

SPECIAL ROUTER ISSUE!

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ROUTER SPECIAL

**Tips for Cutting Better
Joints with a Router**

**Use your Router
Table as a Jointer**

**Make Trim for Your
Home with a Router**

Tool Tests:

- Mid-Size Routers
- Router Table
Insert Plates

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Glorious Country-Style Bed

Three Easy Kitchen Improvements

Turn Natural-Edge Bowls

Mission-Style Hall Mirror

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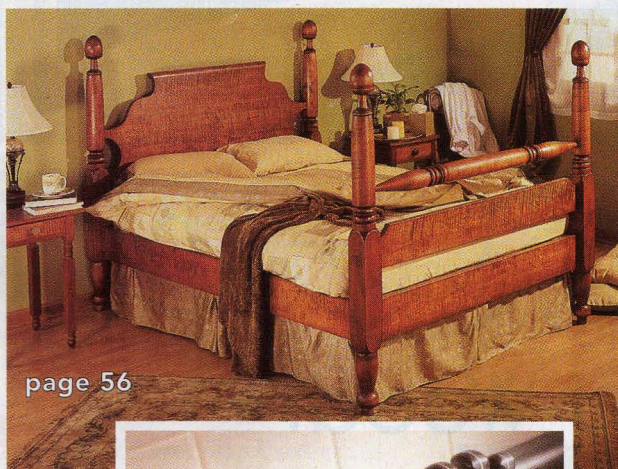
A READER'S DIGEST PUBLICATION

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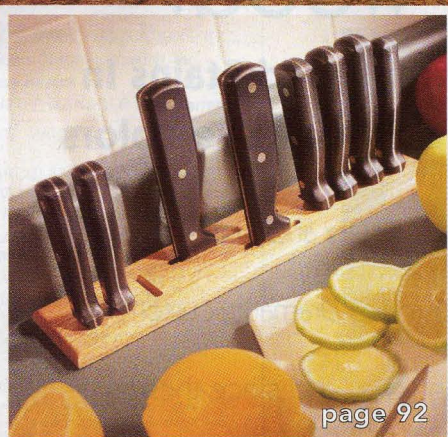
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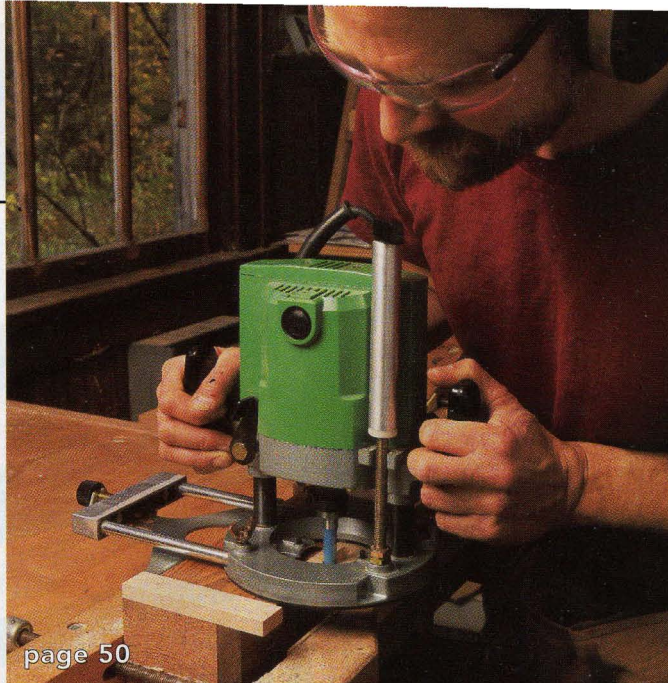
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WOODWORKER**

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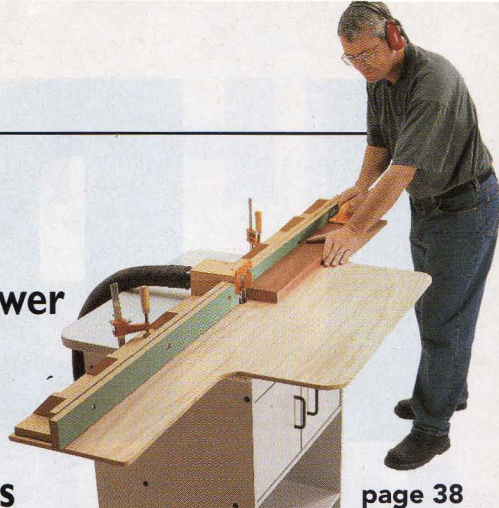
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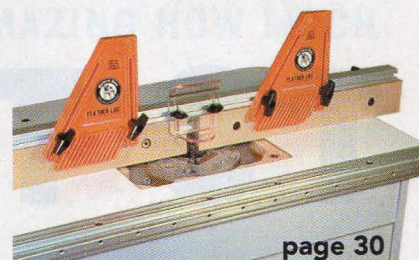
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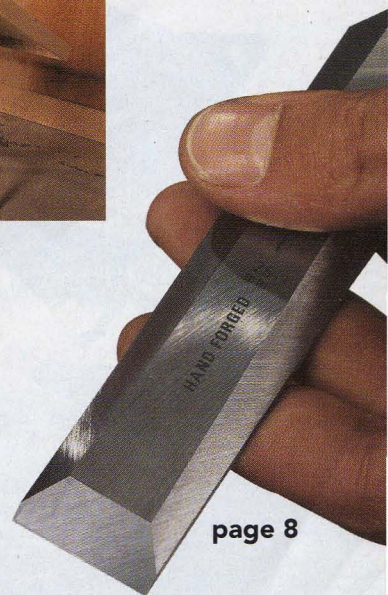
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Question & Answer

Why are new chisels so dull?

Q. Whenever I buy a blade, like a tablesaw blade or a router bit, it's always sharp. How come when I buy chisels they're duller than a math lecture on the last day of school?

*Ed Bailey
Glendale, AZ*

A. Although it seems reasonable to expect new chisels to come sharp, there are three good reasons why they don't.

First, sharpening is expensive. Some chisels do come pre-sharpened, but they cost about \$5 more per chisel. Would you be willing to pay for the first sharp edge when you'll resharpen your chisel dozens of times?

Second, the roughly ground edge on a new chisel is actually a useful secondary bevel. At 25 degrees, it's a lower angle

than the chisel is meant to cut at. Your job is to hone the chisel to the primary angle: 30 degrees.

The manufacturer has saved you some time by giving you a lower angle so now you have only to hone the tip of the chisel.

Third, a sharp edge is fragile. Chances are it wouldn't survive shipping and handling. With a dull edge, you know what you've got.

Thanks to Zach Etheridge of Highland Hardware for help with this answer.



Help! My router makes huge sparks!

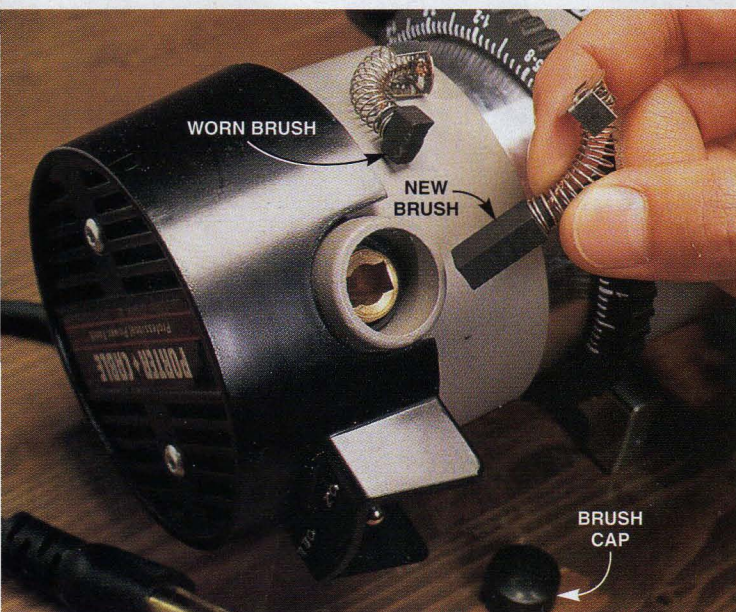
Q. When I run my router I see lots of small, blue sparks inside. Recently the sparks have grown larger. Is this OK?

*Trevor Johnson
Tahoe City, CA*

A. Nope. Small sparks are normal, but large sparks are an indication that your brushes are wearing short. That means your router is running inefficiently. It's time to remove the brushes and possibly replace them.

The sparks are the electrical arcing of current from the brushes to the motor's commutator (the large cylinder inside the housing). Large sparks mean the brushes are too short to be adequately held tight to the commutator by their springs. As a result, the motor has to work harder to make the electricity jump the gap between the brushes and commutator.

Every router has two brushes. To service them, unplug the router, remove the caps and pull out the brushes. If they are chipped, cracked or shorter than 1/4 in., replace them with ones made specifically for your router. To remove any carbon dust, use an air compressor or a can of compressed air to blow out the holes that house the brushes. Look into the holes with a flashlight. If the commutator is pitted or severely worn, it will need professional servicing. If the brushes are in good shape put them back in the same holes, in the same orientation and replace the caps. If you have installed new brushes, run your router for two to three minutes to fully seat them. Your router may "cough" and sputter a bit until it comes up to full speed, but that's normal.



Question & Answer

Are broken screws removable?

Q. Argh! I broke off a brass screw while installing a small hinge. Can I get it out?

*Emily Chinander
Pleasant Grove, UT*

A. Join the club! Every woodworker has faced this problem. The best answer is to drill around the screw with a hollow bit, an unusual device with reverse teeth. Furniture repair guys used to painstakingly make these screw-extracting bits themselves, but now we can buy three sizes for about \$14 each from a mail-order catalog.

Here's what you do: Buy a hollow bit with an inside diameter that's larger than the screw. Use a drill press to make a perpendicular hole in a piece of scrap that's the outside diameter of the hollow bit. This guide block keeps the bit from wandering. Clamp the guide block over

the broken screw. Then chuck the hollow bit in a portable drill set to "reverse." Drill around the screw. When you get near the bottom of the screw, it will unthread itself from the wood. (The hollow bit's teeth are backward so

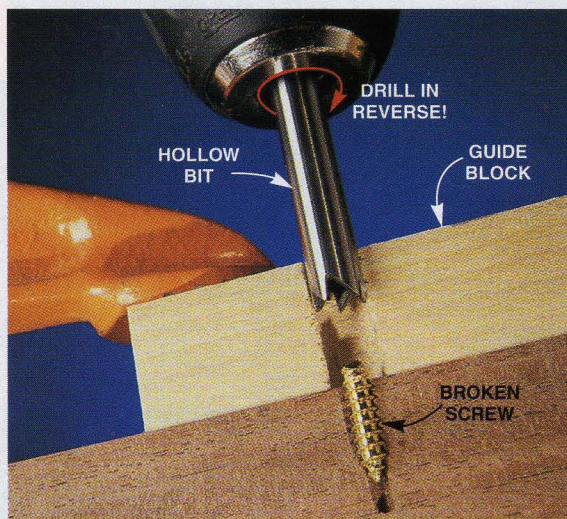
they cut when the drill is in reverse.) Sounds too good to be true, but it really works! Plug the hole with a dowel.

Next time you use brass screws, drill a pilot hole first, then screw in a steel screw to thread the wood. Replace the

steel screw with a brass one and lubricate it with a toilet wax ring or moist soap shavings.

Source

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Question & Answer

How do you cut curves in glass?

Q. My up-and-coming star pitcher accidentally hurled her baseball through a glass pane in our family room hutch. Usually, I'd just get out my glass cutter and make a replacement pane, but this one's arched! How the heck do I cut a new arched glass pane?

Brad Dahlgaard
Cleveland Heights, OH

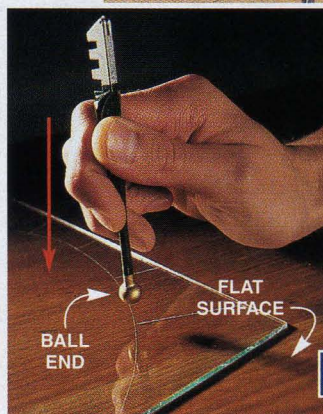
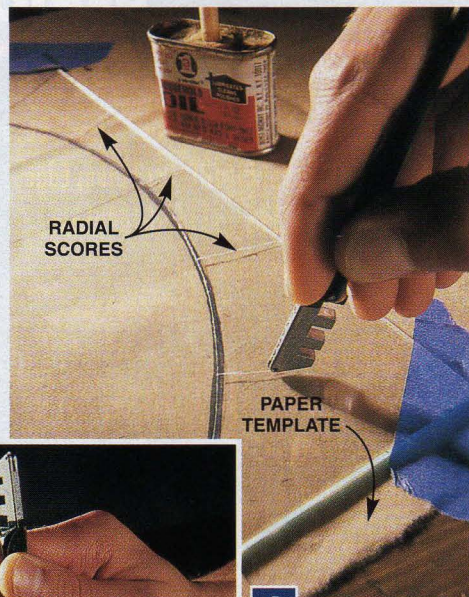
A. Think positive—at least she didn't bust the TV! And you *can* cut a new pane using only a standard glass cutter.

Reproduce your curved pane by taping together the broken glass or making a template of the pane using paper or cardboard. Place the pattern under the new glass. Use a sharp cutter lubricated with light machine oil (3-In-One works well). The oil prevents the wheel from getting stuck and skipping a spot. Grip the cutter like a pen and use a light,

smooth stroke directly over the curved outline. *Don't go over the line twice!* This dulls your cutter. The first score makes a "clean" crack. A deeper, second score will probably cause secondary cracks to spread from the first.

In addition to the curved score, make *radial scores* from the curve to the edge of the glass. After scoring the curved section, turn the glass over onto a flat surface and tap directly over the score with the ball on the end of the cutter. Buy extra glass and be prepared for some trial and error before you get it right.

Caution: Wear safety glasses at all times and leather gloves when handling the glass.

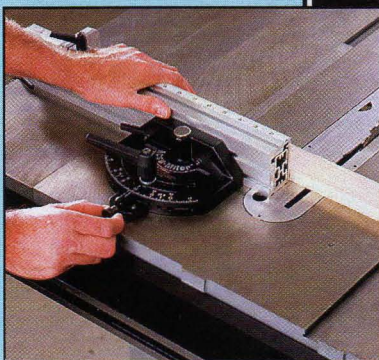


1 Cut radial score lines from your curved score to help make the break.

2 Flip over and tap the score lines.

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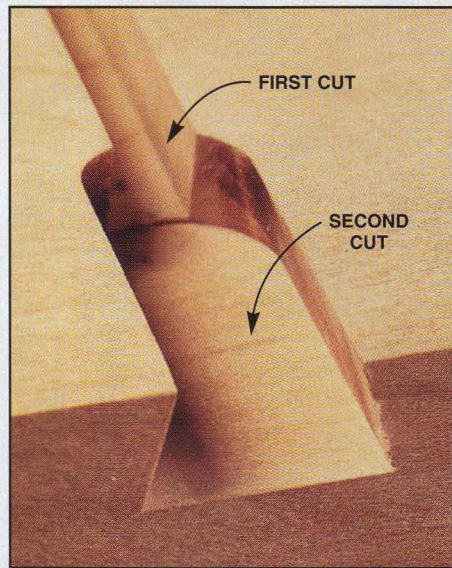
Why did my dovetail bit break?

Q. I've snapped off the tips of my dovetail router bit twice now while cutting sliding dovetails in hard maple. I don't want to get burned again. What am I doing wrong?

Duane Tougas
Cartersville, GA

A. A dovetail bit does indeed have fragile tips. A full cut in hard maple puts a lot of stress on them. Usually you can deepen a router cut with successive passes of the same bit, but the shape of a sliding dovetail doesn't allow that.

You can relieve most of the stress on the bit's tips by removing wood from the groove with a straight bit first. Pick a bit that's slightly smaller than the narrowest part of the dovetail groove. Then rout a groove that's 1/32-in. or so shallower than the final groove. Now your dovetail bit has very little work to do in finishing up the groove, and both you and your bit will experience less stress! **AW**



Give your dovetail bit a rest. Pre-plow a straight groove to remove most of the wood.

Ask Us

If you have a question you'd like answered, send it to us at: **Question & Answer, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121.** Sorry, but the volume of mail prevents us from answering each question individually.



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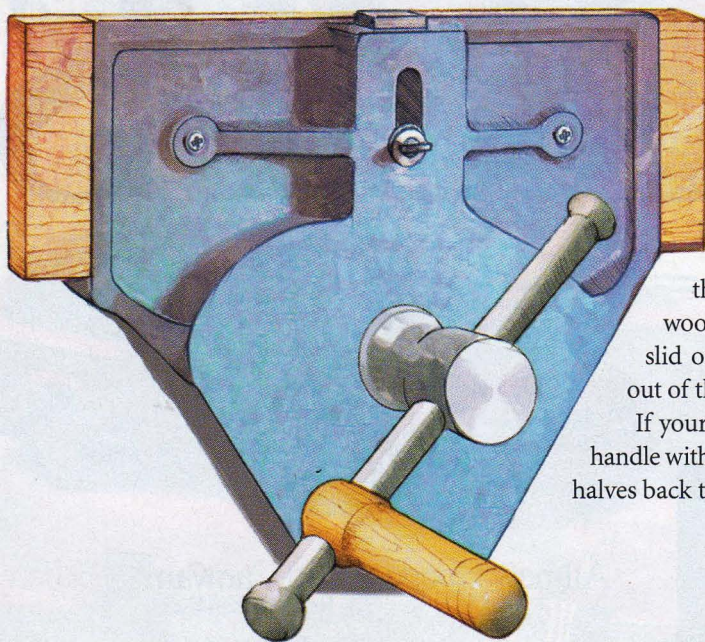
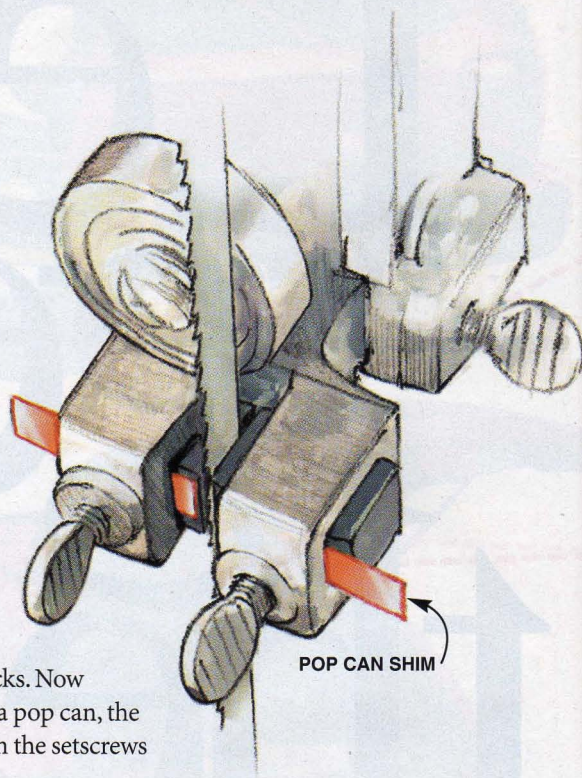
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WorkShop Tips

Bandsaw Guide Block Savers

I love my Cool Block guide blocks, but I've been frustrated every time I adjust them in and out for a different-size blade. After years of tightening the setscrews, a dimple has worn its way into the front of the blocks. Now the blocks stay in only one position! To remedy this I cut strips, from a pop can, the same height and a bit longer than the blocks. I slip these shims between the setscrews and the blocks. Now I can set the blocks anywhere I want.

Steven Murphy
Berkeley, CA



Vise Crank Handle

I'm getting up in years but I still love woodworking. My hands aren't as limber as they used to be, so it was uncomfortable to twist my vise handle. I remembered the crank on my father's Model T, so I made one just like it for my vise. I drilled a hole slightly bigger than the diameter of the vise's rod in one end of a 1-in.-diameter turned wooden handle. I removed the endcaps from the rod and slid on my new handle. As a bonus, the handle swings out of the way so I won't bang my leg into it.

If your endcaps don't come off, you could split your new handle with a chisel, place it around the vise handle and glue the halves back together.

George G. Spillane
Limerick, Republic of Ireland

If you have an original Workshop Tip, send it to us with a sketch or photo. We pay \$200 for each one we print. Send to:
Workshop Tips, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121. Submissions can't be returned and become our property upon acceptance and payment.

Workshop Tips

Router Base Transfer Points

After I lost track of the base plate for the router that goes in my router table, I had to make a new one with accurately marked holes for the mounting screws and a centered hole for the bit. I

figured out how to do it while flipping through a machinist's catalog: put a 1/4-in. straight bit into the collet and a cone-pointed setscrew into each of the router's threaded mounting holes.



Drill a 1/4-in. hole in the base and slide the base over the 1/4-in. bit. Give the base a tap and the setscrews mark the drilling locations. Drill and countersink for the mounting screws. Before mounting the base, enlarge the 1/4-in. center hole using a holesaw piloted by a 1/4-in. bit.

*Steve Corel
Salmon, ID*

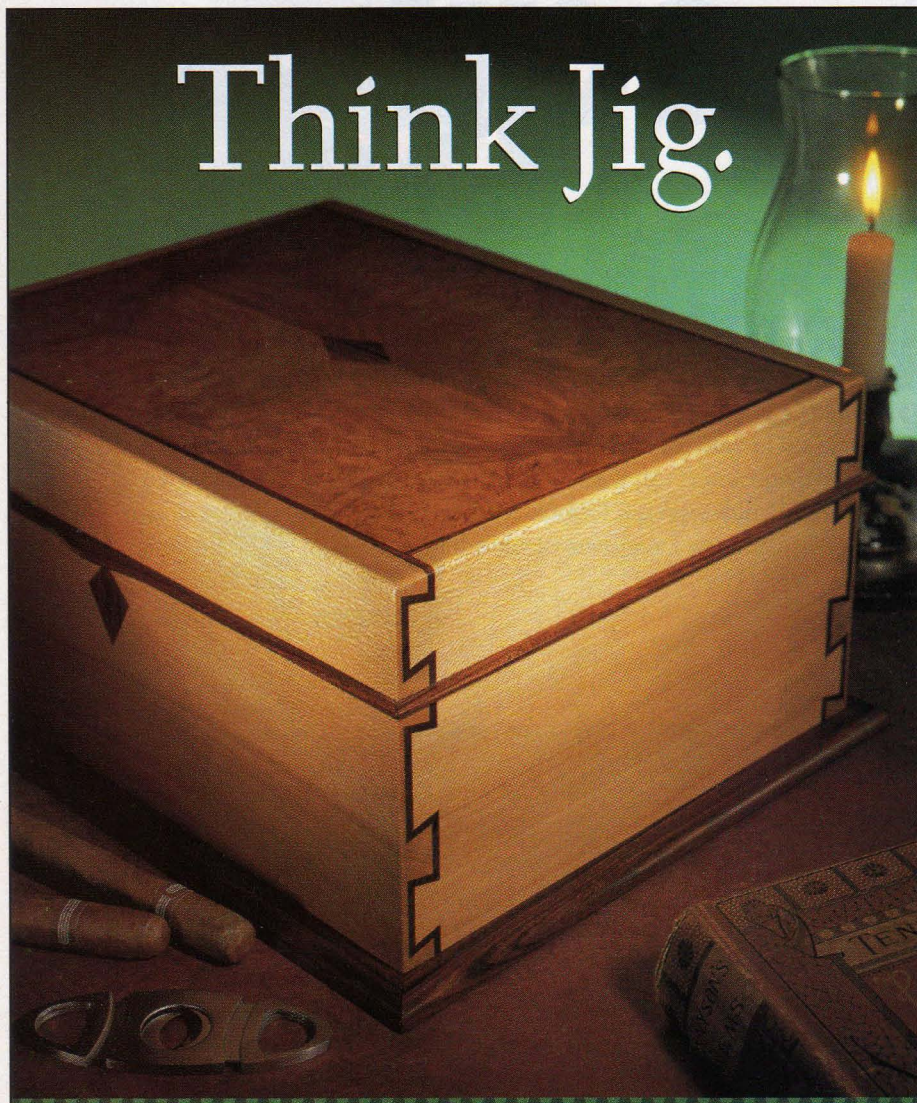
Source Cone-pointed setscrews
Reid Tool Supply, (800) 253-0421
#8-32 threads, HSS-24022; 18 cents each
#10-24 threads, HSS-24028; 18 cents each.

No-Slip Handles

I got tired of getting blisters on my fingers after trying to tighten those darn small clamp handles. They're way too smooth! My best hand tools all have rubberized handles, so I figured why not outfit my clamps the same way? This trick works great and costs only peanuts. I cut strips from old bicycle inner tubes, wrapped them tightly around the handles five or six times, and tuck in the ends. The rubber is a permanent, soft, non-slip surface. No more sore hands!

*Jerry Fitzgerald
Macomb, IL*

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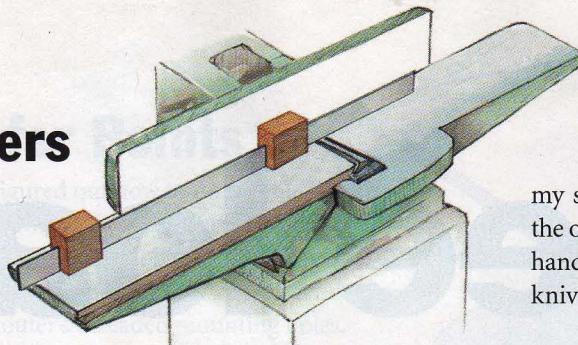
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Workshop Tips

Straightedge Holders

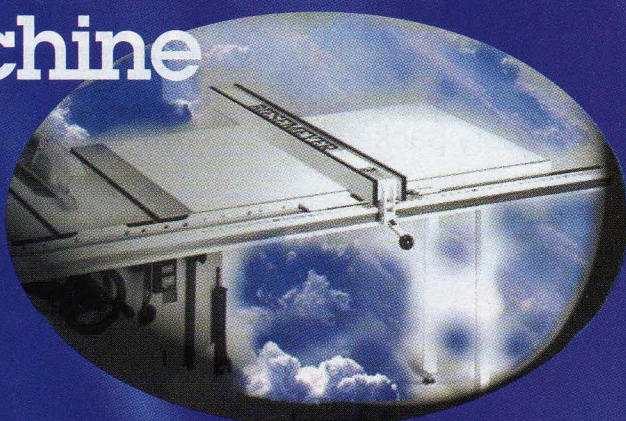
The last time I adjusted the knives on my jointer I needed three hands: two to hold the straightedge and one to turn the jackscrews. There wasn't anyone around to help, so I made simple blocks to hold



my straightedge upright on the outfeed table. Both of my hands are then free to set the knives just right.

*Joseph Zischkau
Monroe, PA*

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Temporary Zero-Clearance Insert

My small tablesaw and accessories follow me to jobsites every day. One morning I needed to rip thin slats from a 2x4 and wouldn't you know it, I forgot my zero-clearance saw insert. Tape to the rescue! First I lowered the saw blade all the way. Then I laid a strip of 2-in.-wide packing tape over the opening in my regular insert and rubbed down the edges with my fingernail. I turned on the saw and raised the blade to the correct height. Voilà!

WARNING: This method works only with the regular tablesaw insert supplied with your saw. Do not use with wide-opening dado blade tablesaw inserts!

*George Vondriska
Hudson, WI*

Workshop Tips



3/8" WING NUT

Workbench Joint

Plans for my knock-down workbench called for the 2x4 stretchers to be fastened with bolts and hex nuts. I'd have to rout huge pockets, weakening the stretcher, in order to get a wrench on the nuts. Yuck!

I rummaged through my jelly jars of spare hardware and came up with this nifty solution.

First I counterbored a hole, large enough to fit my socket wrench, in the leg. Then I drilled a hole for a 3/8-in. bolt through the leg and into the stretcher. Finally, I drilled a 3/4-in. hole through the side of the stretcher. This hole is just big enough to slide in a 3/8-in. wing nut. When the bolt engages the wing nut, the wing nut jams against the sides of the hole. No more need for a wrench!

*J. Phil Thien
Shorewood, WI*

Easy-to-Read Square

My framing square has been a real workhorse for me but its markings have become almost unreadable. My solution came by chance while I was watching our remodeling contractor replace tile in my bathroom. I noticed that his square was old and beat up but very readable. He had slopped a lot of grout

onto the square and simply wiped it clean. The grout stayed in the markings making them easy to read. I tried the same thing except I used white paint. It worked great!

*Charles Colpean
Battle Creek, MI*

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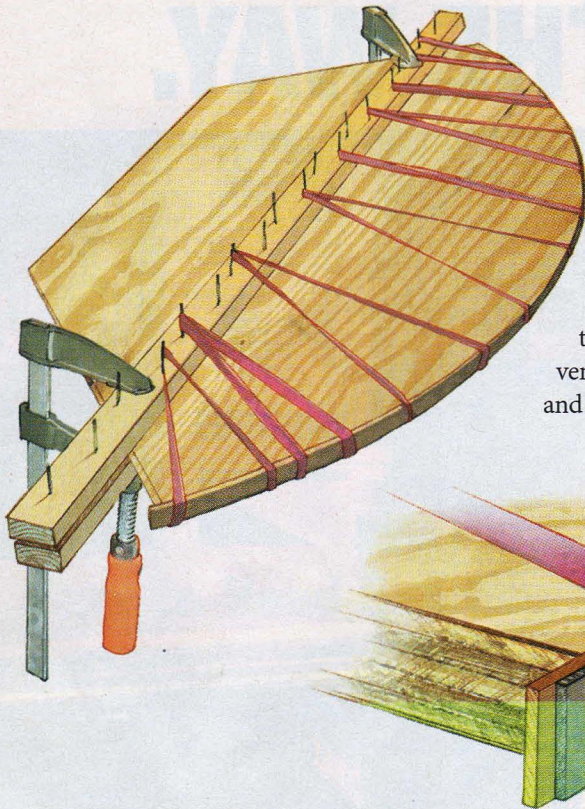
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Workshop Tips



Rubber Band Veneer Clamp

I had tried everything to successfully glue veneer on curved surfaces: cauls, three-way clamps, string and tape, you name it. Nothing ever worked as well as this homespun solution, which requires only simple shop supplies.

