

Smoothest Saw Blades

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on the Tablesaw

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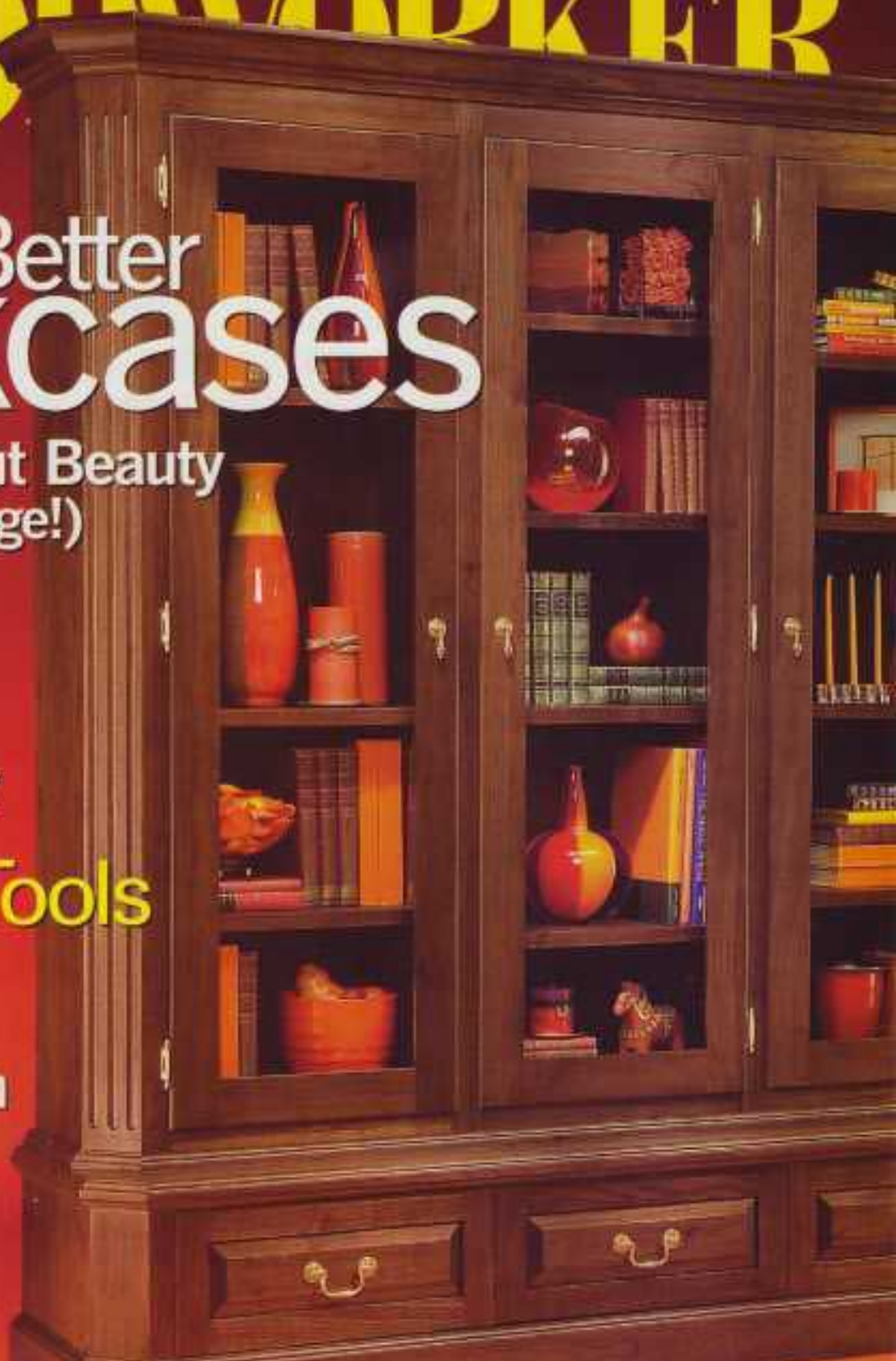
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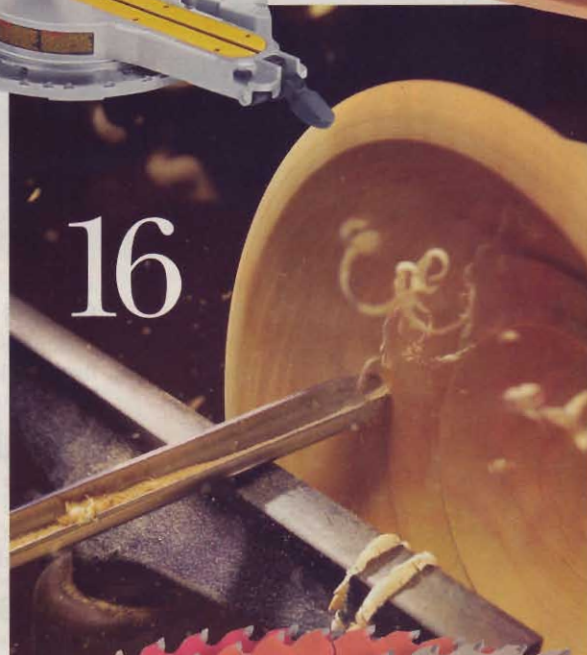
A BARNES & NOBLE PUBLICATION

Buying Tips for Bowl Gouges & Drawer Slides



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ULTRA-SMOOTH MDF EDGES

Q I built some colorful cabinets for our nursery. I like the look of painted MDF, but I can't get the edges as smooth as the faces. Any tips?

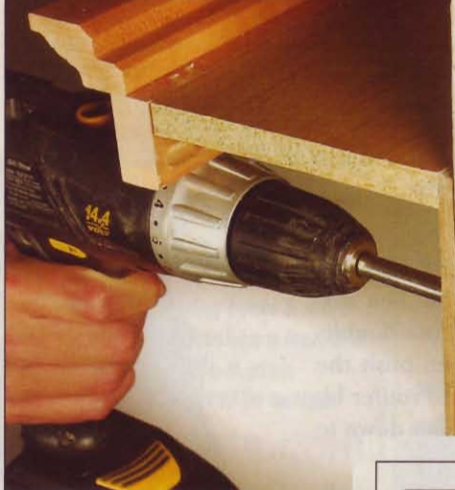
A I've got just the thing to smooth out those rough edges: spackling compound. First, sand the raw MDF edges with 150- or 180-grit paper. I really like the new sanding sponges for this job. They're stiff enough to get into the corners on a molded edge but soft enough to conform to a rounded edge. Use a putty knife or your fingers to apply the spackling compound (see photo, below

left). I used Dap Dry Dex, which goes on pink but turns white when it's ready to be sanded. When it's dry, sand the spackled edge with the 180-grit sponge. It's OK if you sand back down to the MDF a bit. The spackling compound does not have to cover the coarse edge; it just has to fill in the pits. Before you paint, seal the whole piece with a high-quality primer sealer like Zinsser BIN, a shellac-based primer that dries super-fast and sands beautifully. Switch to a 220-grit paper or sponge to sand the primer and the paint. Finally, spray on several coats of color enamel paint. Be sure to lightly sand between coats. The result will be a stunning, glass-smooth surface.

Spread a thin coat of spackling compound onto the edges and sand smooth before painting. Spot-fill any defects on the face of the MDF as well. The result will be ultra-smooth edges and faces on painted MDF.



Sources 3M SandBlaster sanding sponges, Dap Dry Dex spackling compound, Zinsser BIN Primer Sealer and Rust-Oleum Painter's Touch gloss are all available at most home centers and hardware stores.



HANG A NARROW CABINET

Q I want to hang a narrow cabinet I built for our bathroom. The trouble is that I can only catch a single stud. Is it OK to hang a cabinet on just one stud?

A Yes, it is. While it is best to hang a cabinet on two studs with four screws, sometimes you just don't have a choice. A pair of toggle-type dry-wall anchors is the answer.

First, hang the cabinet on the single stud using two No. 10 screws. Then, drill two pilot holes through the cabinet for the toggle screws. Remove the cabinet from the wall. Screw the self-drilling anchor into the dry-wall and replace the cabinet. Finally, run the screw through the cabinet into the anchor. The pan-head screw pushes the toggle parallel to the inside of the wall. It then engages the toggle, pulling it tight against the drywall.

Sources Toggle anchors are widely available at hardware stores and home centers.

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 or e-mail to ganda@readersdigest.com. Sorry, but the volume of mail prevents us from answering each question individually.

QUESTION & ANSWER

Toggle-type drywall anchors effectively clamp a cabinet to a wall.

DRYWALL ANCHOR

#8 x 2" PAN-HEAD SCREW

TOGGLE

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This 10" saw has a large, cast iron work surface, powerful 1-1/2 hp induction motor and left-tilting arbor.

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edited by Tom Caspar

TABLESAW TEMPLATE TRICK

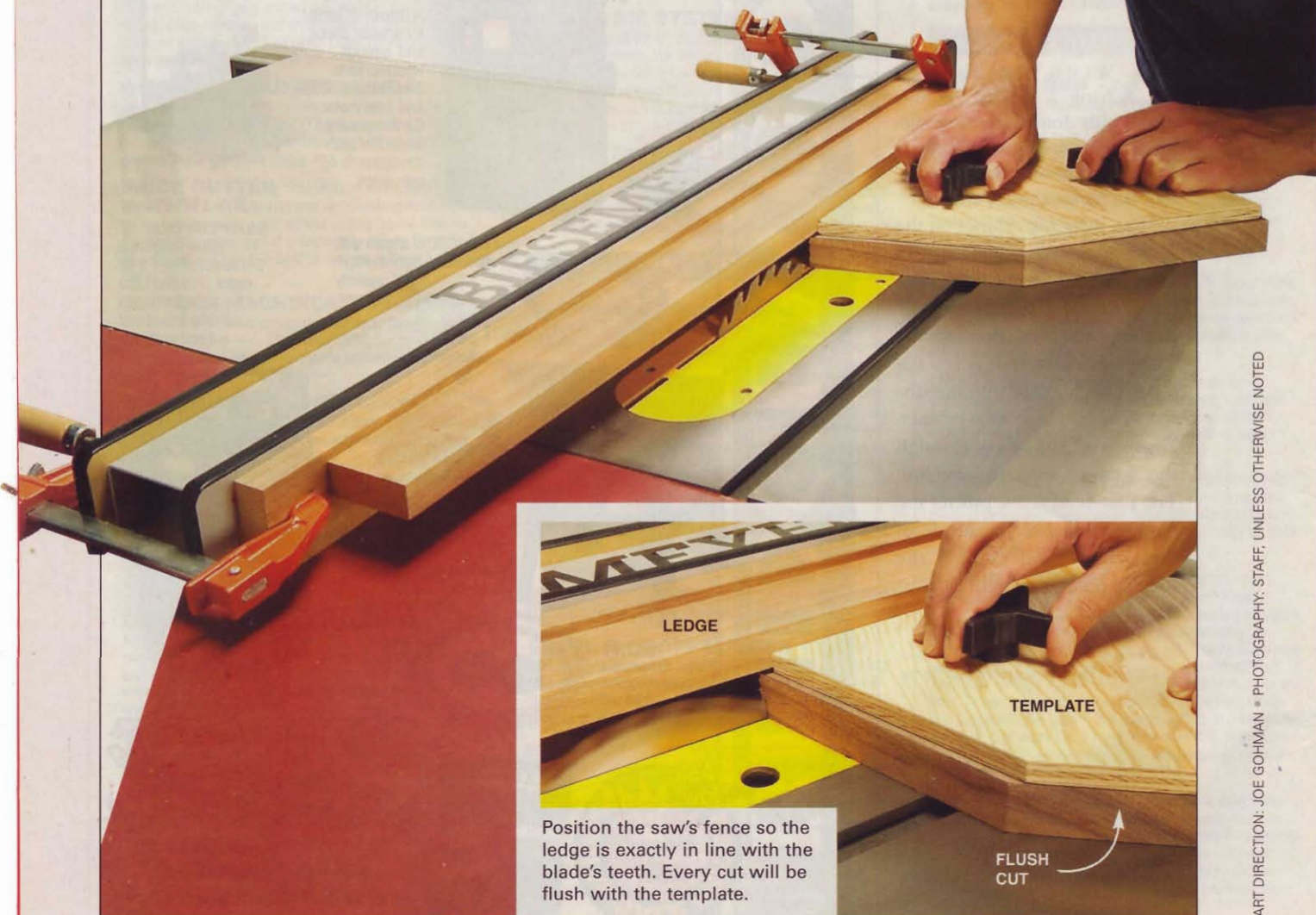
A simple addition to my tablesaw fence allows me to cut dozens of identical odd-angled shapes in a hurry. It works just like a flush-cutting router bit. The auxiliary fence's ledge is exactly lined up with the blade's outer edge. I use double-face tape to attach a template to a slightly oversize workpiece, then push the template along the ledge. The result is a perfectly clean cut—with no router bit tear-out—that precisely follows any template. It's perfectly safe on sides down to 4 in. long.

I used 3/4-in. solid wood to build the fence, but plywood would do as well. The ledge is screwed and glued to the horizontal piece, 1 in. above its base. This gives enough clearance for the blade to be set higher than the 3/4-in.-thick workpiece. On the bandsaw, I rough-cut each workpiece 1/8 in. larger than the template on all sides. Presawing eliminates large off-cuts, so there's no chance of kickback. All I get are sawdust and perfect copies of my pattern.

Bruce Wedlock



This jig is perfect for making dozens of identical odd-angled parts.



Position the saw's fence so the ledge is exactly in line with the blade's teeth. Every cut will be flush with the template.

ART DIRECTION: JOE GOHMAN • PHOTOGRAPHY: STAFF, UNLESS OTHERWISE NOTED



GOOD-LOOKING PANELS

Nothing makes a cabinet look worse than door panels with unattractive grain that runs at weird angles. It pays to be picky about grain direction, even if it means wasting some plywood.

After assembling your door frames without glue, slide them around on the sheet of plywood until they frame attractive panels. Look for symmetrical grain patterns that you can center. Avoid patterns that run off one side.

I try to find grain that resembles mountains or cathedral arches. These A-shaped patterns make doors and cabinets appear taller and more graceful. Tight grain patterns, where the early and late growth is closely spaced, usually look better than patterns with wide grain.

Mark your good-looking panels by tracing around the inside of the door frames. Cut out the traced panels at least 1/2 in. larger on all four sides. Then trim them to fit the frames. Use the ugly plywood that's left over for jigs or in other places where appearance doesn't matter.

Tim Johnson



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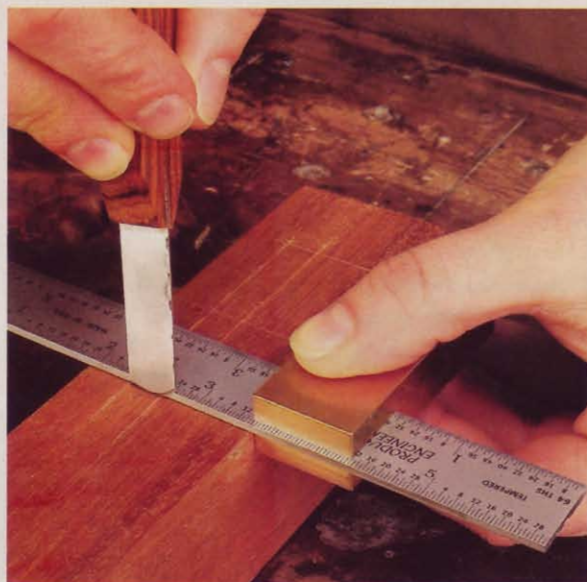
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HACKSAW
BLADE



1/4" x 1/2" x 4-3/4"
HANDLE

FREEBIE MARKING KNIFE

I get a kick out of making new tools from old parts. I keep all my old files and chisels to turn them into something useful around the shop. The same goes for hacksaw blades. I turned a dull one into an excellent single-bevel marking knife.

I prefer a single-bevel to a double-bevel marking knife for accurately drawing a square line. (If you lean a double-bevel knife the wrong way, the line wanders away from the square.) To make this single-bevel knife, I clamped the old hacksaw blade in my metal-working vise, snapped off a 6-in.-long section and ground down the teeth. I flattened one side of the working end on sandpaper taped to my tablesaw, then curved and sharpened it with a 100-grit wheel on my grinder. A curved end with a long, continuous edge stays sharp longer than a pointed end. I attached the handles with epoxy.

Dave Munkittrick

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BOWL GOUGES

ALL YOU NEED TO TURN A GORGEOUS BOWL IS ONE FINE TOOL.

Bowl turning is a blast! Thanks to advances in lathes and tooling, lots of woodworkers have now discovered how fun it is to turn a hunk of green wood into a beautiful bowl. Start to finish, it only takes a few hours, and the wood is usually free.

Whatever the bowl's shape, you need one basic tool: a bowl gouge. I've been asked countless questions about how to buy a bowl gouge during my 25 years as a professional instructor. There's a lot of confusion about what a bowl gouge really is, how it's sized and ground, and which type is best. Here's what you need to know to get started.



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TOOL

WHAT IS A BOWL GOUGE?

A modern bowl gouge has three parts: a rod, flute and handle. A solid round rod makes the tool very strong. The rod's flute is generally a deeply cut oval, which improves the tool's chip-cutting action. A bowl gouge usually has a large handle, about 16 in. long, for increased leverage.

A bowl gouge is often confused with a roughing gouge. A roughing gouge is used in spindle work, such as turning a table leg, to remove a blank's square corners or to cut a cylinder or taper. It should not be used for faceplate work, such as turning a bowl. A roughing gouge has a tang, which isn't designed to take as much downward pressure as a rod. The tang could bend or break under the larger force involved in turning a bowl.

Bowl gouges are also often confused with detail gouges, which are also called spindle, fingernail or shallow gouges. A detail gouge has a shallower flute than a bowl gouge. A detail gouge is designed for shaping small elements, particularly in spindle work, although it is used in bowl turning for shaping rims, bases and feet.

FLUTE SHAPES

The flute is the inner, milled portion of a bowl gouge's rod. The flute's shape varies among manufacturers. Its deep oval may have round or straight sides. Both types are easy to learn how to handle, so it doesn't really matter which one you get. Individual turners have their favorites, but no single design is a runaway winner.



BOWL GOUGE SIZING SYSTEMS

Manufacturers use two different, competing systems to size bowl gouges, which can be confusing. In the commonly used English system, a gouge's size is approximately the width of its flute. In the less commonly used North American system, the gouge's size is exactly the diameter of the rod (which I think makes a lot more sense). As a result, the same gouge is usually labeled 1/8 in. smaller in the English system than in the North American system. For example, a 1/2-in. gouge in the English system is the same size tool as a 5/8-in. gouge in the North American system. Note which system a dealer uses before you order.



