}{2}$ " wide by 25 yards long. Available in 60-, 80-, 100-, 120-, 150-, 180-, 240-, 320-, and 400-grit rolls. \$8 per roll plus \$2.50 handling (\$4 handling for orders over \$35). Industrial Abrasives, 643 N. 8th St., Reading, PA 19612. Phone 800-428-2222 (800-222-2292 in PA) to order. 📍

Project Design: James R. Downing
Photographs: Hopkins Associates
Illustrations: Kim Downing; Bill Zaun

DRILL PRESS HEROICS

COURTESY OF 5 INNOVATIVE WOOD® MAGAZINE READERS

Remember the article we published last August showing 17 ways to expand the versatility of your drill press? In that story, we asked you readers to share with us other interesting uses you've found for

this workshop workhorse. We're happy to report that you bowled us over with more than 100 submissions, and from the sizable stack of material, we've chosen five more tips to present. We feel the latest ideas rate right up with

the original package. Thanks to all of you who took the time to write. We depend on—and appreciate—your input. And, congratulations to those readers whose ideas we selected. We hope you put your \$25 check to good use!

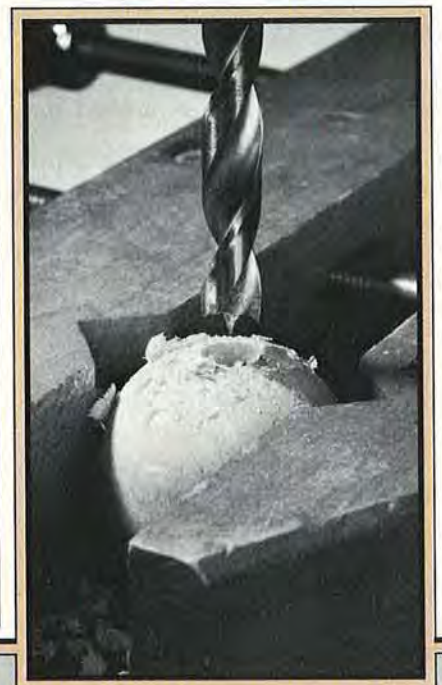
DRILL PRESS PROVIDES GUIDING HAND

Canadian woodworker Steve Taylor, of St. Catharines, Ontario, eliminates a lot of grief when installing threaded inserts by calling on his drill press to guide the operation. Here's his advice: First, thread a nut—the diameter of which should match the internal threads of the insert—about 1" onto a bolt or threaded rod. After lubricating the insert with paraf-

fin wax, thread on the insert until it and the nut lock together. Then, chuck the assembly into your drill press. With the insert centered over the hole, apply light pressure with the feed handle while turning the chuck by hand as shown *below*. Remember: DO NOT turn on the machine for this operation. See Steve's suggestion put to good use on page 72.

HAVE A BALL TRYING THIS

Hitchhiking on one of the ideas presented in our August 1988 article, Dr. Harold Heinz of Mesa, Ariz., suggests another safe way to drill a wooden ball or the end of dowel. Harold cuts a 1"-wide V-shaped notch in each jaw of a wooden clamp to hold the piece while he drills as shown *below*. We can assure you that the notches won't interfere with the normal operation of the clamp. To avoid marring soft woods, wrap masking tape in the notch. And, if this technique works well for you, cut various sizes of notches in several clamps.



- PART II

NO TWIST TO AN OLD PROBLEM

We heard from Ronald Laycock of Benson, Minn., about an incredibly simple way to drill a series of perfectly aligned holes in dowel rod. Just cut a piece of flat stock the same length or longer than the dowel, and tape the dowel and stock together with masking tape as shown at *right*.



A SNAP: DRILLING HARDENED STEEL

Every time Gilbert Mathews of Guilford, Conn., wants to drill through hardened steel, he chucks an 8-penny common nail into his drill press. With his drill press running at about 1,200 rpm, this resourceful woodworker brings the head of the nail in contact with the steel until the area turns blue. (Be sure to support the workpiece with a piece of scrap wood.) The friction action on the steel (called annealing) softens the steel, enabling twist bits to zip right through the material. Try this technique to drill hanging holes for your squares.

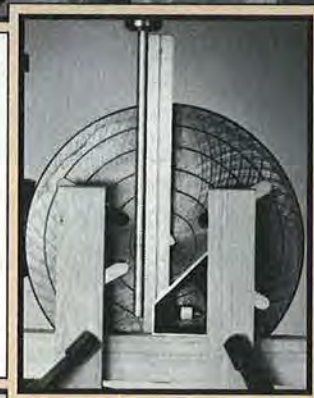


HORIZONTAL BORING A BREEZE

Russ Scaduto, Jr., of Elizabethtown, Pa., never wants for a horizontal boring machine in his shop, because he figured out a way to do the operation at his drill press. As Russ tells it, you first loosen the drill-press table tilt mechanism and rotate the table until it's approximately perpendicular to the floor. Then, chuck a straight 1' piece of 1/2" steel rod in the drill press to extend the line of travel of the quill. Adjust the table, now in vertical position, until you eliminate the gap between the table and the rod. Then, tighten the tilt-mechanism lock nut.