Nail a row of brads into two boards and clamp them to both sides of the project. Spread glue on the curved edge of the board and tape in place the veneer strip and a strip of cardboard the width of the veneer. Run long rubber bands from the top brads, around the veneer and cardboard and to the bottom row of brads. The cardboard evens out the rubber-band clamp force and prevents the bands from cracking the veneer's edges.

Charles Tio
Biloxi, MS

Source OfficeMax, (800)788-8080
#33 3-1/2-in. x 1/8-in. big, red rubber bands,
#.0901-8840; \$2.59 for a one pound bag. **AW**



NEW! Shopsmith® Saw Train

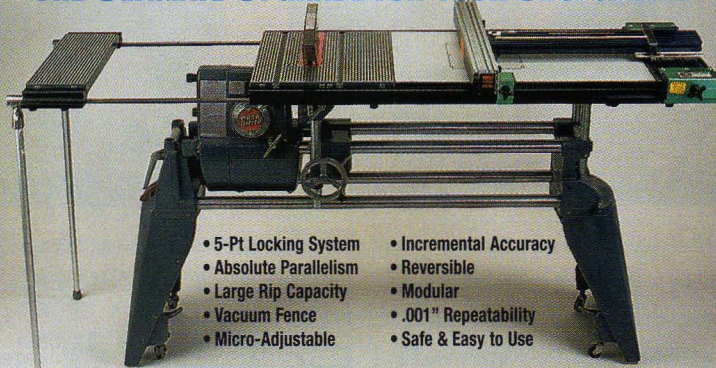
What You See Here Is Not A Dream. Enjoy Two Major Improvements:
The Most Accurate Combination Rip Fence and Split Router Fence On The Market Today. No More Tape Measure and Pencil.

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This **Shopsmith Retrofit Kit** includes all Rails, Sliding Bridge Assembly, Fence Clamps, Adaptors, Router Extension Table with 3-ring Router Plate and all required fasteners and hardware.

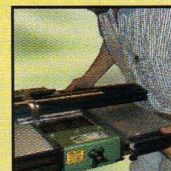
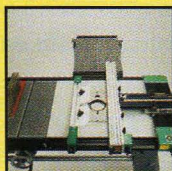
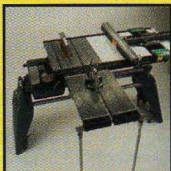
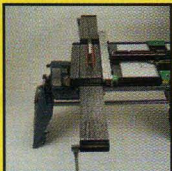
The Incremental Positioner and 32" SmartFence®, included in CabinetMaker's System®, will completes the setup.

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• Conversion Kits are available for Mark V Models 500 & 510/520 •

CALL 1-800-619-1288 FOR MORE INFO!

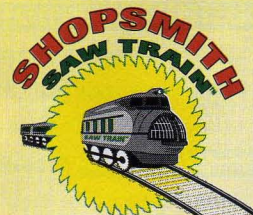


With our Floating Table Conversion Kit you are no longer limited where you can place your Floating Tables. You can use them along the entire length of front and back Rails and extend them further to the left and right of the worktable. Place them on infeed side, outfeed side or both, even position them IN LINE with your Saw Blade. You can now rip long boards without help from your spouse or neighbor.

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- \$500 Dovetail Jig
- \$200 Router Table
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Product Reviews

Tablesaw-Mount Router Table

It's always useful if you can get double duty from your shop tools and accessories. That's why people often replace the left wing of a tablesaw with a router table top. With Bench Dog's system (\$330) you also get an excellent router fence instead of having to use your tablesaw fence when routing.

The fence is the heart of this system. The aluminum base is plenty rigid, and locks solidly to the table top. A port on the fence accepts a 2-1/2-in. hose for dust collection. Medium-density fiberboard (MDF) faces on the fence can be slid open or closed, and custom fit to the bit you're using. The fence can be easily offset by either 1/32 in. or 1/16 in. allowing you to use the router table as a jointer (see Shop Solutions, page 38). A fence riser is available (\$40), adding 3-1/4 in. to the fence height. This makes it much easier to rout pieces that have to be held vertically, such as vertical raised panels, lock miters and drawer parts.

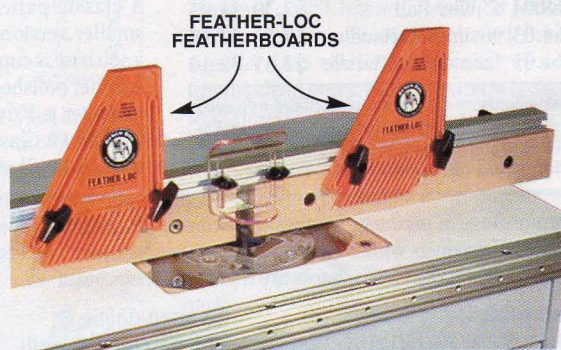
To help hold your work down to the table and against the fence, you can use Bench Dog's Feather-Loc featherboards (\$30 for a pair). They fit right into the T-slots in the fence and table, and in addition to working as featherboards, they work great as stop blocks, and even as starting pins when routing work that can't ride against the fence.

The router table top has a miter



gauge slot that can be custom fit to any miter gauge. The router insert rests on jackscrews, so it can be adjusted so it's perfectly level with the table. Bench Dog's router inserts are phenolic plastic—very tough stuff—and don't sag even with a 3-hp router suspended from them.

According to the manufacturer, the RT250 table fits most tablesaws. You can contact Bench Dog to confirm that it will fit yours.



RT250 table	\$320
Fence Riser	\$40
Feather-Loc	\$30 per pair

Bench Dog, (800) 786-8902
www.benchdog.com

Product Reviews

Perfect Tablesaw Angles

If it's getting hard on your peepers to set your tablesaw blade, you may find the Angle Perfect (\$40) useful. It'll help you set the saw blade to 90 and 45 degrees, even without your reading glasses.

To use the Angle Perfect you set the magnetic base on your saw table and slide the contacts up to your saw blade. The Angle Perfect lights up when



your blade is at a perfect 90- or 45-degree angle. It works on any conductive table, including aluminum. (Of course, the *magnet* won't work on an aluminum table, so you'll have to hold the Angle Perfect down, making sure it's flat on your saw table.)

Angle Perfect, \$40
Pacific Rack and Machine, (877) 220-2699
www.BigLeg.com

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Radial Arm Saw Recall

Emerson Tool Co. is recalling about 3.7 million Craftsman radial arm saws, because the lower blade guard does not completely cover the blade. About 300 people have been injured on these saws, either when their fingers touched the blade or by pieces of wood being kicked back.

Consumers should stop using their Craftsman radial arm saws immediately and call Emerson Tool Co. to determine if their saw is recalled and to receive safety instructions. Have your model and serial numbers available when you call. The recalled saws have a model number beginning with 113, range in size from 8 to 10 in., and were sold from 1958 to 1995. Emerson is providing a free repair kit with a new and improved guard. For older saws that cannot accept the new guard, Emerson is offering \$100 for the return of the saw carriage.

Call Emerson at (800) 511-2628 or visit www.radialarmsawrecall.com. Do not return your saw to Sears.

Product Reviews

Mini-Dovetail Jig

The new Katie Junior (\$230) from Katie Jig is a fast and easy jig for cutting through dovetails in material 1/8-in. to 5/16-in. thick—perfect for small boxes.

Like its cousin the Katie Jig (See Tool Test: Dovetail Jigs, #84, December 2000, page 66), this jig is ready to cut through dovetails right out of the box. Clamp your material into the jig, and in minutes you'll be cutting the joint.

The jig uses two bits, one for the pins and one for the tails. Both are included with the jig.



If the material you're working on is wider than the jig (8 in.), you simply clamp the jig in place, cut one set of dovetails, slide the jig over, cut the next set and so on, until you've finished the width of the board.

There is one drawback: The end grain of each board you cut with this jig will project 1/8 in. to 1/4 in. past the face of the mating board (see photo above). As long as you're aware of it, and allow some extra material in your project for trimming after the joint is glued up, it's easy to work around.

As you cut each joint, you'll need to switch back and forth from the pin-cutting bit to the tail-cutting bit. If possible, use two routers to make machining go faster.

While the Katie Jr. is expensive, it cuts perfect through dovetails the first time, every time. The Junior is expected to be in full production in early 2001.

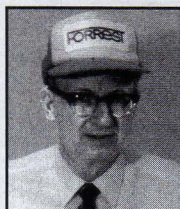


Katie Junior; \$230
Hampton House, Inc., (317) 881-8601
www.katiejig.com



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	Sale Price	10% Off 1st Blade	15% Off 2nd Blade
10"x80 T (1/8" or 3/32" K)	\$160	\$143	\$135
12"x80 T (1/8" K)	\$184	\$163	\$154

14"x100Tx1", 14"x80Tx1", 16"x100Tx1", 8", 7 1/4", others available. Call for prices.

Woodworker II

ALL PURPOSE - table saws and portable circular saws.

	Sale Price	10% Off 1st Blade	15% Off 2nd Blade
12" x 40 T x 1"	\$129	\$116	\$110
10" x 40 T (1/8" or 3/32" K)	\$119	\$107	\$101
10" x 30 T (1/8" or 3/32" K)	\$99	\$89	\$84
8 1/4" x 40 T (3/32" Kerf)	\$99	\$89	\$84
8" x 40 T (3/32" Kerf)	\$99	\$89	\$84
7 1/4" x 30 T (3/32" Kerf)	\$89	\$82	\$79
5 3/8" x 40Tx10mm(5/64" K)**	\$89	\$80	\$76

14"x40Tx1", 14"x30Tx1", 12"x30Tx1", 9"x40T, 9"x30T, 8"x30T(3/32"K), 6"x40T(3/32"K) Call for prices.

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	Sale Price	10% Off 1st Set	15% Off 2nd Set
6" set	\$260	\$242	\$229
8" set	\$280	\$260	\$245
10" set	\$340	\$314	\$297
12" set	\$440	\$404	\$382

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*3 coupons at \$5 each. Use 1 coupon per blade.



Chop Master

Specialty designed for sliding compound miter, miter-chop, and radial saws.

	Sale Price	10% Off 1st Blade	15% Off 2nd Blade
8 1/4" x 60T x 5/8"	\$100	\$98	\$93
8 1/2" x 60T x 5/8"	\$110	\$107	\$101
10" x 80T x 5/8"	\$130	\$125	\$118
12" x 80T x 1"	\$140	\$134	\$127
15" x 100T x 1"	\$190	\$179	\$169

6 1/2" x 40T x 5/8", 9" x 80T x 5/8", 14" x 100T x 1" also available. Call for prices.

Woodworker I

Designed for radial arm or tablesaws - fine crosscut.

	Sale Price	10% Off 1st Blade	15% Off 2nd Blade
7 1/4", 8", 8 1/4" x 60T	\$100	\$98	\$93
10" x 60 T	\$120	\$116	\$110
12" x 60 T	\$130	\$125	\$118

9" x 60T, 14" x 60T also available. Call for prices.

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Product Reviews

Router Dust Collection

Collecting dust from a router can be a huge pain in the neck. The makers of the Leigh Jig have a solution. Their



RVA1 Router Vacuum Attachment (\$50) fits on routers using the holes in the base

that accept

a fence.

The holes

must be

at least 5/16-in. dia. and

go all the way through.

You can connect any hose up to 1-1/2-in.

dia. directly to the shroud. And although it's designed for use with a dovetail jig, it works for other edge-routing jobs, too.

The dust catcher is spring loaded, and swivels on its mount, so you can twist the shroud right against your work. It's easy to spin the assembly and find the "sweet spot" where dust collection is best.

It takes a while to get used to being harnessed to a vacuum while routing, but when you see (and smell!) how clean the air is, you'll get used to it fast.

AW

RVA1 Router Vacuum Attachment; \$50

Leigh Jigs, (800) 663-8932

www.leighjigs.com



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Router Table Jointer Fence

Edge joint long stock, thick stock, wide stock or man-made materials with this easy-to-build fence.

Edge joint long, thick stock.

The 6-ft.-long jointer fence provides plenty of support. With a large straight bit you can joint stock up to 2-3/8-in. thick. The high rpm of a router produces smooth edges with little or no tear-out, even on gnarly grained woods.

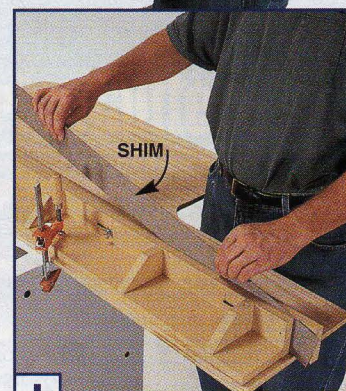
Is your shop too small to even think about squeezing in a jointer? Then do we have a project for you! And even if you already own a jointer, there are some things this fence can actually do better:

- Drop-in shims adjust the fence offset to accommodate the depth-of-cut (Photo 1).
- Carbide router bits allow you to edge joint man-made materials like particleboard or melamine *without* sentencing yourself to hard time replacing dull knives (Photo 2).

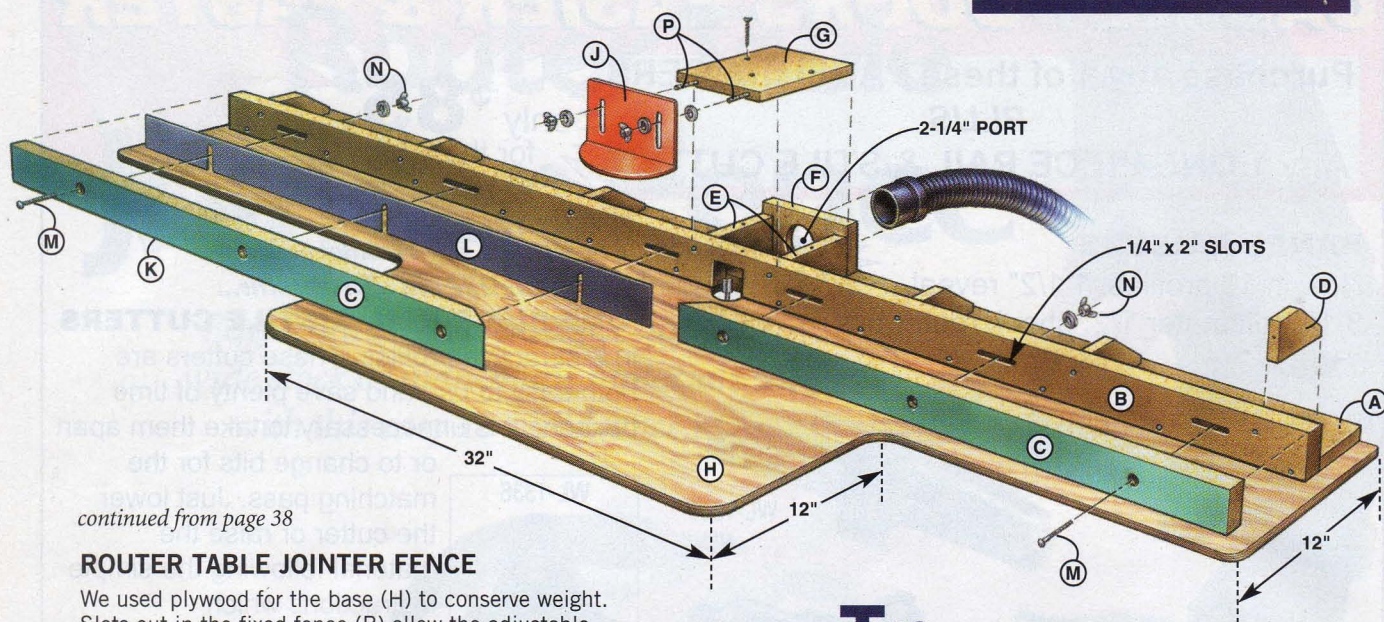
- An oversize table lets you edge joint wide stock flat, rather than balancing it on edge against a jointer's narrow fence (Photo 3).

The fence is a cinch to build and it'll only cost you about \$50 (less if you've got any scrap laying around). That shouldn't set your shop-tool savings plan back much!

Submitted by Rick McKee, Woodbury, MN.



I Drop-in shims offset the fence equal to the depth-of-cut you want to make. Use plastic laminate shims for heavier cuts and construction paper for very light cuts, such as cleaning up saw marks.



continued from page 38

ROUTER TABLE JOINTER FENCE

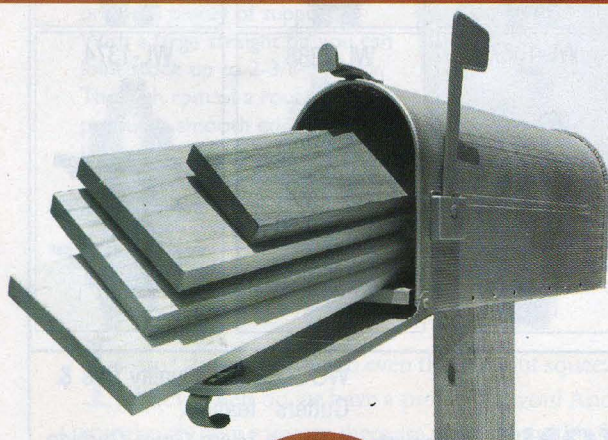
We used plywood for the base (H) to conserve weight. Slots cut in the fixed fence (B) allow the adjustable fences (C) to slide back and forth to safely accommodate different bit sizes.

The adjustable fences are raised up from the base by 1/8-in. to keep sawdust and shavings from interfering with feeding stock. Without the shim (L) the fence can be used like any standard router table fence.

Tip Avoid glue! I like to assemble shop jigs and fixtures with screws only. It makes future modifications and alterations possible without having to bust things apart.

continued on page 42

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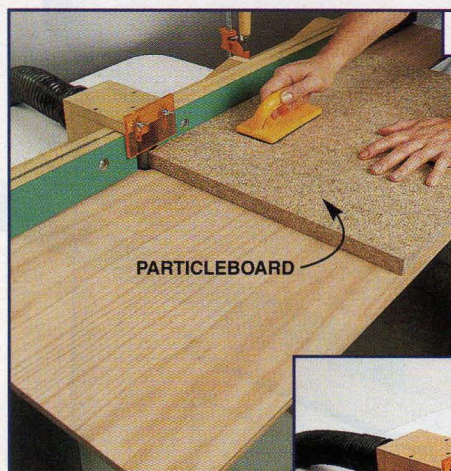
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Shop Solutions

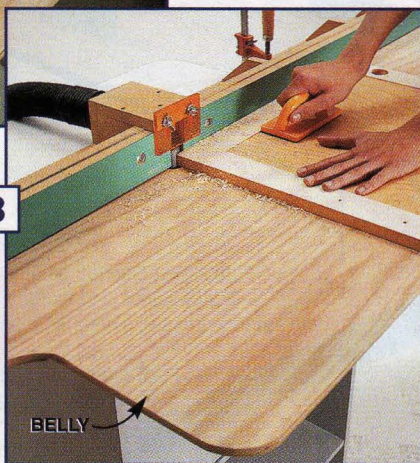


2 Edge joint man-made material.

With this fence you can edge joint particleboard without dulling the cutters. Carbide router bits can take it, unlike the softer steel of jointer knives.

3 Support for wide stock.

This jointer fence is excellent for trimming doors and drawer fronts for a perfect fit. The belly of the table provides extra support when jointing wide stock like this panel door.



CUTTING LIST

Part	Name	Qty.	Dimensions	Material
A	FENCE BASE	1	4" x 72"	3/4" MDF
B	FIXED FENCE	1	3" x 72"	3/4" MDF
C	ADJ. FENCE	2	2-7/8" x 36"	3/4" MDF
D	BRACES	6	2-1/4" x 4"	3/4" MDF
E	DUST PORT SIDES	2	2-1/4" x 3-1/4"	3/4" MDF
F	DUST PORT BACK	1	3" x 4"	3/4" MDF
G	DUST PORT TOP	1	4" x 5"	3/4" MDF
H	BASE	1	24" x 74"	1/2" PLYWOOD
J	GUARD	1	2-3/4" x 4"	1/4" LEXAN*
K	FENCE FACE	2	2-7/8" x 36"	PLASTIC LAMINATE
L	SHIMS	2	3" x 36"	PLASTIC LAMINATE
M	carriage bolts	6	1/4" x 2"	
N	wing nuts & washers	8	1/4"	
P	hanger bolts	2	1/4" x 1-1/2"	*
Q	wood screws	30	#8 x 1-1/4"	

* Sources

Highland Hardware, (800) 241-6748

1/4" thick x 12" wide x 12" long Lexan, # 10.20.06; \$13.

Rockler, (800) 279-4441

1/4"-20" x 1-1/2" hanger bolts, # 24406; \$2 per 8-pack. **AW**

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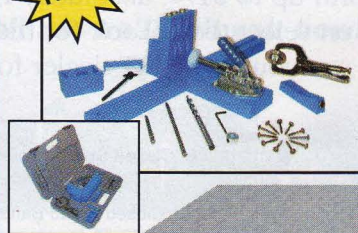


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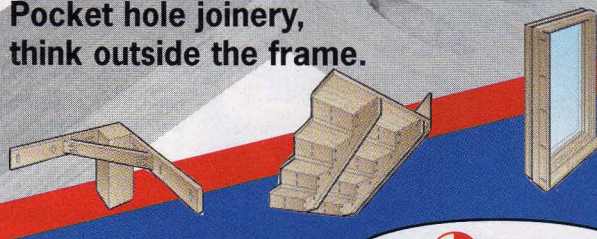
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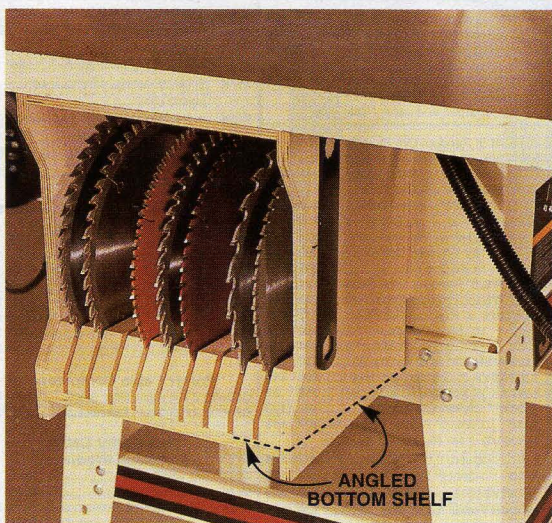
Small Shop Tips

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Free Storage

I'd been using my typical cantilevered lumber rack for years when I realized I was wasting precious storage space. By screwing 1/4-in. hardboard to the top and bottom of each support I created free storage space between the supports. I can fill the spaces with drawers or use them for general storage. Plus, I can store short stock without stacking it on long stock. Now there isn't a single inch of wasted space in my lumber rack.

*Peter Lundebjerg
Greely, CO*



Tablesaw Blade Rack

I'm always trying to eke out more space in my shop, and I found some hidden under my tablesaw behind the bevel crank. There's just enough space back there to hang a blade rack. I made the rack with an angled bottom shelf so the blades stay in their slots when I'm rolling the saw around.

*Ray Kendrick
Salt Lake City, UT*

Small Shop Tips



Hanging Bit Box

I use my tablesaw extension wing for a router table. It's a great space saver, but I got tired of running back and forth to my bench to get router bits and wrenches. Then the lightbulb went on! A simple plywood box with pullout trays for bits and wrenches fits perfectly under the router table. I hung the box from the table extension with screws and used carpet tape to stick the extruded polystyrene insulation board to the 1/4-in. hardboard tray. I added a door to keep out dust and shavings.

Mike Kemper
Davenport, IA

continued on page 48

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AW0101

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PC 7538 & 7539	400-0919*	24.99	400-0939*	34.99
Bosch	400-0912	19.99	400-0932	29.99
Ryobi RE600/501	400-0912	19.99	400-0932	29.99

* Includes special mounting hardware kit and instructions.

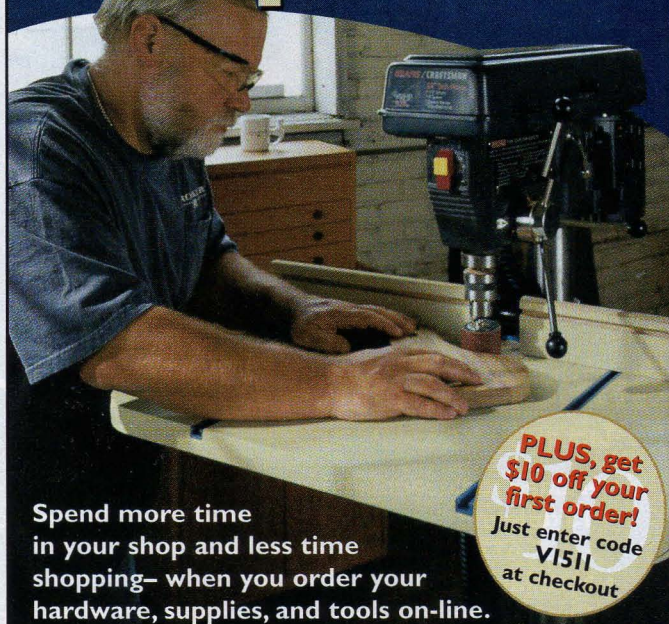
If ordering this special offer by mail, specify the above part number and quantity. Send this ad and check to:

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Small Shop Tips

Folding Assembly Table

I use this quick and easy-to-store assembly table all the time. Get a couple of folding sawhorses, screw them to a sheet of plywood and add some hardwood edging to stiffen the plywood top. That's it!

Folding sawhorses are available at home centers or from Tool Crib, (800) 635-5140, toolcrib@amazon.com, model #TS-21, \$37/pair.

Phil Hinz
Ketchum, ID
AN

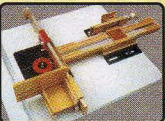




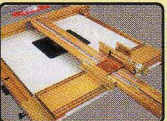
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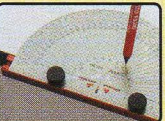
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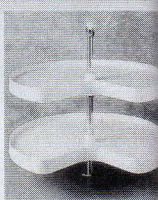
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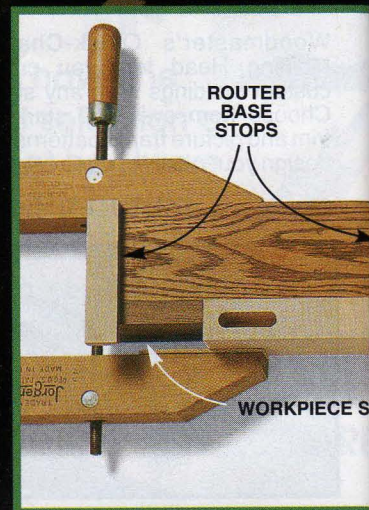


Tips for Router Joinery

Nine simple ways to make better joints.

By Ed Krause

EDITOR: TOM CASPAR • ART DIRECTION: BARBARA PEDERSON • PHOTOGRAPHY: MIKE HABERMANN

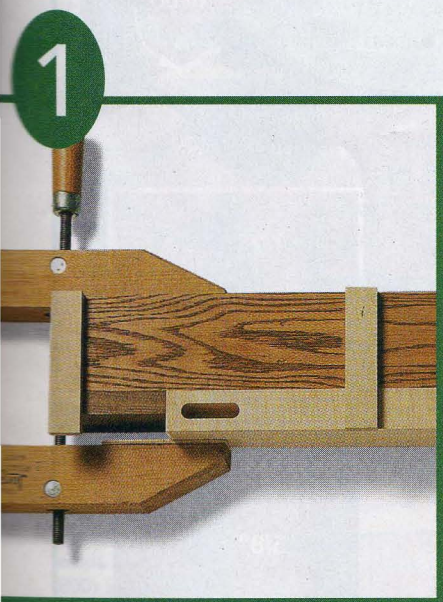


NO-FUSS MORTISING JIG

Want a dirt simple mortising jig? You know, the kind that can be knocked together in a few minutes, not the fussy kind that takes a whole weekend to make. If you've got a fence for your plunge router, give this no-fuss jig a try.

First, clamp an accurately milled 3- to 4-in. square block to your bench. Then screw on about a 5-in.-long stop block. Butt your workpiece up to it and clamp the workpiece to the large block. (An old-fashioned handscrew-style clamp is ideal for this job because it has a deep reach.) Lay out your mortise on the workpiece and set the router fence so the bit cuts within the layout marks. Finally, add two stop blocks to the top of the big block to limit the back-and-forth movement of your router. These stop blocks define the length of the mortise.

If your mortises are centered, go ahead and cut all of them. If they're off-set, simply change the fence setting between cutting right and left legs.



UP-CUT SPIRAL BITS FOR MORTISING

A standard straight bit is OK for cutting deep mortises, but the real champ for this work is an up-cut spiral bit. It acts like a twist bit in a drill, throwing chips up and out of the hole. You can plunge straight down to the bottom of a mortise with a spiral bit without burning or sliding sideways.

Solid-carbide up-cut spiral bits can be more than twice as expensive as standard straight bits. However, if you're doing a lot of mortising, I think the extra bucks are worth it. High-speed steel (HSS) up-cut spiral bits are less expensive, but they won't last as long.