Circle No. 165

BOWL GOUGE SIZES

Bowl gouges are available in a wide range of sizes. You don't need a whole set. If you own a standard-size lathe with a 12- to 14-in. swing, buy a



A 1 1/2-in. bowl gouge is a nicely balanced size for most bowl turning on a standard-size lathe (see Sources, page 22). With this workhorse tool, you can turn 5- to 24-in.-dia. bowls.

1/2-in. gouge, English system (5/8-in. North American). All the gouges shown here are sized by the English system.



A 3/8-in. bowl gouge is a better choice if you own a mini-lathe. This gouge is large enough to turn a bowl as big as the machine can handle, but it's not so aggressive that it will bog down a mini-lathe's smaller motor.



A 1/4-in. bowl gouge was traditionally used for finishing the inside or outside of a bowl. I prefer to make a light finishing cut with a 1/2-in. gouge that has a finger-nail profile (see "Edge Profiles," page 22).



A 5/8- or 3/4-in. bowl gouge is useful for making heavy, aggressive cuts on bowls larger than 14 in. in diameter. Turning a monster bowl usually requires a heavy-duty, large-capacity lathe with a 2-hp or larger motor.

bowl gouge steel

Look for a bowl gouge made from high-speed steel (HSS), rather than high-carbon steel. A HSS gouge resists wear much longer and can't normally be softened by overheating on the grinder. There are three general grades of HSS to choose from (see Chart, right); all can be made equally sharp to begin with, but higher grades hold their edge longer. Most HSS gouges are made from M2 steel, which is an excellent alloy. I recommend that you buy an M2 gouge first, before you become

TYPE OF HSS STEEL	AVERAGE PRICE OF 1/2-IN. GOUGE	APPROXIMATE WEAR FACTOR ¹
M2	\$50	5
M4 and 2030	\$75	15
A11 and 2060	\$100	22

1. Average ability to resist wear compared to high-carbon steel, according to manufacturers.

an expert sharpener, because the extra steel you'll remove while learning how to sharpen is less expensive!

EDGE PROFILES

Bowl gouges come with many different edge profiles. This shape is also called the tool's grind, because it's created and altered on the grinding wheel.

Each profile has its pros and cons. You don't have to worry too much about which profile a new tool has, because you can reshape it. Whatever its profile, or price, a new tool often needs reshaping or more sharpening. For more information on grinding and sharpening a bowl gouge, see Sources, below.

Sources Packard Woodworks, (800) 683-8876, www.packardwoodworks.com 1/2-in. M2 HSS bowl gouge, #100122, \$53. • American Association of Woodturners, (651) 484-9094, www.woodturner.org "Fundamentals of Sharpening" DVD, \$35.

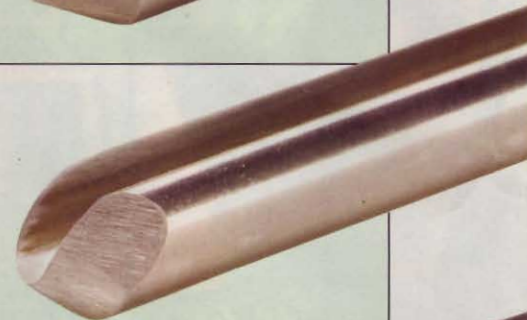
Traditional Grind

Many bowl gouges come with a traditional profile. This shape is easy to sharpen but has limitations. For some bowl shapes, it's difficult to rub the bevel on either the inside or even the outside of the bowl.



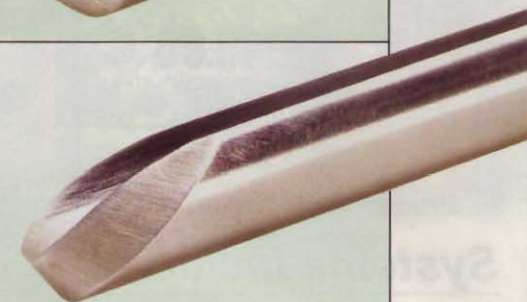
Fingernail Grind

I call this profile the fingernail grind. It's more versatile than the traditional profile, so I recommend it for beginners. Few gouges come with this profile, though; usually, you must grind it yourself.



Irish Grind

This swept-back profile has been called many names, including Irish, Celtic, side grind, and Ellsworth. This is the most versatile profile, allowing you to rough, scrape and finish a bowl with a single tool. It is a bit more difficult to sharpen and use than other profiles.



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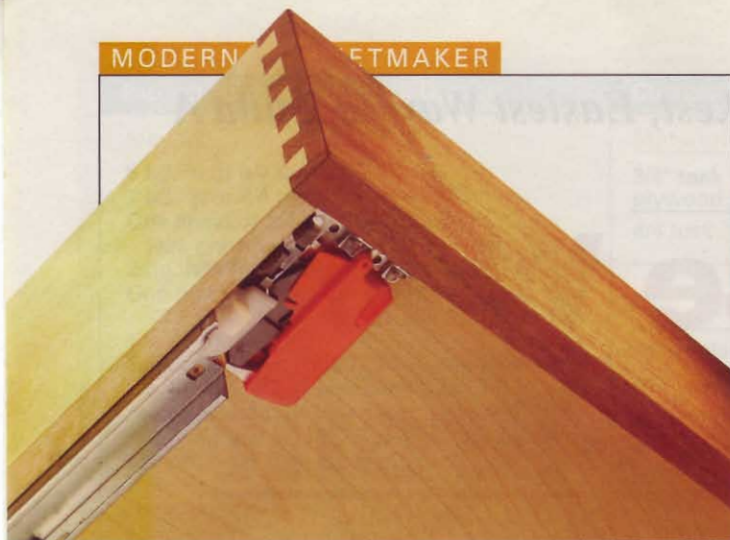


Drawer Slides

NINE MODELS FOR
NINE SITUATIONS

Open the drawer of a well-made modern cabinet. How do the slides feel? They should be effortless, smooth and precise. You have more than a dozen types of slides from which to choose. For that perfect glide, the trick is to match the situation and the slide.

Here are nine common kinds of drawers and recommendations for the type of slide to buy for each. As to the specific brand and model, lots of good choices are available. With each drawer, I've listed one of my favorites. You'll find information about where to find a distributor for each slide in the Sources, page 30.



DOVETAILED DRAWER

Don't cover beautiful dovetails with a side-mount slide. Use a totally concealed, ball-bearing undermount slide. They're the latest thing for high-end kitchen cabinet drawers. These particular slides are super-smooth and have a self-closing mechanism. Buy the slides before you build the drawers, though. The slides have specific requirements regarding the thickness of the drawer sides and the location of the drawer bottom.

Shown: Blum Tandem premium undermount drawer slide, #562H, 15-in. to 21-in. lengths, \$37 to \$50 a pair.



FACE-FRAME CABINETS

Two simple brackets added to a side-mount, ball-bearing slide make installation a lot easier than building out a cabinet's sides to be flush with the face frame. Fasten the front bracket to the face frame. Clip the slide onto it. Then clip on the rear bracket and attach it to the cabinet's back. If the back is only 1/4 in. thick, apply a mounting block to the back so the bracket's screws can get a solid grip.

Shown: Knap & Vogt 100-lb. full-extension drawer slide, #8400, 10-in. to 28-in. lengths, \$14 to \$20 a pair. Face-frame and rear-mounting brackets, about \$1 each.

OUTDOOR DRAWER

Exposure to the elements causes a slide to rust and corrode, and there's no easy way to clean it. There is an answer: stainless steel slides rated for outdoor use. They'll hold up well on this patio potting table.

Shown: Knap & Vogt 75-lb. stainless-steel full-extension drawer slide, #6400, 16-in. to 22-in. lengths, \$36 to \$46 a pair.



TALL DRAWER

Stabilize an extra-tall drawer with two pairs of side-mounted slides. With only one pair, this drawer wouldn't open smoothly. These are ball-bearing slides, named after the internal ball bearings on which the components ride. Ball-bearing slides are interchangeable for left and right. That makes installation less confusing, especially when you're using four!

Shown: Liberty 100-lb. full-extension ball-bearing slide, #D750 series, 12-in. to 26-in. lengths, \$8 to \$13 a pair.



MELAMINE DRAWER

For a white drawer, use a white slide. These particular roller slides are a bottom-mount style, so-called because they wrap around the bottom edge of the drawer side. Melamine drawers are often assembled in the simplest fashion, with a bottom that attaches directly underneath the drawer side. These slides cover that joint and help support the drawer bottom.

Shown: Blum drawer runners, #B430E, 10-in. to 32-in. lengths, \$21 to \$40 a pair.



SMALL DRAWER

A small drawer requires an equally small slide. For a piece as nice as this tiny keepsake chest, use a ball-bearing slide. This particular slide doesn't take up much room: One half is housed in the drawer side and the other is only 1/4 in. thick. Unlike other slides, this one doesn't come apart in two pieces. You mount the slide to the cabinet, extend it and add the drawer.

Shown: Rockler, Mini ball-bearing drawer slide, #30804, #30811, 7-1/4-in. to 15-1/8-in. lengths, \$5 to \$6 a pair.



Sources Accuride, (562) 903-0200, www.accuride.com • Blum, (800) 438-6788, www.blum.com • Knappe & Vogt, (800) 253-1561, www.kv.com • Liberty, (800) 542-3789, www.libertyhardware.com • Rockler, (800) 279-4441, www.rockler.com • Schock-Metall, (800) 345-8550, www.schockmetall.com/furniturewoodworking.php • Woodworkers Supply, (800) 645-9292, www.woodworker.com

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FILE DRAWER

Use an overtravel slide rated to carry a minimum 125-lb. load on a file drawer. An overtravel slide allows the drawer to open about an inch beyond its full depth. This gives you easy access to the rear files. Mounted on an upper drawer, this slide's overtravel would also allow the back of the drawer to open beyond an overhanging desk top.

Shown: Knap & Vogt full-extension lateral file slide, #8520, 16-in. to 20-in. lengths, \$31 to \$35 a pair.

SHOP DRAWER

Use roller slides in a dusty shop. The lubrication in a ball-bearing slide would attract sawdust and, in no time, the slide would begin to stick. Roller slides are much easier to keep clean. Simply brush or blow out the sawdust and you're good to go. Tool storage drawers like this one should be capable of carrying a lot of weight. These heavy-duty roller slides can carry a 200-lb. load.



Shown: Woodworkers Supply, Super heavy-duty drawer slide, #115-793, 20-in. length, \$40 a pair. Available in 20-in. to 36-in. lengths, \$40 to \$60 a pair.



WIDE DRAWER

A wide drawer is prone to wobble if you use a standard slide. To eliminate racking, use a rack-and-pinion slide. Both sides are connected with a steel rod, so they act in tandem. Installation takes a little extra time, but it's worth it. This Schock-Metall slide is rated for 200 lbs. and can handle a drawer almost 5 ft. wide.

Shown: Schock-Metall, Schock rack-and-pinion drawer system, #RPD series, 18-in. to 22-in. lengths, \$52 to \$55 a pair.

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Tips for Installing Shelf Supports

DRILLING SHELF-SUPPORT HOLES is not difficult, but you only get one chance to get it right. If you make a mistake, you'll get holes that don't line up and shelves that rock or are way out of level. Here are some tips to remove the guesswork from drilling the shelf-support holes and to improve your accuracy. I've also included some tips on which supports are good for glass and other specialty shelving situations.

MARK IT UP— PREVENT AN OOPS!

Mark the top of your template. This will help you avoid flipping the template top for bottom and suffering the big mistake of misaligned holes. In addition, drilling shelf-support holes after the cabinet is assembled helps eliminate the risk of drilling holes on the wrong side of a panel.

EDITOR: RANDY JOHNSON • ART DIRECTION: DAVID FARR • PHOTOGRAPHY: MIKE HABERMANN



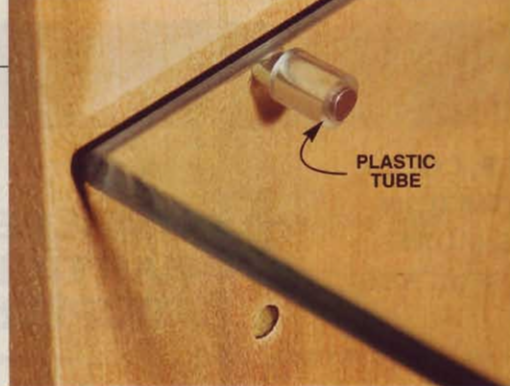
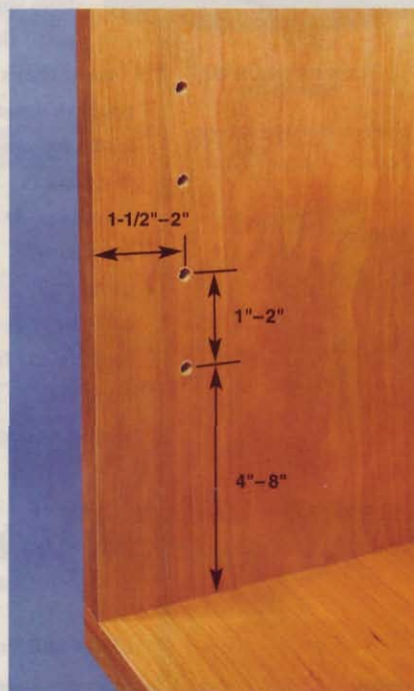
SELF-CENTERING BIT

USE A SELF-CENTERING BIT

For perfect alignment every time, use a self-centering bit and a shop-made template. The self-centering bit has an outer sleeve that guides the bit. It also has a built-in depth stop so you don't have to worry about drilling through your cabinet side. The outer guide also prevents the hole in the jig from becoming oversize, which it would if you used an ordinary drill bit.

PRACTICAL SPACING FOR HOLES

A practical spacing between shelf supports is 1 in. to 2 in. between holes and from 4 in. to 8 in. below the top and above the bottom. A set-back of 1-1/2 in. to 2 in. from the front and back of the cabinet will give your drill enough room to maneuver when the back is on or if there is a face frame.



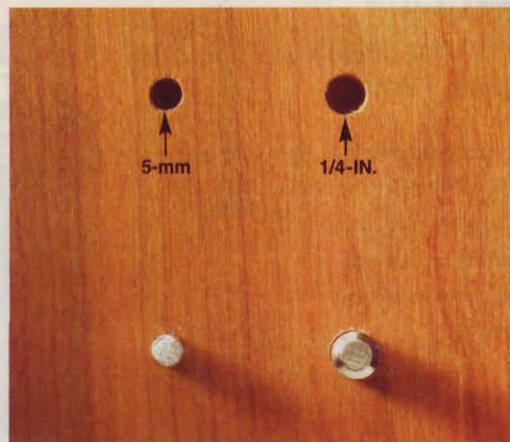
SOFT SUPPORT FOR GLASS SHELVES

Straight 5-mm shelf pins with a piece of 1/4-in. outside-diameter (O.D.) aquarium air hose are great for glass shelves. They provide a cushion for the glass, keep it from sliding and reduce the shelf's rattle when the dog runs through the house (see Sources, page 36).



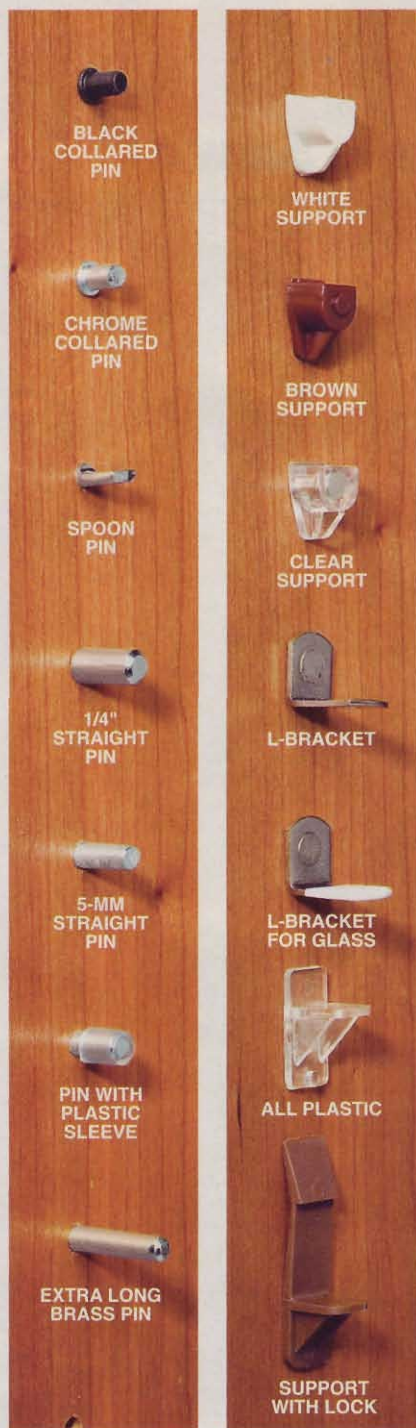
DRESS UP, STRENGTHEN HOLES

These little metal grommets will dress up your cabinet and, for shelves whose position is frequently adjusted, will prevent the holes from wearing. The grommets, available for both 5-mm and 1/4-in. holes, come in chrome or brass tone. An oversize drill bit is required to make holes for the grommets (see Sources).



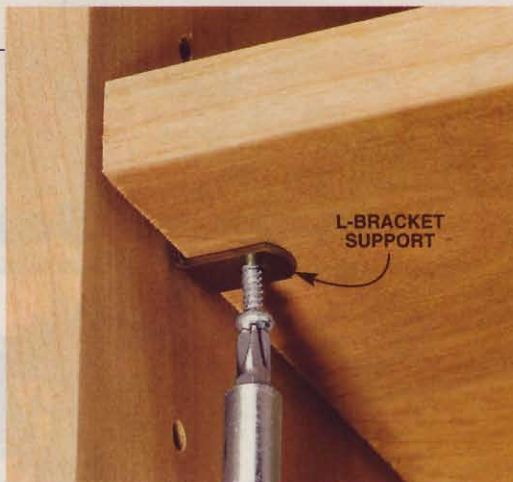
5-MM HOLES LOOK BETTER

Most shelf supports come in both 1/4-in. and 5-mm diameters. I prefer the smaller 5-mm hole peg, because it provides a lighter look and it is less noticeable than a 1/4-in. hole (see Sources).



SHELF SUPPORTS FOR ANY OCCASION

Some are specialized, others are used mainly for aesthetic purposes and some will save you money if you are using a lot of them. Use pins with a collar when the holes go all the way through a partition. Colored supports blend with the cabinet. Plastic supports are about half the price of metal supports. Supports with locking tabs will keep the shelf in place (see Sources).