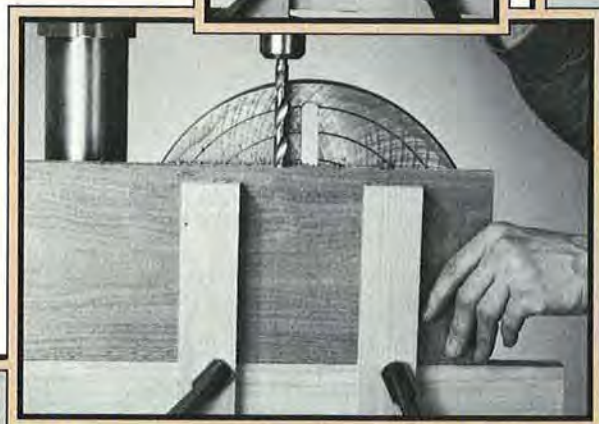


Next, attach a support board—one that's the same thickness as the board you plan to drill—to the drill-press table. (Two clamps and scrap material should hold it securely.) Use a combination square to check that the support board remains perpendicular to the rod as shown at *right*. Tighten the clamps. Before you go to the next step, check for square.



Now, remove the rod and insert your drill bit. Place the face of the stock against the drill-press table and flat on the support piece. Pivot the table and jig to center the bit on the stock. Before drilling, tighten the table. In this example, we drilled 1/2" holes in 1" stock. 🌲

Photographs: Hopkins Associates



CARVE A WHALE

A SYMBOL OF THE CALIFORNIA COAST BY BRUCE STAMP



Bruce Stamp

Craftsman Bruce Stamp has always loved to work wood. As a kid, he built boats. One time, to his mother's dismay, Bruce "borrowed" a leaf from the

family dining table to rework into a transom for a rowboat!

Now, Bruce pours his talent into re-creating in wood the shorebirds and marine life around California's

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Morrow Bay, where he lives and works. For feathers and flesh, Bruce substitutes eye-catching, exotic woods in many hues.

"I like to use mozambique for my sperm whales, but any dark wood will do," Bruce notes. "Whatever

wood you select, you'll need a block of it measuring $2\frac{1}{2} \times 3 \times 9$ ". Although he mounts his sculptures on manzanita root, driftwood or a more traditional base will work.

CARVING AND FINISHING THE SPERM WHALE

"Lay out the pattern's top view on the 3" side of the wood, and the side view on the $2\frac{1}{2}$ " side," Bruce says. "Then, bandsaw the top view from the nose to the tail, but not all the way through the tail end," he advises. "Next, do the same to the other side. This leaves the block with some support for sawing the side view." Then, turn the block on its side and finish sawing the body.

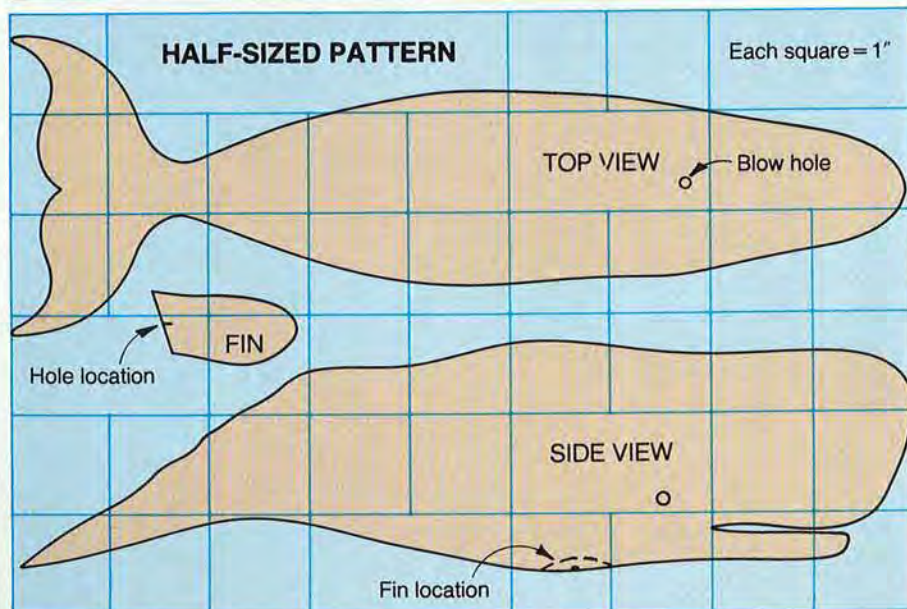
Instead of hand carving, Bruce sculpts his creatures on a 1×42 " strip sander with the table and platen removed. First, he contours the wood with a 50-grit belt, then refines with 150-, 240-, and 320-grit belts. Carving the whale's body, then sanding it, will give you the same result.

Drill a $\frac{1}{8}$ "-diameter eye hole about a $\frac{1}{8}$ " deep on each side of the body, then make the fins. Bruce cuts his $\frac{1}{8}$ "-thick fins from scrap left from the body, and gently thins and tapers their edges. "To attach each one, I use a $\frac{3}{8}$ " length of wire, about the diameter of a brad, as a pin. I insert it in the body end of the fin," he says, "then drill holes and epoxy them in place." Drops of epoxy also will serve as the eyes. Makes pupils with dots of black paint. Complete your whale with any clear finish. 🐋

To obtain a free, full-sized pattern, send a self-addressed, stamped, business-sized envelope to:

ONE WHALE OF A PATTERN
WOOD® magazine, Locust at
17th, Des Moines, IA 50336
Offer expires January 1, 1990.

Drawings: Jim Stevenson
Design: Bruce Stamp
Photograph: Hopkins Associates



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TREATED WOOD

Continued from page 47

point to the boards on his deck that he mistakenly fastened with the bark side down. "They're the warped boards," Lee says. Even if you have to sand off an ugly grade stamp that appears on the bark side, follow this important guideline whenever possible.