2



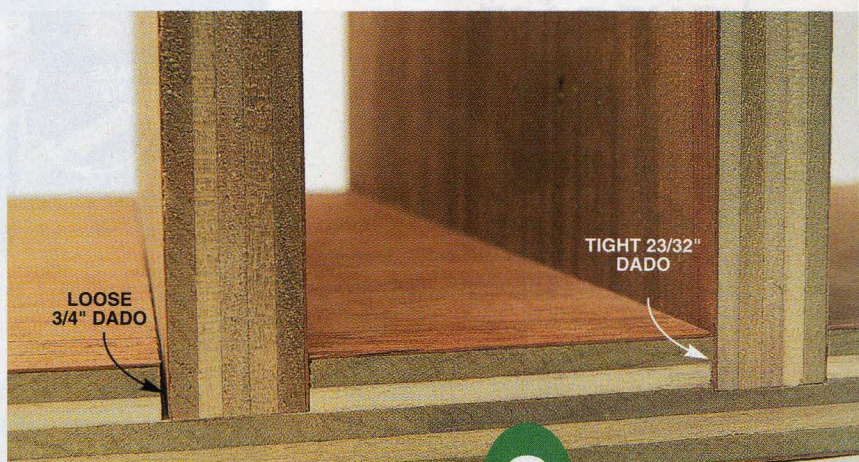
Sources

MLCS, (800) 533-9298

Solid-carbide up-cut spiral bits,
1/8-in. to 1/2-in. dia.; \$11 to \$35.

Woodcraft Supply, (800) 225-1153

HSS up-cut spiral bits; \$7 to \$17.50.



3

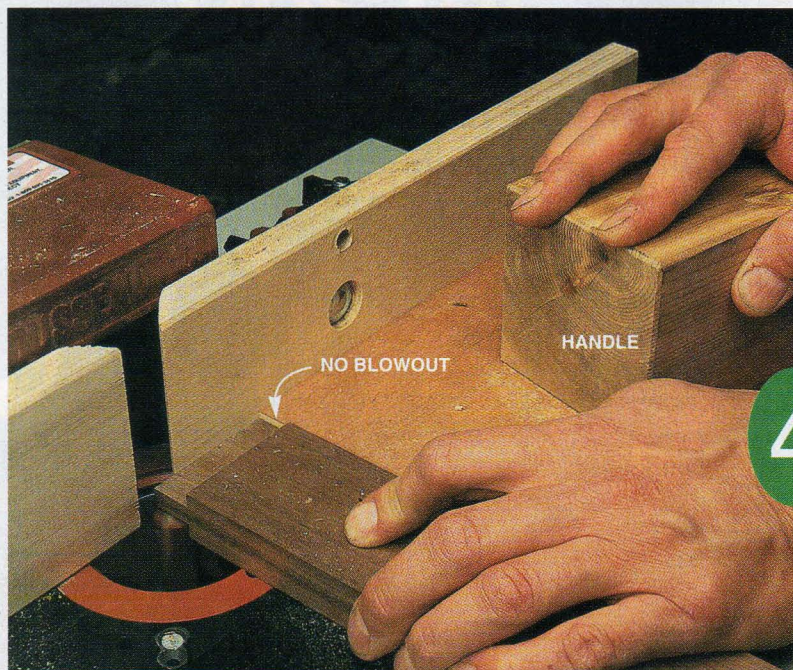
PLYWOOD BITS FOR TIGHT JOINTS

Man, was I miffed when I first found out that 3/4-in. plywood doesn't fit in a 3/4-in. dado! It's way too loose to make a good joint. Heck, that 3/4-in. plywood is a full 1/32-in. undersized. One-half-inch and 1/4-in. plywood is generally 1/64-in. undersized. Now I avoid sloppy joints by using special undersized router bits. Occasionally I have to lightly sand the end of the plywood to make it fit, but I'll take a tight joint over a loose one any day.

Source

McFeely's, (800) 443-7937

CMT Plywood Dado Bits, 1/4-in. and 1/2-in. shanks, available for 1/4-, 1/2-, and 3/4-in. plywood; \$18 to \$25.



RIGHT-ANGLE PUSH BLOCK

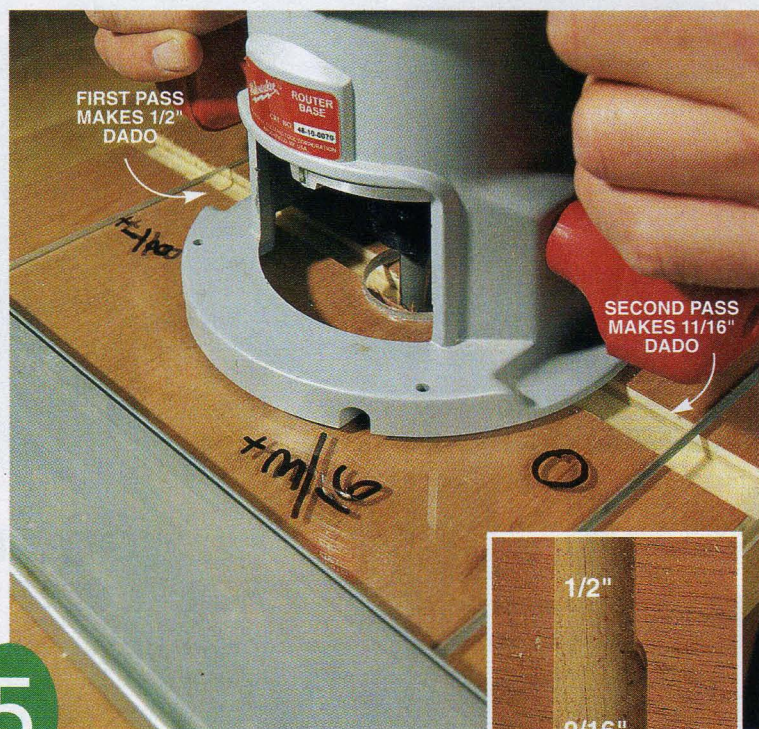
How do you hang on to a narrow rail while cutting a tenon on your router table if you don't have a miter gauge? You build this push block, that's how! Make it about 9-in. wide and be sure to cut it exactly square. Then attach any kind of handle (a simple block with a rounded end will do), angling it so the handle is aimed toward the router bit.

This push block also prevents blowout by backing up the workpiece. When the block gets chewed up, simply rip a little off and you'll have a new solid edge.

ONE BASE PLATE, FOUR SIZES OF DADOES

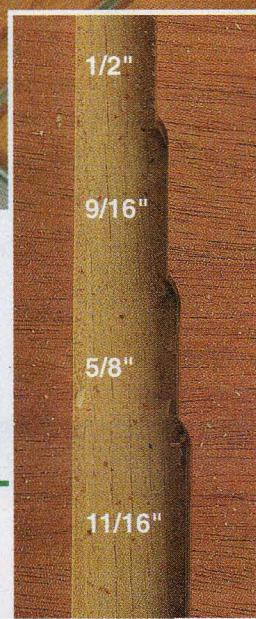
If you're in a pickle and want to rout a 11/16-in.-wide dado but only have a 1/2-in. bit, make a new, graduated baseplate for your router. Each side is progressively 1/16-in. farther away from the bit, so you can easily make four sizes of dados using a single bit and one fence setting. Make one cut at the "0" setting to start the groove, then rotate the router to enlarge the groove. The increments can be less or more than 1/16-in., for jobs such as tailoring a groove to fit plywood.

Making the baseplate requires accurate layout (see Workshop Tips, page 20 for a method to perfectly center a new baseplate). Make it slightly oversized and nibble away at the edges on the tablesaw until the dimensions are perfect.



Sources

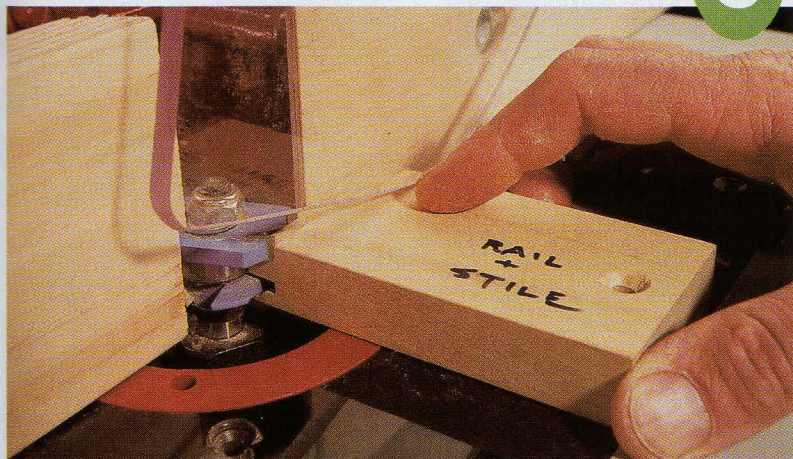
Acrylic Base Stock, #16L71, Woodcraft Supply, (800) 225-1153; \$10.
For detailed instructions see "Router Magic," by Bill Hylton, Rodale Press, 1996, available at www.amazon.com; \$17.



SET-UP GAUGES SAVE TIME

Setting the bit on a router table by trial and error requires a lot of time-consuming futzing around. Simplify your life by making gauges for the setups you use most often. Go ahead and mill one more piece to save as a gauge every time you make door joints or moldings. Then label it and hang it on a nail nearby. Next time you need the same setup, all you have to do is grab the gauge, adjust the fence and raise the bit height to fit the gauge. A test cut is still a good idea, but you should be darn close.

6

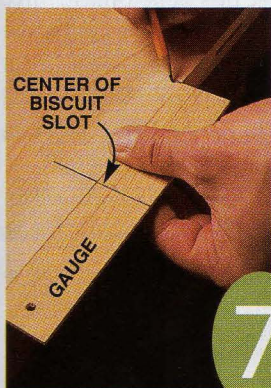


YOUR ROUTER IS ALSO A BISCUIT JOINER

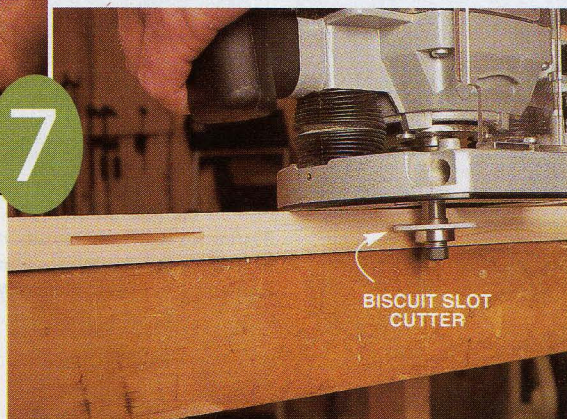
I love the convenience of using biscuits to align boards for a glue-up. However, I never got around to buying a biscuit joiner because I've been using my router to cut biscuit slots.

Standard slot cutters don't work because biscuit slots must be a hair thinner. For less than \$45 I bought a special slot cutter and three interchangeable bearings (one for each size of biscuit).

Sliding the bit along the edge of the board about 1 in. makes a perfect biscuit slot. For layout I use a small stick that's 1 in. longer than my router base. I simply line up its center mark with the center mark of the biscuit slot and draw "start" and "stop" marks at either end.

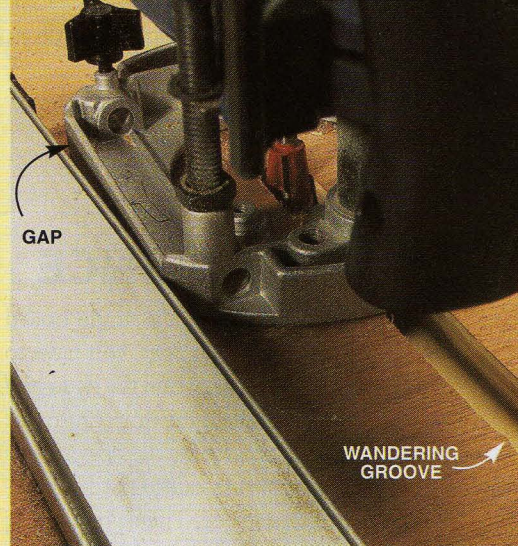


7



Source

Jesada Tools,
(800) 531-5559,
1/4-in. shank set,
#600-645; \$43.
1/2-in. shank set,
#600-646; \$43.

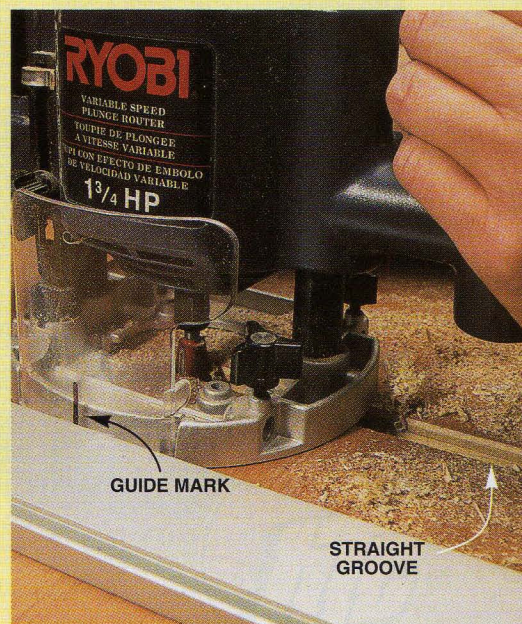


Oops!

I was cutting a sliding dovetail when my concentration wandered for a split second, and wouldn't you know it, I turned it into a *wandering* dovetail!

Using the flat edge of the router seemed foolproof, but I realized that a little twitch can create a huge error.

Now I always use the round edge of the router base as a guide instead. But I found out that my plunge router's collet isn't exactly in the middle of the base. Slightly turning the base for comfort as I routed also made a wandering groove, so I've marked one single spot on the base and keep that spot tight against the fence.



EASY LAYOUT FENCE

It's a hassle to set up a single board fence for making dados. You have to measure its distance from the dado *and* square it up at the same time. Eliminate all that bother with a fence shaped like a T-square. Start by cutting two grooves into the crosspiece. Then positioning the fence is as simple as lining up the grooves with layout lines on the workpiece. One clamp holds the fence square.

Make a new fence for each size bit. You'll always be ready to dive right into cutting accurate dados or sliding dovetails.



PICTURE FRAME MINI-BISCUITS

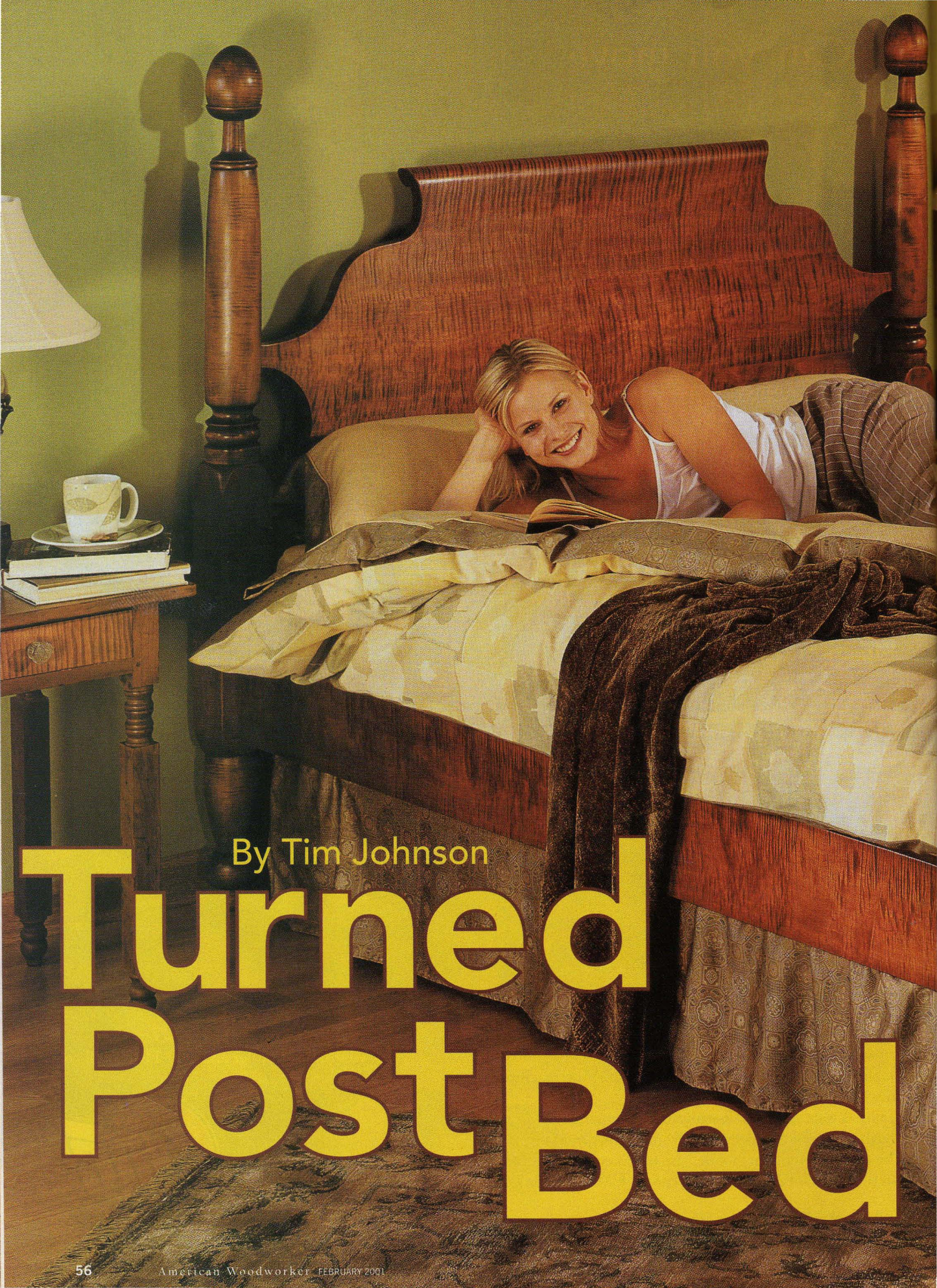
All it takes to break the glue joint on a picture frame miter is one careless bump. Reinforce these weak joints with mini-biscuits. Special router bits to make these tiny slots come in three sizes. A bearing limits the depth-of-cut. Install the bit in your router table and clamp a mitered block to the table to guide the cut.

These biscuits work well for narrow face frames, too. **AW**

Source

Eagle America, (800) 872-2511,
Mini-biscuit bit #150-0112; \$20.
Bearing for R-1 Ryobi biscuits, #196-2100; \$14.
Bearing for R-2 Ryobi biscuits, #196-1900; \$13.
Bearing for R-3 Ryobi biscuits, #196-1600; \$12.





By Tim Johnson

Turned Post Bed



**Router joinery simplifies
this nineteenth-century
classic.**

ART DIRECTION: PATRICK HUNTER • PHOTOGRAPHY: BILL ZUEHLKE AND RAMON MORENO • ILLUSTRATION: FRANK ROHRBACH



Turned Post Bed

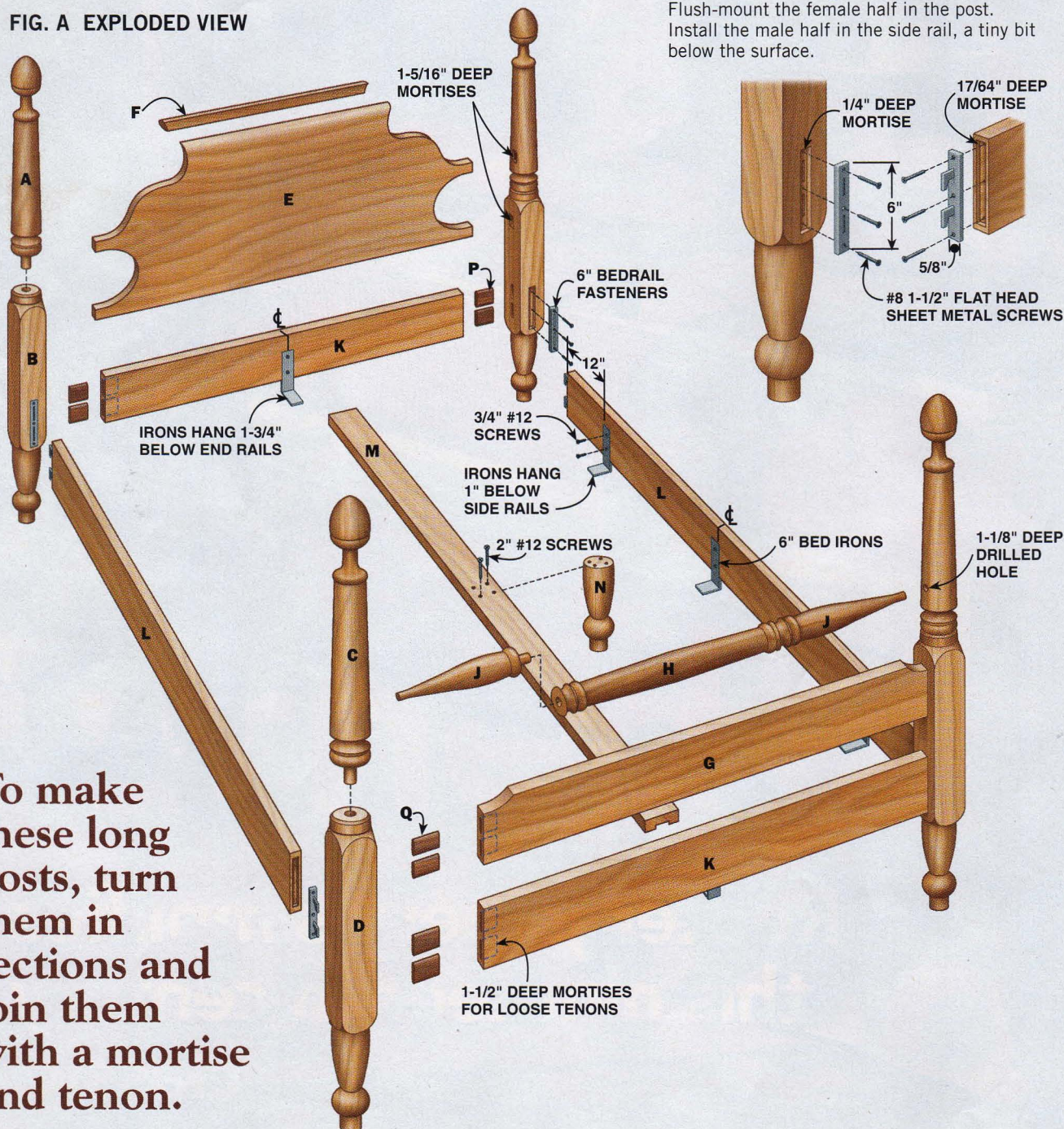
Here's how to maintain a positive attitude the next time you hear the phrase "Honey, would you *please* make the bed?" Forget about sheets and pillowcases. Head down to the workshop, glue up some timbers and make *this* bed! It's a big project that'll wear you out, but you'll have a great place to catch some ZZZZs when you're done.

We've kept the best of the old, a simple design that contains only six different components, and updated it with modern hardware. We've also simplified the joinery. You'll

be able to make all of the joints quickly and accurately with a router and shop-made jigs.

However, a simple design doesn't make this an easy project. It will test your skill and your wallet. There aren't a lot of parts, but they're all big—mess one up and you're out some real dough. You must be proficient at turning—or know someone who is. You'll need a tablesaw, a guide bushing-equipped plunge router and several bits, a chisel, a hand plane or a belt sander, 1-in. and 1-1/4-in. Forstner bits and four 6-ft.-long pipe clamps.

FIG. A EXPLODED VIEW



Detail 1 Mounting Bedrail Fasteners

Flush-mount the female half in the post. Install the male half in the side rail, a tiny bit below the surface.

To make these long posts, turn them in sections and join them with a mortise and tenon.

Materials

You can make the entire bed from 6/4 material (6/4 lumber is rough sawn at or slightly over 1-1/2-in. thick). We used curly soft maple (see Sources, page 69). You'll need 50 board feet (bd. ft.) for the rails, headboard and footboard. Make the blanks for the four posts and the turned blanket rail at the foot of the bed by stacking three pieces and gluing them together. Each blank for these big turnings contains about 10 bd. ft., so you'll need a *minimum* of 50 bd. ft. for them. Plan to buy about 130 bd. ft. for this project. The extra

30 bd. ft. allows you to make a practice leg and accounts for waste, which is inevitable.

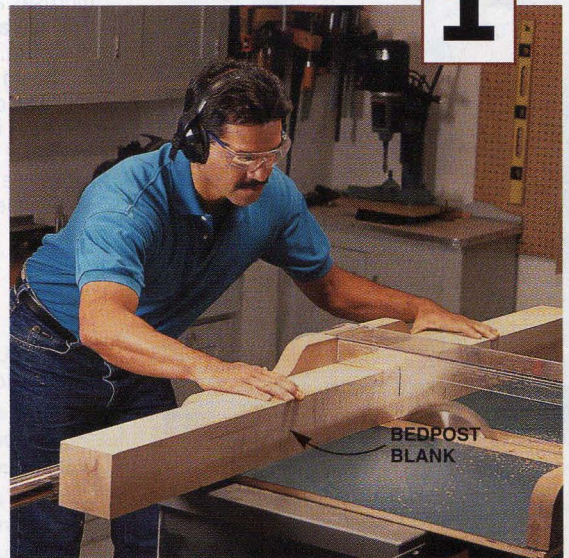
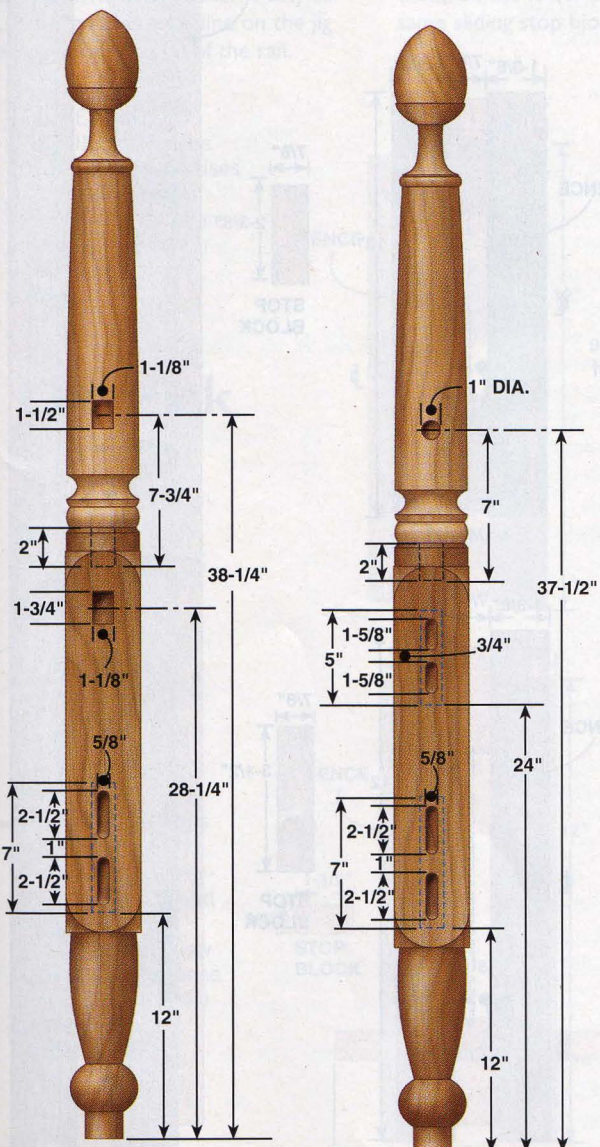
Consider using 16/4 material for the bedposts. It'll cost a couple hundred dollars more, but you'll save yourself time and trouble because you won't have to glue up the blanks. Besides, every time you look at the posts on your finished bed, you'll be glad you spent the money because you won't see any glue lines. Mail-order suppliers often stock 16/4 maple and cherry (see Sources, page 69).

We've used steel bedrail fasteners (see Sources, page 69), mounted in routed mortises, instead of traditional bed bolts, which are notoriously hard to install. When these fasteners are properly fit (see Fig. A, Detail 1), you should be able to seat or loosen the siderails with the tap of a mallet. They make assembling or disassembling the bed a snap.

This design accommodates queen-size mattress/box spring combinations of different thicknesses. The 14-in.-thick set we used sits 25 in. above the floor, although there's nothing magic about that height. If you plan to buy a new mattress set, buy it *before* you build. Today's sets are often much thicker than 14 in. You can adjust the size or location of the bed irons so your mattress sits at a comfortable height. Bed irons are available in lengths from 3 in. to 12 in. (see Sources, page 69). The irons may extend far below the side and end rails. A bedskirt will hide them from view.

Detail 2
Headpost Mortises

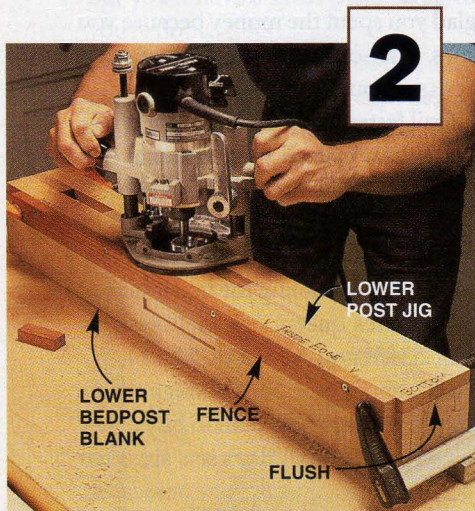
Detail 3
Footpost Mortises



CUT EACH BEDPOST BLANK IN TWO so both pieces fit on a standard-size lathe. Because it's made to be cut apart and reassembled, the blank is longer than the finished bedpost (see Cutting List, page 69). Cut the section blanks to exact length and square the ends. Keep the faces of each bedpost's two section blanks aligned when cutting the mortises. When you put them back together, the grain will match and the joint won't show.