KEEP SHELVES FROM MOVING

Some L-bracket shelf supports have a hole in the support that allows you to screw it to the shelf (see Sources, page 36).

HIDE YOUR SUPPORTS

Hidden wires are fully concealed when the shelf is in place. Use a 1/8-in. self-centering bit and a template to make the holes. The edge of the shelf needs to be slotted. This can be done on your tablesaw or with a slot-cutting router bit. **Tip:** To simplify the slotting process, do it before you edge band. That way you can simply slot the entire edge and not have to worry about stopping the slot before you reach the front of the shelf (see Sources).



Sources Woodworkers Hardware, (800) 383-0130, www.wwhardware.com 5-mm self-centering bit, #VB5MM, \$21. 5-mm spoon shelf support, nickel, #HB284, \$2.80 for 20. 5-mm shelf pin support with collar, bright nickel, #G401BN, \$2.40 for 20. 5-mm shelf pin support with collar, antique copper, #G401AC, \$2.40 for 20. 5 x 24-mm shelf support, nickel, #G402BN, \$2.60 for 20. 5-mm spoon shelf support, brass, #HB214, \$2.20 for 20. 5-mm L-shaped shelf support, nickel, #G707BN, \$3.20 for 20. Grommet for 5-mm shelf pin, brass, #KV0326BR, \$2.80 for 20. 1/4-in. spoon shelf support, brass, #HB21C25, \$2.20 for 20. 9-3/4-in. hidden-wire shelf support for 1/8-in. hole, #SYX5209, \$0.60 ea. 5-mm shelf support, vinyl cover, nickel, #G708VBN, \$3.40 for 20. • Rockler, (800) 279-4441, www.rockler.com 9/32-in. self-centering bit, #34368, \$20. 7/32-in. self-centering bit, #34342, \$20. No. 10 (1/8-in.) Insty-Drive self-centering bit, #69007, \$7. 5-mm shelf support, black, #22955, \$2.50 for 16. 5-mm shelf support, brass, #22880, \$2.50 for 16. 1/4-in. locking shelf support, #24398, \$4 for 16. • Local pet store 1/4-in. O.D. aquarium hose, \$1 for 10 ft.

New Tools

PRODUCTS FROM THE 2005 AWFS SHOW

The Association of Woodworking and Furnishings Suppliers (AWFS) show is a destination for woodworkers who want to see the latest and greatest. This year's show, in Las Vegas, had 400,000 square feet devoted to tools, tools, and more tools—the sign of a great year in the woodworking industry. Here are some of the more interesting products I found there.

by George Vondriska



Source
DeWalt, (800) 433-9258, www.dewalt.com
12-in. sliding miter saw, #DW718, \$659. Laser
attachment, #DW7187, \$59.

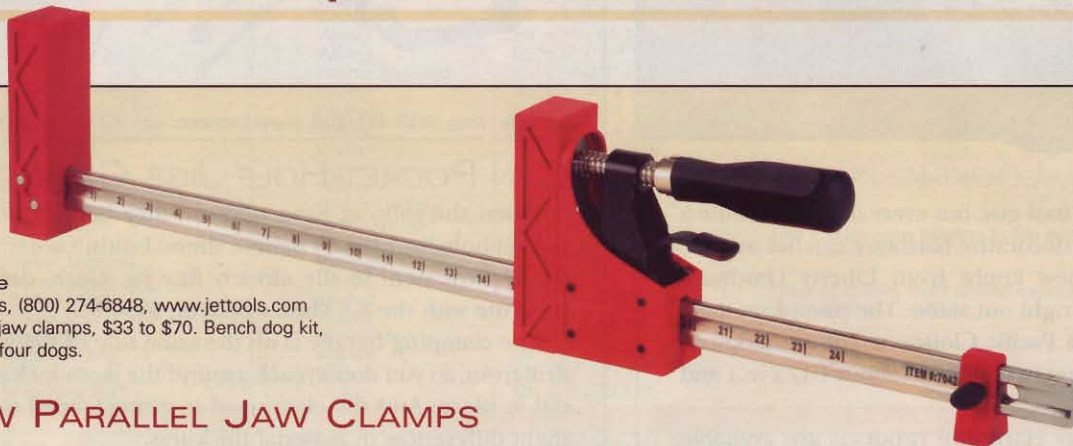
BIG-CAPACITY SAW WITH A REDUCED FOOTPRINT

DeWalt's new DW718 12-in. sliding miter saw, \$659, has brought together two features you wouldn't think are compatible: increased capacity with a smaller footprint. In its standard configuration, this machine will crosscut boards as wide as 14 in. and can cut through a board up to 6-1/2 in. wide held vertically against the fence. By removing the fence and adding a subtable, you can use the saw to crosscut material up to 16 in. wide. The DW718's compact design is about 6 in. shallower than that on similar machines, so you don't need as much clearance behind the saw.

The DW718 has a 15-amp motor and bevel cuts up to 48 degrees left and right. It angles 51 degrees right and 60 degrees left. The preset miter detents can be overridden, allowing you to slightly tweak the saw angle without slipping into the detents.

The DW718 can be fitted with a laser to indicate the line of cut. You can set up the laser for the left or right side of the blade and fine-tune it to precisely locate the cut.

for 2006



Source

Jet Tools, (800) 274-6848, www.jettools.com
Parallel jaw clamps, \$33 to \$70. Bench dog kit,
\$16 for four dogs.

NEW PARALLEL JAW CLAMPS

You just can't beat parallel jaw clamps when it comes to keeping glue-ups flat and true. Jet has entered the market with its version of parallel clamps. Capacities range from 12 in. to 98 in., with prices from \$33 to \$70, which is in line with pricing on other parallel jaw clamps.

The Jet clamps have some unique features. They include a trigger for rapid advance of the movable jaw. A ruler indicating the jaw opening is etched into the rail to

simplify setting up the clamps. The clamp bottom is drilled and tapped to accept a bench dog; in fact, Jet offers a kit of four dogs for \$16. The bench dogs can be used in conjunction with holes in your workbench to stabilize the clamps. Like other parallel jaw clamps, the new Jet clamps are made of nonmarring resin, so you don't need clamp pads, and the movable jaw can be reversed for spreading. A sliding rail stand keeps the movable clamp head off your workbench to simplify positioning.



UNBELIEVABLE JOINTER VALUE

It's like Grizzly's giving this machine away. Its fully equipped G0452 6-in jointer is selling for \$325. Yep, that's right, \$325. That's a tough price to beat for a 6-in. jointer.

In addition to standard jointer features, this machine has a couple extras. The mobile base is built in, which can save you another \$50 or so. And, for those of us who are tired of bending over to hit the power switch, this machine's on/off switch is mounted on a mast above the machine.

Other features include a 46-in.-long bed, enclosed stand, dust port, 1-hp motor and three-knife cutter-head. Just in case you don't know whether you prefer jackscrews or springs under your jointer knives, it comes with both. The fence position is controlled by a rack and pinion, and the infeed table is controlled by a lever.

Source Grizzly Industrial, (800) 523-4777, www.grizzly.com
#G0452 6-in jointer, \$325.

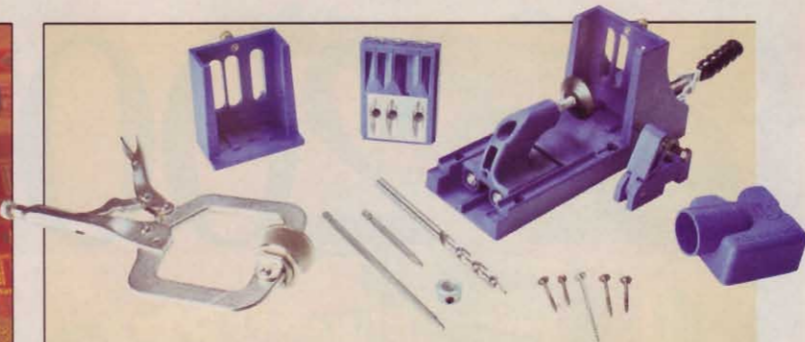


COOL-LOOKING HARDWARE

I'm a tool guy, but every once in a while a piece of decorative hardware catches my eye. These new knobs from Liberty Hardware jumped right out at me. The photos say it all. The Asia Pacific Cloisonné collection knobs are 42 mm in diameter (about 1-1/2 in.) and cost \$19.

Liberty Hardware products are available through Home Depot.

Source Liberty Hardware, (800) 542-3789, www.libertyhardware.com Asia Pacific Cloisonné knobs, \$19.



Source Kreg, (800) 447-8638, www.kregtools.com K3 Master system, \$150.

CAN POCKET-HOLE JIGS GET BETTER?

When the folks at Kreg told me they had improved their pocket-hole jig, I didn't believe them. I didn't see much room for improvement in the already fine jig. Gosh, did they surprise me with the K3 Master System, \$150.

The clamping handle is on the same side of the jig that you drill from, so you don't reach around the jig to lock your material in place. And the clamp pad is spring-loaded to allow for slight differences in material thickness.

The K3 has a dust-collection shroud for connection to a shop vacuum. Quick removal of the chips allows you to drill the holes faster and reduces the likelihood of overfeeding and breaking the bit. The jig can be set to drill pocket holes in material that is 1/2 in. to 1-1/2 in. thick.

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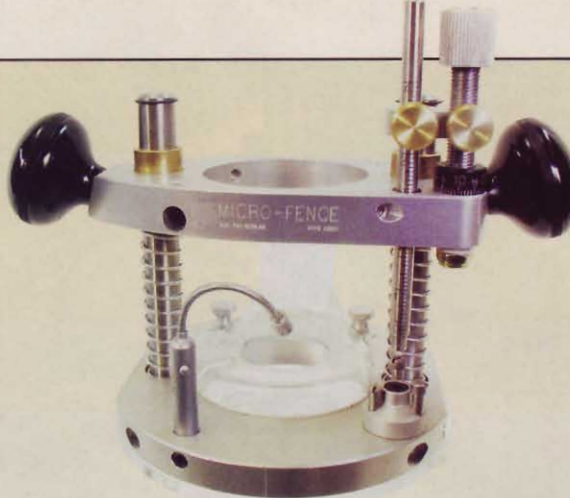
www.hutproducts.com

SUPER-ACCURATE ROUTER BASE

My days spent in a machine shop gave me a real appreciation for the dial-in accuracy that's inherent in metalworking machines. Micro Fence has built this same level of accuracy into its tools, including its new Portable Three-Axis Mill, \$400. This plunge-router base accepts laminate trim router motors and offers accuracy up to a thousandth of an inch. The key to this level of precision is the micrometer dial that's on all Micro Fence products. It adds perfect, easy-to-use control to the stainless-steel stop rod. That plus the three-position turret and fine-tuning bit depth is a snap.

Some of you are probably wondering how you would use such a tool. Micro Fence staff members say some buyers are woodworkers doing inlay work or mortises for tricky pieces of hardware. Others, they say, appreciate the lack of trial-and-error woodworking that the tools provide. After the router bit is zeroed to the surface, the user can easily dial in a precise depth of cut.

Admittedly, this product may not be for everyone, but for woodworkers who want to dial in depth-of-cut settings to .001 in., this base will do it with ease. And it's a tool that's simply a pleasure to hold.



The mill comes with dust-collection shrouds above and below the base and an LED light that can be mounted in one of four locations in the base to shed light on your work.

The Portable Mill is made for the Porter Cable 310, but with optional adaptors (\$30) will accommodate the Bosch PR10/20, Bosch 1608 and DeWalt 670.

Micro Fence products can be purchased by phone directly from the manufacturer.

Source: Micro Fence, (800) 480-6427, www.microfence.com
Portable Three-Axis Mill, \$400. Motor adaptors, \$30.

American Woodworker NOVEMBER 2005 43

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BANDSAW-BASED SAWMILL

Many woodworkers are intrigued by the logs-to-lumber idea and would love to use their bandsaw as an in-the-shop sawmill to cut their own lumber. Laguna's LogMaster, \$1,995, provides a rock-solid log sled and carriage system for the serious home sawyer.

The heart of the LogMaster is the sled that holds the log. With screws binding the log to the sled and the sled guided in the bandsaw table's miter gauge slot, all you need to do is push the material into the blade. After you've made a cut, simply turn the handwheels, counting the revolutions, to advance the log for the second cut.

The LogMaster includes infeed and outfeed tables with rollers and base cabinets (with storage) to support the whole system. The system is not permanently attached to the saw, so it can be removed for other operations. The standard LogMaster has a 5-ft. stroke, allowing you to cut logs 5 ft. or less in length. Four-foot extension kits are available for \$500. Remember, though—you've got to be able to lift those logs up onto the sled.

Call Laguna if you have questions about fitting this unit onto a non-Laguna saw.

Source Laguna Tools, (800) 332-4094, www.lagunatools.com
LogMaster, \$1,995. Extension kits, \$500.

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MAKE YOUR OWN PASSAGE DOORS

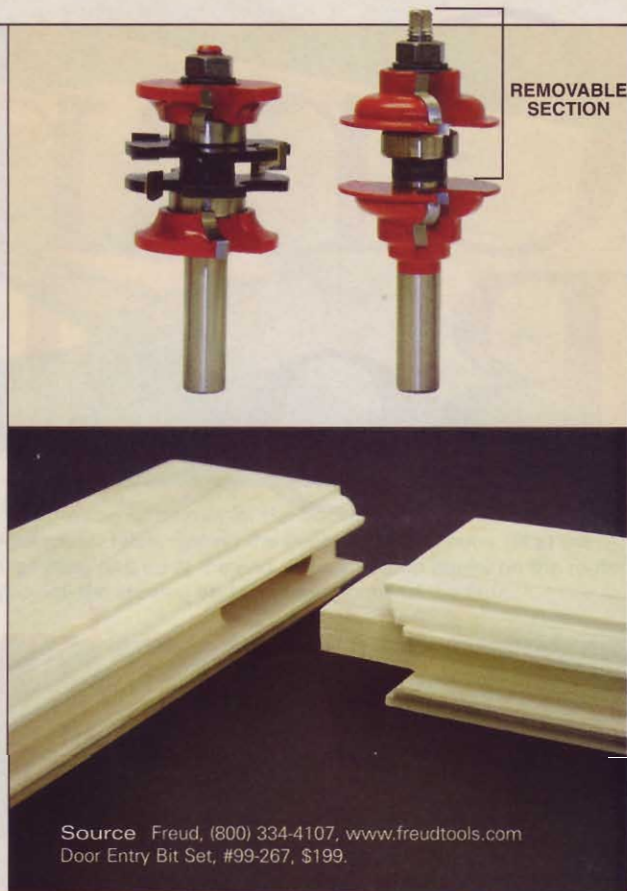
Making cabinet doors using a router table isn't news, but the Freud Door Entry Set, \$199, provides a way for woodworkers to make their own entry or passage doors.

The set can be used to make 1-3/8-in. or 1-3/4-in. thick doors. Cabinet door sets, in contrast, are designed for 3/4-in. material.

Unlike cabinet door sets, which simply cope the ends of the rails to match the profile on the stiles, the Freud Door Entry Set allows mortise-and-tenon joinery between the rails and stiles. The additional strength that the mortise and tenon provide is required for larger-scale entry and passage doors.

The key to machining the tenon is the removable top cutter and bearing assembly. When these parts are removed from the coping cutter, the remaining cutter undercuts the rail end. By flipping the piece for a second pass, you leave behind a tenon. Making multiple passes will leave a tenon of any desired length—simple! You'll need to cut the matching mortise into the stile using a router, mortiser or drill press.

The Door Entry Set bits have 1/2-in. shanks and must be used in a router table. The set, to be available early 2006, includes door construction recommendations and an instructional DVD.



Source: Freud, (800) 334-4107, www.freudtools.com
Door Entry Bit Set, #99-267, \$199.

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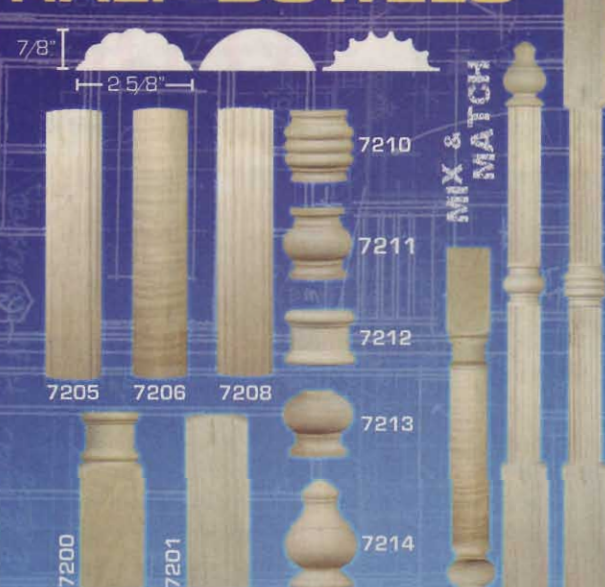
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Grand Bookcase

Rich walnut,
elegant details
and secret storage
in a design
that's fast and
straightforward
to build

by Randy Johnson

Sometimes a new piece of furniture conjures up images from a distant time and place. This bookcase, I imagine, would fit right into an early 20th-century lawyer's office, filled with leather-bound volumes and smelling of cigars. Rich walnut and generous moldings give it a luxurious feel, and hidden compartments are perfect for top-secret documents. The glass doors are as practical today for keeping dust off your books as they were 100 years ago. I've designed this bookcase for a thoroughly modern cabinetmaker, however. Its plywood cases are built with biscuits, the drawers use full-extension ball-bearing slides and the lipped doors are hung with easy-to-install wrap-around hinges. To make this large project more manageable, I built it in sections: a drawer unit below, three separate bookcase units above and a crown molding unit on top. The modular design also makes it easy to move it around your shop and into your house.

A big project like this does require a bit of experience. You'll need to know how to use a biscuit joiner, be well-versed in using a router and router table and know how to install drawer slides. The only advanced technique you may need to know is how to make and install the cus-



The modular design of this cabinet makes it easy to build and move.



Secret storage below the drawers provides a hiding place for valuables.



Lipped doors are easy to fit and hang and will even hide gaps caused by the doors being slightly warped or out of square.