Build with hot-dipped galvanized nails/screws. Moisture and weather demand fasteners that stand up to the elements. Use 12d spiral or ring-shanked nails on nominal decking. Some lumbermen even recommend 2½" deck screws. "I've had twisted CCA wood that pulls out 16-penny galvanized nails," says Terry Fenimore, who builds projects for our sister magazine, *Weekend Woodworking Projects*. "It's that strong."

Drill holes. Even if you nail together treated wood, take the time to drill pilot holes close to the ends of lumber. That's your best insurance against unsightly splits.

Don't hurry finishes. Treated wood weathers to a gray-green, but some homeowners prefer other colors. Just as with untreated wood, treated wood must be surface dry before a brushed or sprayed finish will adhere. John Cashmore of Weyerhaeuser recommends that "you not paint or stain until the bottom of the board is dry to touch. We suggest you wait two to four weeks before finishing."

You can stain or paint treated wood, but if you do, follow manufacturer's instructions. Look for water repellents specifically designed for pressure-treated wood.

In select locations, Hickson Corporation has introduced Wolmanized Extra, a premium-price, pressure-treating solution containing water repellents. Unlike brush-on repellents that treat only the surface, Wolmanized Extra penetrates the entire board. And, expect Osmose to step up promotion of their 15-year-old Weather Shield wood with the same benefits. Neither product permanently protects wood; you'll need to brush on re-



pellents in two to three years. And, Cashmore cautions that some paint or stain won't adhere well to wood treated with water repellents.

Maintenance. Decks—just like cars—require regular care to battle the effects of sun and moisture. Your investment in outdoor wood deserves an annual or biannual cleaning and recoating with water repellents. Most major franchisers also sell rejuvenating solutions.

Warranty. Major firms back up their products with warranties—up to lifetime limited warranties for as long as you own your home. Before you buy, find out if the chemical company stands behind its product.

NEED MORE INFORMATION? For general information about CCA-treated wood:

- **American Wood Preservers Institute.** Free Consumer Information Sheets and *Questions and Answers About Treated Wood*. 1945 Old Gallows Road, Suite 550, Vienna, VA 22182.

- **Osmose.** For deck-building pamphlets and CCA information, call 800-522-WOOD.

- **Weyerhaeuser.** *All You Need to Know About Wood That Goes Outdoors*, call 800-548-5767.

- **Wolmanized Wood.** *How to Build a Deck and Straight Talk on the Safety and Use of Wolmanized Wood*, \$2 ppd. from Hickson Corporation, 426 Seventh Ave., Room 750, Pittsburgh, PA 15219.

- For regulatory information, Environmental Protection Agency, Office of Pesticide Programs, Mail Stop H7508C, 401 M St., SW, Washington, DC 20460. 🌳

Written by Carl Voss
Photographs: Osmose Corporation;
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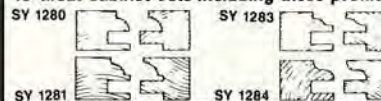


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PORTABLE BELT SANDERS HOW TO CURE AN UNEVEN SANDING PATTERN

We discovered something important during our tests of portable belt sanders for the article beginning on page 54. As improbable as it might seem, some of these machines suffer from platens or slip plates that aren't flat. The result: marginal to downright unacceptable sanded surfaces. In fact, one of these defective sanders may be lurking in your workshop right now. We'll show you how to remedy the problem before it causes you a headache.



A thin piece of laminate between the platen and cork pad provided the final cure for this sander.

DIAGNOSE THE AILMENT

First, try the polyester-coated particleboard test we describe on page 56. If your sander doesn't produce an even sanding pattern, follow these steps:

Remove the slip plate and cork pad, and check the platen for flatness using a straightedge. If the platen is warped, you may be able to purchase a new one.

In the event the platen has a true surface, reattach the cork pad and slip plate. The plate should conform exactly to the shape of the platen. On several of the machines we tested, the plate was a little high in front as depicted in the illustration below. Such a bulge causes the sander to rest on two points (front and back of the platen), resulting in sanding ruts in both places.

wasn't mounted snugly against the cork pad and platen, enlarge the plate's mounting holes so you can slide it farther up the front of the platen. Should that not solve the problem, remove the slip plate and increase the bend at its mounting edge to make it fit even tighter.

Still not satisfied with your machine's sanding pattern? Then, check if the manufacturer of your sander supplies graphite pads. This alternative surface takes the place of the cork pad and slip plate and conforms exactly to the flat platen. If you can't obtain a graphite pad, here's a last resort solution that did the trick on one sander we tested: First, cut a piece of plastic laminate to the size of the platen and taper it toward both ends. Place the laminate between the cork pad and platen as shown above. On our unit, the laminate pushed out the middle of the slip plate enough to form a flat surface.