Mortising the Post Blanks and Rails

We've used loose tenon joints because they're much easier to fit than traditional mortises and tenons. Cut identical mortises with a router in both pieces to be joined. Then mill a length of stock the same width and thickness as the mortises. Round the ends with a 1/4-in. round-over bit and cut it into pieces, each one slightly shorter than the combined depth of the two mortises. Voilà! You're ready for assembly.



ROUT MORTISES in the lower sections of the bedpost blanks. Use a simple jig, referenced from the inside edge of the post (see Fig. B, at right). This jig works for the shallow, full-length mortises for the metal bedrail fasteners and for the two deep, half-length mortises for the loose tenons that join the posts, end rails and footboard. It's reversible, so it works on all the posts—just flip it over and remount the fence.

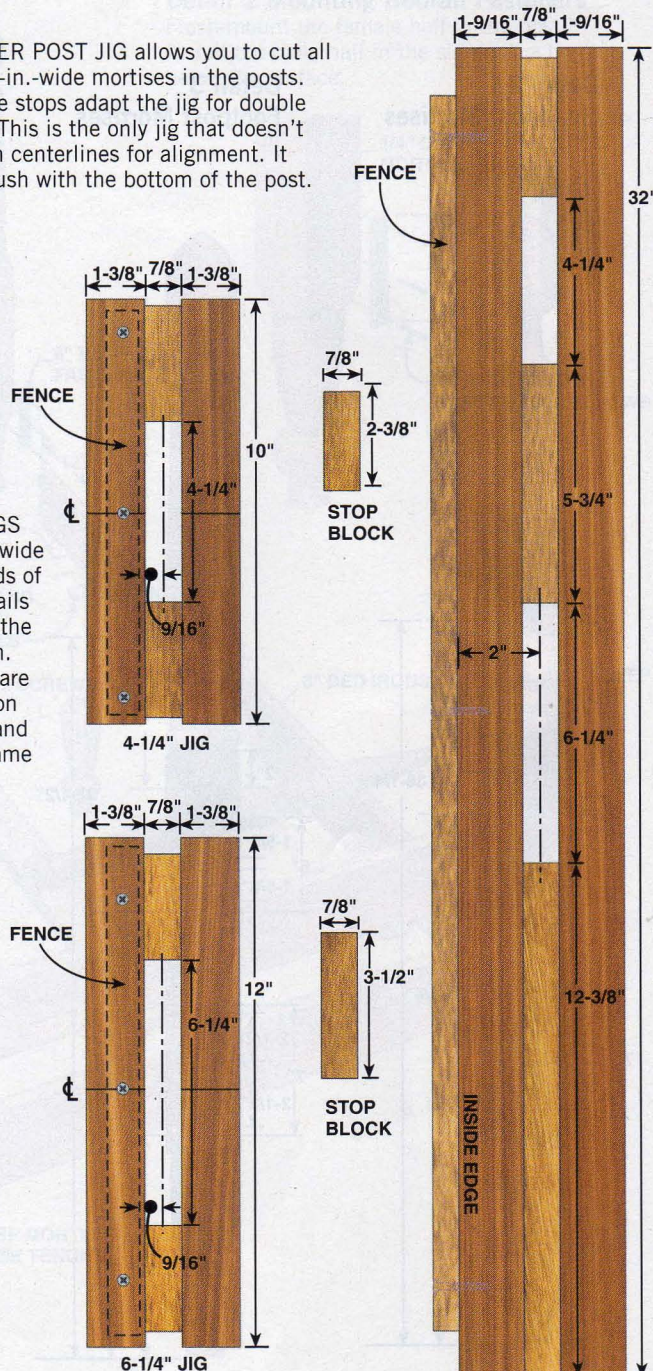


SLIDING STOP BLOCKS make it easy to cut two adjacent mortises. Plunge the first mortise with the block pressed against one end of the opening. Slide it snug against the other end and plunge the second mortise. In the joints between the posts and end rails, because of cross-grain movement, two small mortises and tenons are better than one big one.

FIG B. MORTISING JIGS

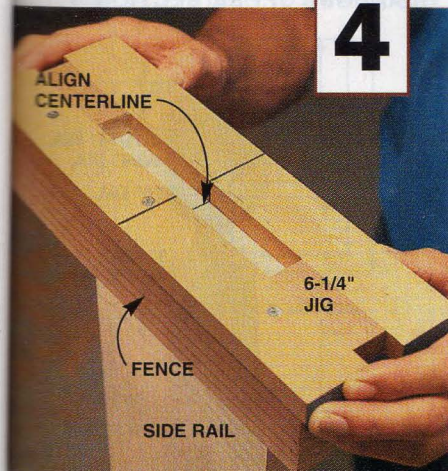
The five jigs you'll need are so simple you can make them all in a single morning, and cut all the mortises that afternoon. They're designed to work with a plunge router fitted with a 3/4-in. guide bushing and a 1/2-in.-diameter straight bit. An up-cut spiral design works best for mortising (see Sources, page 69).

THE LOWER POST JIG allows you to cut all of the 5/8-in.-wide mortises in the posts. Removable stops adapt the jig for double mortises. This is the only jig that doesn't depend on centerlines for alignment. It mounts flush with the bottom of the post.



THE TWO RAIL JIGS are for the 5/8-in.-wide mortises at the ends of the side and end rails (6-1/4-in. jig) and the footboard (4-1/4-in. jig). The openings are identical to those on the lower post jig and make use of the same removable stops.

4

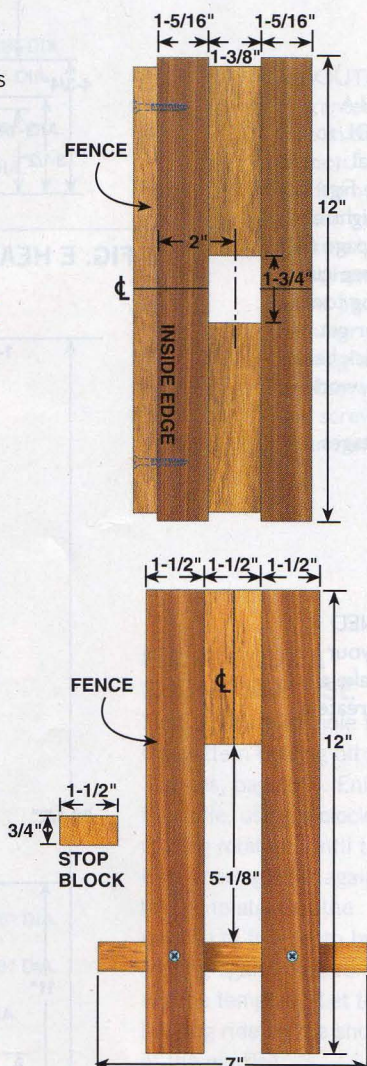


USE THE 6-1/4-IN. RAIL-MORTISING JIG (see Fig. B, at left) to cut the shallow, full-length mortises in the side rails for the headrail fasteners. Its fence makes it easy to position. Just align the centerline on the jig with one drawn on the end of the rail.

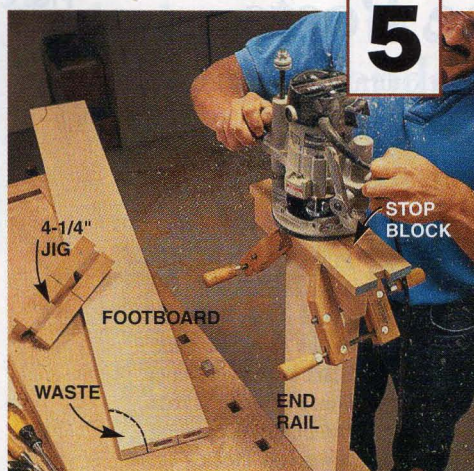
THE HEADBOARD POST JIG makes the 1-1/8-in.-wide mortises for the headboard tenons. No tricks here. Just align the centerlines, clamp and plunge.

The trick is to cut all the mortises before turning.

THE BED IRON JIG allows you to flush-mount the bed irons in the side and end rails. Use the removable stop for the end rails. (The irons extend farther below the end rails because they support the rail for the center leg. Dado this rail as well.)



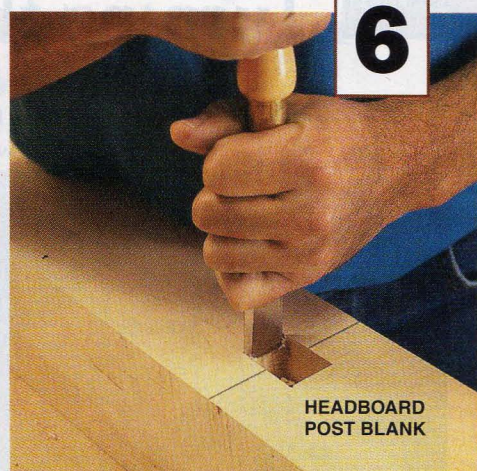
5



ROUT DOUBLE MORTISES for loose tenons in the end rails and footboard. Because the openings in the two rail jigs are identical to those on the lower post jig, you can use the same sliding stop blocks.

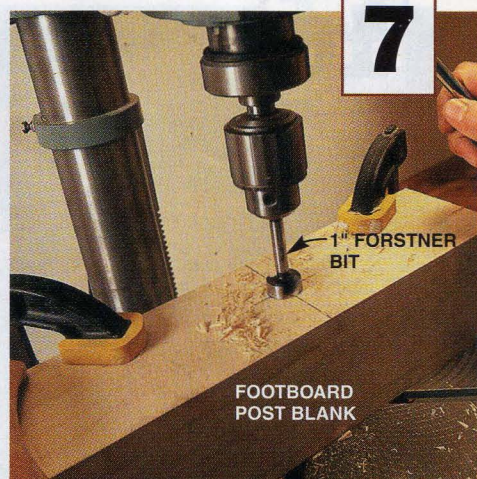
DRILL A CENTERED HOLE for the blanket rail in the upper section of each footboard blank.

6



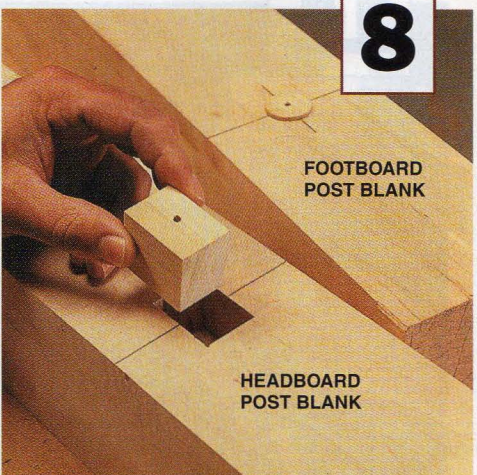
SQUARE THE CORNERS OF THE MORTISES cut with the headboard post jig. These mortises are for the headboard tenons. These tenons have no shoulders, so the mortises must be neat. Use a sharp chisel and cut into each corner from both sides.

7



PLUG THE HOLES, without glue, in the upper post section blanks before you begin turning. After the posts are turned, insert screws and pull out the plugs.

8

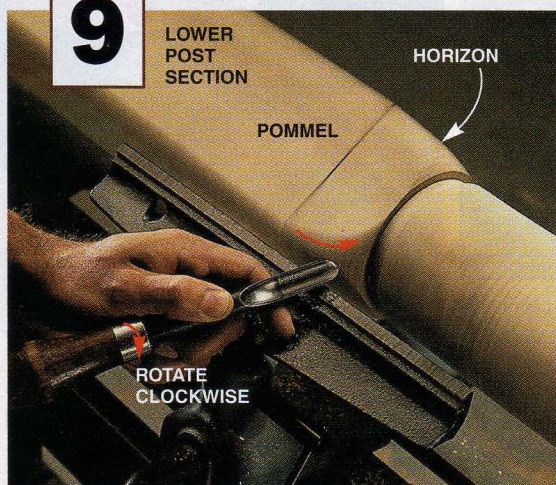


Turning the Posts

You only need four tools to turn the bedposts: two gouges, one for roughing the square blanks into cylinders and another for detail work, a parting tool and a skew.

9

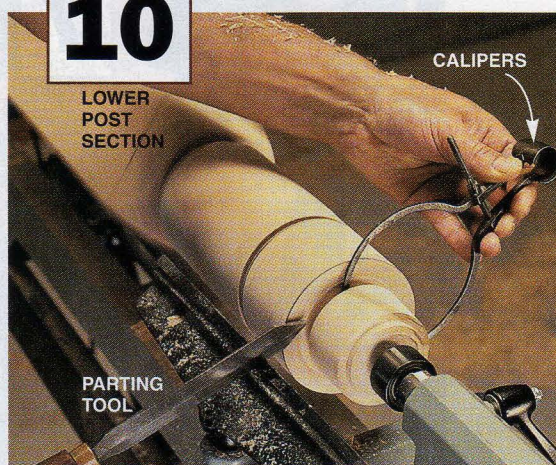
LOWER POST SECTION



ROUND THE POMMEL on the lower post section with a detail gouge. Make a series of rolling cuts. Start at the reference line, and work across the pommel, rotating the gouge clockwise as you cut into the center. To see the rounded shape you're making, watch the horizon of the blank as you make the cut.

10

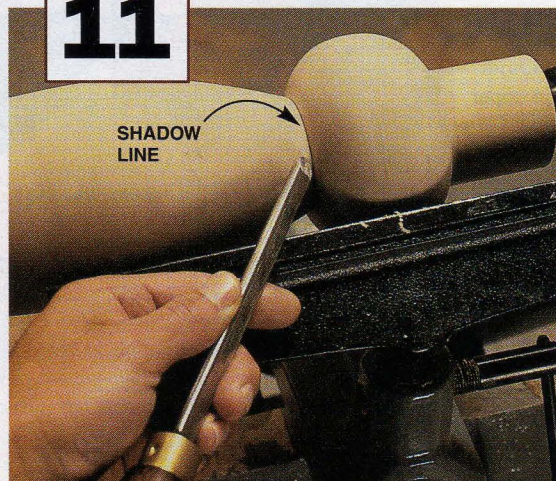
LOWER POST SECTION



CUT IN WITH A PARTING TOOL to establish critical diameters (see Figs. C through E, at right; and Figs. G and H, page 65). Don't make deep cuts with the parting tool—it'll overheat or get jammed and kick back at you. Instead, work down to small diameters in stages.

11

SHADOW LINE



DEFINE TURNED SHAPES with your skew chisel. Make a light V-cut to create a shadow line.

FIG. C HEADPOST UPPER SECTION

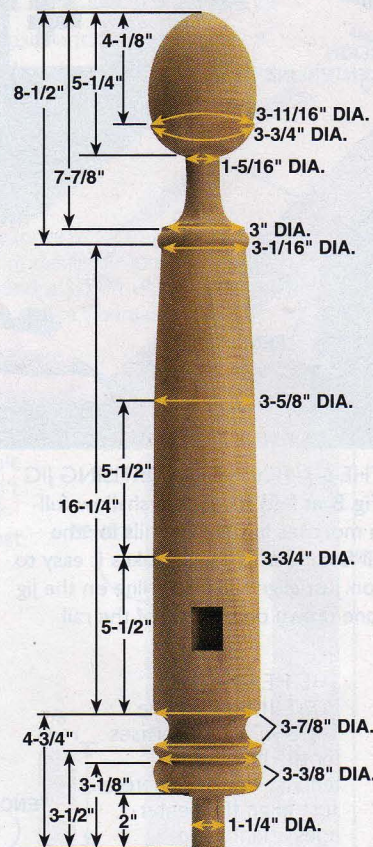
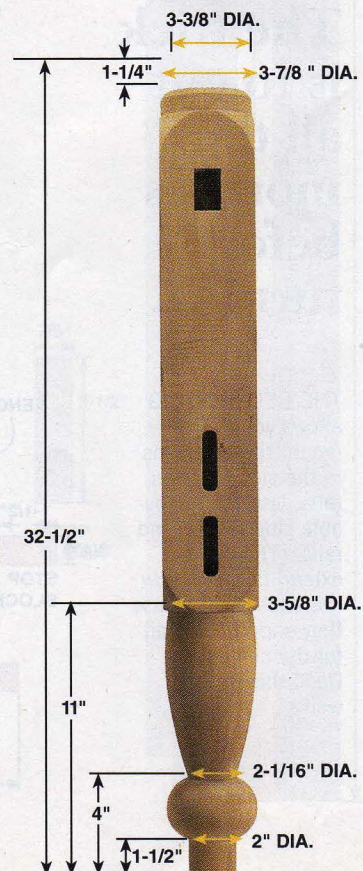


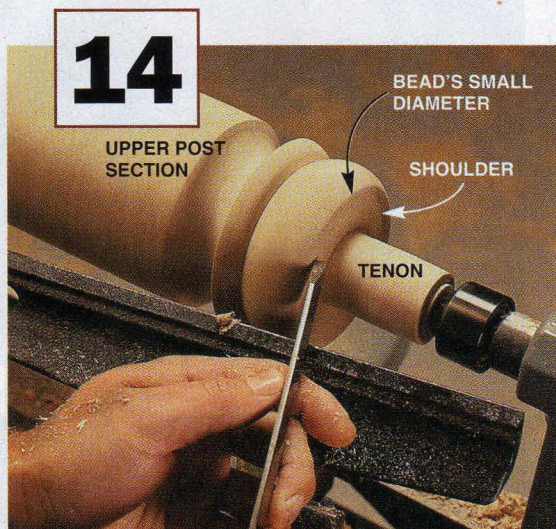
FIG. E HEAD- AND FOOTPOST



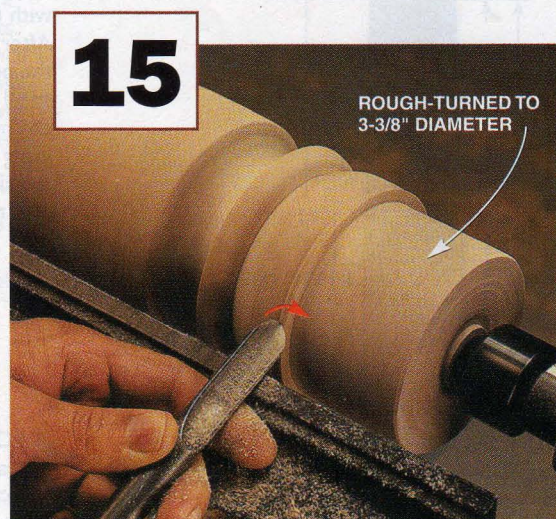


Turning the Posts and Blanket Rail

Turning a big chunk of wood down to small diameters requires a cautious approach. When you shape the tops of the posts, operate your lathe at a slow speed (500 rpm max.), use sharp tools and make light cuts. Don't turn all the way down to a small diameter in one shot. It makes the blank susceptible to spiraling, chattering or *breaking*. Leave the wood as big as you can as long as you can.



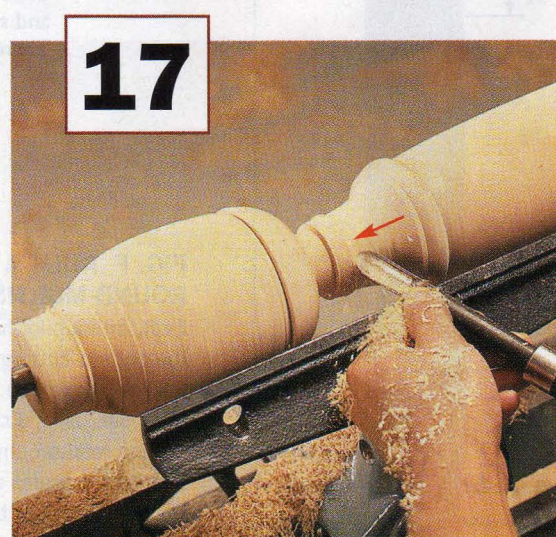
TURN A TENON at the bottom of each upper post section. Undercutting its shoulder assures solid contact and a tight fit with the lower section. Hide the joint by matching the small diameters of the bead on the upper section and the chamfer on the lower section (Photo 15).



STOP TURNING THE TENON at the small diameter shared by the bead and chamfer. Round the bead down to this surface. Then finish turning the tenon.



WORK THE TOP DOWN IN STAGES. First, establish two reference points; the bottom of the finial and the top of the neck (see Fig. C, page 62). Then alternate between roughing out the neck and the top of the finial, slowly reducing the diameters as you work back and forth.



WORK DOWNHILL, from larger to smaller diameter to shape the neck. Make a series of light passes and blend the shape with the already-established diameter at the top.

Making the Headboard

The headboard blank is huge and its thickness is critical. Because the headboard's tenons aren't shouldered, they have to fit the mortises in the posts precisely. It's best to leave the blank a little thick so you can fit these joints. For the same reason, it's a good idea to make the upper tenons a bit wider than the mortises (see Fig. K, below).

The headboard's wide, gently rolled top is easy to make. The trick is an additional piece, shaped separately and glued to the back.

FIG. J: HEADBOARD ROLL PATTERN
(full size)

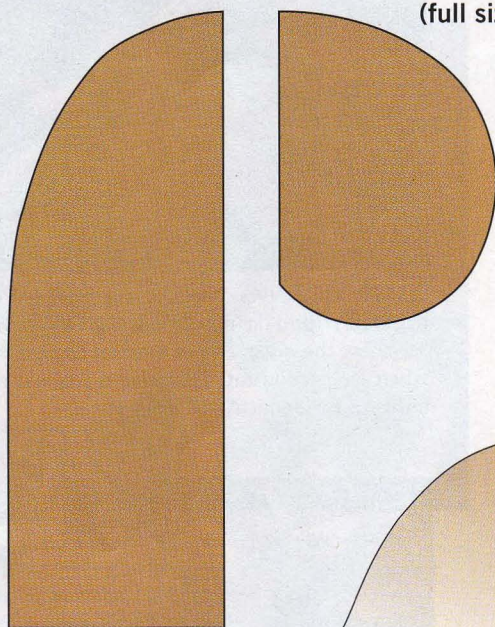


FIG. K: HEADBOARD PATTERN

Enlarge this pattern to full size (335 percent) at a copy center. Minor distortion caused by the enlargement process is normal, so make the necessary adjustments to your full-size pattern. Verify the critical dimensions; the widths and lengths of the tenons and the distance between them. Then adjust the location of the centerline and height, if necessary.

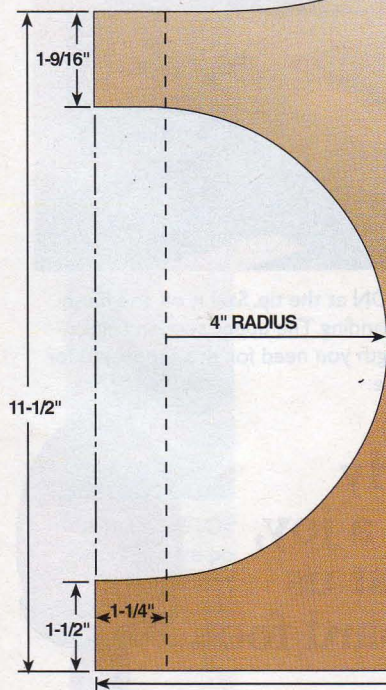
20



TEMPLATE

CENTERLINE

ROUT THE HEADBOARD'S PROFILE using a pattern-cutting bit (see Sources, page 69) with a top-mounted bearing and a template. After cutting the blank to exact width and length, attach the template and saw away most of the waste with a jigsaw—this piece is too big to horse around on your bandsaw. Rout one side, flip and realign the template. Then do the other side. Use the same template for the curves on the footboard.



21

ROLL
EXTENSION

This image shows the final step of the process. A person's hands are shown rolling the long, narrow extension of the paper into a tight coil. A pair of pliers is used to hold the end of the extension, while a small yellow tool is used to guide the rolling process. The text "ROLL EXTENSION" with an arrow points to the action.

22

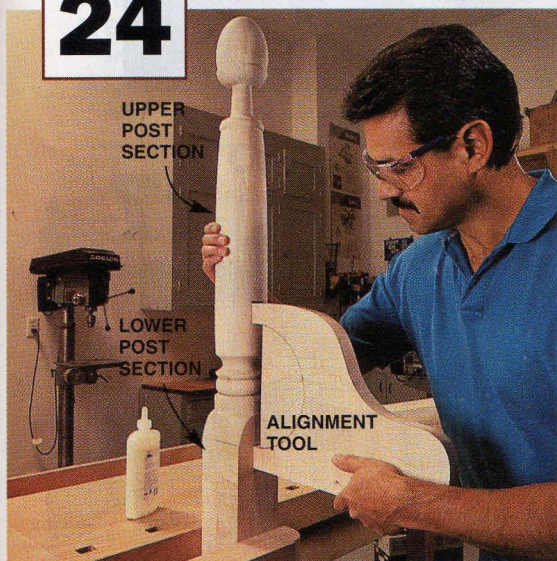
FACET

Then clamp

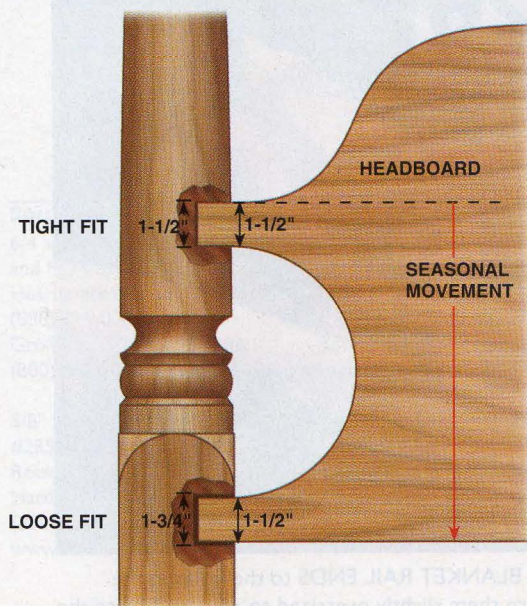
23

these beveled

24



The 23-in.-wide headboard is going to expand and contract as much as 1/4-in. over the course of a year. Fortunately, only its lower half is restrained by the joinery. Give this half room to move by elongating the lower mortises and leaving their tenons unglued. Use the headboard post jig when you elongate these mortises. Simply offset the jig by 1/8 in. on both sides of the centerline, clamp and rout.



Assembly (continued)

GLUE THE HEADBOARD END together. The end rail is wide enough to keep the assembly square if you center two clamps on it and tighten them evenly, a little at a time. Here's a tip to keep the headboard centered: Before gluing, draw lines 1-1/4-in. from the ends of the headboard's lower tenons. Then make sure it enters the posts at these lines when the bed is clamped together (inset photo).

25

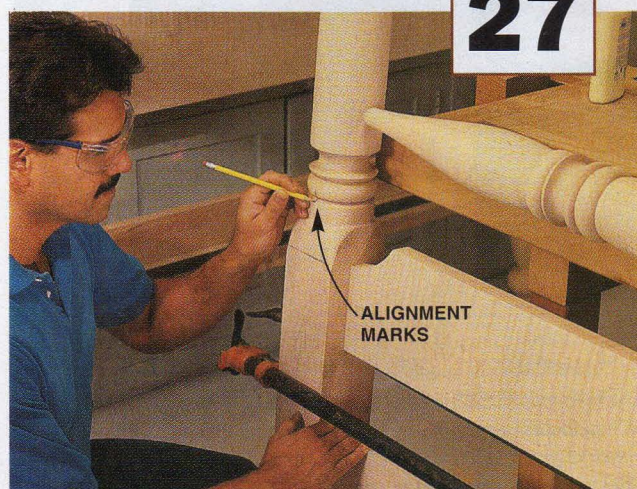


26



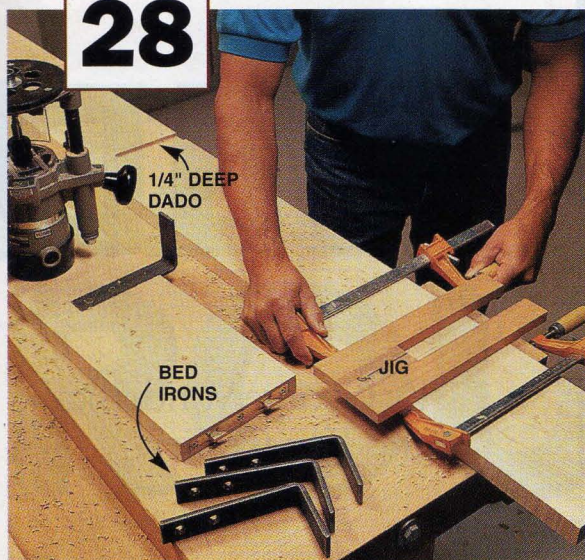
FIT THE BLANKET RAIL ENDS to the holes in the posts. Turn them slightly oversized so you can finesse the fit with sandpaper.

27



MARK THE FOOTBOARD POSTS for gluing. First glue the three pieces of the blanket rail together. Then dry clamp the entire assembly. Gently rotate the upper post sections to align the blanket rail with the footboard. Mark both sections of each post. Glue the posts separately, then glue the entire footboard assembly. Use four long clamps, two on each rail.

28



MOUNT THE BED IRONS after cutting dados in the side rails with the bed iron jig.

BRING OUT THE FIGURE!