ART DIRECTION: VERN JOHNSON • PHOTOGRAPHY: PAGES 46-47, MIKE KRIVIT; PAGES 48-55, RAMON MORENO • ILLUSTRATION: FRANK ROHRBACH



PROJECT REQUIREMENTS AT A GLANCE

Materials:

Four sheets of 3/4-in. walnut plywood
Two sheets of 3/4-in. birch plywood
One sheet of 1/4-in. birch plywood
Two sheet of 1/4-in. walnut plywood
Birch edge banding
30 bd. ft. of 4/4 walnut
15 bd. ft. of 5/4 walnut

Cost:

Materials and hardware,
approximately \$1,000

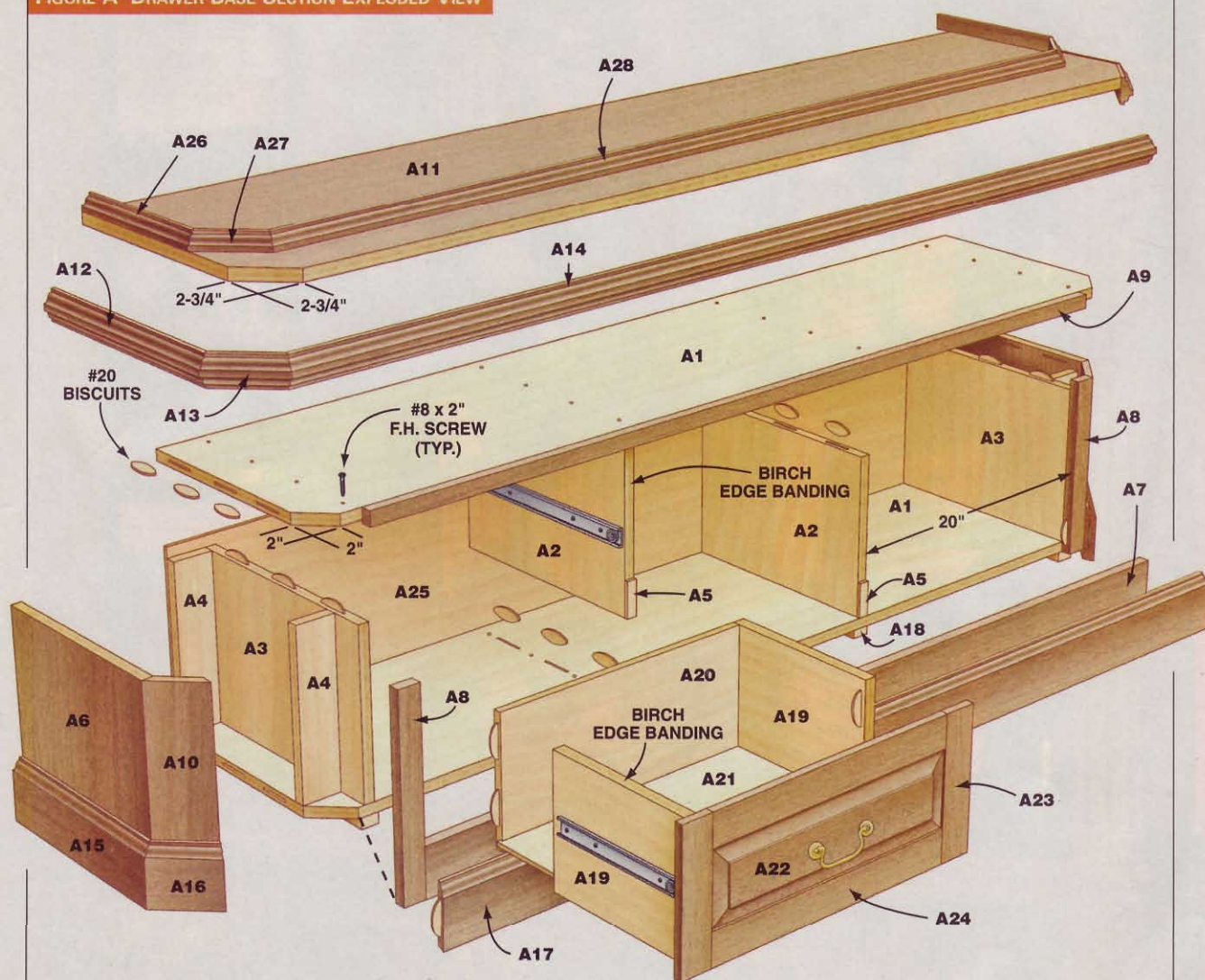
Hardware:

9-3/8-in. lipped self-closing hinges
Three pairs of 14-in. full-extension
drawer slides
Three panels of double-strength
tempered glass for doors
Four coupler bolts
42 glass retainer clips
48 shelf pegs
300 shelf peg hole grommets
Three drawer pulls
Three door pulls

Tools:

Tablesaw
Router bits (see Sources, page 55)
Router table
Planer
Jointer
Bandsaw
Drill
Biscuit joiner
Miter saw
Router
Clamps
Miscellaneous layout and hand tools

FIGURE A DRAWER BASE SECTION EXPLODED VIEW



This bookcase is built in easy-to-manage sections:
a drawer unit below, three separate bookcase units
above that and crown molding to top it off.



1 Both the lower drawer unit and the upper bookcase units have hollow ends. They act as torsion boxes, strengthening the units.

tom crown molding. If you make the bookcase in oak or birch, you could buy commercial crown molding, but if you choose walnut or cherry, you'll probably want to make the molding yourself. One approach is covered in "Crown Molding on the Tablesaw" on page 57.

START WITH THE DRAWER BASE

1. Assemble the drawer base with biscuits, screws and glue. (Fig. A, page 48; Fig. D, page 52). The bottom and subtop (A1) are identical. Set the inner divider panels (A2) flush with the back edge of the subtop and bottom, leaving a 1/4 in. space at the front. This space provides some clearance behind the drawer fronts. The side divider panels (A3) are set flush at the front and back of the subtop and bottom. After these parts are assembled, glue and clamp the fillers (A4) into place and add the spacer blocks (A5) to the front bottom edges of the vertical dividers (A2).

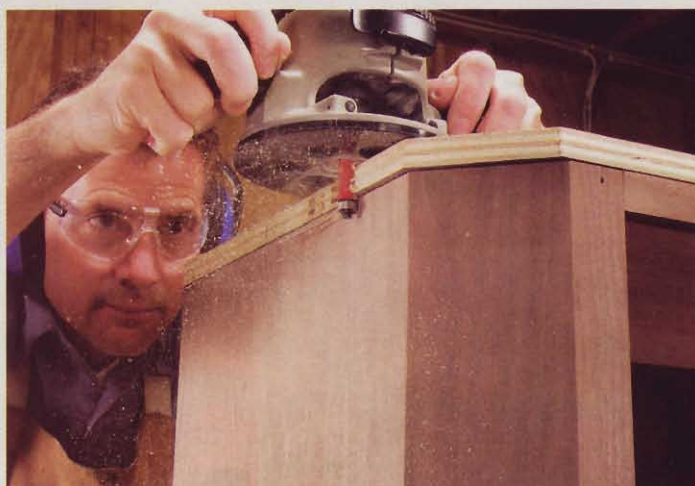
2. Add the walnut end panels (A6) to the drawer base (Photo 1). The end panels should extend 1/4 in. behind the base bottom and subtop. This creates a lip for the back (A25) to fit into.

3. Join the wide bottom rail (A7) to the two side stiles (A8) with biscuits and attach this three-sided assembly to the plywood drawer base. Next, glue the narrow top rail (A9) directly to the front top edge of the drawer base between the side stiles (A8). Don't worry if the joint between these parts isn't perfect; a molding will cover it.

4. Attach the angled corner boards (A10) with cauls and clamps (Photo 2; Fig. H, page 54). I



2 Gluing the angled corners can be tricky, but it's easy with a pair of plywood cauls. They hook around the front stile to prevent slipping and apply pressure to the corner's face.



3 Trim the base top of the drawer unit even with the case. A perfect fit is important, and it's much easier to achieve with a flush-trim router bit than by measuring and sawing.



4 Temporarily attach the drawer front with a few dabs of hot-melt glue. Open the drawer and drive in the screws that will permanently hold the front. When you're ready for finishing, remove the front and scrape off the hot glue.

FIGURE B BOOKCASE SECTION EXPLODED VIEW



used my jointer to create the beveled edges on these corner boards, but a fine-tooth blade in your tablesaw or a chamfering bit in a router table will also work. Using the dimensions from the Cutting List, page 55, will create corner boards that are slightly wider than needed so they will have a small overhang on each side when installed. The overhang makes fitting easier and is easily sanded off after the glue dries. Starting oversize is better than being undersize, which would expose the core of the plywood end panels (A6).

5. Add the base top (A11) to the drawer base. Leave it slightly oversize at the front and the ends and flush-trim it to match the base below (Photo 3). The back edge of the top should be flush with the back edges of the end panels (A6).

6. Use a roman ogee router bit (see Sources, page 55) in your router table to create the edge molding (A12, A13, A14) and the baseboard molding (A15, A16, A17) (Fig. K, page 54, for details on these moldings).

7. Attach the edge molding and baseboard molding with glue and a few brad nails. The miters on the baseboard use biscuits for alignment on the wide mitered joints. Note that

the baseboard overhangs the bottom edge of the drawer base by 3/4 in.

8. Screw the feet (A18) to the bottom of the drawer base.

9. Next, build the drawer boxes (A19, A20, A21). I built the drawers out of birch plywood and joined them with biscuits. This is simple and fast, but you can use any method you choose. The drawer bottoms (A21) fit in a quarter inch deep dado. Install the drawers on full-extension drawer slides (see Sources).

10. Make the raised-panel drawer fronts (A22, A23, A24). I routed the raised panel so it stands proud of the drawer frame for a bolder look (Fig. J, page 54).

11. Screw the drawer front to the drawer boxes (Photo 4).

12. Screw on the back panel (A25).

BUILD THE THREE BOOKCASE CABINETS

13. Cut the plywood tops, bottoms, sides and fillers (B1 through B5) for the three bookcase units and assemble them with biscuits, glue and screws (Fig. B, above). Screw on the backs (B6, B7).



5 The bookcase section is composed of three independent boxes, which make assembly a lot easier than handling one larger cabinet. The center unit, shown here, has bare plywood edges that will be covered by the side units' stiles.

14. Add the outer side panels (B8) to the two outer cases.

15. Assemble face-frame parts (B9, B10, B11) with dowels or biscuits. Make sure the frames are square.

16. Glue the face frames to the two outer cases.

17. Attach the bottom and top rails (B11) to the center case (Photo 5). The center case is 1/8-in. narrower than the space it fills. This ensures that the ends of the rails (B11) will pull up tight to the stiles (B10) on the side cases.

18. Rout the flutes in the angled corner boards (B12, Fig. F, page 54; Photo 6) with a core box bit in your router table. Marks on the fence represent the start and end points of the flutes. Carefully lower the board onto the core box bit to start the flute and tip the board up off the bit when it reaches the second mark. The only tricky thing about this fluting is that walnut tends to burn easily. Three precautions help you avoid burn: Use a new or freshly sharpened bit. Make the cut in several passes, with the final pass the lightest. Keep the work moving, because stopping creates extra friction, which can lead to burning.

19. Attach the fluted corner boards to the bookcases with the same clamping cauls that you used on the drawer base (Photo 2).

20. Stand the three cases on the drawer base.

21. Clamp the bookcases together, making sure the rails on the center bookcase line up flush with



6 Flute the corner boards for the bookcases with a core box bit on your router table, tipping the board onto the router bit at the beginning and up at the end. Start and stop marks on the router fence provide the starting and stopping points of the flute.



7 Join the three bookcases with coupler bolts. Use a clamp to hold the cases together and double-check that the face-frame rails and stile line up flush at the top and bottom of the cases.



8 Assemble the doors. Check that they are flat by sighting down a pair of winding sticks. Add shims, if needed, under the clamps until the top edges of the winding sticks align with each other. After the doors are out of the clamps, to avoid warping, make sure to store them flat until you install them.

FIGURE C CROWN SECTION EXPLODED VIEW

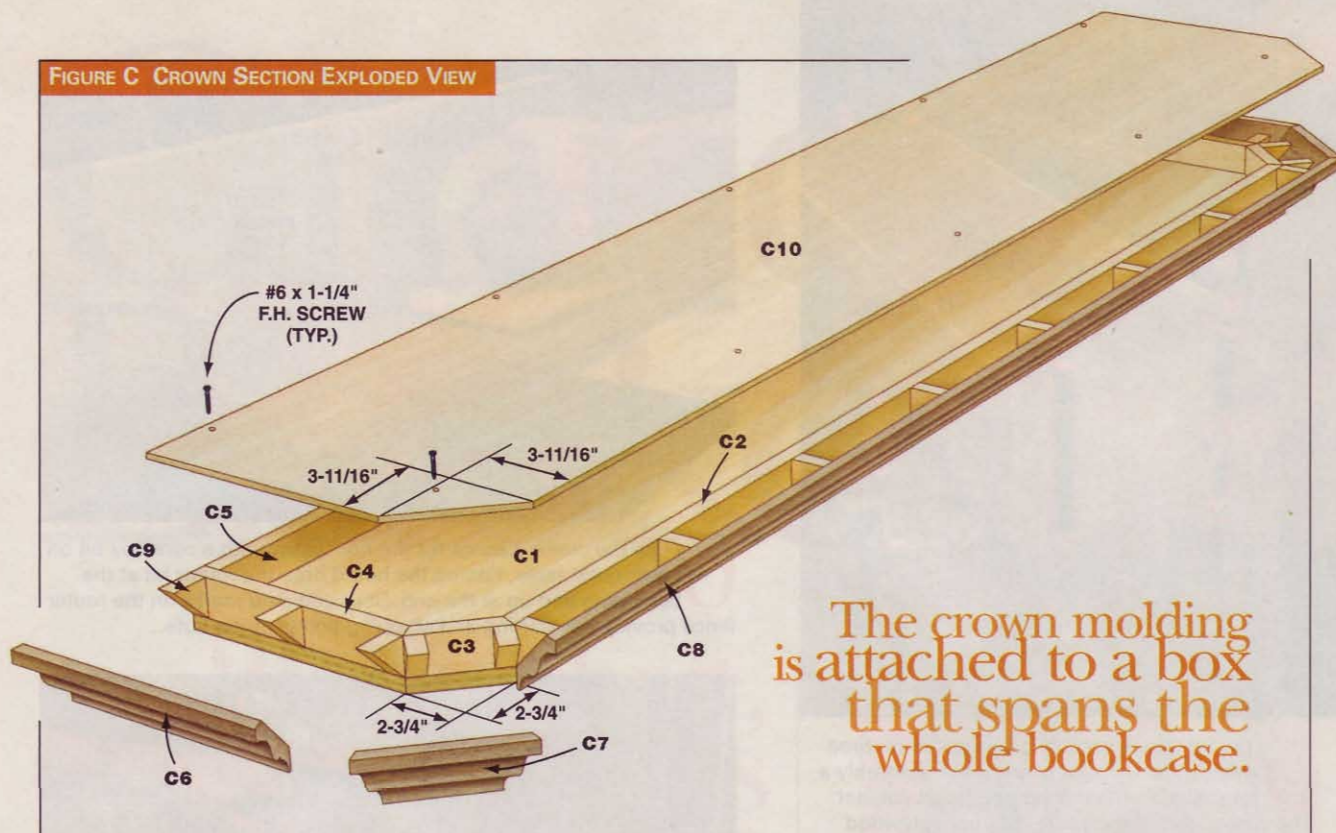
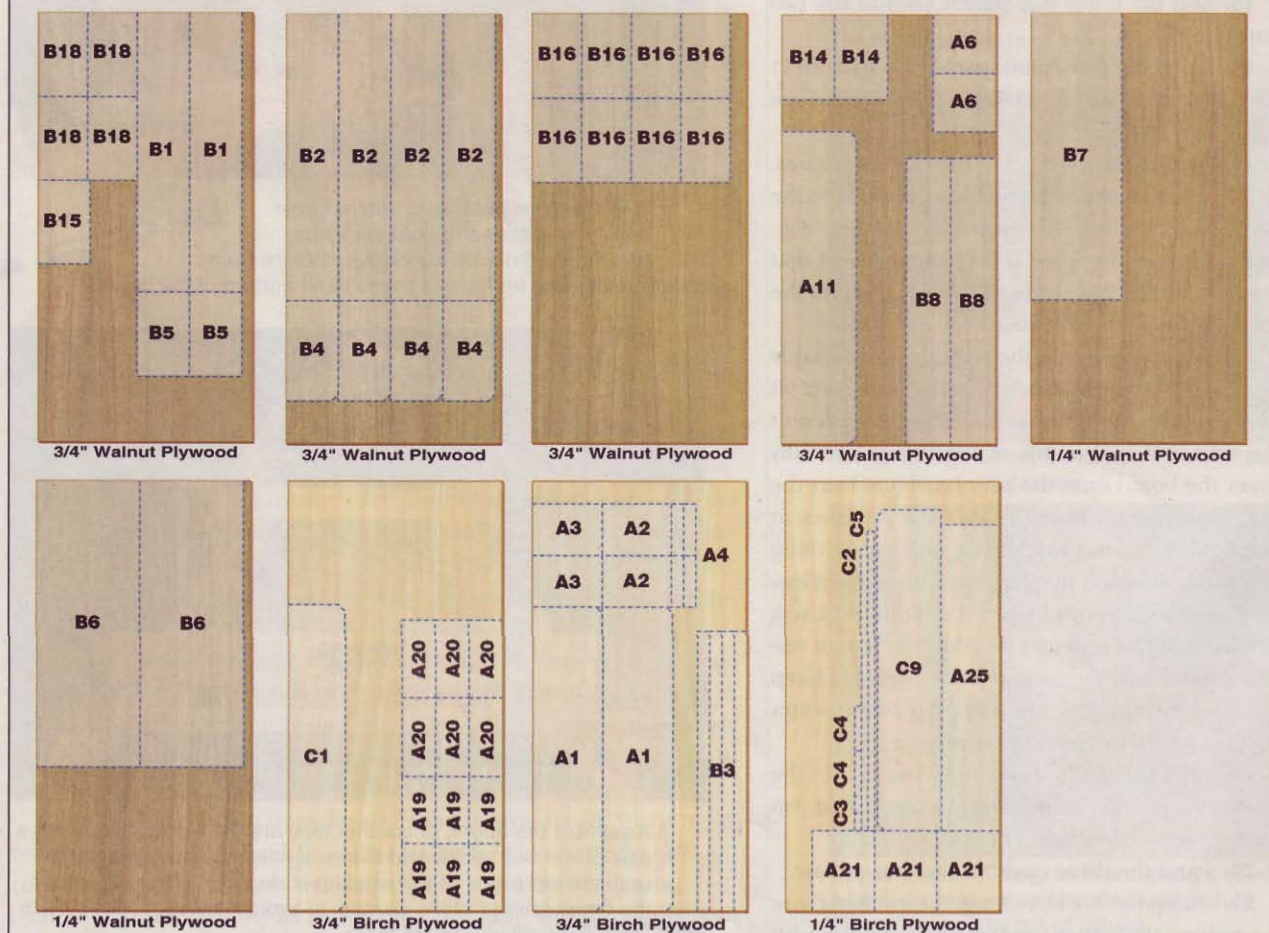


FIGURE D PLYWOOD LAYOUT DIAGRAMS



the face-frame stiles on the side bookcases. With everything aligned, drill the holes for the coupler bolts (see Sources, page 55) and install them (Photo 7).