TRY THESE SOLUTIONS

If it appears that the plate conforms to the shape of the platen, but

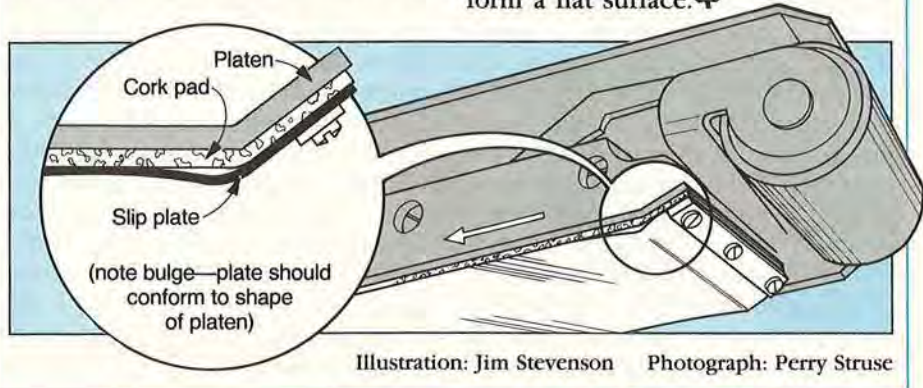


Illustration: Jim Stevenson Photograph: Perry Struse

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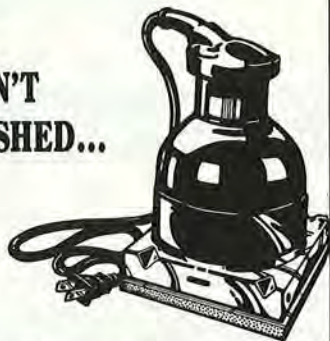


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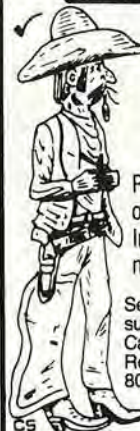


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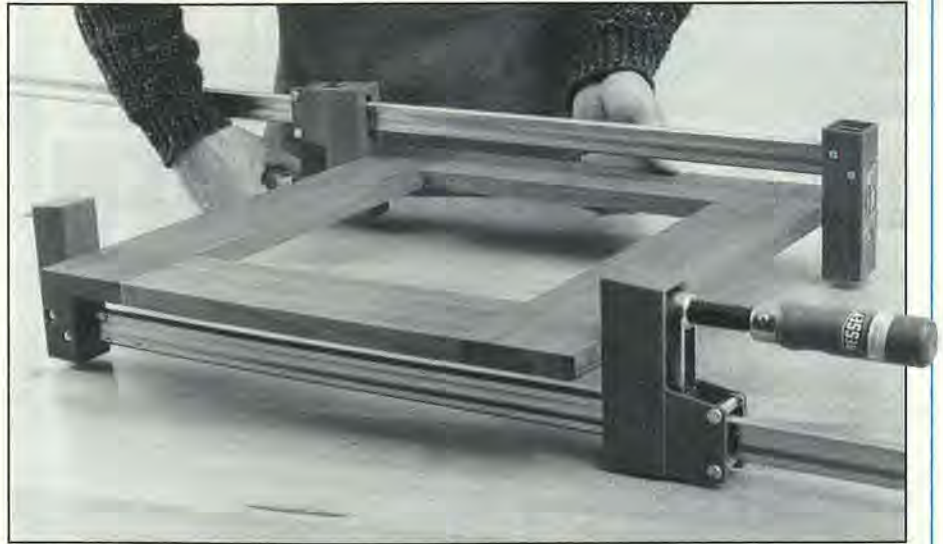
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Continued on page 84

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PRODUCTS THAT PERFORM

Continued from page 83

CARBIDE-TIPPED FORSTNER MAKES AGGRESSIVE CUT

Here's a bit that clock builders and other users of Forstner bits will love. Because of its sharp, sturdy carbide tips, I ran this bit about 100 rpm faster than other heat-treated steel Forstners with less burning along the walls of the hole. The 2½" bit I tested produced a hole with a flatter bottom and crisper corners than Forstner and similar multi-spurred bits that we've tested. The rim of the hole was just slightly more choppy than that produced by other bits.



Although the bit doesn't work for angle drilling, I found that I could bore holes in hardwoods such as hard maple, that would be difficult if not impossible with noncarbide-tipped Forstners over 2" in diameter. A final plus: The bits have ½"-diameter, 5½"-long shanks—a lot longer than other Forstners.

—Tested by Jim Downing,
WOOD magazine's design editor

Carbide-tipped Forstner bits, available in sizes from ¾" to 3½" in prices from \$25.30 to \$59.90 each, plus shipping, from Woodworker's Supply of New Mexico, 5604 Alameda Place, NE, Albuquerque, NM 87113. Call 800-645-9292.

Continued on page 87

BACK ISSUE SALE



While supplies last, you can order the issues listed below. We will process orders on a first-come, first-serve basis, and when the magazines are gone, that's it. We cannot go back to press to print more. Sorry, **WOOD**® issues 1, 2, 3, 4, 5, and 11 are no longer available. Reserve your copies now!

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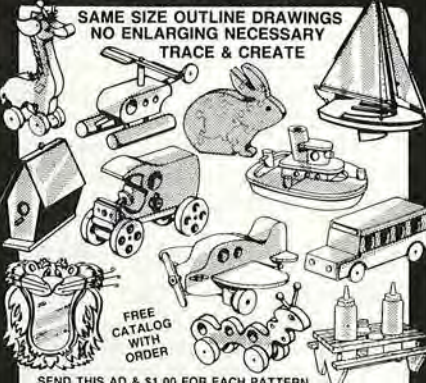
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Continued from page 84