- Use two applications of water-soluble dye. After the first coat is dry, sand it off. Although removed from the surface, dye will remain lodged in the figure which, just like end grain, is porous. When you put on the second coat of dye, the figure stands out because it has two coats of dye while the rest of the surface has only one.
- Apply a wash coat of dewaxed shellac. This seals the dyed surface and really brings the figure to life.
- Enhance the color, add depth to the finish, and accentuate shapes with an oil-base glaze.
- Allow adequate drying time, then apply your favorite topcoat. **AW**

CUTTING LIST

Overall Dimensions: 60" H x 65-5/8" W x 87" D

Part	Name	Qty.	Final Size	Blank Size
	Headboard Posts:	2	4" x 4" x 60"	4" x 4" x 65"
A	Upper	2	4" x 4" x 29-1/2"*	4" x 4" x 31"♦
B	Lower	2	4" x 4" x 32-1/2"	same as final
	Footboard Posts:	2	4" x 4" x 58-1/2"	4" x 4" x 63-1/2"
C	Upper	2	4" x 4" x 28"*	4" x 4" x 29-1/2"♦
D	Lower	2	4" x 4" x 32-1/2"	same as final
E	Headboard	1	1-1/8" x 23" x 60-1/8"‡	
F	Roll Extension	1	1-1/8" x 1-5/8" x 33-1/4"	
G	Footboard	1	1-1/8" x 7" x 57-5/8"	
	Blanket Rail:	1	3-5/8" x 3-5/8" x 59-3/4"†	same as final
H	Center	1	3-5/8" x 3-5/8" x 29-3/4"	
J	Ends	2	3-5/8" x 3-5/8" x 17"*	
K	End Rails	2	1-1/8" x 7" x 57-5/8"	
L	Side Rails	2	1-1/8" x 7" x 79"	
M	Center Rail	1	1" x 4" x 81-3/4"	
N	Center Leg	1	4" x 4" x 10"	same as final
	Loose Tenons:	12		
P	End Rails	8	1/2" x 2-1/2" x 2-7/8"	
Q	Footboard	4	1/2" x 1-5/8" x 2-7/8"	

* Includes 2" round tenon on bottom. ♦ Includes additional 1-1/2-in. for stub tenon on top.

‡ Includes 1-1/4" tenons on both ends. † Includes 1-1/16" round tenons on both ends.

29



A CENTER LEG supports the box spring. I used the bottom end of the practice leg I turned. Dados on the ends of the rail keep it on the bed hangers.



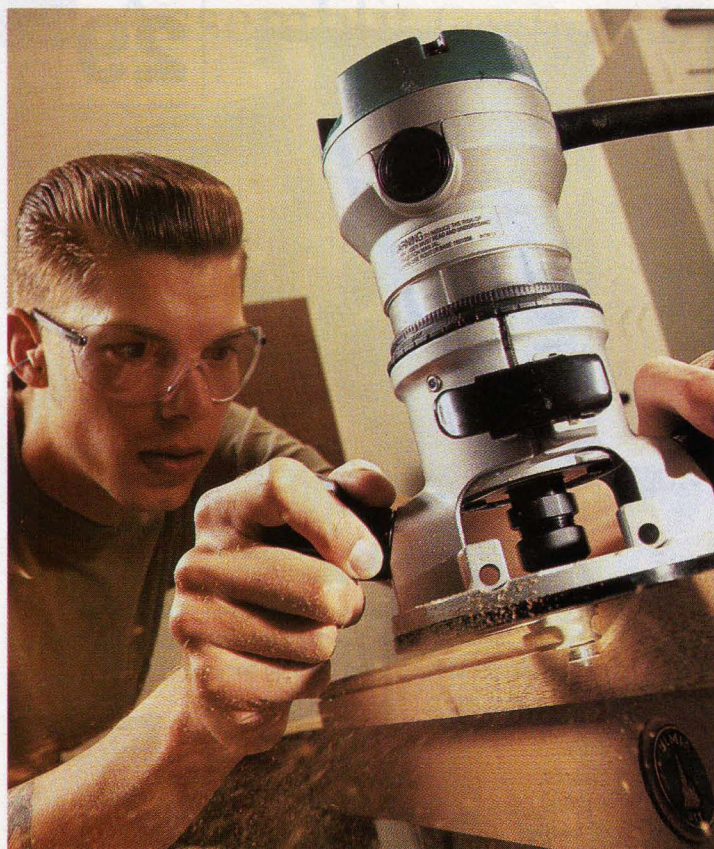
Sources

6/4 and 16/4 soft maple (plain and figured) and cherry:
Hearne Hardwoods
(888) 814-0007
Groff and Groff Lumber, Inc.
(800) 342-0001

5/8" x 6" Bedrail Fastener Set, #28597; \$13 (1 set required).
Rockler Woodworking and Hardware
(800) 279-4441,
www.rockler.com

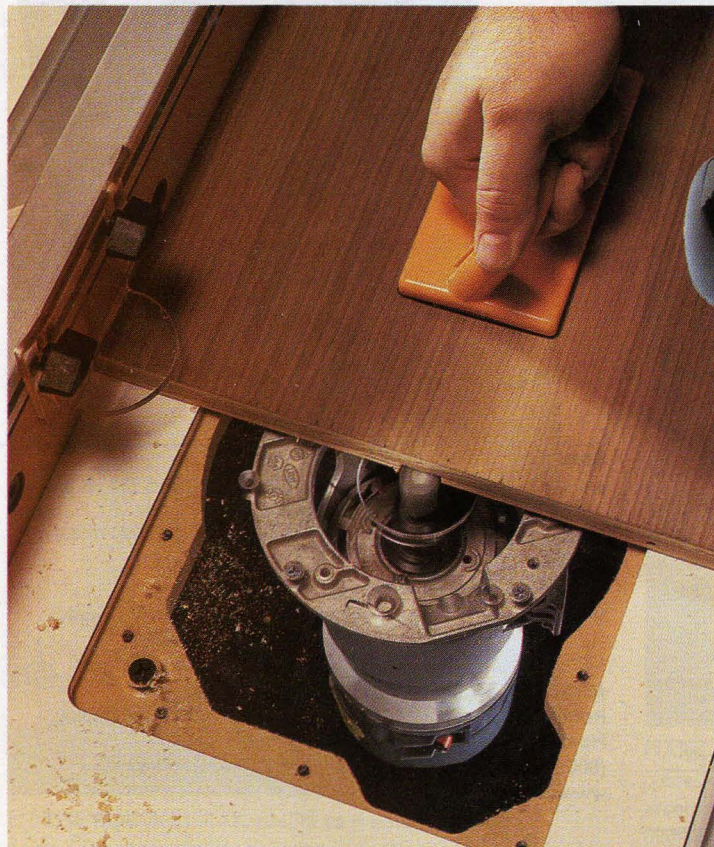
6" Bed Irons, # H-550; \$6 each (8 required).
Horton Brasses, (800) 754-9127

Router Bits
Large pattern bit (for headboard), #8809; \$24.
Small pattern bit (for post holes), #6506; \$15.
Up-cut spiral (for mortising), #7468; \$35.
MLCS, (800) 533-9298.



MID-

By George Vondrisk
and Ken Collier



*The new
generation of
general-purpose
routers really
shines!*

SIZE ROUTERS

A mid-size, fixed-base router is the workhorse of most shops. It's easy to handle and powerful enough for just about any task. Seasoned woodworkers find themselves picking one up every day, and for first-time router users it's almost always the best choice. We tested 17 models, and found, to our surprise, that some of our old favorites have been dethroned by a new generation of high-tech machines.

Mid-Size Fixed-Base Routers

By "mid-size," we mean tools in the 1-1/2 to 2-1/2 hp range. "Fixed-base" means that they don't have plunge capability, although the Porter Cable 690, our Best Buy choice, can be bought in a package that has both a fixed and a plunge base—a real deal.

Almost all of these routers can handle both 1/4-in. and 1/2-in. shank bits. They typically have the classic twin handles, although several have optional D-handles. Many models are extremely convenient for use in router tables.

FEATURES

Because these tools are used frequently, and in a wide variety of circumstances, flexibility and convenience are particularly important. The more tasks the machine can handle, and the better it feels to you as you do them, the better. And because these are basic tools, we looked for a high level of construction quality. This is not a tool to economize on.

Removable Base

Some routers have a base that can be removed from the motor. This has several advantages. It makes changing bits much easier, because you have complete access to the chuck. It also means you can upgrade your machine with additional bases, generally for less than \$50. For example, you can

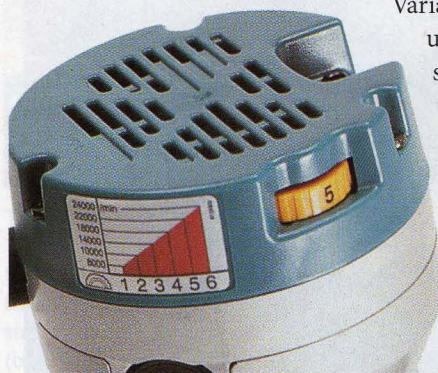
leave a base permanently attached to your router table, so when the time comes to use it, you simply insert the motor. Or, you can use a D-handle or plunge base with the same motor. Or, have one base permanently set up on a special jig, for operations such as mortising and flush-trimming.

The best arrangement for a removable base is one where the motor can't drop out when the router is hung upside down in a router table (see chart, page 74).

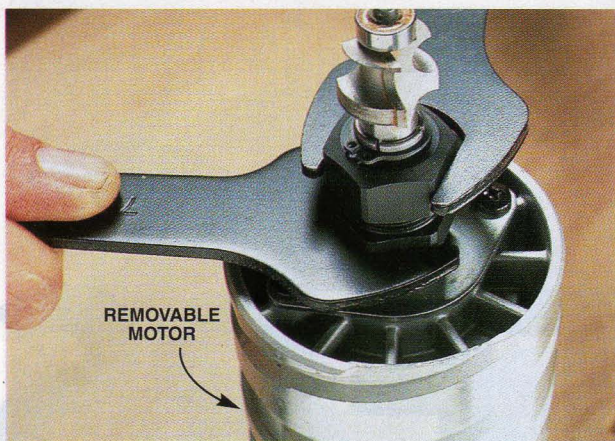
Variable Speed

Advances in electronic motor control have allowed manufacturers to offer routers with variable speed, without significant loss in power. These routers can handle larger diameter bits, like king-size round-over bits and panel cutters, that should be run at a slower speed for safety. The circuitry also gives the router a "soft start," gradually bringing the motor up to full speed. This eliminates the irritating tendency of the machine to jerk in your hands as it starts up.

Variable speed is a very useful feature for the small-shop woodworker, one that greatly increases the versatility of the router. It's been available on big and more expensive routers for years, and now Bosch and Makita



VARIABLE SPEED is the new and important feature of routers from Bosch and Makita. It allows you to use large-diameter bits safely by cutting down the speed. Power is not significantly affected.



A **REMOVABLE MOTOR** is one feature we particularly value. It makes changing bits much easier, especially when the router is used in a router table. You can also get a second base and leave it in your router table permanently.

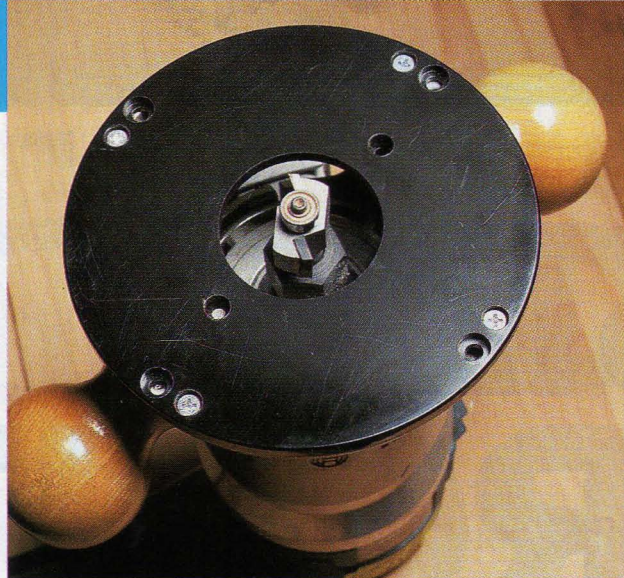
have added it to their mid-size routers. It is the one significant feature missing from several classic routers that we have used and loved for many years. These new variable-speed routers are better.

Big Hole in the Base

The hole in the plastic base of the router controls how wide a bit will fit through. Some machines have such small openings that even a 3/8-in. router bit, with its 1-1/4 in. diameter, will not fit through. And if, in desperation, you cut through the plastic to enlarge it, you can lose the ability of the base to accept template guide bushings. We prefer machines that are designed to accept wide bits, although you can, without much trouble, make auxiliary baseplates with larger openings. For router table use, the plastic baseplate is removed, so this isn't an issue.



THE **DEPTH-OF-CUT ADJUSTMENT** should allow very small changes and be very easy to use, especially in a router table, when you're working upside down. This one is the Bosch 1617 EVS.



A **LARGE BASE OPENING**, such as this one on the Bosch 1617, allows you to use the widest variety of bits. Some routers, for example, will not accept this 3/8-in. rabbeting bit without using an auxiliary base.

Versatile Collet Chuck

Routers are really pretty simple: a motor and a collet chuck for holding the bit. So, that chuck better be good. We greatly prefer chucks with removable collets that can handle both 1/4-in.- and 1/2-in. shank bits (and even the rarely encountered 3/8-in. and 8mm shanks). You should always use 1/2-in. shank bits when you have a choice; they are stiffer and less likely to break.

Power

All the routers have a nominal horsepower ratings (see chart, page 74), although you should take the numbers with a grain



POWER in this class ranges from 1-1/2 to 2-1/4 hp. The routers at the upper end of this range can handle aggressive cuts like this one, in thick hardwood. For frequent heavy cuts a 3-hp router is preferred.

D-HANDLE BASE

PLUNGE
BASE690
MOTORDUST COLLECTION
BASE

FIXED BASE



ACCESSORIES ARE IMPORTANT for a tool as versatile as a mid-size router. The Porter Cable 690, for instance, is uniquely versatile; it can be used with any of three bases, plus an effective dust collection subbase.

of salt. Each manufacturer uses a slightly different testing method when testing horsepower. You can use the amperage rating as an indication of power, but differences in motor efficiency make it less than precise.

In our shop tests of all these routers, we found the horsepower and amperage together to be a reliable index of how well the routers resisted bogging down with aggressive cuts. The Makita RD series and the Bosch 1617EVS and 1618EVS stood out in our qualitative testing for real-life power.

Template Guide Bushings

Guide bushings are the metal sleeves that can be locked into the base of the router for cutting with a pattern, making mortises with a jig and using a dovetail jig. They are essential accessories for your mid-size router.

All of the routers in this group accept guide bushings, but the Porter Cable two-piece guide bushings (see photo, at right) are very easy to use and have become a common home center item. Several manufacturers' machines accept the Porter Cable bushings, and this is a positive feature. Unfortunately, the opening in the router base needed to accept these bushings is fairly small (1-3/16-in.) so you'll need an auxiliary base for use with larger bits. The Bosch 1617EVS stands out in this area because it has a large base opening, and an adapter (#RA1100, \$15) which allows it to accept Porter Cable guide bushings.

Noise Level

Routers are noisy tools, and their high-pitched racket is particularly irritating (and dangerous!). One manufacturer, Makita, has addressed this problem, and their new line of routers is significantly more pleasant to use than the others. We measured decibel level, but that alone doesn't capture the



QUIETER ROUTING FROM MAKITA

Routers are certainly versatile, but nobody would call them pleasant to operate. The new Makita routers, however, are significantly quieter and less shrill. With hearing protection on (it's still recommended) using this router can actually be pleasant.

difference in this machine (see chart, page 74). The range of pitches on the new Makita routers sounds lower and less grating—the way other routers sound when you have hearing protection on. You still need to wear hearing protection with the new Makita machines, and when you do, using these routers is downright pleasant.

Fine Depth-of-Cut Adjustments

Some machines make it easy to make very fine depth-of-cut adjustments. This is crucial for some operations, like using rail-and-stile cutters in a router table.

There are many different depth control arrangements on these machines, so we approached this feature by having a group of independent testers, a mix of seasoned and brand-new woodworkers, handle the machines and rate them. The results are in the chart on page 74.



TEMPLATE GUIDE BUSHINGS

These are a must-have accessory. Some of the better bushings, however, like this two-part Porter Cable system, require a small base opening. You will need an auxiliary base to use even medium-size bits like a 3/8-in. rabbeting bit. The Bosch 1617EVS router (below) gives you the best of both worlds with a large base



opening and an adapter (\$15) that allows you to quickly attach the readily available Porter Cable bushings.

MID-SIZE FIXED-BASE ROUTERS

Manufacturer and Model #	Price	Amps	Manuf. Stated HP	RPM	Removable Base?	Will Motor Fall From Base When Loose?	Collets (in inches)	Self-Releasing Collet?	Quality of Micro Adjust	Opening in Subbase (in inches)	Switch Location Constant?	Notes
Bosch I617 B	\$160	11	1-3/4	25,000	Y	N	1/4, 1/2, 3/8 and 8 mm available	Y	Excellent	2, 1-3/4 with bushing retainer	Y	Low
Bosch I617EVS	\$209	12	2	8,000 to 25,000	Y	N	1/4, 1/2, 3/8 and 8 mm available	Y	Excellent	2, 1-3/4 with bushing retainer	Y	Low
 Bosch I618EVS	\$210	12	2	8,000 to 25,000	Y	N	1/4, 1/2, 3/8 and 8 mm available	Y	Excellent	2, 1-3/4 with bushing retainer	Y	Low
Craftsman I75040	\$60	8	1-1/2	25,000	N	N	1/4 integral to shaft	N	Good	1-1/2	Y	Med
Craftsman I75050	\$80	8.5	2	15,000 to 25,000	Y	N	1/4 integral to shaft	N	Good	1-1/2	Y	Low
Craftsman I75060	\$100	9	2	15,000 to 25,000	Y	N	1/4 integral to shaft	N	Good	1-1/2	Y	Med
Craftsman 275000	\$130	9	2	25,000	N	N	1/4, 1/2	N	Good	3	Y	Med
DeWalt DW610	\$170	9	1-1/2	25,000	Y	Y	1/4, 1/2	N	Fair	1-3/16	Y	Med
Makita RD I100	\$210	11	2-1/4	24,000	Y	N	1/4, 1/2	Y	Good	1-3/16	Y	Very
Makita RF I100	\$190	11	2-1/4	24,000	Y	N	1/4, 1/2	Y	Good	1-3/16	Y	Very
 Makita RD I101	\$230	11	2-1/4	8,000 to 24,000	Y can be unplugged from handle	N	1/4, 1/2	Y	Good	1-3/16	Y	Very
Makita RF I101	\$210	11	2-1/4	8,000 to 24,000	Y	N	1/4, 1/2	Y	Good	1-3/16	Y	Very
Makita 3601B	\$220	8.5	1-3/8	23,000	Y, but tethered by cord to handle	Y	1/4, 1/2 1/4 is a 1/2 to 1/4 reducer	N	Good	1-1/2	Y	High
Milwaukee 5660	\$240	10	1-1/2	24,500	Y if stop screw is removed	N if stop screw is in place	1/4, 1/2 same nut with different collet	Y	Good	1-1/4	Y	High
Milwaukee 5680	\$250	12	2	26,600	Y if stop screw is removed	N if stop screw is in place	1/4, 1/2 same nut with different collet	Y	Good	1-1/4	Y	High
 Porter Cable 690	\$160	10	1-1/2	23,000	Y	N	1/4, 1/2 3/8 available	Y	Good	1-3/16	N	Med
Porter Cable 691	\$180	10	1-1/2	23,000	Y	N	1/4, 1/2 3/8 available	Y	Good	1-3/16	Y	Med
Ryobi R180	\$150	9	2	25,000	N	N	1/4, 1/2 screw collet in and out	N	Good	2-1/2	Y	High
Ryobi RE185	\$170	9.5	2-1/4	25,000	N	N	1/4, 1/2 screw collet in and out	N	Good	2-1/2	Y	Low

* All routers require hearing protection.

Weight (in lbs.)	Comments	Contact
15.5	Includes adapter for guide bushings. Switch position doesn't change relative to base.	(877) 267-2499 www.boschtools.com
15.5	Includes adapter for guide bushings. Switch position doesn't change relative to base.	(877) 267-2499 www.boschtools.com
15.5	Includes adapter for guide bushings. D-handle base.	(877) 267-2499 www.boschtools.com
15.5	Onboard wrench storage. Work light inside base.	Sears retailer www.sears.com/craftsman
15.5	Onboard wrench storage. Work light inside base.	Sears retailer www.sears.com/craftsman
15.5	Onboard wrench storage. Work light inside base. 1-1/2" dust port.	Sears retailer www.sears.com/craftsman
15.5	Work light inside base. Large holes in base for table mounting. Remove small screw from bottom of collet to change collets.	Sears retailer www.sears.com/craftsman
15.5	Switch position doesn't change relative to base.	(800) 4DEWALT www.dewalt.com
15.5	Same as RD 1101 but without variable speed.	(800) 4MAKITA www.makitatools.com
15.5	Same as RF 1101 but without variable speed.	(800) 4MAKITA www.makitatools.com
15.5	Could be put into twin-handle base and used with extension cord. Two-position, left-hand handle.	(800) 4MAKITA www.makitatools.com
15.5	Can be swapped into D-handle base.	(800) 4MAKITA www.makitatools.com
15.5	Large holes (unthreaded) through base for mounting in router table.	(800) 4MAKITA www.makitatools.com
15.5	Switch position doesn't change relative to base. Requires torx driver to remove subbase. Must remove base or subbase from router to install guide bushings.	(262) 781-3600 www.mil-electric-tool.com
15.5	Switch position doesn't change relative to base. Requires torx driver to remove subbase. Must remove base or subbase from router to install guide bushings.	(262) 781-3600 www.mil-electric-tool.com
15.5	Switch rotates with motor. Can be swapped with D-handle and plunge base.	(800) 487-8665 www.porter-cable.com
15.5	Same motor as 690, with D-handle base.	(800) 487-8665 www.porter-cable.com
15.5	Work light inside base. Large holes in base for table mounting.	(800) 323-4615 www.ryobi.com
15.5	Work light inside base. Large holes in base for table mounting.	(800) 323-4615 www.ryobi.com

Accessories

These mid-size routers can be the most versatile machines in your shop. A good selection of accessories will make this happen: Extra bases (fixed-handle, plunge, D-handle); easy-to-use template guide bushings; solid and easy-to-adjust fences; and dust collection. Only the Porter Cable 690 hits a home run in this department, and we wish that other manufacturers would follow suit.

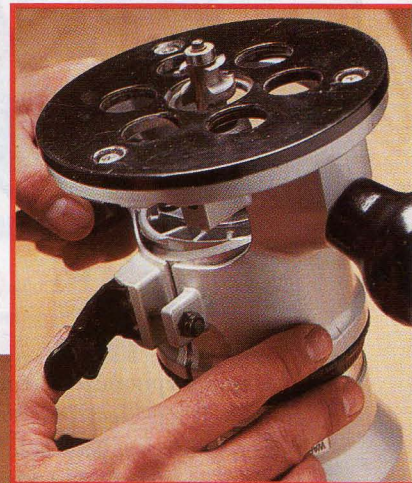
Minor Convenience Features

There are a few features which, though hardly essential, add to the convenience and good "feel" of the tool. And because you handle a mid-size router a lot, they do make a difference.

One we like is a lever lock on the motor housing. Most machines have a wing nut that you turn to lock the motor height. The lever lock is positive, easy and fast.

Switching position is another small matter, but one that affects convenience. Some machines have the switch in a constant position in relation to the handles. You always know where it is, which is convenient for some operations when you want to keep your eyes on the bit while you turn the router off. And most, but not all, routers have self-releasing collets. These help keep bits from getting stuck in the chuck, an irritating problem.

CONVENIENCE FEATURES, though they don't affect performance, are important in a heavily used tool like this. SELF-RELEASING COLLETS, a relatively new convenience feature, help prevent bits from getting stuck in the chuck. And LEVER LOCKS are a handy improvement to the traditional wing-nut knuckle banger.

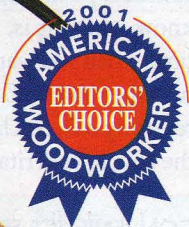


Our Recommendations

Appealing as their price is, we do not recommend the two smaller Craftsman routers, because they do not accept 1/2-in. shank bits. The Ryobi routers are good machines for hand held use, with large holes in their bases, but the motor does not separate from the base, which makes them much less convenient for router table use.

The Milwaukee and DeWalt machines are tried-and-true routers that have given many of us years of excellent service. However, the DeWalt has a fairly coarse depth-of-cut adjustment and the Milwaukee, though it has a reputation for endurance in production settings, is fairly expensive, and lacks features that matter in the small shop. Neither the DeWalt nor the Milwaukee have variable speed, for example, which we consider an important feature.

Our three recommended routers are:



Editors' Choice: Bosch 1617 EVS

This router epitomizes the new breed of mid-size routers. It has electronic variable speed, lots of power, soft start, a large hole in the baseplate, comfortable handles (wood, bless them!) and a lever lock for the motor. The magnesium housing makes this router one of the lightest and easiest to handle in the bunch. The well-engineered micro-adjust device for depth-of-cut makes this router extremely good for router table use. All in all, a great router. The price is around \$209.



Best Buy: Porter Cable 690

The Porter Cable 690 is another traditional design that has proven itself in use. It lacks variable speed, and the small opening in the base, which will not accept even some common bits like a 3/8-in. rabbeting bit, is a pain. However, the price is good (\$160) and this machine stands out because of the optional plunge base (\$89). In fact, one of the best deals on mid-size routers is the combination package that Porter Cable offers; one 690 motor, one fixed base and one plunge base for around \$209. There is also the dust collection accessory (\$45) which we use with great success in our own shops, and is unique to the Porter Cable 690.

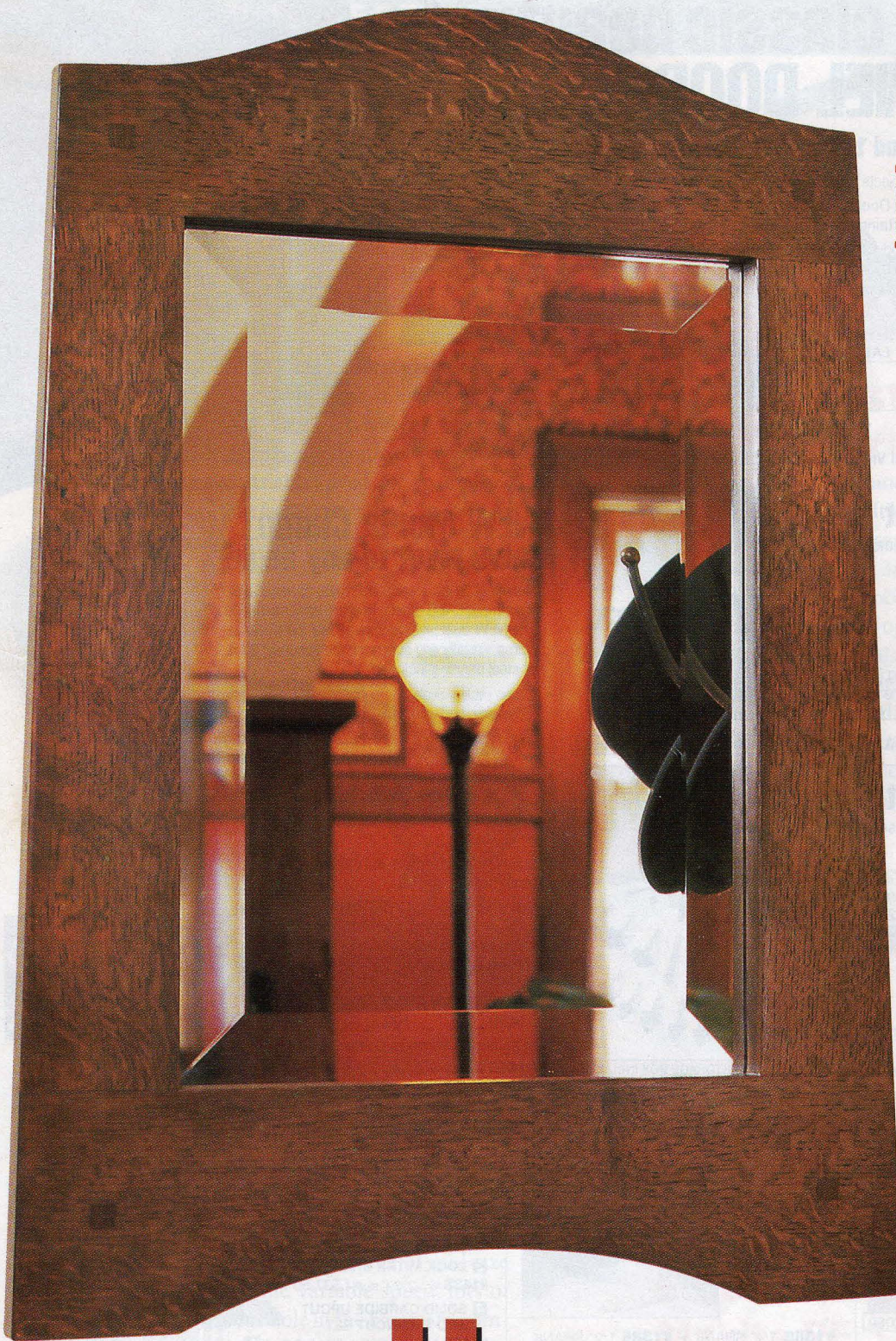


Editors' Choice: Makita RF 1101

This is the other mid-size router with electronic variable speed, and it also has lots of power and the convenience of a lever lock. On the downside, it has that darn small hole in the base. However, it's the low noise level that we love about this machine. You have to hear it to appreciate it.