22. Next, make sure the back of the bookcases and the back edge of the drawer base are lined up, with the bookcases centered left and right on the drawer base. With everything lined up, screw the bookcases to the drawer base using four 2-in. screws through the bottom of each bookcase section.

23. Add the shoe molding (A26, A27, A28, Fig. K, page 54) around the bottom of the bookcase units. Glue and brad-nail this molding to the top (A11) of the base, not to the bookcases.

24. Screw the bottom spacers (B13) to the bottom of the bookcase and drop in the bottom shelves (B14, B15). The bottom spacers are shorter than the depth of the shelf space so you can push down on the back of the bottom shelves and tip up their front edges for removal. This even creates a little secret storage space.

25. Use a template and a self-centering bit (see Sources, page 55) to drill the holes for the shelf pegs and hole grommets (see "Tips for Installing Shelf Supports," page 32).

26. Cut the shelves and glue on the edge banding (B16 through B19).

27. Make the doors (B20, B21). Mortise-and-tenon joinery provides strength and helps the doors glue up flat, but you should still use winding sticks to check the doors for flatness (Photo 8).

28. Use a round-over router bit to shape the outside corner of the door and a rabbeting bit to create the lip and the rabbet for the glass (Fig. G, page 54).

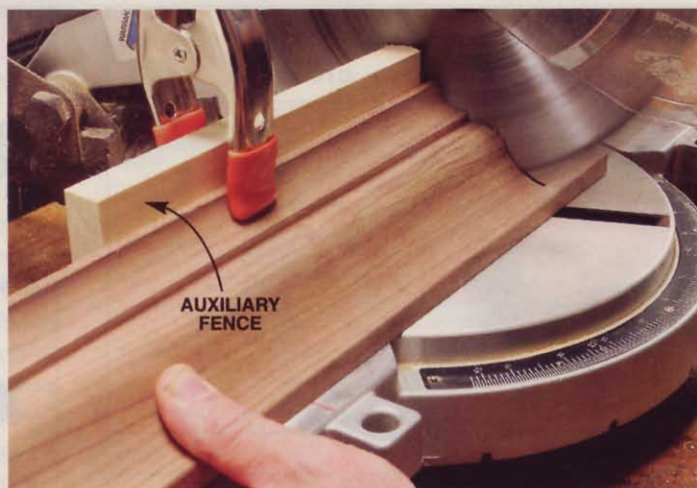
29. Hang the doors with 3/8-in. lipped hinges (see Sources).

30. Measure the opening for the glass and allow 1/16-in. clearance all around. Install the glass using glass clips (see Sources).

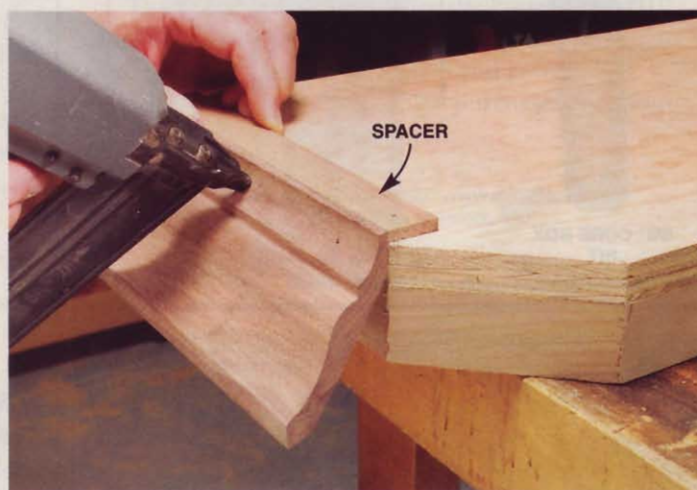
ADD THE CROWN

You're not going to find walnut crown molding at your local home center or lumberyard, and buying such a small quantity from a custom molding shop is likely to be an expensive option. So here's a chance to get creative with your tablesaw (see "Crown Molding on the Tablesaw," page 57). Another method for making it yourself is with a molding machine, such as the Woodmaster (see Sources).

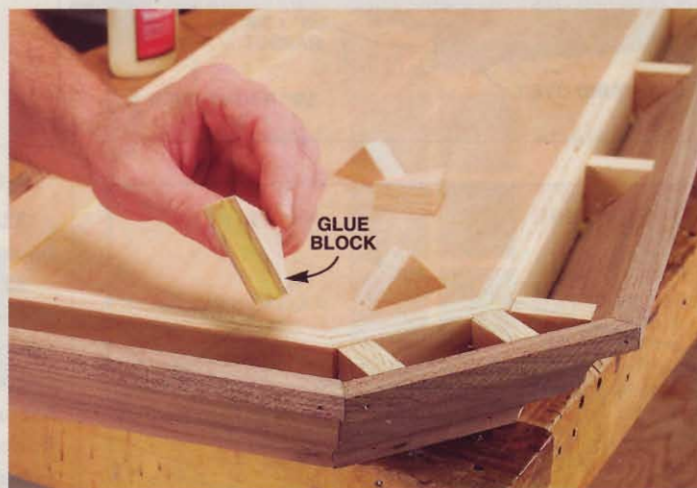
31. Start building the crown section (Fig C, page 52) by cutting the mounting board (C1) slightly oversize on the front and ends, screwing it to the top of the bookcases and flush-trimming the front and the ends the same way you did with the drawer base top (A11; Photo 3).



9 Cut the crown molding. Nesting the molding against the table and a tall auxiliary fence simplifies mitering, because it doesn't require a compound miter setup.



10 Attach the crown molding to the mounting board with a brad nailer. Use a spacer to create a lip on the bottom side. This lip will overhang the top edge of the bookcase units and hide the joint.



11 Add triangular glue blocks behind the crown molding for added strength. This crown assembly is screwed to the top of the bookcase.

FIGURE E CROWN DETAIL

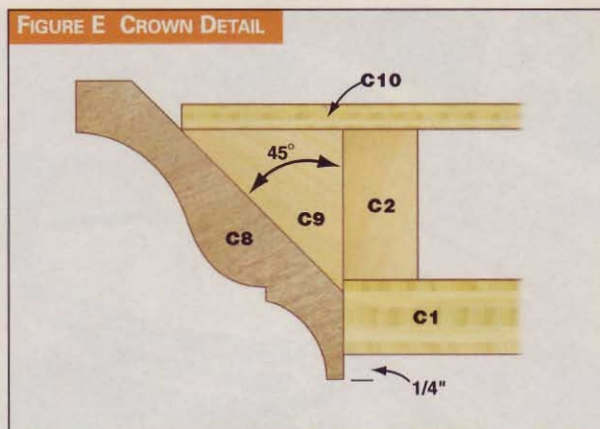


FIGURE F FLUTED COLUMN DETAIL

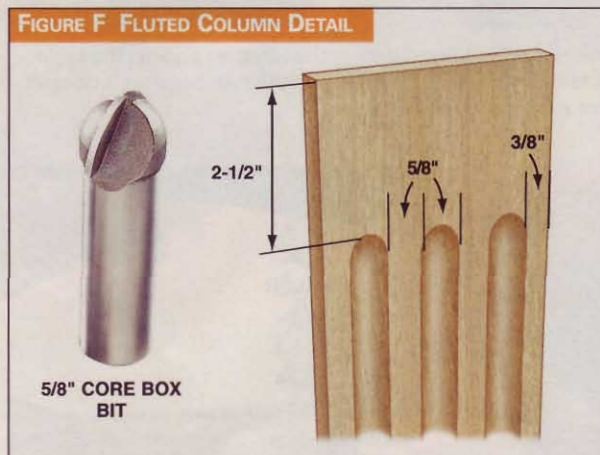


FIGURE G DOOR RAIL DETAIL

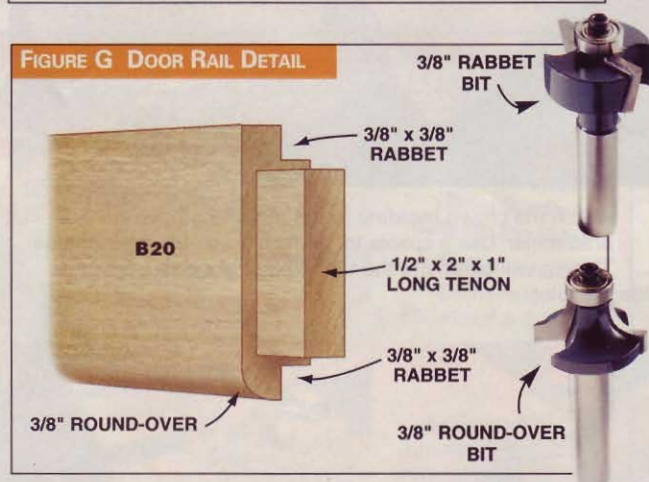


FIGURE H CLAMPING CAUL DETAIL

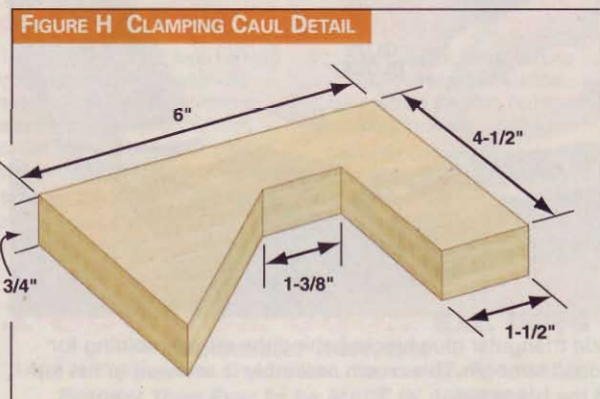
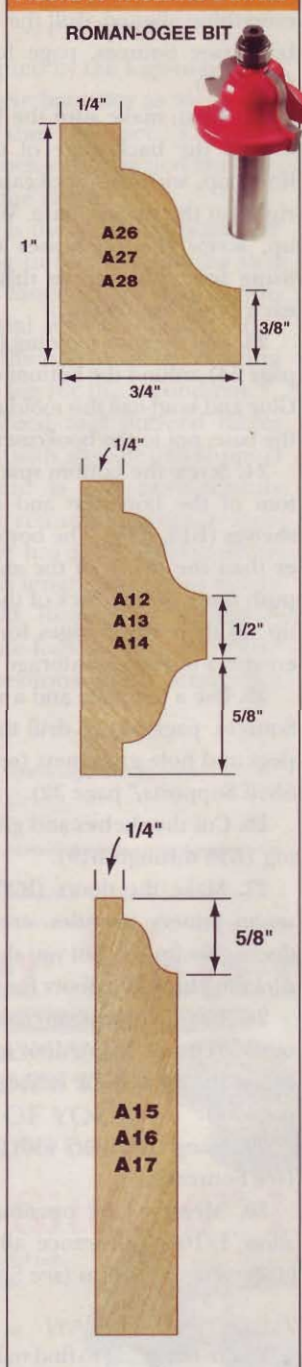


FIGURE J DRAWER FRONT DETAIL



FIGURE K MOLDING DETAILS



32. Remove the mounting board from the top of the bookcase and attach the edge boards (C2 through C5).

33. Next, cut the crown molding to size (Photo 9). A miter saw set at 22-1/2 degrees is the perfect tool for this. If you use your tablesaw, you will need to set your blade to 15-3/4 degrees and your miter gauge to 73-3/4 degrees. Make sure to run some test pieces to check the settings. (For some great information on cutting compound angles with a miter saw, go to www.Dewalt/miters.com.)

34. Attach the crown molding (C6, C7, C8) to the mounting board with glue and brads (Photo 10, Fig. E).

CUTTING LIST

OVERALL DIMENSIONS: 17-1/2"D x 73-3/4"W x 81-1/4"H

Part	Name	Qty.	Material	Dimensions (TH x W x L)	Notes
Drawer base					
A1	Bottom and subtop	2	Birch plywood	3/4" x 15-3/4" x 68-1/2"	Add iron-on edge banding to front edges.
A2	Inner divider panels	2	Birch plywood	3/4" x 15-1/2" x 11-1/2"	
A3	Side divider panels	2	Birch plywood	3/4" x 15-3/4" x 11-1/2"	
A4	Fillers	4	Birch plywood	3/4" x 2-3/4" x 11-1/2"	
A5	Spacers	2	Birch or walnut	1/4" x 3/4" x 2-1/2"	
A6	End panels	2	Walnut plywood	3/4" x 14" x 13"	
A7	Bottom rail	1	Walnut	3/4" x 3-1/4" x 61-1/2"	
A8	Stiles	2	Walnut	3/4" x 1-1/2" x 13"	
A9	Top rail	1	Walnut	3/4" x 1" x 61-1/2"	
A10	Corner boards	2	Walnut	1/2" x 4" x 13"	
A11	Base top	1	Walnut plywood	3/4" x 16-3/4" x 70"	
A12	Waistband molding	2	Walnut	3/4" x 1-3/4" x 14-5/16"	
A13	Waistband molding	2	Walnut	3/4" x 1-3/4" x 4-1/2"	
A14	Waistband molding	1	Walnut	3/4" x 1-3/4" x 65-1/8"	
A15	Baseboard	2	Walnut	3/4" x 4" x 14-5/16"	
A16	Baseboard	2	Walnut	3/4" x 4" x 4-1/2"	
A17	Baseboard	1	Walnut	3/4" x 4" x 65-1/8"	
A18	Feet	4	Birch or walnut	3/4" x 1-1/4" x 15-3/4"	
A19	Drawer sides	6	Birch plywood	3/4" x 7-1/2" x 15"	Add iron-on edge banding to top edges.
A20	Drawer fronts and backs	6	Birch plywood	3/4" x 7-1/2" x 17-1/2"	
A21	Drawer bottoms	3	Birch plywood	1/4" x 14" x 18"	
A22	Drawer panel	3	Walnut	3/4" x 5-1/4" x 17-1/8"	Finished drawer front should measure 3/4" x 8-9/16" x 20-3/8".
A23	Drawer stiles	6	Walnut	3/4" x 2" x 8-9/16"	
A24	Drawer rails	6	Walnut	3/4" x 2" x 17-1/8"	
A25	Back panel	1	Birch plywood	1/4" x 13" x 68-1/2"	
A26	Shoe molding	2	Walnut	3/4" x 1" x 10-5/16"	
A27	Shoe molding	2	Walnut	3/4" x 1" x 4-1/2"	
A28	Shoe molding	1	Walnut	3/4" x 1" x 63-5/8"	
Bookcase section					
B1	Sides	2	Walnut plywood	3/4" x 11-3/4" x 62-1/2"	
B2	Sides	4	Walnut plywood	3/4" x 11-3/4" x 64"	
B3	Fillers	4	Birch plywood	3/4" x 2-3/4" x 62-1/2"	
B4	Tops and bottoms	4	Walnut plywood	3/4" x 11-3/4" x 22-1/2"	
B5	Tops and bottoms	2	Walnut plywood	3/4" x 11-3/4" x 18-7/8"	
B6	Backs	2	Walnut plywood	1/4" x 23-1/4" x 64"	
B7	Backs	1	Walnut plywood	1/4" x 20-3/8" x 64"	
B8	Outer side panels	2	Walnut plywood	3/4" x 10" x 64"	
B9	Stiles	2	Walnut	3/4" x 1-3/4" x 64"	
B10	Stiles	2	Walnut	3/4" x 2" x 64"	
B11	Rails	6	Walnut	3/4" x 2-1/2" x 18-1/2"	
B12	Fluted corner boards	2	Walnut	1/2" x 4" x 64"	
B13	Spacers	6	Birch or walnut	1" x 1" x 9"	
B14	Bottom shelves	2	Walnut plywood	3/4" x 11-11/16" x 18-7/8"	
B15	Bottom shelf	1	Walnut plywood	3/4" x 11-11/16" x 18-3/4"	
B16	Shelves	8	Walnut plywood	3/4" x 11-1/8" x 18-7/8"	
B17	Edge banding	8	Walnut	3/8" x 1" x 18-7/8"	
B18	Shelves	4	Walnut plywood	3/4" x 11-1/8" x 18-3/4"	
B19	Edge banding	4	Walnut	3/8" x 1" x 18-3/4"	
B20	Door rails	6	Walnut	7/8" x 3" x 15"	Includes 1"-long tenons.
B21	Door stile	6	Walnut	7/8" x 3" x 59-1/2"	
Crown assembly					
C1	Mounting board	1	Birch plywood	3/4" x 12-3/4" x 68-1/2"	
C2	Front frame	1	Birch plywood	3/4" x 1-1/2" x 63"	
C3	Corner frames	2	Birch plywood	3/4" x 1-1/2" x 3-7/8"	
C4	End frames	2	Birch plywood	3/4" x 1-1/2" x 10"	
C5	Back frame	1	Birch plywood	3/4" x 1-1/2" x 67"	
C6	Crown ends	2	Walnut	3/4" x 4" x 11-1/8"	
C7	Crown corners	2	Walnut	3/4" x 4" x 6-1/8"	
C8	Crown front	1	Walnut	3/4" x 4" x 65-1/4"	
C9	Glue blocks	18	Birch plywood	3/4" x 1-5/8" x 1-5/8"	
C10	Top panel	1	Birch plywood	1/4" x 14-3/8" x 71-3/4"	

35. Add glue blocks (C9) behind the crown molding for added strength (Photo 11).

36. Screw the crown assembly to the top of the bookcases and add the top panel (C10).

37. Add the door and drawer pulls (see Sources, right).

38. With the building completed, you can now disassemble the bookcase sections, do a final sanding and apply a stain and topcoat finish. I choose a dark stain (see Sources) and then applied a satin lacquer topcoat using an HVLP spray gun.