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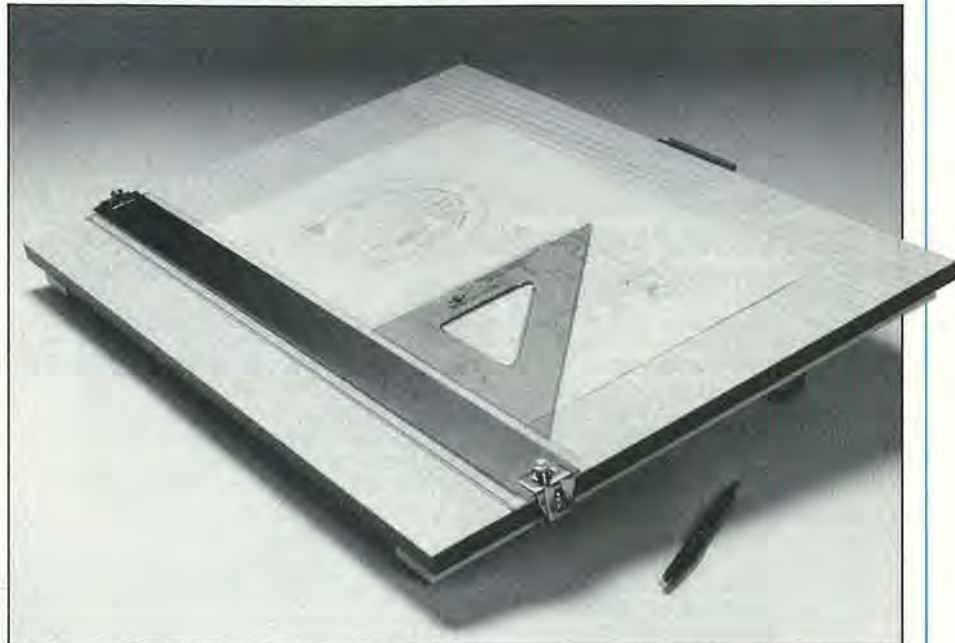
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—Tested by Marlen Kemmet, WOOD magazine's how-to editor

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Continued on page 88

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Continued from page 87

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—Tested by Jim Boelling, **WOOD** magazine's project builder
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You can brush or wipe the finish on, but I found air bubbles a problem with both



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—Tested by Steve Oswalt, a Des Moines woodworker and contributor to *WOOD* magazine

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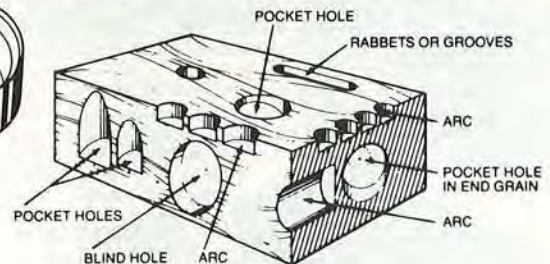
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Native Americans, Mexicans, and new settlers in the barren land welcomed the new tree. Indeed, people cooled off beneath its branches, but didn't hesitate to fell it for wood they worked into rustic furniture and tool handles, and burned for fuel. Still, the chinaberry offered them much, much more.

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Photograph: Bob Calmer
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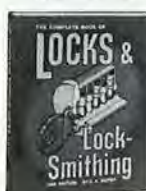
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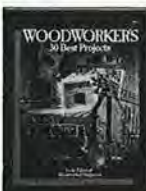
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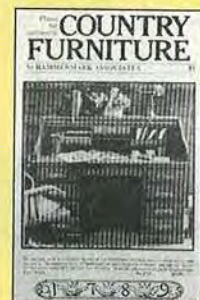
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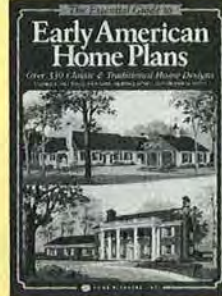
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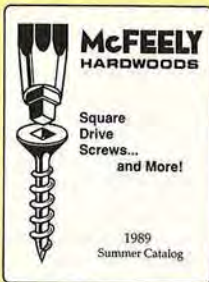
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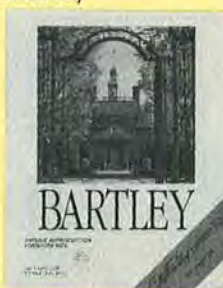
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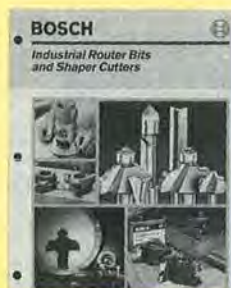
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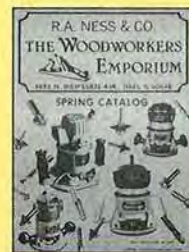
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MISCELLANEOUS

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DELTA BENCH TOP TOOLS			
Model	List	Sale	
23-700	Welding grinder	201	139
23-660	6" bench grinder 1/4 H.P.	81	62
23-880	8" bench grinder 1/2 H.P.	136	99
23-880	10" bench grinder 1 H.P.	246	220
11-650	8" drill press	164	125
14-040	14" drill press	313	259
40-150	15" hobby scroll saw	176	129
28-160	10" hobby band saw	189	135
31-050	1" belt sander 2.0 amp.	93	69
31-460	4" belt/6" disc sander	178	125
31-340	"NEW" 1" belt/8" disc sander	226	159

DELTA STATIONARY			
Model	List	Sale	
34-751	10" unisaw 1 1/2 H.P.	1715	1339
34-740	Super 10" motorized table saw	690	399
34-429	10" tilting arbor bench saw		
	1 1/2 H.P.	1479	999
33-990	10" radial arm saw	727	555
11-072	32" radial drill press	487	375
37-280	6" motorized jointer	440	335
50-179	3/4 H.P. 2 stage dust collector	435	339
50-180	1 H.P. dust collector	535	425
50-181	2 H.P. dust collector	760	615
37-154	Deluxe DJ-15 6" jointer w/4 H.P. motor	1288	978
33-050	"NEW" 8 1/4" Sawbuck	742	559
34-330	"NEW" 8 1/4" Table Saw 13A	321	245
34-670	10" motorized table saw	437	325
34-985	4 1/2 H.P. stock feeder	698	545
28-560	16" 3 wheel band saw	546	359