The price for this quiet routing is \$210.

AW



Made of quartersawn white oak, with lines and a finish that give it an Arts and Crafts look, this mirror could pass as an heirloom from grandma's attic. Just follow our step-by-step directions and you'll be hanging your new mirror by next weekend.

Expect to spend about \$80 for the wood and a beveled mirror.

Hall Mirror

by Randy Johnson

FIG. A HALL MIRROR EXPLODED VIEW

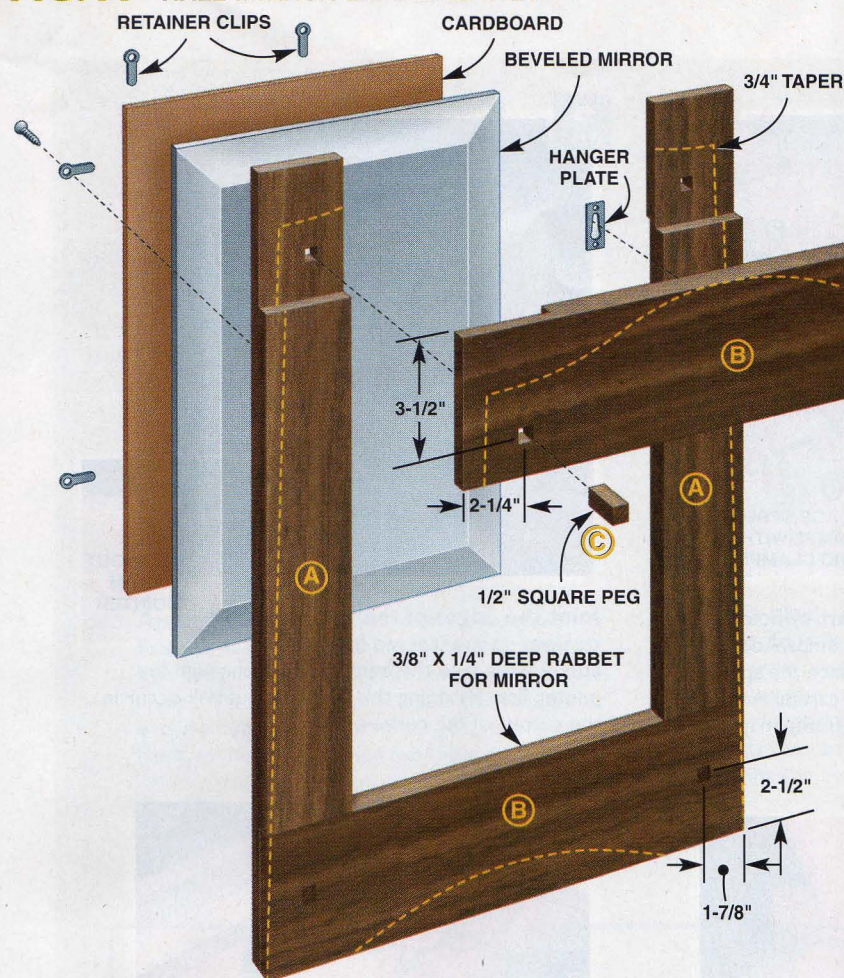
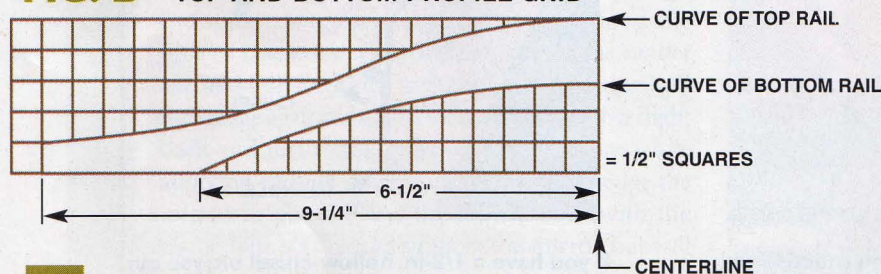
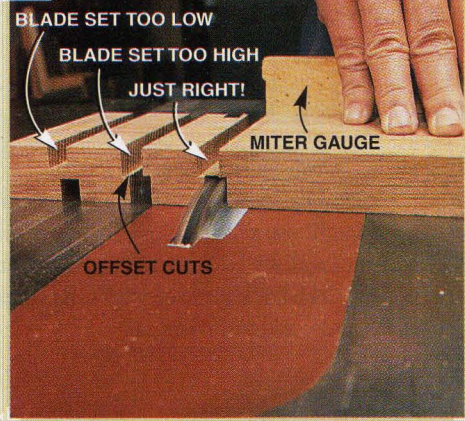


FIG. B TOP AND BOTTOM PROFILE GRID



1



Make test cuts to set the depth-of-cut for the lap joints. Make one pass on a piece of scrap that's the same thickness as your frame material. Then flip the test piece over and make another pass. Offset cuts allow you to determine the necessary adjustments even if the blade is set too high. Adjust the blade depth until the two cuts just meet.

Build the Frame

1. Start by milling the rails and stiles to size. Cut the lap joints with a dado blade and an accurately set miter gauge (Photo 1).

2. With the lap joints cut, dry clamp the frame to make sure all the parts fit properly. Then glue and clamp the frame (Photo 2).

3. When dry, remove the clamps and sand flush any variation at the joints.

4. Next, lay out the side tapers, the curves and the locations for the pegs (Figs. A and B). Cut the side tapers on the bandsaw and clean up the tapers on the jointer (Photo 3).

5. Bandsaw the top and bottom curves and sand smooth.

6. Chuck a 1/2-in. bit into your drill press and drill out the centers for the four pegs.

7. Finish chopping the through mortises with a 1/2-in. chisel (Photo 4).

8. With the mortises cut, mill the pegs 1-1/8-in. long. Pound them in place with a little glue and sand off flush.

9. Using a 3/8-in. rabbeting bit with a bearing, cut the rabbet for the mirror.

10. Chisel the corners square and take measurements for the mirror. Allow for a 1/16-in. gap all around. Most hardware stores that sell glass and mirrors can custom order a beveled mirror to your dimensions.

The Finish

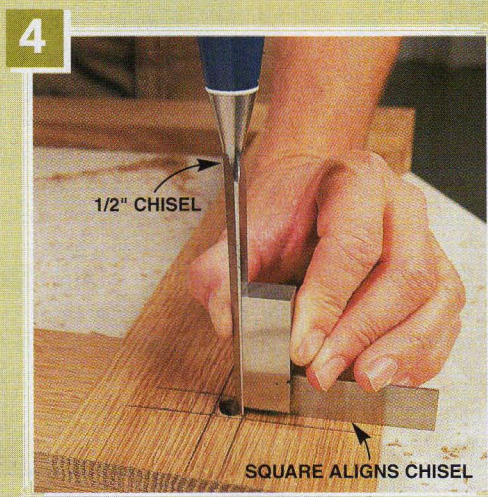
For that "seasoned" look we used Old Growth Solutions' Fumed Oak stain. It's an easy-to-use, two-part product that goes on like water with no strong smell (Photo 5). This product does raise the grain, so we suggest pre-raising the grain with a moist rag. Let the wood dry and lightly sand off the high spots. It's best to wear gloves for the final sanding because fingerprints left on the surface of the wood can react with the solution producing a blotchy look.



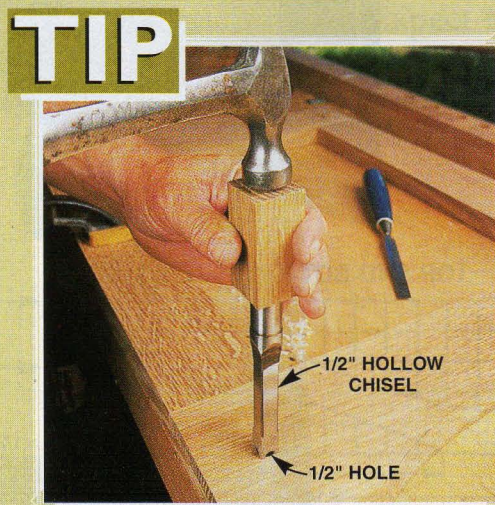
Clamp the glued-up frame. Start by holding the glued joints together with spring clamps. Add bar clamps to pull the joints tight. Replace the spring clamps with hand or C-clamps. Be careful not to overtighten the bar clamps or the frame may bow.



Joint the edges of the frame to clean up the tapered bandsaw cuts. Always feed the frame bottom through the jointer first. By doing this, any blowout will occur in the cutout of the curve on top.



Finish chopping the through mortise with a 1/2-in. bench chisel. Use a square to help align your chisel for a straight cut.



If you have a 1/2-in. hollow-chisel bit, you can use it to cut the peg mortises. Drill out a block of wood to protect the end of the chisel. The hollow chisel is a handy tool for squaring the rabbet in the back of the mirror, too.

Let the stain dry overnight. Old Growth Solutions' stain is compatible with any finish, but for a quick, hand rubbed look we used black wax as the final finish (Photo 6). Black wax colors the pores and gives the frame a mellow antique look.

The Hang Up

Back the mirror with a couple layers of matte board or a layer of corrugated cardboard and secure with eight panel retainer clips. Then, add a wall hanger to the back of the top rail. These items can be mail ordered (see Sources, at

right) or may be available where you bought the mirror. Now find a prominent wall on which to hang your mirror. Step back and see who's the finest woodworker of them all!

5



Apply Old Growth Solutions' two-part, Fumed Oak stain with a synthetic brush. The activator solution goes on first. After it dries, apply the catalyst solution. Use a clean brush for each solution. Be sure to wear gloves or your hands will end up looking like "fumed oak."

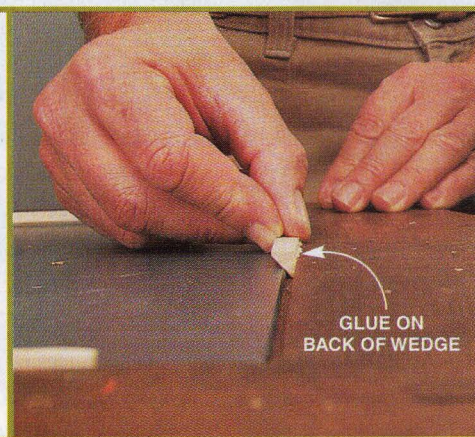
6



Apply black wax for a quick, hand-rubbed finish. To make black wax, mix one part black shoe polish with three parts paste wax. Apply three or four coats of this mixture onto the stained wood. Let the wax dry between applications and buff out each coat before applying the next.

Oops!

Our mirror was a bit undersized, so we used a neat trick that keeps the mirror centered in the opening. Cut some triangular wedges out of a soft wood like pine or basswood. Center the mirror in the rabbet and add a touch of glue to the back of the wedge. Rub the wedge against the edge of the rabbet with a slight back and forth motion to set the glue joint while applying enough downward pressure to wedge the mirror in place. Plane the blocks flush with the frame. The soft blocks support the mirror, but will compress if the frame expands.



Cutting List

Overall Dimensions 28" H x 20" W x 1" D

Part	Qty	Dimensions	Name
A	2	1" x 3-1/2" x 28"	Side stiles
B	2	1" x 5" x 20"	Top & Bottom Rails
C	4	1/2" x 1/2" x 1-1/8"	Pegs*

*includes extra length for sanding off

Sources

Hearne Hardwoods, Inc., (888) 814-0007
Quartersawn white oak.

Woodworker's Supply, (800) 645-9292
Picture frame hardware (retainer clips for mirror),
#882-560; pkg. of 10; \$3.65.
HD hanger plate: item #893-459; pkg. of 10; \$4.
Old Growth Solutions, Fumed Oak,
#916-927; 8-oz. kit; \$11.

Trend-Lines, (800) 767-9999, www.trend-lines.com
Rabbeting bit, 1/4" shank, #CT1086K; \$15.
1/2" shank, #CT1087K; \$16. **AW**

Router Moldings

Tips on safely making clean-cut moldings for your home and projects.

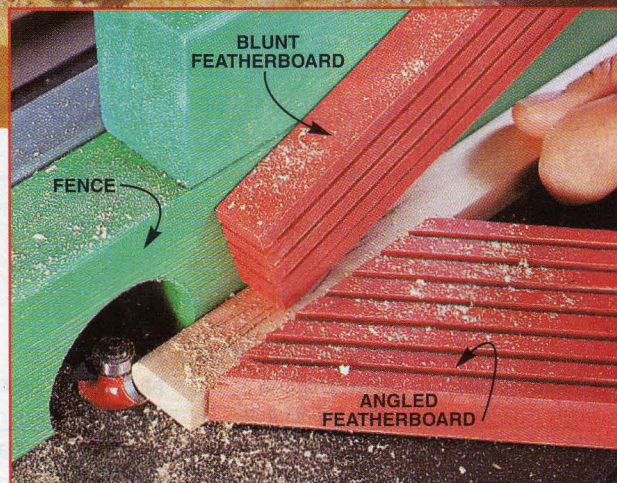
By
Dave Munkittrick
and **Dave Radtke**

Scallop-Free Moldings

Once I bought a router and a tablesaw, I could hardly wait to make new trim moldings for my house. My enthusiasm soon waned as I spent hours sanding out all the unwanted bumps and irregularities caused by uneven hand pressure. After I showed a buddy my raw fingertips he showed me his featherboards. Wow, what a difference! Now all of my moldings have a clean profile that runs the whole length of the stock.

Featherboards work because unlike you, they never let go. They consistently hold your stock firmly against the fence and the router table for clean, scallop-free moldings.

Featherboards are nothing more than pieces of straight-grained, 3/4-in. stock with 1/4-in. to 1/2-in. wide fingers cut in them. The ends are cut square or at an angle. The blunt end



provides single-point pressure and can be used at any angle. Angled featherboards apply pressure over a broader area.

Now I'm cranking out moldings that require little or no sanding.

Feed Right to Eliminate Burning

Even a brief pause to reposition your hands while feeding stock can result in a nasty burn mark on a strip of molding. Sanding out a burn is a tedious job that you can avoid. The trick is to maintain a steady feed rate. Here's how: Position yourself so you can push the stock all the way through with one continuous motion. Let a pair of featherboards hold the stock while you keep up an even hand-over-hand feed rate. Keep a push stick within easy reach so you can finish the cut without the "pause that burns."



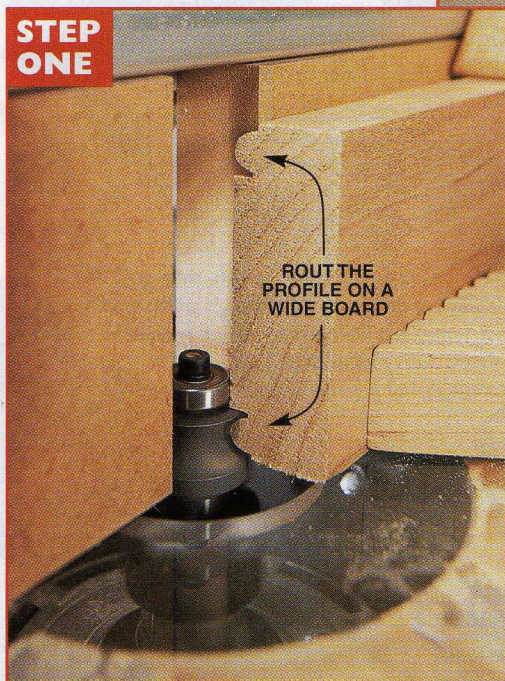
A Safe Way to Cut Small Moldings

It's hard to keep thin stock from chattering while its being cut on a router table. For narrow strips like this bead molding, it's safer and easier to rout the profile first on a wider board (photo below), then rip the shaped edge off on the tablesaw (photo at right).

STEP TWO



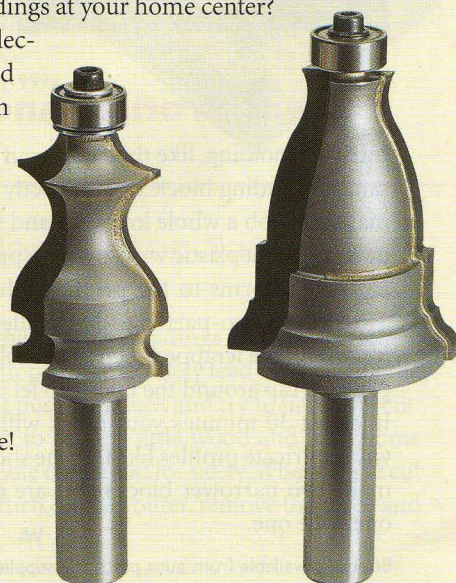
STEP ONE



Vertical Molding Bits

Are you frustrated with the crummy selection, quality and price of manufactured moldings at your home center? If so, check out the wide selection of router bits designed so you can make your own moldings. These bits cut on the vertical, not the horizontal, so you don't have huge cutting wings spinning at a million miles an hour. Consequently, these bits are safer to use and don't require a variable-speed router or a 4-in. hole in your router table!

Molding bits available from Eagle America, (800) 872-2511 and MLCS, (800) 533-9298.

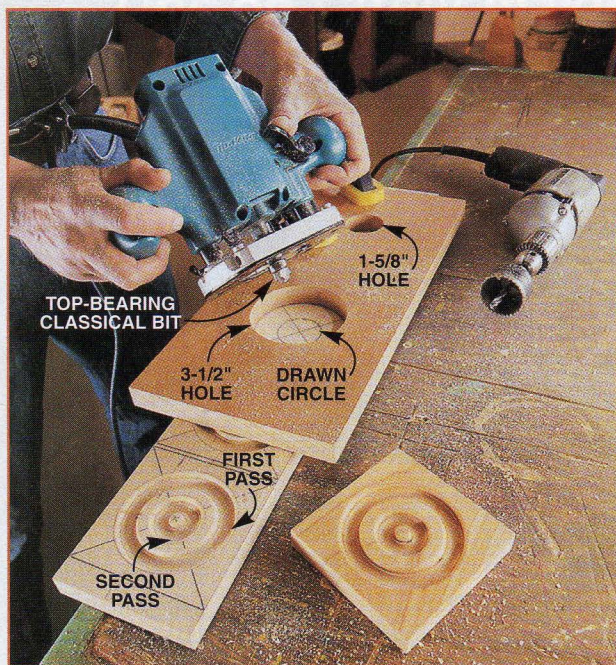
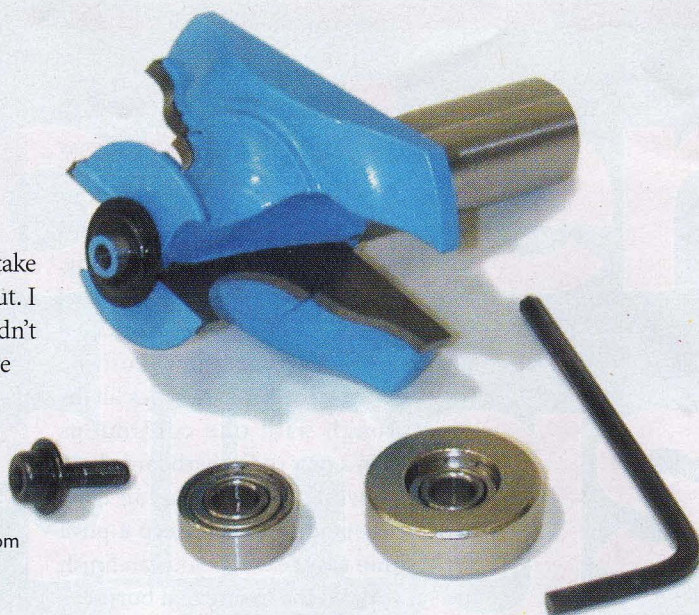


Router Moldings

Use Oversized Bearings for First Cut

When cutting moldings with a hand-held router I always take a shallow cut first, then lower the bit for a full-depth cut. I recently bought a molding bit with a profile that wouldn't allow this procedure. The bit was way too big for a single pass and the molding stock was too long to do on my router table. Solution: I fit the bit with a larger bearing to make the first cut. Then I replaced the original bearing for the final cut. Perfect!

Bearings cost \$4 to \$10 depending on the size and are available from Eagle America, (800) 872-2511; MLCS, (800) 533-9298; and Woodworker's Supply, (800) 645-9292.



Router-Made Bull's-Eye Blocks

A plunge router, a top-bearing classical bit and a couple of hole-saws are all you need to make perfect bull's-eyes every time. Use the holesaws to cut the 3-1/2-in. and 1-5/8-in. holes in the jig.

You can get four corner blocks from a 4-1/4-in. by 20-in. board. Mark off each square as shown in the photo. Then use a compass to mark concentric 3-1/2-in. and 1-5/8-in. circles at each center. Clamp the jig over the workpiece so the large hole lines up with the large circle on the workpiece. Set your plunge router for a 3/16-in.-deep cut. Make a clockwise pass, then set the depth to 7/16-in. and make the final pass. Next, flip the jig over and align the small hole with the inner ring of the bull's-eye and rout. Repeat the process for all four blocks.



Classical Plunge Pattern Bit available from Grizzly Industrial, (800) 523-4777, # C-1680; \$25.

Perfect Profile Sanding Block

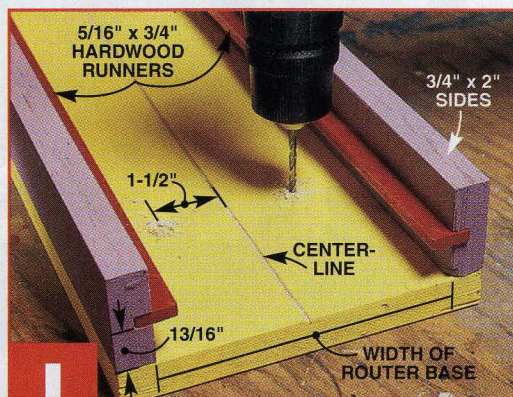
Intricate molding, like this piece, can be a real chore to sand. A sanding block that perfectly matches the profile makes the job a whole lot easier and faster. Here's how to make one: Put plastic wrap over the profile. Make sure the plastic conforms to the profile without any wrinkles. Then mix a two-part auto-body filler, like Bondo, and place it on the wrapped section of molding. Fold the extra plastic wrap around the filler and let it harden into a block. In about 30 minutes your block will be ready to use. For wide, intricate profiles like the one shown, you may want to make two narrower blocks that are easier to handle than one wide one.

Bondo is available from auto parts and supplies stores.

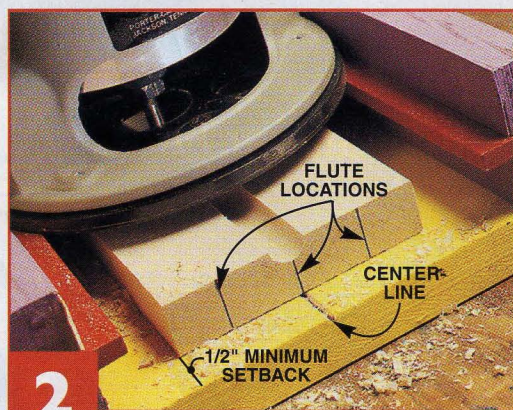


Routing Fluted Moldings

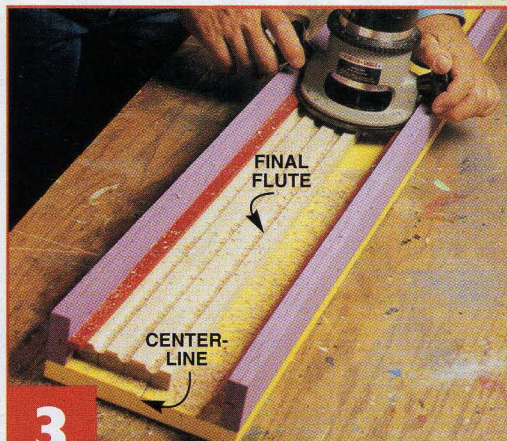
Routing a fluted molding on a router table or with an edge guide is tricky. One slip (usually on the last flute) and your piece is ruined. This neat jig will have you churning out perfect flutes every time. It can handle stock up to 13/16-in. thick and 3-1/2-in. wide or modify the design for larger stock.



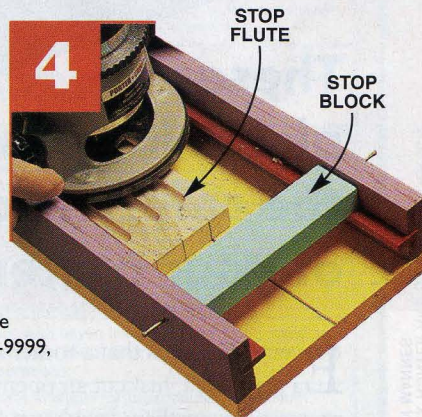
1 Build the jig to fit your router base exactly. Make a light scoring cut down the middle of the base as a centerline. Lay out and drill holes for the hold-down screws so they fall between the flutes. This avoids any unpleasant contact between the screws and the router bit.



2 Cut the flutes with a 1/2-in. core-box bit. Start by marking the flute locations on the ends of your piece and align the centerline with the center flute mark. Install the hold-down screws and rout the first flute taking a shallow cut followed by a full-depth cut.



3 Cut the outside flutes by repositioning the workpiece to the other side of the jig.



4 Nail a stop block between the sides of the jig for stop flutes.

1/2-in. Core-Box Bit available from Trend-Lines, (800) 767-9999, # CT1032K; \$12.



Leave a Handle for Safer Routing

When you're cutting delicate moldings and using featherboards it's almost impossible to safely feed the stock all the way through. Don't push your luck and try to finish the cut. Sometimes it's best to waste a little wood and leave some extra stock as a handle on the end for safety. When you've cut as far as possible, turn off the router, remove the piece and cut off the handle. **AW**

Router Table Plates

By Jennifer Feist

These plates increase the safety and versatility of your router table.

Everyone agrees that a router mounted under a table is a great idea. Just cut an opening for the bit, attach the router underneath and you're set (Photo 1). So why spend the extra dough on a router table plate? In a word: versatility. Router table plates allow you to pop the router in and out of the table for bit changes *and* hand-held work (Photo 2). In addition, router table plates:

- use concentric-ring inserts to safely accommodate different-size bits (Photo 3)
- come with starting pins for working without a fence
- accept template guide bushings for template routing (Photo 3).

Router table plates allow you to pop the router in and out of the table for easy bit changes.

The Field

For this test we looked at plates with insert rings that can accept guide bushings and starting pins. All the plates we tested can be made to work well, but here are a few features that really tip the scales:

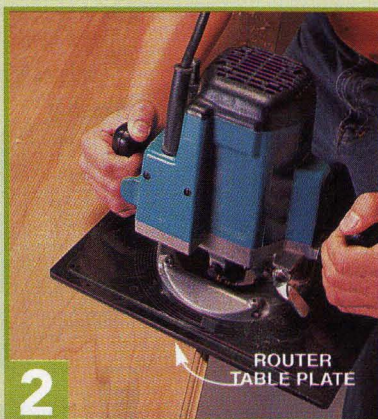
- predrilled plates
- plate levelers
- insert ring levelers
- screw-down or lock-in insert rings.

We also examined a couple of mechanized models that represent a whole new level of performance for router table plates (see "Other Plates You Should Know About," page 89).



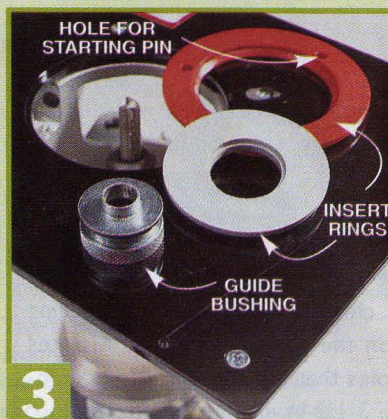
1

Simply bolting your router to the underside of your top works great but has its limits. What if you're a one-router shop? Removing your router from the table for hand-held work is a real pain. Or, try changing bits on a plunge router that's solid mounted to your router table. Not a pretty picture.



2

Drop-in router table plates allow a seamless transition between hand-held work and router table work. Quick-and-easy access for bit changes is another big plus.



3

Here are three more benefits to owning a router table plate:

1. **Insert rings** increase safety by closely matching the opening to the bit.
2. **Starting pins** allow you to safely start a cut without a fence.
3. **Guide bushings** allow you to use your router table for template work.

"Table plates are the way to go! Your router and plate can be easily removed from the table for fast and easy bit changes and your router is always ready for freehand use."