Sources Woodworkers Supply, (800) 645-9292, www.woodworker.com 3-1/2-in. brass swan neck bail drawer pull, #940480, \$5.70 ea. 2-1/4-in. brass drop door pull, #115892, \$8 ea. • Glass Source, (800) 588-7435, www.theglasssource.com Three panels of double-strength tempered glass, approx. 13-5/8 in. x 54-1/8 in., \$25 ea. • Woodworkers Hardware, (800) 383-0130, www.wwhardware.com 14-in. full-extension drawer slides, #KV4100P14, \$11.13 a pair. Connecting screws for coupler bolts, #H267.00.720, \$2.25 for 20. Sleeves for coupler bolts, #H267.00.913, \$4.40 for 20. 5-mm spoon shelf supports, #HB214, \$2.20 for 20. Grommets for 5-mm shelf supports, #KV0326, \$2.80 for 20. Glass retainer clips, brown, 5/16-in. tab, #HB21114, \$3.80 for 20. 3/8-in. inset brass hinge, #A07565T1077, \$4.43 a pair. • Rockler, (800) 279-4441, www.rockler.com 7/32-in. self-centering bit (for shelf-support grommets), #39342, \$20. • MLCS, (800) 533-9298, www.mlcswoodworking.com 5/8-in.-dia. core box bit, #6420, \$14 ea. 3/8-in. rabbeting bit, #7691, \$15 ea. 3/8-in.-rad. round-over bit, #8654, \$15.50 ea. 1/4-in.-rad. roman-ogee bit, #8661, \$21 ea. • Bosch, (877) 267-2499, www.boschtools.com Raised-panel router bit, #85639M, \$100 ea. • Freud, (800) 334-4107, www.freudtools.com Roman ogee bit, #38-106, \$27 ea. 3/8-in. rabbet-ing bit, #32-102, \$21 ea. 3/8-in. round-over bit, #34-124, \$22 ea. 1/2-in.-dia. flush-trim bit, #42-110, \$14 ea. • Amana, (800) 445-0077, www.amanatool.com Tongue-and-groove set (includes one shank arbor, two cutters and two bearings), #55400, \$54 ea. 5/8-in. core box bit, #45916, \$28 ea. • Minwax, (800) 523-9299, www.minwax.com Wood Finish stain, Jacobean, #2750, \$8 a quart. • Woodmaster, (800) 821-6651, www.woodmastertools.com Planer molder machines, \$1,400 to \$3,400.



Crown Molding^{on the} Tablesaw

by Tim Johnson

FINDING FACTORY-MADE CROWN molding to match your cherry or walnut dream project isn't so easy. Most lumberyards only stock crown molding in pine and oak. Ordering by mail is slow and expensive, especially if you only need a few feet of molding. And there's a good chance the molding you receive won't match the color or the grain of the wood in your project.

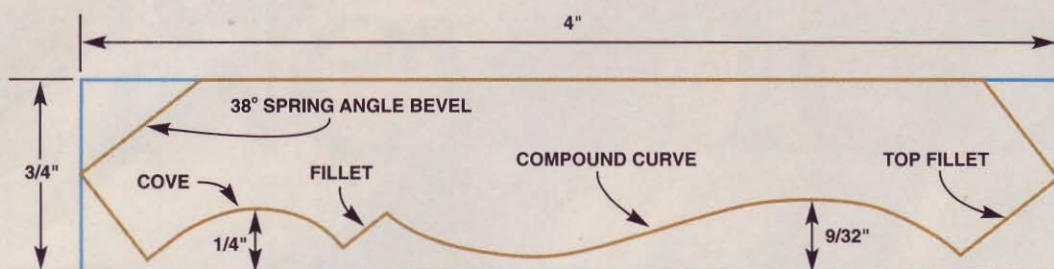
The solution to these problems is simple: Make

your own crown molding. Then you'll be able to say, "I built this project by myself," without thinking, "Well, almost."

I'll show you how to make classic crown molding on a table-saw, using a general-purpose blade to shape the profile. Finishing requires a scraper, a block plane, a length of PVC pipe, sandpaper and elbow grease.

You can create almost any molding profile using this method. The molding shown here crowns the "Grand Bookcase" on page 46.

FIGURE A CROWN MOLDING PROFILE



A SIMPLE PROCEDURE

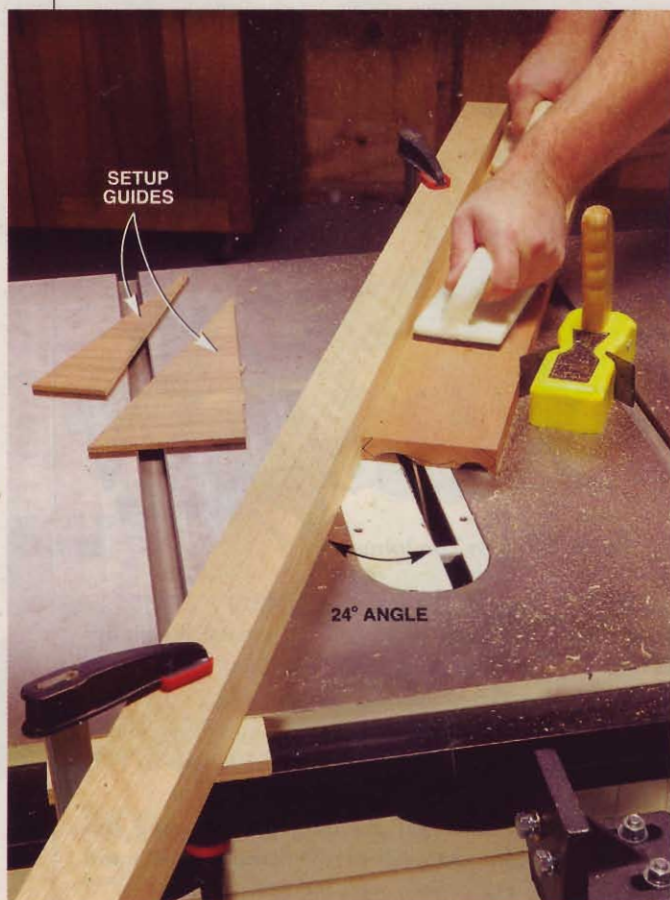
To make the molding, you simply draw its profile on the ends of a blank and then cut away the waste, using the drawn-on profile to set the fence and blade height for each cut. Ideally, the cuts barely score the profile line. Planing, scraping and sanding finish the job. Cuts made too deep would require additional sanding that slightly changes the profile.

Create curved shapes by passing the blank over the blade at an angle or by adjusting the blade's height between adjacent passes. Create flat surfaces by tilting the blade. Some cuts require turning the molding end for end or feeding it on its edge.

My saw has a left-tilting blade. If your blade tilts to the right, work from the opposite side of the rip fence and reverse the orientation of the blanks.

TRANSFER THE PROFILE

Make a full-size pattern of the molding (Fig. A, above) by reducing it to 78 percent on a photocopier. (Adjust the percentage, if needed, to match the pattern to your blank's length and width.) Use this pattern to draw the molding's profile onto both ends of all of your molding blanks, including a couple extra blanks for test-cutting. Your blanks must all be the same width and thickness. Lengths can vary.



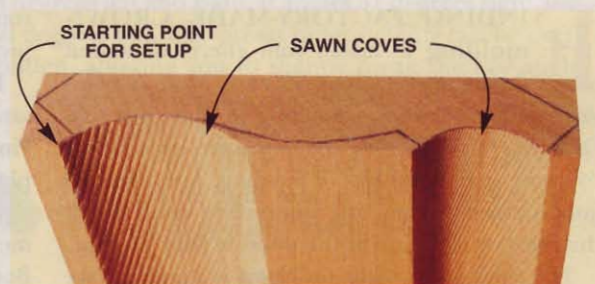
1 Start by cutting coves that match the concave curves. These cuts require a fence clamped at an angle and several passes, with the blade raising 1/16 in. each time.

Cut the cove at the bottom of the molding with the blade set at 1/4 in. and the fence at 18 degrees. Cut the large cove at the top of the molding with the blade at 9/32 in. and the fence at 24 degrees.

Guides, which have been cut to the correct angles on a miter saw, make it easy to position the fence. Raise the blade, lay the guide against the blade's side and lay the fence against the guide.

The fence must be angled correctly to set it at the proper distance from the blade. Raise the blade to the correct height and then align two points: On the molding blank, the fence-side starting point of the cove's profile, and on the throat plate, the point where the outside edge of the blade's leading tooth enters.

This setup requires trial and error to achieve. Slide the molding blank forward along the angled fence until it meets the blade. Adjust the fence—while keeping it at the correct angle—until the two points align. Clamp the fence to the saw table and lower the blade to 1/16 in. for the first pass.

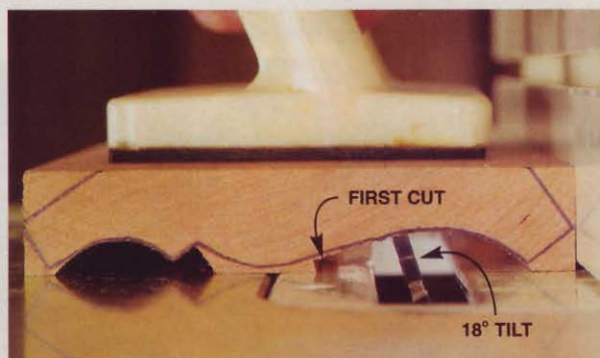
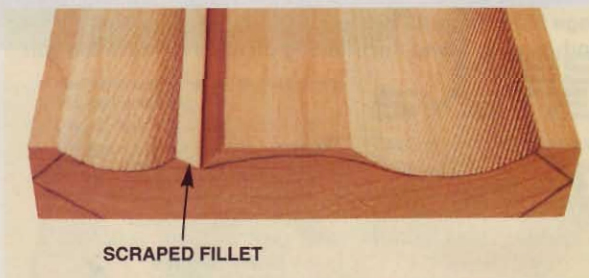




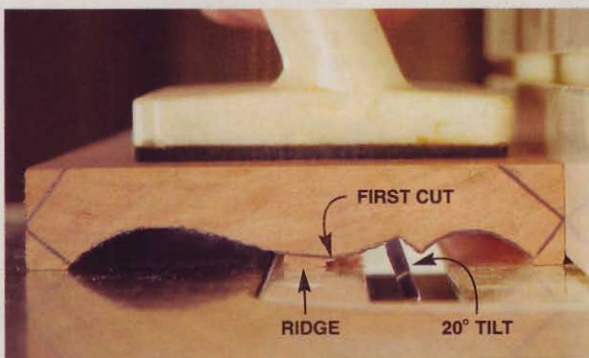
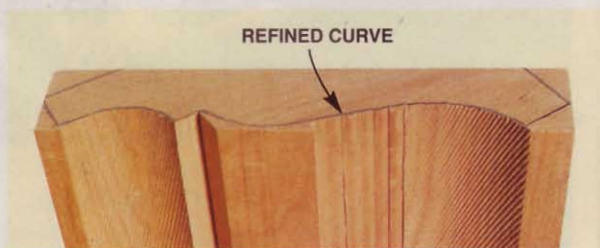
2 Cut the fillet using your rip fence. The fillet angles 52 degrees, so the blade won't tilt far enough to make the cut in line with the face. Instead, angle the blade so the teeth meet the face at 90 degrees. You'll have to make more than one pass. Start at the lowest point. Reset the fence and raise the blade for subsequent cuts.



3 Clean the fillet with a card scraper, using the V-shaped groove as a guide. A card scraper is great for this job. It's faster than sanding and less likely to ruin crisp details. Card scrapers are inexpensive and easy to use (see "Foolproof Scraper Sharpening," AW #102, September 2003, page 63).



4 Make a series of stepped, angled cuts to refine the shape of the compound curve. Tilt the blade to meet the profile and work from left to right, adjusting the fence and raising the blade slightly with each pass. It's better to raise the blade between passes than lower it, so you'll be less likely to make a cut that's too deep.

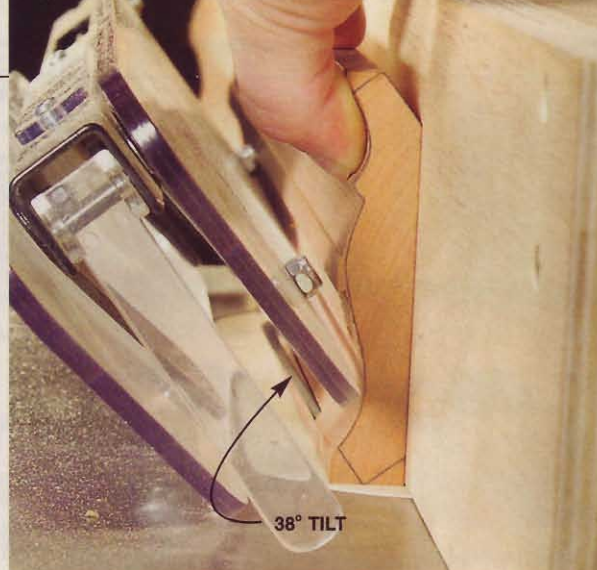


5 Turn the molding end for end and continue making angled cuts to form the outside of the curve. Cutting from this direction keeps the teeth perpendicular to the profile. Work from left to right, so you can raise the blade between passes. Leave a ridge in the middle to provide support during the following steps.





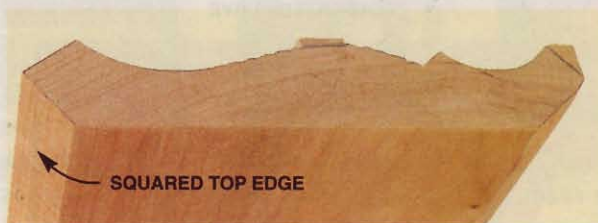
6 Install a tall fence to cut the spring angle bevel on the back of the molding. The spring angle is the angle formed between the cabinet and the crown molding—38 degrees and 45 degrees are the two standard angles. This molding springs 38 degrees; the “Grand Bookcase” molding (see page 53) springs 45 degrees. Use the same procedure for both angles: Stand the molding on edge to make the cut.



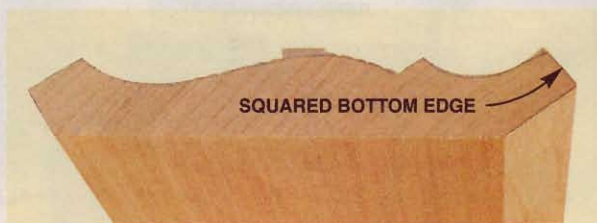
7 Cut the molding's top fillet at the same angle, so it matches the spring angle bevel. Then the fillet will be vertical when the molding is installed. Just flip the molding, adjust the fence and go.



8 Cut the top edge with the molding flat on the saw. Rotating the molding 90 degrees from the last step allows cutting a square corner without changing the blade angle.

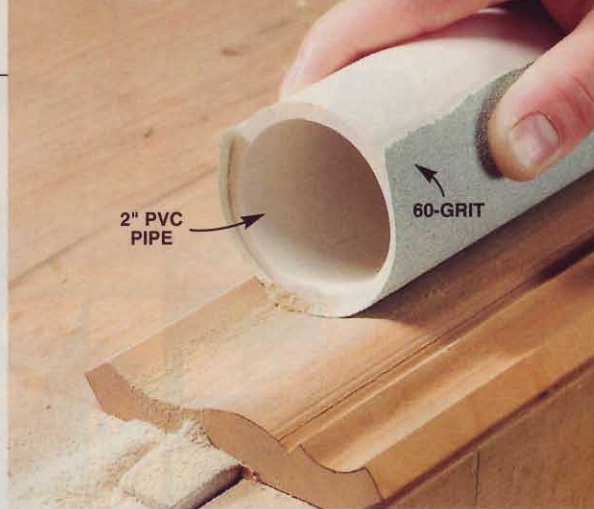
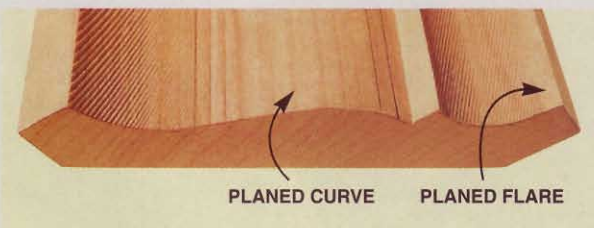


9 Cut the bottom edge square by moving the fence to the other side of the blade. Leave the blade at the same angle and keep the molding in the same position. Attach a spacer board to the fence, so the blade guard doesn't interfere when you make the cut.





10 Remove the support ridge and shape the top of the convex curve using a block plane. Plane down the slight flare on the bottom cove, too.



11 Smooth the concave curves with coarse sandpaper wrapped around PVC pipe, a mailing tube or a dowel that closely matches the contour.



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Precisely.