MILWAUKEE TOOLS			
Model	List	Sale	
0395-1	"NEW" 9.6V cdss. drill comp. w/case	264	159
0224-1	3/4" drill 4.5A magnum	179	110
0234-1	1/2" drill 4.5A mag 0-850 rpm	189	107
0244-1	1/2" drill 4.5A mag 0-600 rpm	189	107
0222-2	3/4" drill 3.5A 0-1000 rpm	167	97
0228-1	3/4" drill 3.5A 0-1000 rpm	154	90
0375-1	3/4" close quarter drill	208	119
0379-1	1/2" close quarter drill	243	139
0212-1	3/4" cordless drill w/spd.	263	149
6539-1	Cordless screwdriver 190 rpm	108	64
6540-1	Cdss. screwdriver w/bits & case	137	89
6546-1	Cdss. screwdriver 200 & 400 rpm	120	72
3102-1	Plimbers rt angle drill	295	175
3002-1	Electricians rt angle drill	290	175
5399	1/2" D-hole hand drill	299	179
1676-1	H.D. Hole Hawk w/cs	395	229
6511	2 sp SawZall w/cs	299	189
6465	8 1/4" circle saw	209	120
6790-1	Drywall gun 0-4000 4.5A	149	89
6790-1	Tek screwdriver	173	105
6507	TSC SawZall w/case	219	129
6170	1 1/4" chisel saw	430	275
6012	Orbital sander 3 1/2"x7 1/2"	179	105
6014	Orbital sander 3 1/2"x9 1/4"	189	110
6305	6 1/2" cordless circle saw	284	165
6753-1	Drywall gun 0-4000 3.5A	129	80
8977	Var. temp heat gun	109	70
0214-1	3/4" v. spd. cordless drill	220	125
5397-1	3/4" v. spd. hammer drill kit	227	135
5371-1	1/2" v. spd. hammer drill kit	313	179
3107-1	1/2" v. spd. rt angle drill kit	305	179
6754-1	Drywall gun 0-4000 4.5A	179	110
6747-1	Drywall driver-0-2500 4.5A	149	87
0230-1	3/4" drill 0-1700 rpm	169	99
3300-1	1/2" v. spd. magnum rt angle kit	289	179
5620	Router 1 H.P.-8 amp	299	189
5660	Router 1 1/2 H.P.-10 amp	299	179
5680	Router 2 H.P.-12 amp	350	205
5455	7 1/4" polisher 1750 rpm	199	125
6215	16" chain saw	280	189
8975	Heat gun	85	55
6366	7 1/4" circular saw	198	112
6368	7 1/4" circular saw w/cse	226	129
0216-1	2 spd cordless drill Hi-torque	222	145
0235-1	1/2" drill keyless chuck mag	199	115
6016	1 1/2" sheet pad sander	75	44
6145	4 1/4" grinder 10,000 rpm	149	95
6142	"Same as 6145" but w/cse & accessories	182	114
6141	5" grinder 10,000 rpm	159	99
8950	8 gal weld/ry vac.	205	145
0239-1	1/2" drill keyless chuck	189	114
6749-1	Drywall gun 0-2500 4.5A	189	115
6377	7 1/4" worm drive saw	275	150

FREUD SAW BLADES			
3/8" Bore-Industrial Grade			
CARBIDE TIPPED SAW BLADES			
Item No.	Description	Diam.	Teeth
LUT7M10	Gen Purp. ATB	10"	40
LUT8M10	Gen Purp. Tr.Ch	10"	40
LUT8M10	Cut-off	10"	60
LUT8M10	Combination	10"	50
LUT8M10	Super Cut-off	10"	60
LUT7M10	Ripping	10"	24
LUT7M10	Cut off	10"	60
LUT8M10	Thin kerf	10"	24
LUT8M10	Thin kerf	10"	60
PS203	Gen Purp.	7 1/4"	24
PS303	Plywood	7 1/4"	40
DS306	8" Dado - Carbide		188
DS308	8" Dado - Carbide		205
F0	1 1/2"x3 1/2" Biscuits 1000-Oly		25
F10	2 1/4"x4 1/2" Biscuits 1000-Oly		25
F20	2 1/2"x1 1/2" Biscuits 1000-Oly		25
FA	Assns Biscuits 1000-Oly		28
WC104	4 pc. chisel set w/cse 1/2" x 1 1/2"		33
WC105	4 pc. chisel set w/cse 1/2" x 1 1/2"		32
WC110	10 pc. chisel set w/cse 1/2" x 1 1/2"		83
FB100	16 pc. forstner bit set 1/2" x 1 1/2"		262
JA400	5 pc. router bit door system		260
JS100	Biscuit Joiner w/case		285
EB100	"NEW" edge binding machine		350