Norston Fontaine
owner of Bench Dog Tools

Brand	Material and Thickness	Price	Drill It Yourself?	Built-In Plate Levelers?	How Inserts are Secured	Insert-Ring Levelers	Size (in inches)	Maximum Bit Opening	General Comments
Eagle (800) 872-2511 eagle-america.com	3/8" Polycarbonate #415-0580	\$50	yes	yes	Sn	no	8 x 11-3/4	3-1/2"	Only clear plate with insert rings; polycarbonate may sag over time; HDPE plastic rings may need shimming or shaving.
Eagle	3/8" Phenolic #415-0480	\$50	yes	yes	Sn	no	8 x 11-3/4	3-1/2"	Basic phenolic plate with levelers; HDPE plastic rings.
Excalibur (800) 357-4118 excalibur-tools.com	1/8" Steel	\$95	yes	no*	Sn	no*	11-3/4 x 18	3 7/8"	Hinged access to router; jackscrews allow precise adjustment of aluminum mounting plate in main baseplate; large table top cutout required; hinges or aluminum mounting plate must be removed for hand-held work.
Hartville (800) 345-2396 hartvilletool.com	3/8" Phenolic #88941	\$30	yes	yes	Sn	no	9 x 12	4"	Nibs on edge help keep plate secure in table; insert rings fit well and are secure, yet easily removed; requires 7/16"-deep rabbet to accommodate levelers.
NuCraft (800) 624-2027	3/8" Steel	\$205	no	yes	Sc	yes	9 x 11	3-9/16"	Dead flat plate with keyed insert rings that only need to be leveled once; the 15-lb. plate makes it difficult to use in hand-held operations.
Rockler (800) 279-4441 rockler.com	1/4" Aluminum	\$45	no	no	Sc	no	8 x 11	3-1/4"	Pre drilled plates available for most routers; aluminum surface is machined flat; soft HDPE rings need shimming and/or shaving for flush fit.
Rousseau (800) 635-3416 rousseauco.com	3/8" Phenolic #RM3509	\$42	yes	no	Sn	no	9 x 12	3-15/16"	Corner hold downs ensure a tight fit in table opening but make removal more difficult; crowned design counteracts sagging.
Veritas Table Top (800) 871-8158 leevalley.com	3/16" Steel #05J20.01	\$129	no	N/A	Cam Lock	no	16 x 24	3-5/8"	Exceptionally smooth transition across insert rings; truly universal quick-and-easy router-mounting system; no-sag guarantee; cam lock insert rings are easy to change; ready to go right out of the box.
Woodhaven (800) 344-6657 woodhaven.com	3/8" Phenolic	\$50 to 55 varies by size	no°	no	Sn	no	7-3/4 x 10-1/4 or 9-1/4 x 11-3/4	3-5/8"	Insert rings precisely machined to provide a smooth transition across the bit area; high-density phenolic plate; plate levelers purchased separately.
Woodworker's Choice (800) 892-4866	3/8" Phenolic	\$50	no+	yes	Sc	yes	9-1/4 x 11-3/4	3-3/8"	Spring-loaded bearing on edge helps maintain tight fit; O-ring under insert rings allows for leveling metal inserts; have to drill your own 1/4" starting pin holes.
Woodworker's Supply (800) 645-9292 beta.woodworker.com	13/32" Reinforced Plastic #126490	\$20	no	no	Sc	no	10 x 10	3-3/8"	Universal mounting slots for small- and medium-size routers; you must buy their guide bushing set, because it contains washers for the universal slots (\$18).

Notes:
Sn=snap-in; Sc=screw down
° \$15 extra drilling charge
+ \$10 extra drilling charge
* Aluminum mounting plate in the main base plate is adjustable.

Features to Look For

Here's the perfect plate with all the best features. Look for the features that matter most to you in the plate you buy.

Maximum Opening

For those of you who use large wing cutters, check out the maximum opening listed on the chart. A few of the plates have holes that are too small to accommodate 3-1/2-in.-diameter cutters.

Starting Pins

For some routing operations, using a fence is impractical. Starting pins give you a leverage point for safely starting the cut without having the piece thrown out of your hands.



Predrilled or DIY (drill it yourself)

Accurately centering the router on the plate is essential when using the guide bushings. Pre-drilled plates take all the headaches out of trying to get the router centered yourself. For drill-your-own models we recommend spending five bucks on Rousseau's base plate mounting system (see Sidebar, page 91).

Insert Ring Levelers

A flush-fitting ring that locks in place is a must for hassle-free routing. Ring inserts must be well machined or have leveling screws to ensure a flush fit. Rings held in place with screws are slower to change but there's no chance of them coming loose. Also, many of the snap-in rings were very difficult to get in and out.

Plate Levelers

A plate that doesn't sit perfectly flush with the top creates annoying and potentially dangerous catch points as stock is fed. Built-in plate levelers allow you to flush up your router plate with the top even if the depth of your rabbet is a little less than perfect.

Sagging

Just as oak can bear more weight than pine, the material a router table plate is made from makes a difference in how well it resists sagging over time. Steel, aluminum and phenolic resin are the best choices if you are hanging a 3-hp monster in your table. Steel is the strongest, but it can be a bit heavy for hand-held applications.

TIP
Don't leave your router hanging. Remove it from your table after use to prevent any potential sagging problem.

Veritas Router Table Top, \$130

Here's how Veritas designers have solved nearly every drawback to owning a router table plate:

- There's no need to rabbet a top to fit the plate. The 16-in. x 24-in. steel top is designed to be the router table top.
- A universal mounting system automatically centers any router in the opening in seconds.
- A seamless transition from hand-held work to table work is accomplished by turning a couple knobs (see photo, right).
- The lock-in, plastic ring inserts fit perfectly flush with the plate.
- The 3/16-in.-thick steel top is guaranteed not to sag.

With the Veritas you can literally clamp your router in, set the plate over a couple of sawhorses and be routing within five minutes of opening the box.



The Veritas plate allows you to change from router table to hand-held work in about two seconds. Two cantilevered holding clamps allow you to snap the router in and out of the table with ease. Your router's original baseplate stays on at all times making the transition effortless.



Woodworker's Choice Plate, \$50

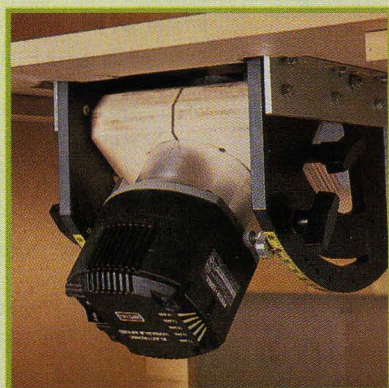
This affordable router table plate has some great features:

- Made from sag-resistant phenolic resin.
- Plate levelers ensure a flush fit with your table top.
- A spring-loaded bearing helps accommodate temperature-related expansion and contraction to maintain a tight fit.
- The metal insert rings are secured with screws.
- Rubber O-rings act like flexible washers under the insert ring that can be compressed or relaxed to level the plate.
- Predrilled plates (\$10 extra) are available to fit most routers.

The one drawback is that it doesn't come drilled for starting pins, but phenolic resin is easy to machine. You can drill your own hole and buy a starting pin (\$4 from Eagle America, 800-872-2511, #415-0112).

Other Plates You Should Know About

These plates bring features to the simple router table that were previously found only on expensive, full-size shapers.



Woodhaven's Angle-Ease, \$120 to \$155, depending on size) allows you to do something that would be impossible on a standard router table: tilt the router to produce a variety of unique profiles with your current set of router bits. A wooden block clamps to the router motor housing for easy mounting. Angles can be set from minus 10 degrees to plus 47 degrees. The Angle-Ease can pop out of the table for hand-held operations as well.

JessEm's Router Lift (\$200), Jet's XACTA Lift (\$225), and Rockler's Router Lift (\$200) shine when it comes to height adjustment.

A movable undercarriage router mount allows you to micro-adjust the bit height from the top of the table. One revolution of the removable handle changes bit height by .050 inches. If you do a lot of rail and stile cutting, lock miters, drawer joints or any operation that requires precise and frequent height adjustment, these plates may be just what you're looking for. Insert rings are \$20 extra.

AW



Hang a Router



A Are you tempted by the benefits of owning a router table plate but hesitate to take the plunge because of the hassles involved in mounting it in your table? That's understandable because a poorly fit router table plate leads to endless frustration. A loose fit makes it impossible to maintain a consistent distance between your bit and fence. A plate that's set too high or too low in the rabbet creates catch points for stock and makes depth-of-cut settings difficult. Fortunately, you don't have to put up with these headaches. Here's how to correctly install the plate for peak performance.

If you're still worried about approaching your immaculate tabletop with a screaming router, do what I did and practice the procedure on a piece of scrap first. You'll need a pattern bit (Photo 1), a jigsaw, a drill, double-stick tape and some 1-in.-thick stock. (The 1-in. material can be made from built-up sheet stock.)

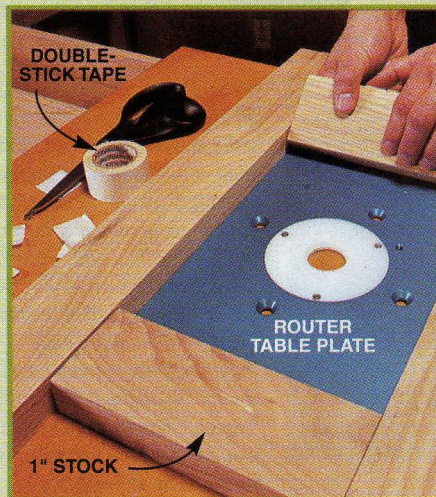
1

Choose a pattern bit with the same radius as the corners on your router table plate.



2

Make an exact template using your plate as a guide. We used 1-in.-thick stock to accommodate the depth of the bit and the bearing (Photo 3). Double-stick tape works great for holding the boards in place without making holes in your router table top.



.....Perfectly

Surefire Router Plate Installation

By Jennifer Feist

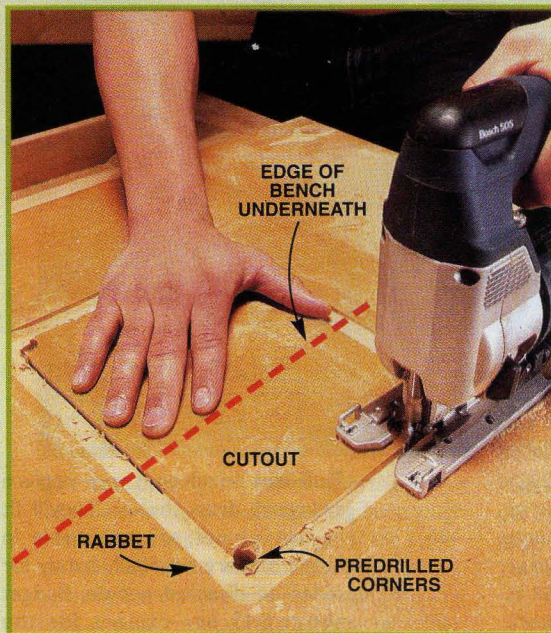
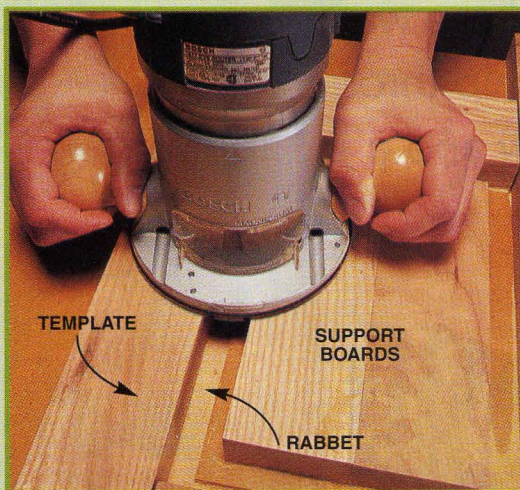
3

Set the bit depth using a template board and your plate as a guide. The depth-of-cut equals the thickness of the template boards plus the thickness of the plate.



4

Route the rabbet after adding support boards for the router base to the middle of the cutout.



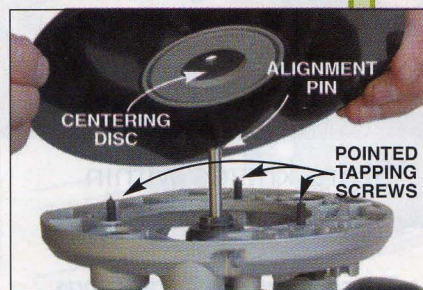
5

Rough cut the opening with a jigsaw. Be sure to support the cutout so it can't break off before the cut is finished. Predrilling the corners helps start the cut and makes cutting the corners easier.

Accurately Centering the Router on the Plate

If you want to use template guide bushings with your router table plate, the router must be mounted dead-on center, and that's not easy.

Rousseau has developed a baseplate mounting system that's simple and accurate. The bit includes a centering disc, alignment pin, longer mounting screws and pointed tapping screws that accurately mark where to drill your plate. This system works with any plate that accepts 1-3/16-in. guide bushings. Priced at \$5, it's well worth the headaches it saves! **AW**



Sources

Hartville Tool, (800) 345-2396,
www.hartvilletool.com
Top-Bearing Pattern Bits:
R3004, 1/2-in. dia.; \$22.

Double-Stick Tape:
#12638, 1 in. x 36 yards; \$14.

Rousseau Baseplate Mounting
System, (800) 635-3416,
www.rousseauco.com

PHOTO COURTESY OF ROUSSEAU

Kitchen Weekend Projects

Here are three ways to improve storage space in any kitchen. You can whip through each project in an afternoon, using only a tablesaw and a plunge router.



Store knives within easy reach!

This **countertop knife rack** stores a complete set of knives right where you need them. The lipped edges conceal a hole you cut in the countertop. You can easily remove the rack for cleaning.



Keep cleaning supplies at your fingertips!

Want a **sink cabinet shelf** that's better than store-bought plastic or wire racks? Make one that mounts securely to the frame of your paneled door, has the same look as your cabinet and maximizes space because it's custom fit.



Reach that stuff in the back!

Roll-out kitchen trays replace awkward, deep shelves. They'll fit in any cabinet, are adjustable in height and are especially handy for older or disabled people. Budget about \$45 per cabinet for the hardware and wood.

EDITORS: TOM CASPAR, DAVID RADTKE AND ART ROOZE • ART DIRECTION: PATRICK HUNTER, MARCIA WILLISTON AND BOB UNGAR • PHOTOGRAPHY: BILL ZUEHLKE • ILLUSTRATION: RON CHAMBERLAIN

Install a knife-blade shield under the counter (Fig. B and Photo 4). You may need to slightly shorten a drawer to make room for the shield. Also, make sure the shield doesn't interfere with the drawer slides.

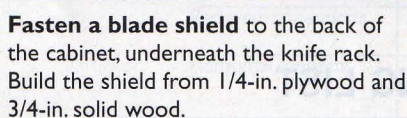
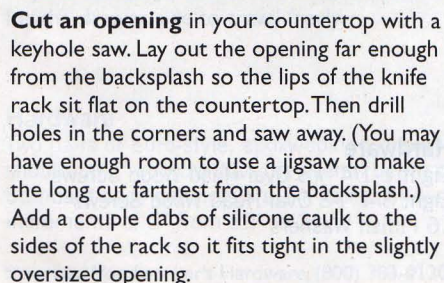
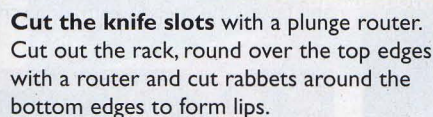
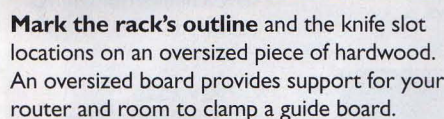
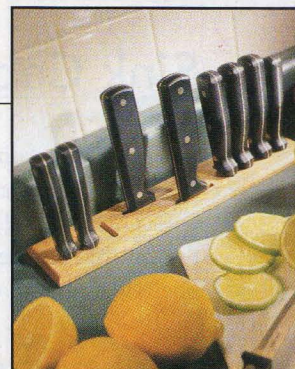
[illegible]

Diagram illustrating the installation of a knife rack. The rack is mounted to the wall using **SMALL ANGLE BRACKETS**. The distance from the cabinet back to the front of the knife rack is indicated as **12"**. The knife rack itself is labeled **KNIFE BLADE SHIELD** and has a height of **12"**. The diagram shows several knives mounted on the rack.

Sink Cabinet Shelf

It's easy to customize this catchall shelf to fit your cabinet doors. Measure the opening of your cabinet (not the door!) and plug your numbers into the Cutting List below. The shelf unit clears the opening by 1/4-in. on all sides.

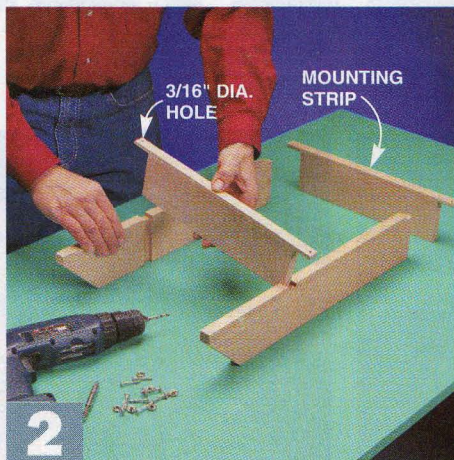
You can mount this shelf on a cabinet door made of plywood or a door with a raised panel. Solid mounting strips get screwed into the stiles of the door, not the thinner panel.



WARNING: GUARD MUST BE REMOVED FOR THIS STEP. USE CARE!



Cut two pairs of 3/4-in.-wide, 1/4-in.-deep dados in the sides; a pair for the two shelves and a pair for the mounting strips. Line up the mounting-strip dado with the shelf dado.



Slip the shelves into their dados. First drill holes for the mounting screws 3/8-in. from the end of the mounting strips. Glue the mounting strips to the shelves. Drill pilot holes in the sides and fasten the shelves with long screws.

If you have small children, be sure that cabinets containing cleaning products and other toxic substances have child-proof latches attached.



Fasten the rails to the front of the shelves with short screws. Finish washers save you the trouble of perfectly countersinking each hole!



Clamp and screw the shelves to your door, using 3/4-in. screws and finish washers. You may need to add a third hinge and a magnetic catch if the weight of the loaded shelves prevents the door from closing easily.

CUTTING LIST

Name	Qty.	Th	W	L
Sides	2	3/4"	3-1/2"	1/2" less than height of cabinet opening
Shelves	2	3/4"	3-1/4"	3" less than width of cabinet opening
Rails	2	1/4"	3/4"	1" more than shelves
Mounting Strips	2	1/4"	3/4"	2-1/2" more than shelves

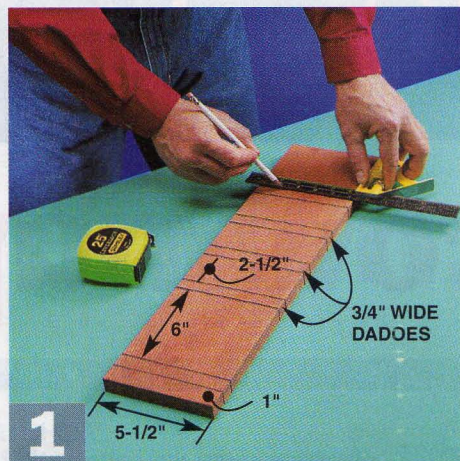
Hardware

Eight 1-1/4" #8 Oval-Head Wood Screws
Eight 3/4" #8 Oval-Head Wood Screws
16 Finish Washers

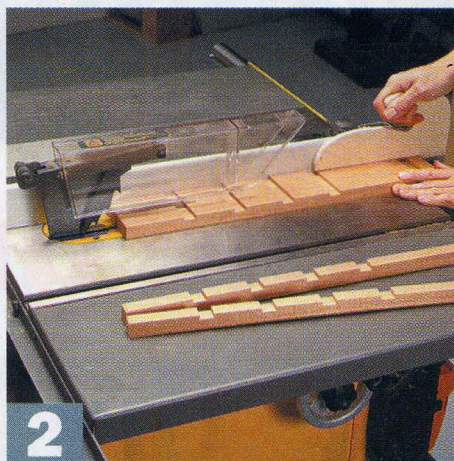
Roll-Out Kitchen Trays

Trays on wheels put all the pots and pans in a deep cabinet within easy reach. If your doors can't open more than 90-degrees, plan on making the

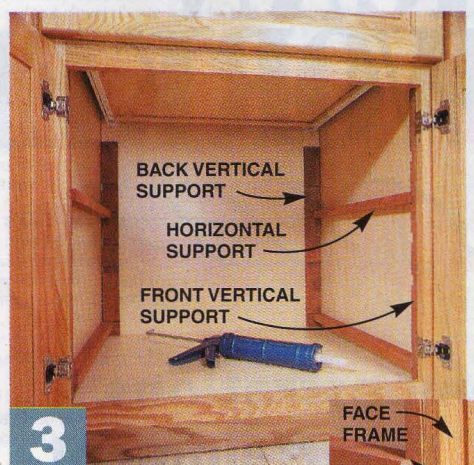
horizontal supports wider than shown here. There must be 1/4-in. clearance between the slides and the inside faces of your doors.



1 Mark the dadoes on one wide hardwood board. The four upper dadoes make the top shelf adjustable.



2 Cut dadoes 1/4-in. deep, then rip the wide board into four vertical supports. Cut horizontal supports to hold the slides.



3 Glue the vertical supports in place with a couple dabs of construction adhesive. Then fit the horizontal supports tightly in the dadoes, without glue. The horizontal supports must stick out at least 1/4 in. beyond the face frame of your cabinet door. You'll need this clearance for the drawer side to travel freely.



Build the plywood trays with plywood or hardwood sides. The corners may be simply butted together. Align the slide's drawer members flush with the front of the tray. Fasten the slides to the trays and the horizontal supports. Place the rear end of the cabinet member at least 1/4 in. away from the end of the horizontal support. **AW**

CUTTING LIST

Name	Qty.	Material	Th	W	L
Front vertical supports	2	Hardwood	3/4"	3/4"	Height of cabinet opening
Back vertical supports	2	Hardwood	3/4"	1-3/4"	Height of cabinet opening
Horizontal supports	4	Hardwood	3/4"	1"	About 1" less than cabinet depth
Tray bottom	2	Plywood	3/4"	*	**
Tray sides	4	Hardwood	3/4"	2-1/4"	To fit tray

* Width is about 3" less than the cabinet opening. To figure the tray bottom's exact width, subtract the combined thickness of two sides plus 1" from the distance between the installed horizontal supports.

** Length is 2-1/2" less than cabinet depth, measured from the back of the cabinet to the back of the face frame.

Hardware

Two pairs of Euro-style, epoxy-coated drawer slides. They should be 2" shorter than the overall depth of your cabinet. Standard base cabinets are 24" deep. Slides are sold in increments of 2" from 12" to 24."

Source: Woodworker's Hardware, (800) 383-0130, www.wwhardware.com; Blum 230 Series Drawer Slides; \$10 for two sets of 22" slides.

Turning a Natural-Edge Bowl

By Alan Lacer

A natural-edge bowl looks like it came straight from the tree. It's still got the bark on, and you can clearly see all the tree's growth rings. It's a project that gets you close to real, living wood.

All you need is a chainsaw (you can rent one for about \$60 a day), a bandsaw, a standard lathe and two turning tools. You'll have to find a local source of winter-cut wood, or you can raid your own backyard or your neighbor's firewood pile. (The bark will stay on wood cut in the winter, but may fall off wood cut at other times of the year.) Before you turn a natural-edge bowl you should have some experience turning a "normal" bowl with a flat top because the uneven

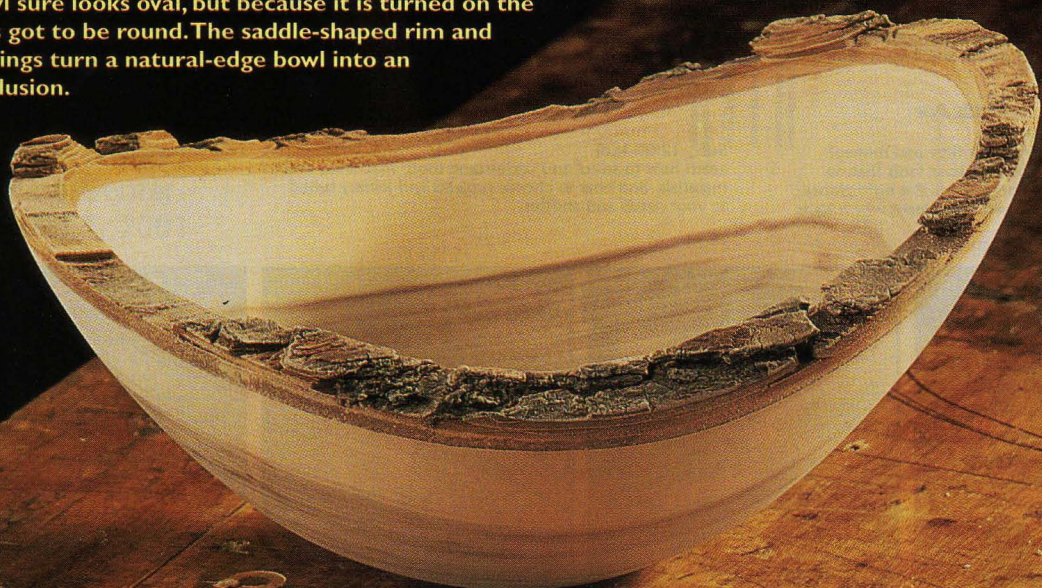
rim of a natural-edge bowl makes this turning project a bit trickier (see my Oops!, page 103).

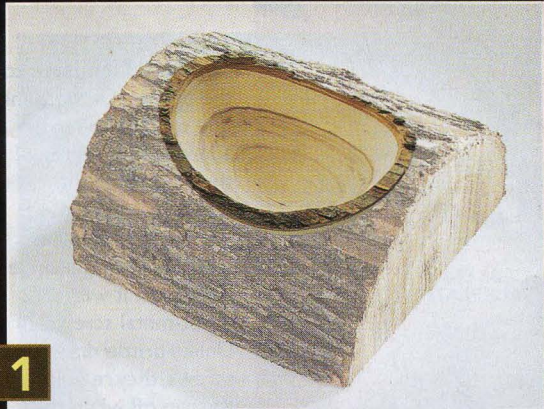
For a heck of a good time at the lathe, sharpen your gouges and follow the steps on the following pages. When you've completed turning your bowl, put it in a double-thickness paper bag and let it sit for a week or two so it dries slowly. Then complete the sanding.

My favorite finish is wax or no finish at all. I feel that natural, unfinished wood best complements the bark edge. But to show off spectacular wood or protect the bowl from dirt and stains, use an oil finish. Avoid getting finish on the rough upper surface of the bark.

Round or Oval?

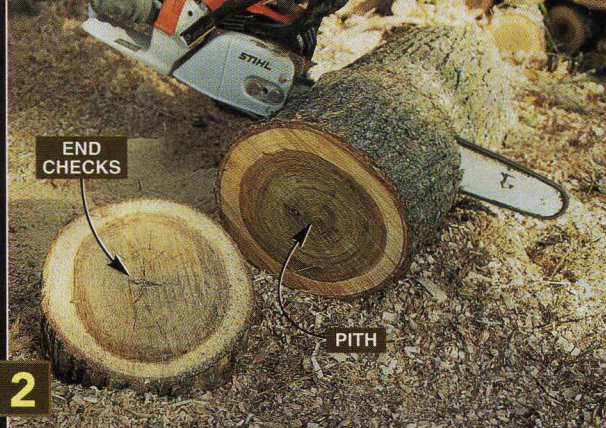
This bowl sure looks oval, but because it is turned on the lathe, it's got to be round. The saddle-shaped rim and growth rings turn a natural-edge bowl into an optical illusion.





1

Visualize your bowl inside a log before sawing the log to length. Look for unusual shapes in the bark that may be included in the bowl's rim, but stay away from knots. They may check or distort your bowl.



2

Crosscut the log with a chainsaw. Cradle the log in a thick bed of wood chips for safety. This way the log won't roll and your saw won't bite into the ground.

First, cut off a thin slice to eliminate all the end checks. Then cut a blank that's about 1-in. longer than the diameter of the log. A bow saw will do, but you'll work up a good sweat!

Caution: Chainsaws can be dangerous! Please follow all safety instructions. For more information, see Sources, page 103.



3

Cut the log through the pith, on the bandsaw. If the pith is off center, you'll end up with two different-sized blanks, but that's OK. Feed the log fairly slowly. Use a 3/8-in. or 1/2-in., 4-tpi skip-tooth blade (see Sources, page 103). It may seem impossible, but a regular bandsaw can actually make this cut! However, you'll need a riser block to handle logs longer than 6-in.

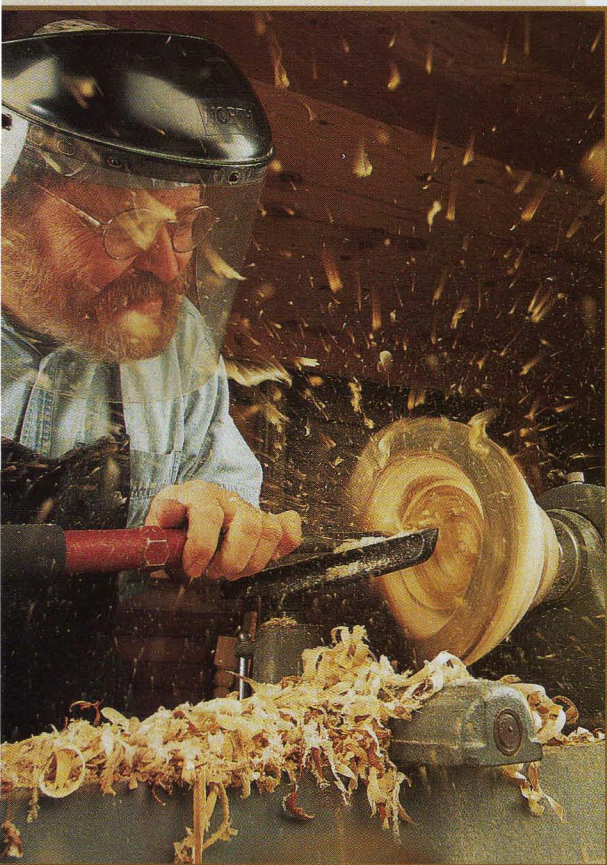


4

Saw a round blank from the split log. First, nail a wooden template to the top of the log to guide your cut. Keep your fingers out of harm's way by standing to the side of the saw.



Turning green wood is pure joy!