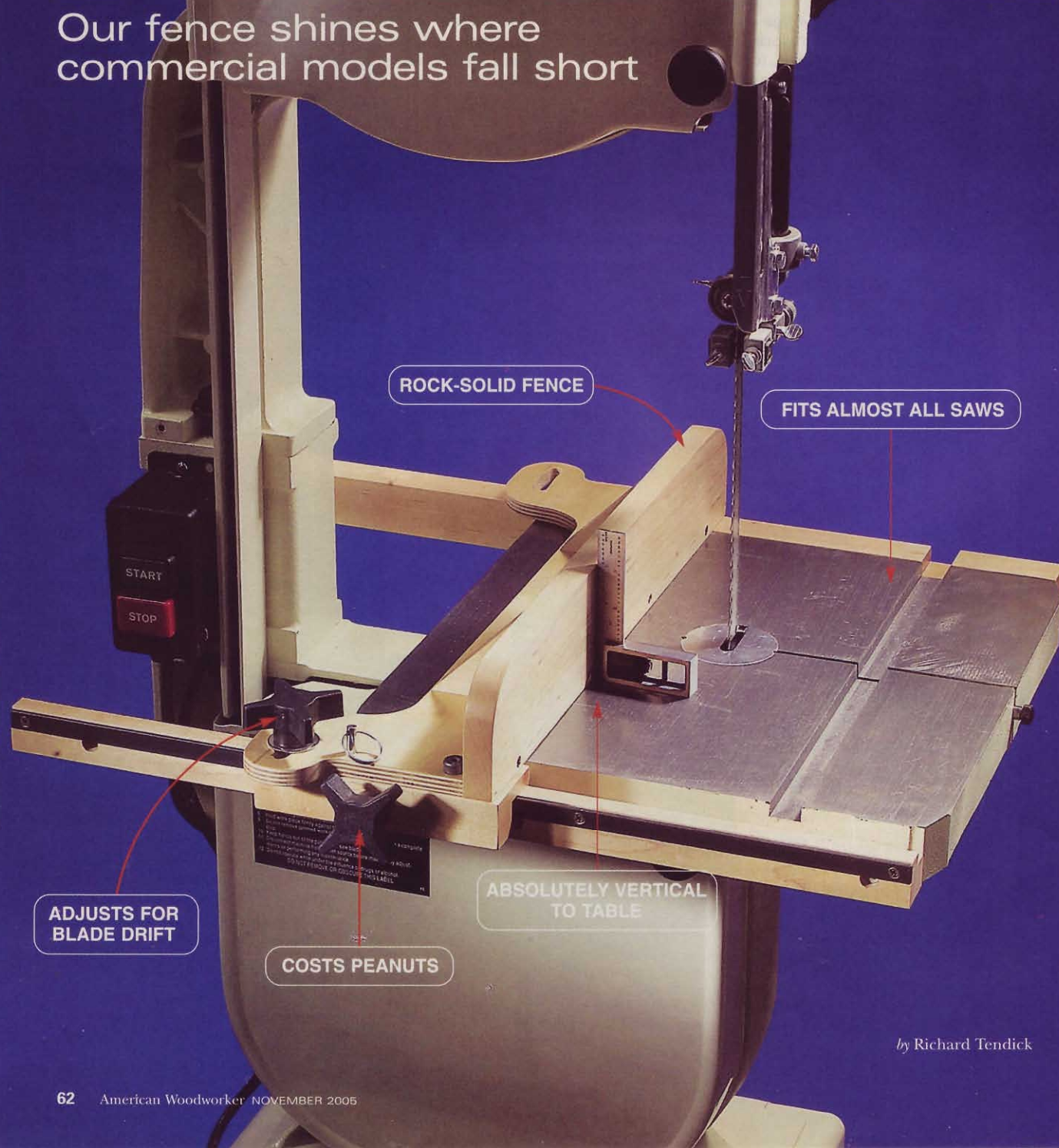


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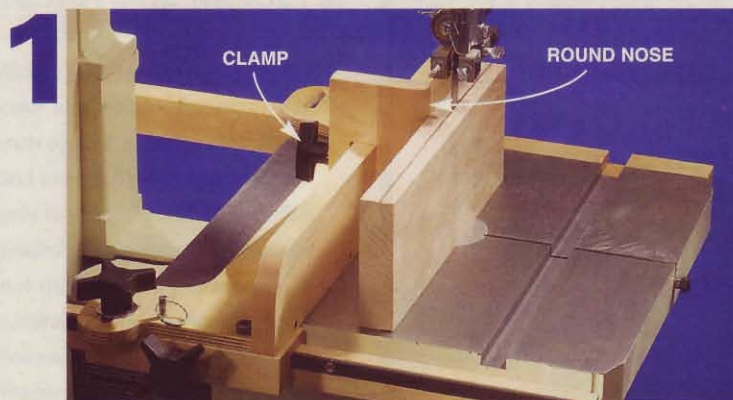
COSTS PEANUTS

by Richard Tendick

EDITOR: TOM CASPAR • ART DIRECTION: RICK DUPRE, RYAN NELSON AND JOE GOHMAN • PHOTOGRAPHY: RAMON MORENO

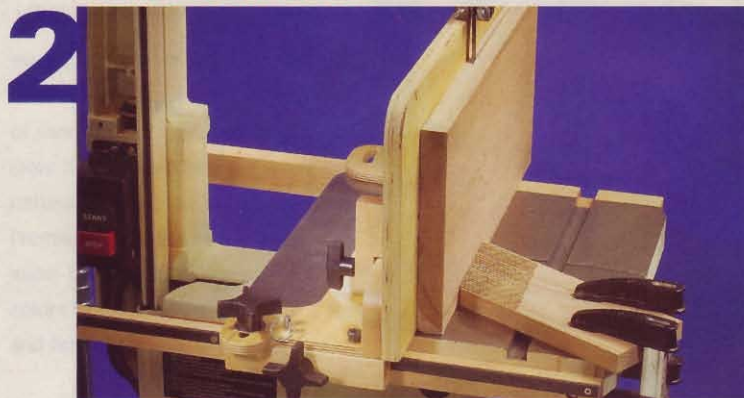
3 MORE FENCE CONFIGURATIONS

ROUND NOSE



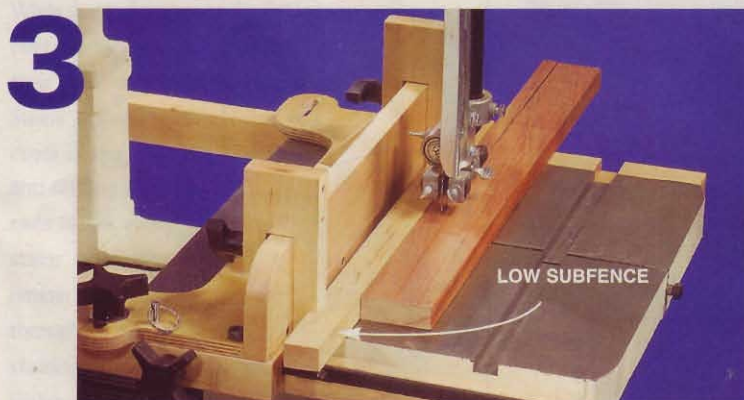
1 If you've only got one or two boards to resaw and accuracy isn't critical, add the round-nose attachment. It clamps right on to the standard fence. Position the nose directly opposite the front of the blade, draw a line down the board and saw away. Stay on the line by pivoting the board on the nose as needed (Fig. B, page 64).

TALL SUBFENCE



2 A tall fence helps you make a truly vertical cut on a wide board or any board with a roughsawn bottom edge. **Tip:** Use a featherboard whenever you're resawing. Then you only have to push in one direction: forward (Fig. C, page 64).

LOW SUBFENCE



3 We all know a bandsaw's blade guard should be set close to the workpiece. But that's not possible when you rip narrow pieces because most fences get in the way. Adding this low subfence makes narrow cuts a lot safer (Fig. D, page 64).

Every bandsaw deserves a good fence. After all, a bandsaw is capable of doing much more than cutting curves. With a well-designed fence, you can accurately resaw boards into thinner pieces, rip warped rough lumber without worrying about kickback and precisely cut tenons, half-lap joints and even dovetail joints.

Commercially made bandsaw fences for 14-in. saws are quite good, but many miss the boat on one crucial feature: You can't easily adjust for blade drift (see "Setup for Accurate, Straight Cuts," page 65). Without that adjustment, it's very difficult to make a long, straight cut with a guaranteed square edge.

My fence is a cinch to adjust for drift. This doesn't make it more complicated to build, however. I've used standard hardware (about \$25), plus some Baltic birch plywood. I've also designed three optional attachments that add even more versatility (see "3 More Fence Configurations," left).

SAW THE CLAMP BLOCK

1. Mill the clamp block (A, Fig. A, page 64) to final thickness and width, but leave it 12 in. long. Drill holes for three threaded inserts (Fig. E, page 66).

2. Make the clamp's dovetail slot in three steps (Fig. B). Tilt the tablesaw blade to 10 degrees and make Cut 1. Install a 5/8-in. dado blade for Cut 2. Remove the remaining waste with a chisel. Trim the dovetail to length with Cut 3. Cut the clamp block to final length. Save the long offcut for later use.

3. Predrill and install four screws to strengthen the dovetail. Without the screws, the fence could break if you overtighten the clamp.

4. Install the threaded inserts flush to the surface.

MAKE THE RAILS

5. Mill the front and back rails (B and C) to final dimensions. Tilt the saw blade to 10 degrees and cut the dovetail angle on the front rail (Fig. F, Cut 1, page 66). Return the blade to 90 degrees to cut the remaining section of the dovetail (Fig. F, Cut 2).

6. Mark and drill holes for mounting the rails to your bandsaw. Most bandsaw tables have predrilled holes for mounting accessory fences. It's vital that the top of the clamp block, when attached to the front rail, is level with the top of the bandsaw table. The easiest way to ensure this is to remove the table from the bandsaw. To do so, unscrew the knobs below the table trunnions and lift the table straight up and off.

PROJECT REQUIREMENTS AT A GLANCE

Materials:

15 in. x 24 in. 1/2-in. Baltic birch plywood
2 bd. ft. of 3/4-in. hard maple
2 bd. ft. of 1-1/2-in. hard maple

Tools:

Tablesaw, drill press, jointer, jigsaw

Cost:

About \$35

Hardware:

Eight 5/16-18-in. threaded inserts
Six 1-in.-long knobs with 5/16-in. studs
One 1-1/2-in.-long knob with 5/16-in. stud
Two 3/8-in. I.D., 1/2-in. O.D., 1/2-in.-long bronze bushings
One 1/8-in. x 1/2-in. x 23-in. steel bar
One 5/16-18-in., 3/8-in. x 1/2-in. socket shoulder screw
One 5/16-in. I.D. fender washer
One 3/16-in. x 1-1/4-in. linch pin with ring

FIGURE A EXPLODED VIEW

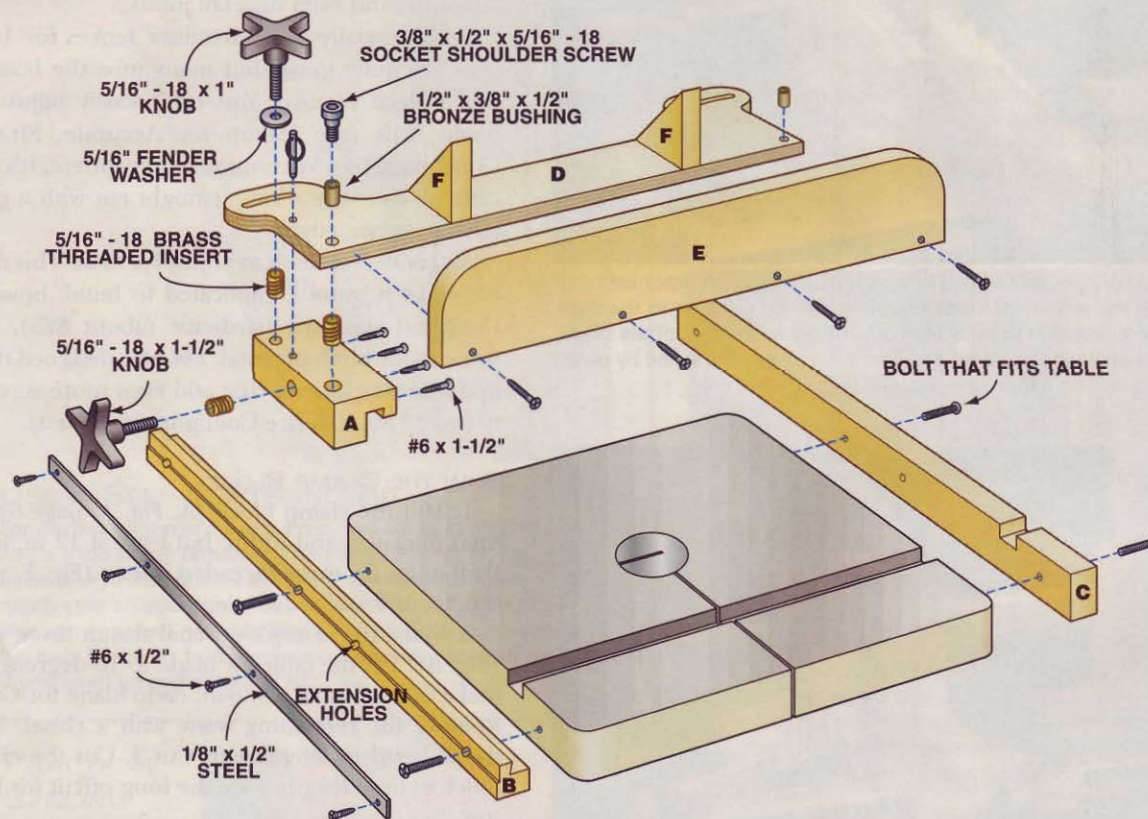


FIGURE B ROUND NOSE

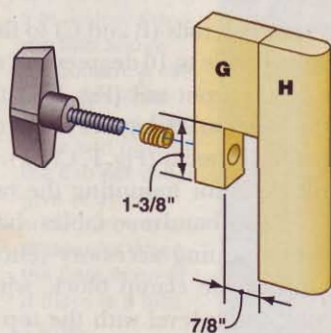


FIGURE C TALL SUBFENCE

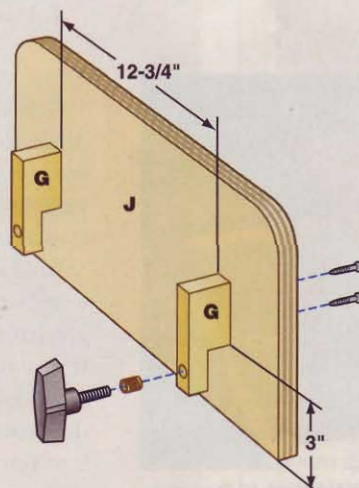
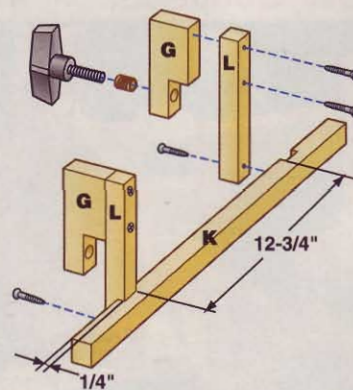


FIGURE D LOW SUBFENCE



SETUP FOR ACCURATE, STRAIGHT CUTS

When I want to saw an absolutely straight line, I adjust my fence at a slight angle to the blade. This compensates for the blade's tendency to drift off the line. Some blades

require more compensation than others, but many commercial fences can't easily be adjusted to any angle. Here's how mine works:



STEP 1 Draw a line parallel to the edge of a 2-ft.-long board. Saw the line freehand. Angle the board until the blade tracks straight. Stop halfway and keep the board at that angle.



STEP 2 Pivot the fence to match the board's angle by loosening the top clamping knob. Retighten the knob after the fence and board are aligned. You're good to go for any width of cut.

7. Place the table upside down on a flat surface (Photo 1). Assemble the clamp block, its offcut and the front rail so the dovetails interlock. Turn them upside down and place them next to the front of the table. Align the rail with the right side of the table and transfer the position of the table's holes. Move the rail so it lines up with the table's left side and mark the holes again. Repeat for the back rail, without using the clamp blocks.

8. Drill the four bolt holes in both rails on the drill press. Turn both rails over and counterbore these holes using a Forstner bit.

9. Cut the wear-strip rabbet in the front rail (Fig. F). Cut a dado on the back rail for the table's miter gauge (Fig. A). Bolt both rails to the table. Replace the table on the bandsaw.

10. Drill and countersink screw holes in the wear strip. Mount the wear strip on the front rail.

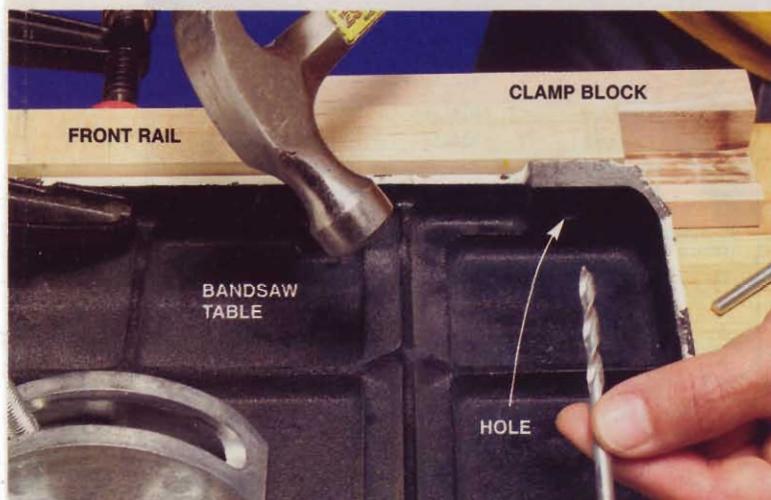
BUILD THE FENCE

11. Lay out the fence base (Fig. G, page 66). Cut the curved slots with a jigsaw. Use a Forstner bit to drill two holes for bronze bushings. Epoxy the bushings into the holes. Cut the outside profile.

12. Make the fence face (E) and braces (F). Glue, but don't screw, the face and braces to the base. Wait overnight for the glue to dry; then joint the fence square (Photo 2). Add four screws to reinforce the glue joint.

ASSEMBLE

13. Install a locking knob on the clamp block. Place the clamp block on the front rail. Attach the fence to the clamp. Remove the blade from the bandsaw and align the fence with the table's miter slot. Tighten the clamp and fence. Drill the index pin hole through the fence base and the clamp.



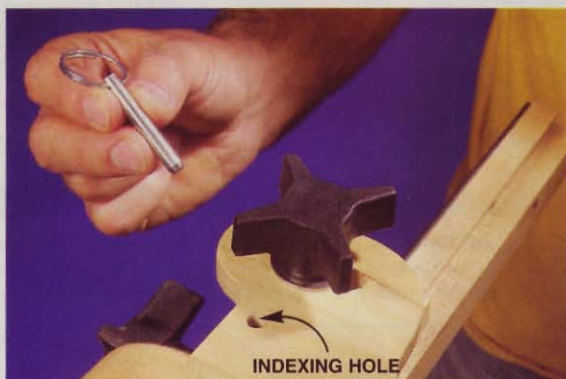
1 Transfer the location of a hole using a brad-point drill bit. Tap the bit with a hammer through the hole in the bandsaw table to mark a pilot hole on the fence rail.



2 Joint the fence after assembly to make it absolutely square. On any kind of jig, jointing is much easier than trying to glue two pieces at a precise right angle. Just be sure the jointed side is solid wood, rather than plywood.

14. For most cuts, keep the fence on the left side of the blade. For extra rigidity, use a C-clamp to fasten the fence base to the back rail. To put the fence on the right side of the blade, unscrew the fence from the clamp, turn it around and remount it. To extend the rails past the table's right side, remove the wear strip, unbolt the rails from the table and remount the rails using the second set of holes.

EXTRA FEATURES



LOCK IT PARALLEL To return the fence parallel to the blade and miter slot, simply insert this index pin. It fits tightly into a mating hole below, locking the fence into a precise 90-degree position. Use this setting for short straight cuts, when you don't have to worry about blade drift.



USE IT ON EITHER SIDE Just turn this fence around to cut on the table's right side, or for cutting a bevel. You can adjust for blade drift on this side, too. For wider capacity, temporarily extend the fence's rails by remounting them in a second set of holes.

Sources Woodcraft Supply, (800) 225-1153, www.woodcraft.com Brass inserts, 5/16 in. dia., #123-431, \$6 for 10. • MSC Industrial Supply, (800) 255-5067, www.mscdirect.com Knob, 5/16-in. thread with 1-in. stud, #00200469, \$2.40. • Knob, 5/16-in. thread with 1-1/2-in. stud, #00200477, \$2.40. • Bronze bushings, 3/8 in. I.D., 1/2 in. O.D., 1/2 in. long, #06453443, \$0.70 ea. • Socket shoulder screw, 5/16-18 thread, 3/8 in. x 1/2 in., #04554648, \$2.40. • Linch pin, 3/16 in. x 1-1/4 in., #94181856, \$0.75. • Steel bar, 1/8 in. x 1/2 in. x 6 ft., #82059130, \$6.40.