MAKITA CORDLESS			
Model	List	Sale	
6070DW	3/4" var. spd. rev. drill, 7.2v	123	75
6071DHW	1/2" var. spd. rev. drill w/removable batt., 7.2v	190	105
5090DW	3/4" saw kit, 9.6v	243	129
5600DW	6 1/4" circular saw, 10.8v	317	169
6010DWK	3/4" cordless drill kit, 7.2v	155	89
6010SDW	3/4" cordless drill, 7.2v	103	59
DA300DW	3/4" angle drill, 7.2v	238	130
4390DW	9.6 volt cdss. recip saw kit	218	124
6010DL	3/4" drill w/flashlight, 7.2v	198	113
6012DW	2 spd. driver drill w/clutch & case, 9.6v	224	115
6710DW	Cordless screwdr kit, 7.2v	185	103
6082DW	Vspd. drill, kit complete	237	120
6093DW	Vspd. drill w/clutch-complete	248	129
6891DW	Drywall gun 0-1400, 9.6v	225	119
63200T-4	9.6 volt battery	49	30
63200T-2	7.2 volt battery	42	28
52012E	BRAND NEW 12" portable planer	855.50	519
5007NBA	7 1/4" saw w/elec. brako.	228	125
5008NBA	8 1/4" saw w/elec. brako	276	145
604510	1/4 sheet pad sander	80	46
99008	3"x21" belt sander w/bag	264	145
99240B	3"x24" belt sander w/bag	268	149
9035	1 1/2 sheet finish sander	106	65
9045H	1/2 sheet finish sander	216	125
9045H	1/2 sht fin sand w/bag	219	127
4200N	4 1/4" circ saw 7.5 amp	213	119
5201NA	10 1/4" circ. saw 12 amp	560	290
43019B	Orb. vspd. jig saw 3.5 amp	274	145
39300W	2 sp recip saw w/cse	220	122
JR3000V	Vs. recip saw w/case	224	125
LS1020	New 10" mitre saw	440	235
9820-2	Blade sharpener	354	199
410	Dust collection unit	489	269
410	Oilless trimmer	255	139
19085B	3 1/4" planer w/case	158	115
19085B	3 1/4" planer w/case	381	225
92075PC	7" sander-polisher	262	145
3501B	1 1/2 H.P. router	242	134
3700B	1/2 H.P. trimmer	180	105
9501B	4" grinder, 3.5 amp	137	69
80453D	6" round sander	95	60
80455D	8 1/4" sheet pad sander w/bag	85	55
DA300R	3/4" angle drill	256	145
DP4700	1/2" w/spd w/elec. 4.8 amp	198	119
HP201N	3/4" vsp hammer drill w/cse	285	149
2708W	8 1/4" table saw	474	249
2711	10" table saw w/brake	800	460
G5000	Disc sander 5"	109	65
6800DB	2500 rpm 3.5 amp	140	89
6801DB	0-2500 rpm 3.5 amp	154	95
6801DB	4000 rpm 3.5 amp	140	89
6801DBV	0-4000 rpm 3.5 amp	154	95
2030N	12" planer/jointer	2970	1625
2046	15 1/2" planer	1470	1389
18058	6 1/4" planer kit w/case	945	355
JV1600	var. speed jig saw	220	125
JV2000	var. speed orb. jig saw	242	130
50658A	5 1/2" circular saw	211	119
95039B	4 1/2" sander-grinder	153	85
6424	3/4" drill 0-2100 rpm, 2 amp	102	60
6510LVR	3/4" drill rev 0-1050 rpm	137	79
5402A	18" circular saw - 12 amp	685	329
3512BR	3 H.P. plunge router	378	199
9401	4"x24" belt sander w/bag	302	165
3620	1 1/4 H.P. plunge router w/cse	182	105
4302C	Vspd. orb. jig saw	287	152
50776	7 1/4" Hypoid saw	248	139
14144	14" Mitre saw	624	409
25110	14" cut-off saw AC/DC	350	195
5007N6	7 1/4" circ saw 13 amp	209	119
3612B	3 HP plunge router sq/b	376	205

SKIL SIZZLERS			
Model	List	Sale	
5501	(551) 5 1/2" circ saw	112	92
5625	(562) 6 1/2" circ saw	175	115
5655	(563) 7 1/4" circ saw	132	105
5665	(564) 8 1/4" circ saw	204	125
5790	(807) 7 1/4" circ - drop foot	198	122
5785	(808) 8 1/4" circ - drop foot	216	135
5790	(810) 10 1/4" circ - drop foot	400	245
5825	(367) 8 1/2" worm saw	229	139
5865	(825) 8 1/2" worm saw	250	149
4800	Vari - orbit jig saw w/cse.	144	95
3510	10" Mitre saw	263	195
595	3"x21" sander w/bag 5.5A	197	125
7565	1 1/2" palm sander	52	34
7113	3x18 belt sander 4.5A	72	58
5370	7 1/4" worm drive	200	137
5375	2 1/2" HP circ. saw	80.99	69
5250	2 1/4 HP circ. saw	68.99	59

XTRA SPECIAL BY SKIL			
Model	List	Sale	
2735-04	12v VSpd. Cordless Drill comp. w/cse & 2 Batt.	210	128
LEIGH DOVETAIL JIGS			
D1258-12	List 314.00 - Sale 265.00		
D1258-24	List 375.00 - Sale 305.00		

HITACHI TOOLS			
Model	List	Sale	
TR6	Trimmer	177	95
TR8	Plunge router, 1 1/2 H.P.	219	119
TR12	Plunge router, 3 H.P.	354	175
CR10A	10" disk mitre saw	490	265
CBF8	8 1/8" slide compound saw	859	479
CB15	1 1/2" mitre saw	745	395
FREUD LUB5M015	15" Carbide Blade 108 Teeth	181	115

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DELTA TOOLS			
Model	List	Sale	
34-444	10" Table Saw Complete w/1 1/2 H.P. motor & stand	599.00	
33-150	8 1/4" Saw Buck	519.00	
33-890	12" Radial Arm Saw 1 1/2 H.P. complete w/legs	1139.00	
28-283F	14" Band Saw w/closed stand & 3/4 H.P. motor	699.00	
22-661	NEW 13" Planer	1095.00	
17-900	16 1/2" Floor Drill Press	329.00	
40-601	18" Scroll Saw w/stand and blades	579.00	

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FINISHING TOUCHES

Print this article

SEE HIM SAW.