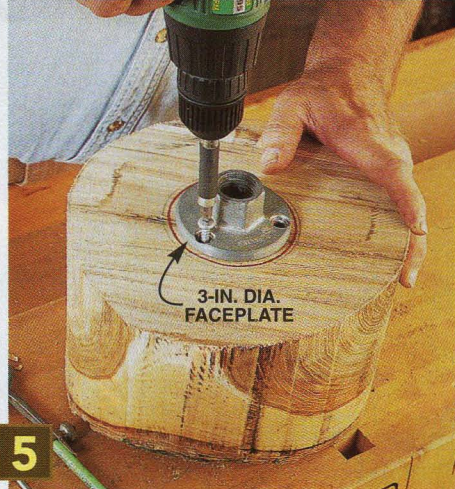
Welcome to a whole different world from working with kiln-dried wood. Turning green wood like this is a completely different experience than turning spindles and knobs.

Here's what makes turning green wood so enjoyable:

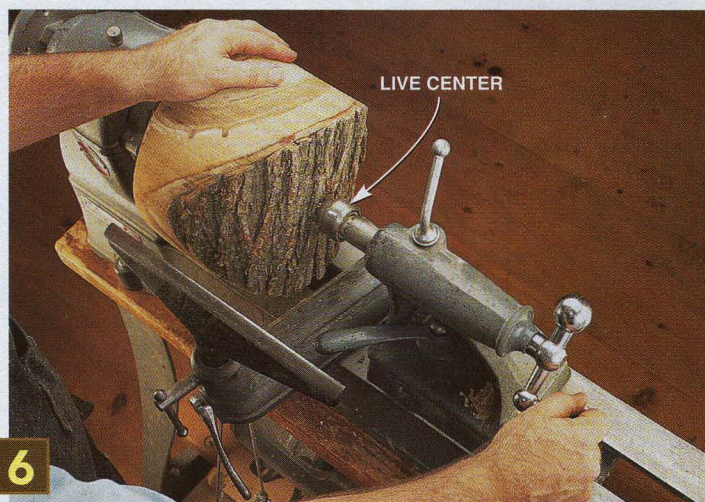
- It's easy to cut. You'll be covered with long ribbons of shavings in no time. And your cutting edges last longer.

- It's fast. One evening is all you'll need to make one of these bowls.

- It's cheap. Almost any kind of wood will do (except softwoods like pine, which fuzz up). Forage through your wood lot or call a local tree trimmer. The stuff's out there at no cost.

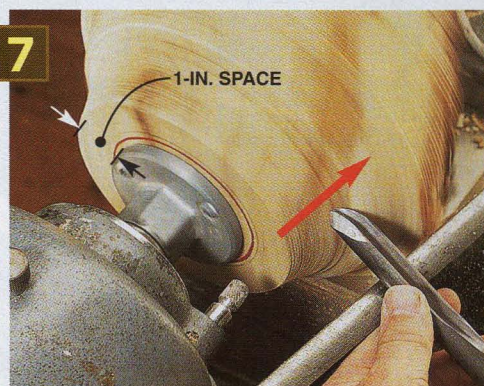


5 Fasten a faceplate to the bottom of the blank. You can find the approximate center of the blank with the template in Photo 4. Center the faceplate within a compass circle and fasten it with #12 sheet-metal screws. Unlike brittle drywall screws, they're unlikely to snap off when the blank is spinning on the lathe.



6 Push the tailstock up against the top of the bowl. I like using a live center because it doesn't require lubrication, but a dead center works as well. Drive the point of the live center deep into the blank. It must penetrate the bark and bite into solid wood. Rotate the uneven blank by hand to make sure your tool rest is out of the way.

Note: A heavy, out-of-round blank will cause your lathe to shake, but a standard-size machine can handle it. Set your lathe to its slowest speed and weigh it down with sandbags.

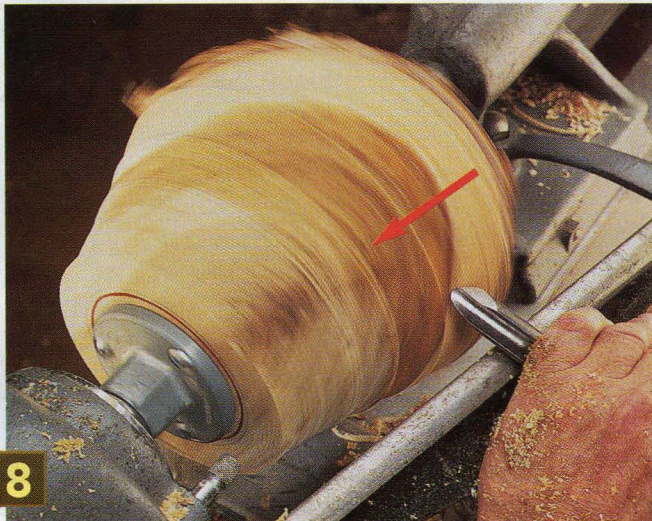


7 Begin roughing out the bowl with a 1/2-in. bowl gouge, the tool you'll use for almost the whole project. First remove waste at the bottom third of the blank, cutting uphill, to help balance it. Stop about 1 in. above the rim of the faceplate.

I prefer the aggressive cut of an Irish grind on my bowl gouge, but it takes practice to use. With an Irish grind, the bevel is ground way back on the sides. Many turners re-grind standard bowl gouges to this shape (at left), but you can buy a new gouge with an Irish grind (see Sources, page 103).

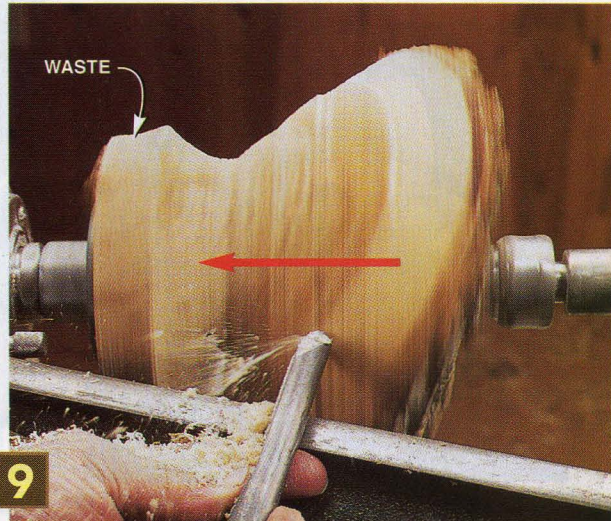


IRISH GRIND BEVEL



8

Establish the diameter of the bowl's top. Begin each cut in the air, *without touching wood*, to the right of the top. Then sweep the gouge to the left. If you sweep right, you run the risk of lifting off the bark. Stop the lathe to make sure you've turned below the bandsaw cuts all the way around the blank.



9

Shape the base of the bowl. Direct your gouge to cut from the top of the bowl down into the middle of the blank, creating a valley. The wood to the left of the valley supports the bowl for now, but is essentially waste. Now that the blank is turned completely round and is balanced, reduce the diameter of this waste so it's about 1/2-in. larger than the faceplate.

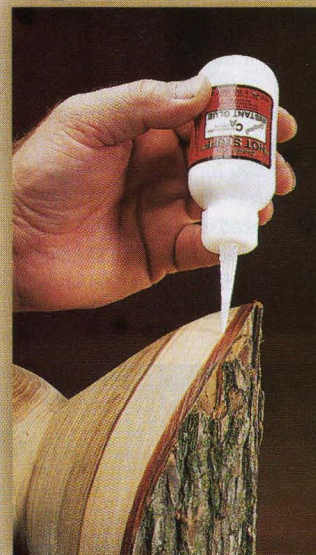


10

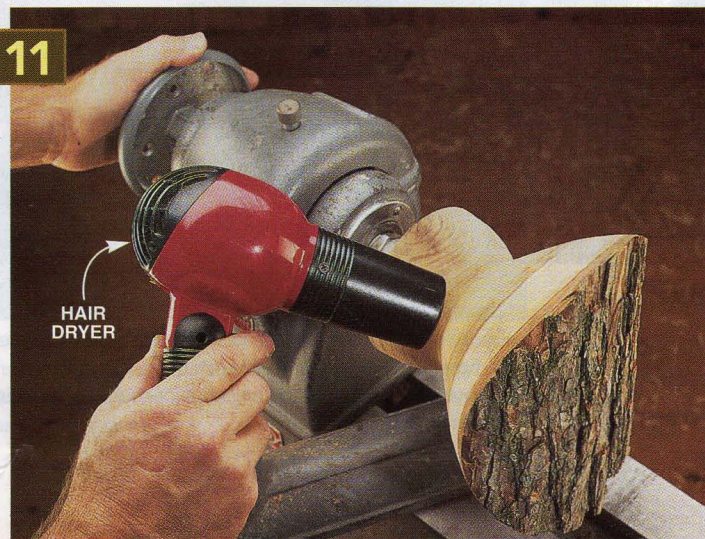
Smooth the side of the bowl with a light shear-scraping cut. This finishing cut avoids lifting the bark when done with a bowl gouge that has an Irish grind. Otherwise, take very light cuts with a scraper.

Tip

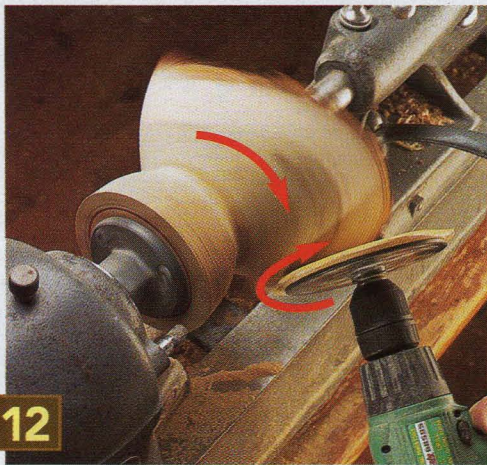
Consolidate loose bark, should you have any, with cyanoacrylate (CA) glue (see Sources, page 103). It's the best glue to use on wet, green wood. It dries in a minute so you can go right back to turning. Use thin CA glue for flaking bark and medium CA glue for filling the gaps among loose chunks.



11



Heat the outside of the bowl with a hair dryer. Rotate the bowl by hand. After a couple of minutes the wood is dry to the touch and ready to sand. Green wood will load fine sandpaper if it's not lightly dried like this first.



12

Power sand the outside of the bowl. Move the tool rest out of the way, then go through 120-, 150-, and 180-grit paper. You can sand by hand, but it's much slower.



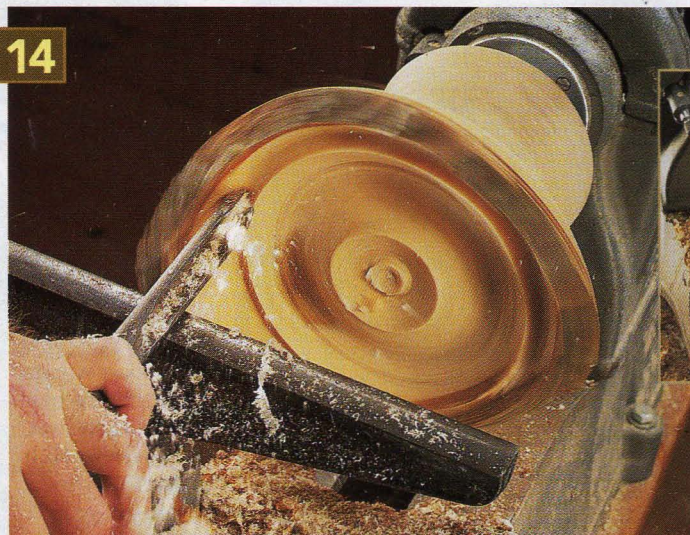
13

Hollow the inside of the bowl, starting at the center. Gradually enlarge the diameter of the hollow. Leave the center of the bowl fairly shallow for now.

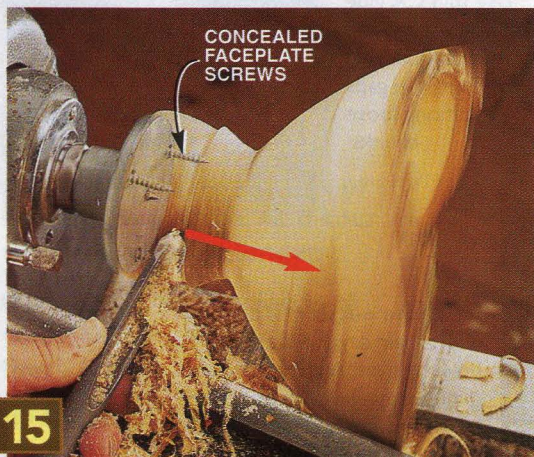
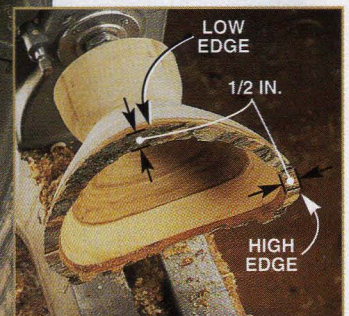
Note: This is a job suited only for a long-handled, sturdy bowl gouge because the cutting edge hangs far over the tool rest (see Sources, page 103).

Turn the rim and wall of the bowl about 1/2-in. thick. Cut the saddle-shaped rim in two stages. First, establish the width of the rim's *high edge*. Second, push your gouge deeper into the bowl to cut the *low edge*. You'll have to stop the lathe now and then to see if the entire rim is the same width.

Finish hollowing the inside of the bowl. I leave it unsanded for now and wait until after the bowl is completed and air-dried, then I sand with small sanding discs mounted on a drill and also by hand.

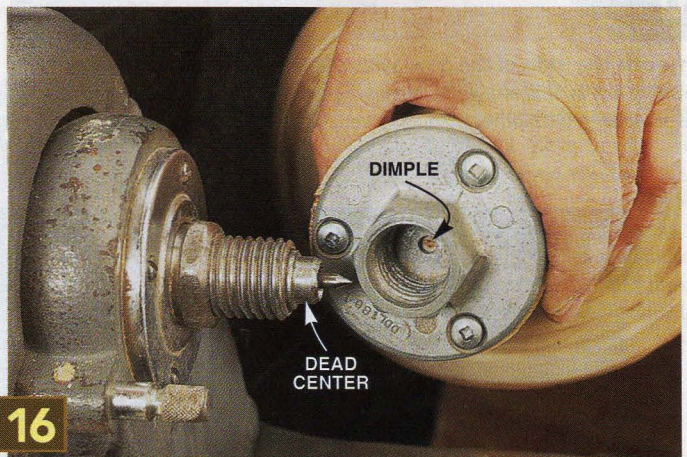


14



15

Reduce the base of the bowl until it's about the same diameter as the faceplate. That's far enough, because the last thing you want to do is inadvertently hit one of the faceplate screws buried in the waste!



16

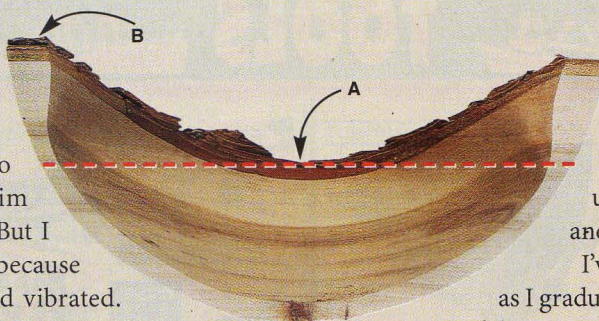
Remove the bowl from the lathe and mark its center. Although there are many different methods, one surefire way is to put a dead center in the headstock and screw the bowl back on for a few revolutions. Dimple the bottom of the bowl with the point of the dead center, then unscrew the faceplate.

Tip

Oops!

Dang it! I couldn't get a rim of equal thickness on my first natural-edge bowl. I made the lower rim (at A) too thin and then tried to go back and cut the upper rim (at B) thinner to match it. But I couldn't get a smooth cut because the upper rim fluttered and vibrated. What was going on?

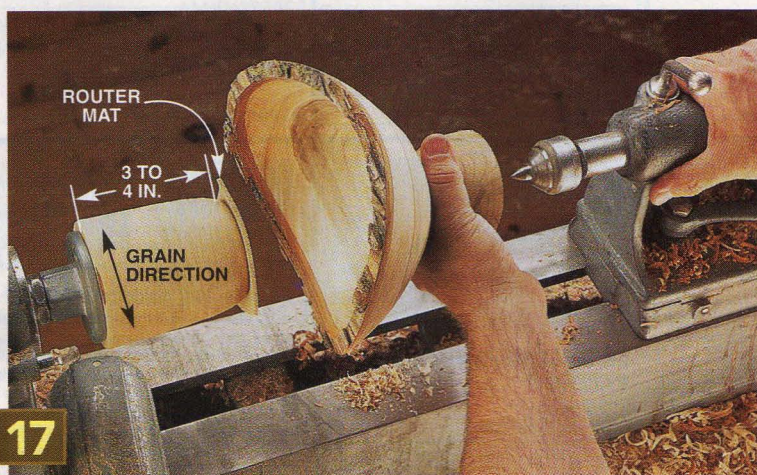
I took an old turner's advice and sawed the bowl in half. He said that if I looked at a cross-section of my bowl



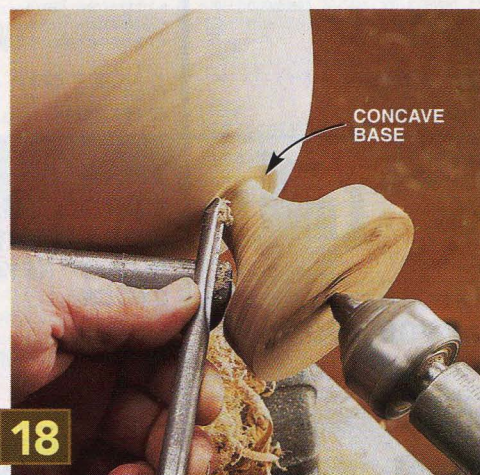
I would figure it out. He was right!

I saw that *consistent wall thickness is the key*. A lower rim that's too thin leaves the upper rim with little support, and that's why it fluttered.

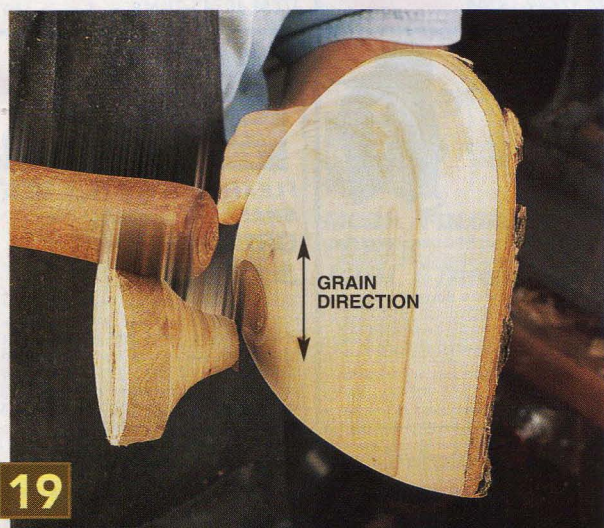
I've learned to stop the lathe often as I gradually cut the lower rim. I'm very careful not to take too much off. Only when the bowl is stopped can I actually see and compare the widths of both rims.



Re-mount the bowl with a reverse-chucking jig made from glued-up scrap. Round the end of the scrap block to fit the bowl. The glued-on, 1/8-in.-thick router mat provides enough friction to spin the bowl without marring its inside surface.



Undercut a concave base on the bowl so it will sit flat. Switch to a 3/8-in. detail gouge, take light shavings and reduce the neck of the waste block to about 3/4-in. diameter. Remove the bowl from the lathe.



Knock off the waste block with a sharp blow from your gouge handle. The block easily snaps off because the grain is very weak. Clean up the bottom of the bowl with a carving gouge and you're done!

Sources

Packard Woodworks
(800) 683-8876, www.packardwoodworks.com
#103322 Crown 1/2-in. bowl gouge, standard grind; \$55.
#103328 Ellsworth 1/2-in. bowl gouge (with Irish grind); \$75.
#176204 How to use an Ellsworth bowl gouge video rental; \$30.
#103308 3/8-in. detail gouge; \$32.
Cyanoacrylate glue:
#121001 (Thin Hot Stuff); \$10 for 2 oz.
#121002 (Medium Hot Stuff); \$10 for 2 oz.

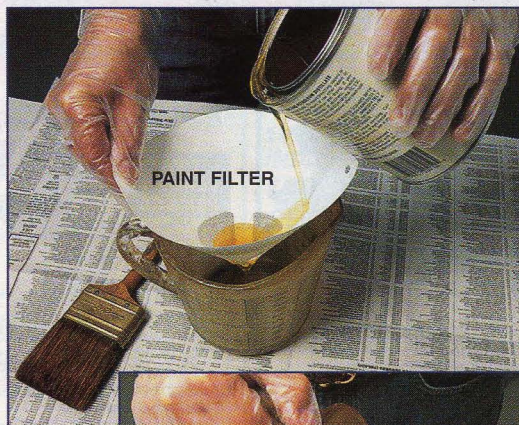
Woodworker's Supply
(800) 831-6066
3/8-in. and 1/2-in., 4-tpi skip-tooth bandsaw blade, custom made to fit your saw; approx. \$16.

Visit www.jonsered.se/international/advice for information on chainsaw safety. You can download an excellent brochure, "How to Use a Chainsaw," order a copy of the brochure free of charge or purchase a video. **AW**

Finishing Tips

Strain Your Varnish

Have you ever tried to use varnish from a skinned over, half-used can? Even if you remove the skin carefully, lumps of dried finish get mixed in with the remaining varnish and eventually end up on your project. But don't throw the stuff away—there's an easy way to get clean varnish from a used can. Just pour the contents through a paint filter into a second container. The filter is a paper cone with a cheesecloth nose (available at paint stores and home centers for about 25 cents apiece). Working from a second container is a good idea anyway—it keeps the storage can from getting messed up. The brush often transfers bits of junk it picks up from the surface back to the container, so clean the leftovers again when you pour them back into the storage can. You can use the same filter if it hasn't dried out.



Use Hidden Areas to Test Finishes

Here's one of the best (and most ignored) tips for getting a great finish: test the stain colors and topcoats you're considering for your masterpiece on its hidden areas. If your piece has no unseen surfaces, use offcuts from the project or leftover scraps of the same wood.

Prepare the areas for your hidden tests as diligently as the parts that show. Record your finishing procedures for each sample. Be sure to topcoat stains and dyes—they usually look totally different under a finish. Aerosol cans of shellac or lacquer work great for this. Be sure to look at your samples under the kind of light the piece will live in—finishes look different under natural or incandescent light than they do under fluorescent shop lights.



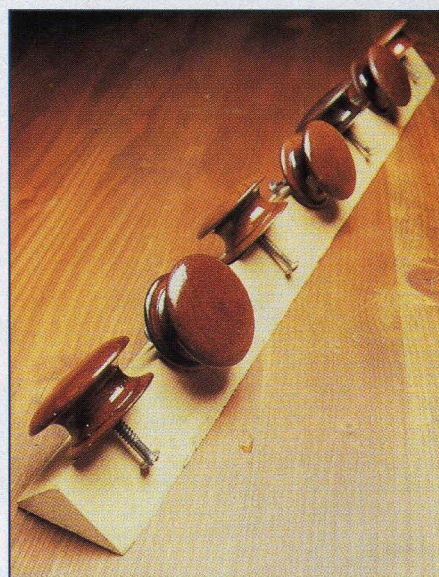
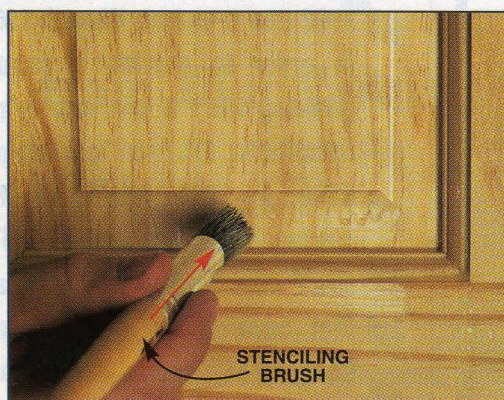
Finishing Tips

Wick Away Drips, Sags and Puddles

It can be nightmarish to brush varnish on any project with raised panels. Because they have lots of edges and inside corners, it's easy to end up with puddles, sags and drips everywhere you look. Trying to get rid of them with a varnish-saturated brush doesn't work—you're just moving the excess finish around, leaving it to sag somewhere else.

Instead, make the buggers disappear by making repeated light stabbing touches, a technique called "stippling," with a dry stenciling brush (under \$5 at home centers and craft stores). As long as you work while the varnish is wet,

the dry brush wicks away the excess, leaving a mottled texture that levels out as the varnish cures. When the stenciling brush gets loaded with varnish, just wipe it dry with a clean shop cloth and it's ready to go again.



A Drying Rack for Knobs

In my shop, knobs wet with finish used to be accidents waiting to happen. They'd always end up on the floor. Then I discovered hidden value in a length of triangular scrap: With their fastening screws as counterweights, knobs rest on it securely.

DuoSharp™

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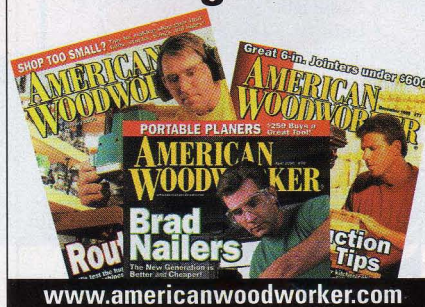
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AMERICAN WOODWORKER®

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Folded Sandpaper Works Better

Sheets of sandpaper aren't easy to work with. They're flimsy and awkward to hold. It's tempting to scrunch a sheet up so you can get a better grip, but if you do that, most of the paper gets wasted. Tame the abrasive beast by tearing it into four pieces. Each folded quarter sheet makes a sanding pad that works like an extension of your fingers. This allows you to use every inch of paper. When the two outer surfaces are

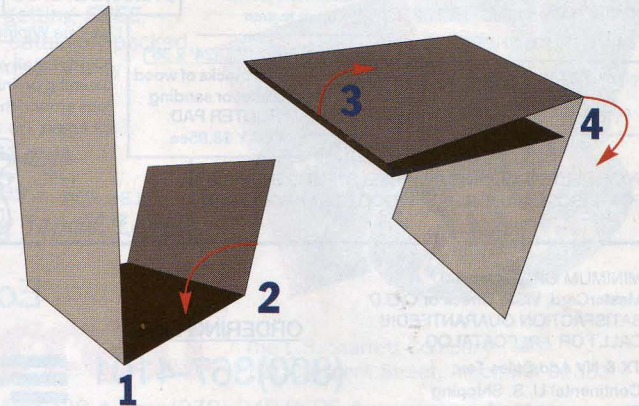
worn out, simply refold the pad to expose the inner ones. The pad is firm enough to sand flat areas, flexible enough for contours, and it's got plenty of corners and edges for getting into tight spots.

FOLDING TAKES FIVE SECONDS

1. Fold a quarter sheet of sandpaper in half.
2. Unfold and then fold one corner to the center crease.
3. Fold the other half over the already-folded side.
4. Wrap the loose end around the corner. **AW**



SAND INTO TIGHT CORNERS. This folded sandpaper pad lets you put sanding pressure just where you want it.



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- Room by Room Control

Save with Hydro-Sil: Many families are benefitting — you can too!

• **Consumer Digest:** Buying Guide rates Hydro-Sil "Best Buy" for heating—a product that offers outstanding value for its price.

• **Grant M. (Accountant):** "With no insulation or storm windows, I saved 51% when changing from oil to Hydro-Sil."

• **William C. (General Contractor):** "I replaced electric heat with Hydro-Sil. I am pleased to report that your units have provided comfort, safety, and considerable savings on electricity."

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Great Wood!



PHOTO BY SAM TALARICO

"Old Growth" Quartersawn White Oak

Quartersawn white oak's distinctive ray-fleck pattern is familiar to just about everyone. But for us woodworkers, the real quality of the wood lies behind the ray fleck. The density of the growth rings in the log, known as "texture" in the veneer trade, makes a huge difference in how the wood looks and perhaps more importantly, how it machines.

Tightly spaced growth rings provide a beautiful, contrasting backdrop for the ray fleck and as a woodworker you'll be amazed at how easily this wood works. Contrary to what you might think, tightly spaced growth rings make the wood lighter and more stable. You owe it to yourself to try some of this stuff.

Fortunately not all the best logs are going to the veneer mills. Talarico Hardwoods, for example, has been sawing veneer-quality logs for years, hand picking the boards for figure and grading them according to growth-ring density. At the top is #1 Old Growth (\$13.14/bd. ft.) with 18 or more growth rings per inch (photo, below). The next lower grade is "Old Growth" (\$10.95/bd. ft.) at 12 to 18 rings per inch (photo, left) followed by "Regular Growth" (\$7.95/bd. ft.) at less than 12 rings per inch.

Don't mistake these trees for the centuries old pines that environmentalists are seeking to protect. Old growth in this case really means *slow* growth as the logs are harvested from mountainsides where poor, quick-draining soil forces the trees to grow slowly. **AW**

Source

Note: Ray fleck figure varies from tree to tree and board to board. Expect variations in the wood you order.

Talarico Hardwoods, (610) 775-0400, RD #3, Box 3268, Mohnton, PA 19540-9339; \$75 minimum order. Stock more than 8-in. wide and bookmatched sets are available at extra cost.

#1 Old Growth white oak averages 18-plus rings per inch. It looks great, machines beautifully and is more stable than regular-growth oak.

RAY
FLECK

PHOTO BY RAMON MORENO

1"

Know of some Great Wood? We'd love to hear about it. Write Dave Munkittrick at dave_munkittrick@readersdigest.com.

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