PBS ADDS TO WOODWORKING PROGRAMS

First it was Roy Underhill in *The Woodwright's Shop*. Then came *Carving with Rick Butz*. And now, bless them, the Public Broadcasting Service has introduced yet another program for woodworkers—*The New Yankee Workshop*—featuring Norm Abram, the carpenter on the home-renovation series *This Old House*.

In each episode, Norm guides viewers through the steps of

building a piece of furniture with power tools. And, documentary footage explains that particular piece's place in history. Project plans are also offered. You can buy Norm's accompanying book, *The New Yankee Workshop* (Little, Brown and Company, N.Y., \$12.95, paperback), at bookstores. Check your local television listings for air times of all these woodworking programs.



Norm Abram, PBS TV's *Yankee* furnituremaker, bandsaws a part for what will be a chest of drawers.

DELTA SAYS "MUSH, HUSKIES!"

Admiral Byrd took 75 Delta power tools, donated by the manufacturer, along on his 1933 expedition to the South Pole. This month, the dogsleds of the Trans-Antarctica expedition—built on a Delta Unisaw—begin a 3,700-mile journey across the polar expanses.

Delta furnished a 10" table-saw to help construct the expedition's 42 specially designed dogsleds. The runners, laid up in alternating layers of graphite

fiber and Sitka spruce, "... have properties similar to flexible steel," according to David R. Shield, the expedition's training camp manager. Before the Unisaw's arrival, precision-cutting the runners proved impossible.

The expedition will attempt the first East-West traverse of the antarctic continent. Led by American Will Steger, the team includes representatives from France, the Soviet Union, Japan, Great Britain, and China.



Antarctic explorers Dave Shield, left, and Will Steger, relied on a Delta Unisaw when they built their expedition's dogsleds.

BOARDS OF EDUCATION

Yale University once claimed the largest known assemblage of wood species samples—more than 52,000.

The Samuel J. Record Wood Collection, now at the Forest Service's Forest Products Laboratory, in Madison, Wis., represents the 40-year attempt of the late Samuel Record and associate Robert Hess to study and catalog all tropical woods. A Yale spokesman explained that the school could no longer house the collection.



PLANNING AHEAD ON PINE

Southern Illinois' first settlers found the region's abundant oak, hickory, and maple trees a real concern. What would they make coffins from? After all, compared to the white pine of their native Carolinas, hardwoods were difficult to work. As a solution, they asked friends and relatives who came later to bring along some pine trees. Then, with foresight, the settlers planted them in their dooryards—a pine apiece for husband and wife. Today, because many of the pines outlived their planters, you occasionally can spot pairs of 150-year-old pines throughout the area. 🌲

Photographs: Tim Snyder; Delta International Machinery Corp. Illustration: Jim Stevenson

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Next to Fire and Termites, Moisture is Wood's Biggest Enemy.

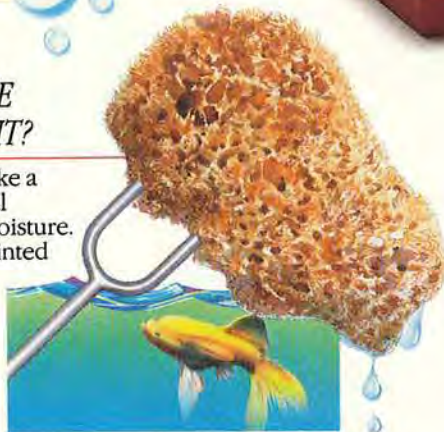
That's right.

Moisture can be as damaging to the wood around your home as fire and termites. And most premium paints can't stop it. You need Rust-Oleum Wood Saver™ paint. It's specially formulated to fight the damaging effects of moisture on wood.



WHAT'S A SPONGE GOT TO DO WITH IT?

Wood is naturally porous, like a sponge. So it needs a special coating to protect it from moisture. And don't be fooled by a painted surface that looks good, because damage to your wood could already be taking place. Now is the time to protect your wood from moisture with Rust-Oleum Wood Saver paint.



THE LOWDOWN ON PREMIUM PAINTS

All paints aren't created equal. Most premium paints, for example, aren't formulated to prevent moisture from getting through to wood. So to protect wood where moisture is a problem, don't just pick any paint. Pick Rust-Oleum Wood Saver paint.

STROKE OF GENIUS

The scientists at Rust-Oleum have made an incredible discovery. They found that TEFLON*, the same ingredient used on frying pans, makes a coat of Rust-Oleum Wood Saver a superior moisture-resistant barrier.



PROOF POSITIVE

Don't just take our word for it. Try pouring a little water onto your window sill or other painted flat wood surface. In a few minutes, you'll see it disappear *into* your wood. On the other hand, water poured on wood painted with Rust-Oleum Wood Saver paint beads and evaporates.



GOING...GOING...GONE



Don't wait. Protect your wood with Rust-Oleum Wood Saver paint. After all, you can replace your paint now...or you could replace your wood later.

Rust-Oleum Wood Saver.™
If it's going to get wet, get Rust-Oleum.™

RUST-OLEUM
CORPORATION