FIGURE E CLAMP BLOCK

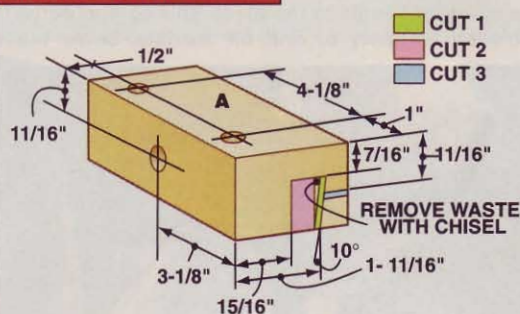


FIGURE F FRONT RAIL

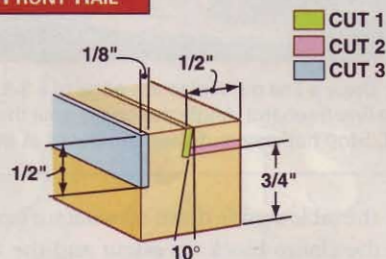
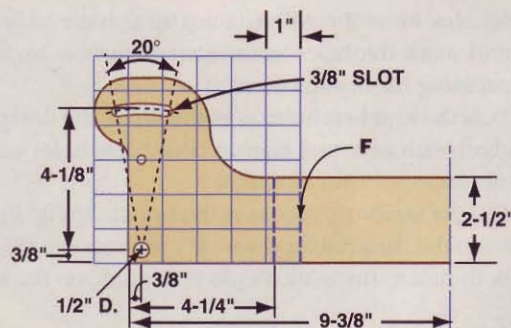


FIGURE G FENCE BASE



CUTTING LIST

Dimensions to fit 15" x 15" table

Part	Name	Qty.	Material	Th x W x L
A	Clamp block	1	Maple	1-3/16" x 2-3/16" x 6-1/4"
B	Front rail	1	Maple	1-1/8" x 1-1/8" x 23"
C	Back rail	1	Maple	1-1/8" x 1-1/2" x 23"
D	Fence base	1	Baltic birch	1/2" x 5-1/2" x 20-3/4"
E	Fence face	1	Maple	3/4" x 3" x 18-3/4"
F	Brace	2	Maple	3/4" x 2-1/2" x 2-1/2"
Fence Attachments				
G	Hook	5	Maple	3/4" x 1-5/8" x 3-1/2"
H	Nose	1	Maple	3/4" x 1-1/2" x 5-1/8"
J	Tall fence	1	Baltic birch	1/2" x 8" x 18-3/4"
K	Low fence	1	Maple	3/4" x 1-1/8" x 18-3/4"
L	Support	2	Maple	3/4" x 3/4" x 5-1/8"

teak coffee table

A retro table with sleek
lines and soft edges

by Bruce Kieffer



With the resurgence of the mid-century Modern style in furniture, I thought I'd have some fun with this classic little coffee table. I used teak because it was the wood of choice for the Danish Modern style in the 1960s and 1970s. The same can be said for the round tapered legs and the soft, rounded edges and corners on the top.

The impressive, curved, solid-wood edging on the table looks more difficult to make than it is (see "Curved Corner Edging," page 73). After the top is done, building the rest of the table couldn't be easier. Just turn four round tapered legs, attach them directly to the table with screw-on leg plates and you're done.

I'll show you a nifty turner's technique for ensuring an even taper on each leg. If you don't own a lathe, an alternative to turning is to make square tapered legs and use a 1/2-in. round-over bit on all four edges. Use a block plane and sandpaper to complete the round shape of the leg.

PROJECT REQUIREMENTS AT A GLANCE

Materials:

5 bd. ft. of 4/4 teak
4 bd. ft. of 8/4 teak
One sheet of 3/4-in. x 24-in. x 36-in.
teak plywood
2 bd. ft. of 4/4 poplar
One pint of clear satin varnish

Tools:

Tablesaw, lathe, router, 3/4-in.-dia. flush-trim
bit, 1/4-in. x 1/2-in. slot-cutting bit, 1/4-in.
round-over bit, finish sander, calipers,
roughing gouge, 1/8-in. parting tool and a
square, wide nose scraper

Hardware:

Four 5/16-in.-dia. x 18-thread x 2-1/2-in.-long
hanger bolts

Four screw-on angled leg plates
20 No.10 x 5/8-in. pan-head screws

Cost: \$300

CUTTING LIST OVERALL DIMENSIONS: 24"D x 40"W x 18-3/4"H

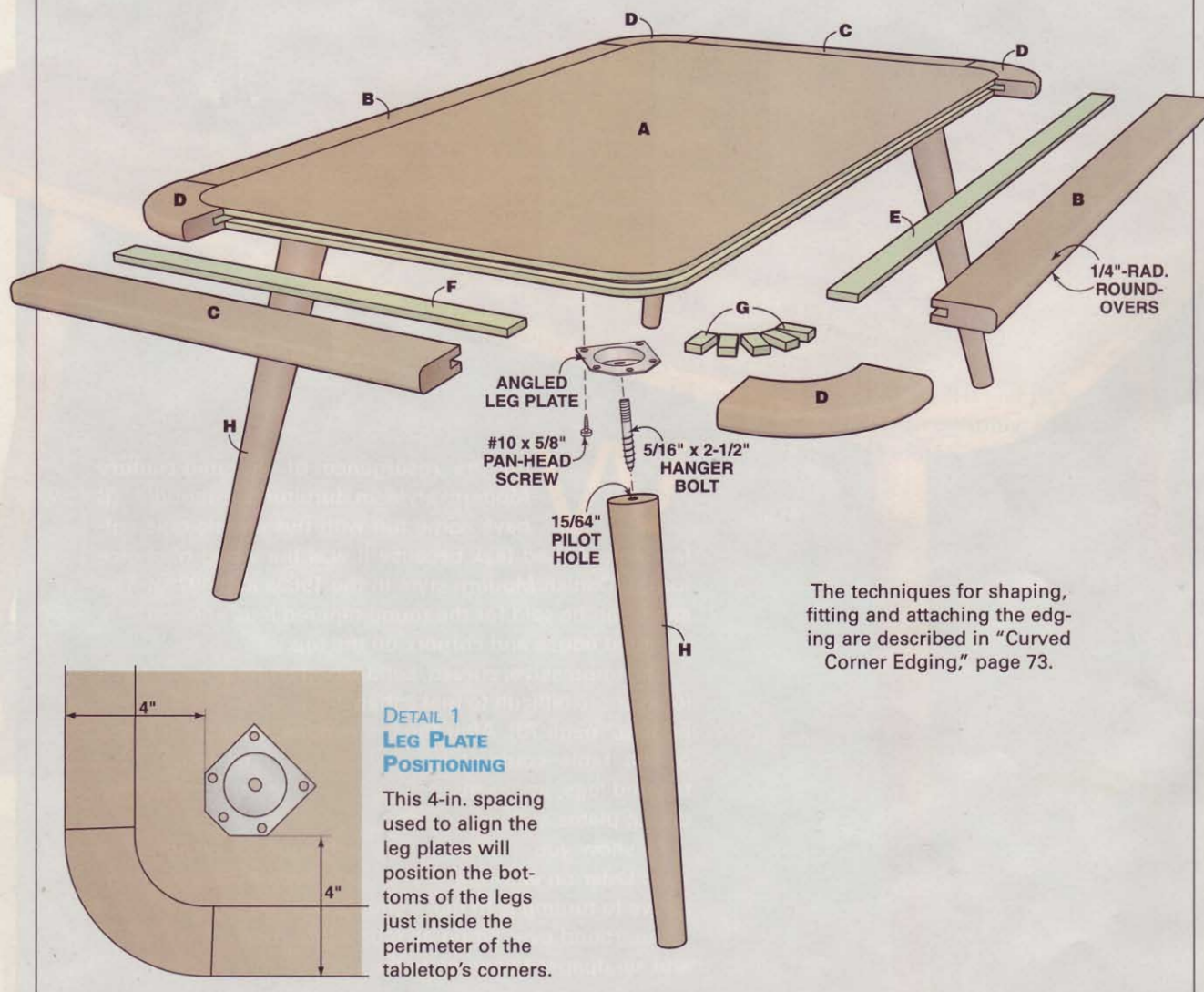
Material	Part Name	Qty.	Dimensions
3/4" teak plywood	A Tabletop	1	3/4" x 20" x 36"
4/4 teak	B Long edging	2	3/4" x 2" x 31-5/8" *
	C Short edging	2	3/4" x 2" x 15-5/8" *
	D Corner edging	4	3/4" x 5-1/4" x 6-3/4"
4/4 poplar	E Long splines	2	1/4" x 1-15/16" x 31-1/2"
	F Short splines	2	1/4" x 1-15/16" x 15-1/2"
	G Corner splines	20	1/4" x 1-15/16" x 1/2"
8/4 teak	H Leg blanks	4	1-7/8" x 1-7/8" x 18-1/2" **

* Cut 1/4 in. longer and 1/4 in. wider and then trim to fit.

** Finished size is 18 in. long.

Sources Woodworkers Source, (800) 423-2450, www.exoticwoods.net Teak, 4/4, \$22 a bd. ft. Teak, 8/4, \$22 a bd. ft. • Buck Woodcraft, (305) 743-4090, www.buckwoodcraft.com Teak plywood, 3/4 in. x 24 in. x 36 in., \$66. • Lee Valley and Veritas, (800) 871-8158, www.leevalley.com Screw-on angled leg plates, 5/16 in. x 18 thread, #00H33.80, \$3 for a package of four. • Woodcraft, (800) 225-1153, www.woodcraft.com Hanger bolts, 5/16 in. x 18 thread x 2-1/2 in., #130238, \$2 for a bag of 10. • Local lumberyard Poplar, 4/4, \$3 a bd. ft. • Local paint store Clear satin varnish, \$5 a pint.

FIGURE A EXPLODED VIEW



DETAIL 1 LEG PLATE POSITIONING

This 4-in. spacing used to align the leg plates will position the bottoms of the legs just inside the perimeter of the tabletop's corners.

1 Make round tapered legs quickly and consistently with the help of a simple taper gauge. Set your outside caliper to the parting diameters marked on this leg taper template.

2 Cut the grooves with a parting tool. Hold the caliper in the groove as you cut. You know you've reached the right diameter when the calipers pass through the groove. The bottom of each groove marks the profile of the tapered leg.

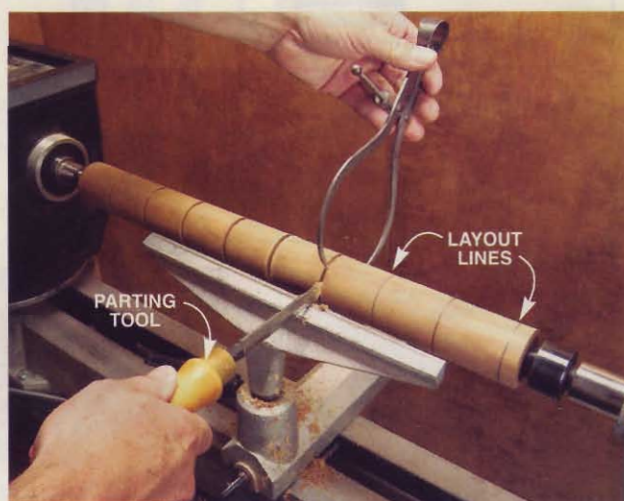
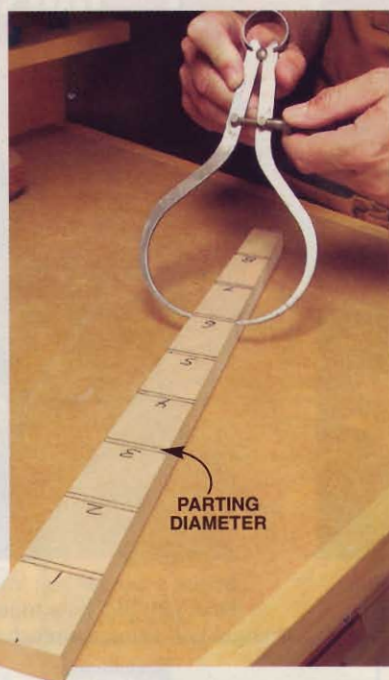
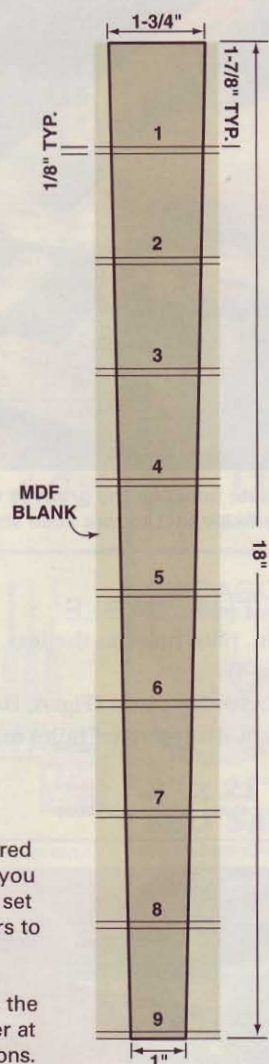


FIGURE B LEG TAPER GAUGE



The numbered lines allow you to instantly set your calipers to the proper width. Each line defines the leg diameter at given locations.

MAKE THE TOP

1. Cut the tabletop (A, Fig. A, page 70), edging pieces (B, C and D) and splines (E, F and G) to size. Shape, fit and attach the edgings to the top as described in "Curved Corner Edging," page 73.

2. Rout the round-over edges and finish-sand the top. Be careful on that veneer—it's paper thin.

TURN THE LEGS

3. Mill the leg blanks (H) and cut them 1/2 in. extra long. The extra length is used to hold the leg at the tailstock end of the lathe. You'll cut it off after the leg is turned.

4. Before you turn the legs, make them hexagonal by chamfering the corners on a bandsaw or tablesaw. Removing the waste gives you a head start on turning squares into cylinders.

5. Mount a leg blank between the centers of your lathe. Turn the blank to a 1-3/4-in.-dia. cylinder with a roughing gouge.

6. Make a leg taper gauge from some MDF scrap (Photo 1; Fig. B, above). Lay out the leg taper and the 1/8-in.-wide parting diameter lines and cut the tapered profile on the bandsaw. Now you have a quick reference gauge for setting your calipers.

7. Turn on the lathe and hold up the gauge to the leg. With a pencil, transfer the parting lines from the gauge to the blank.

8. Use a parting tool and calipers to cut each groove to the proper depth (Photo 2).

9. Rough out the tapered shape of the leg using the bottom of the grooves as a depth guide (Photo 3). Finish shaping the leg using a wide, square nose scraper.

10. Smooth the leg with sandpaper and a sanding block. Part the leg deeply at the bottom. Use a handsaw to remove the bottom waste. Hand-sand the leg with the grain to remove cross-grain scratches.



3 Clear out the waste between the grooves with a roughing gouge. Finish the leg with a wide, square nose scraper and sandpaper.



4 Screw a hanger bolt into the end of each leg. First, jam two nuts together on the end of the hanger bolt using a wrench on each nut.

ASSEMBLE THE TABLE

11. Drill 15/64-in. pilot holes in the legs and insert the hanger bolts (Photo 4).

12. Mount the angled leg plates (Fig. A, Det. 1, page 70). You may need to drill shallow relief holes in the underside

of the table to accommodate the ends of the hanger bolts.

13. Apply two coats of clear satin varnish to the teak. Let the finish cure, thread the legs into the leg plates and you're done.

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curved corner EDGING

EDITOR: RANDY JOHNSON AND DAVE MUNKITTRICK • ART DIRECTION: RICK DUPRE AND EVA GELINE EKBERG • PHOTOGRAPHY: STAFF • ILLUSTRATION: FRANK ROHRBACH

3 templates produce a flawless round-cornered solid-wood border on a veneer top

have you ever marveled at large, expensive conference tables with thick, solid edging and curved corners? The center of the table is usually a beautiful veneer surrounded by solid-wood edging that not only looks cool but can stand up to a lot of abuse from chairs. It doesn't take long for a woodworker's eye to stray from the beautiful looks to the daunting joinery on those rounded corners. "How did they do that?" we wonder. To cut these parts, big shops use a computer-controlled router that costs more than most luxury cars. Here's how you can get the same results in your garage shop with a few simple templates and a handheld router. The templates give you an automatic fit between the inside curve of the edging and the outside curve of the tabletop.

The next challenge is fitting all those edging pieces around the table. I've got a neat trick to help you out there as well.

Although these are not difficult techniques, you must follow the steps carefully to get good results. I used these techniques to make a 26-in. x 50-in. tabletop that has a 1-in.-thick by 2-in.-wide edge (Fig. B, page 75). The techniques can be used on any size of table or edge molding (see also "Teak Coffee Table," page 69).

by Jon Stumbras

TECHNIQUE REQUIREMENTS AT A GLANCE

Materials:

3/8-in. x 2-ft. x 4-ft. MDF

Tools:

A router and a router table

Tablesaw

Bandsaw or jigsaw

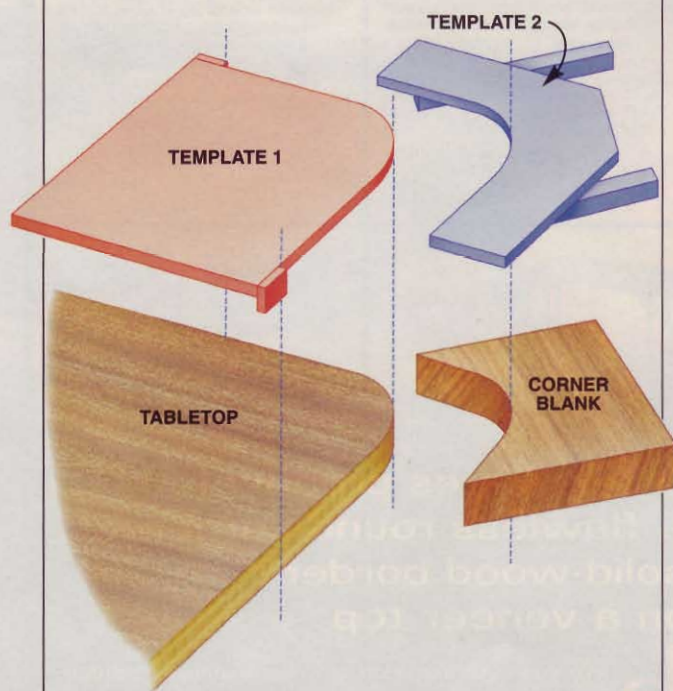
Three hold-down clamps

3/8-in.-dia. flush-trim bit with interchangeable

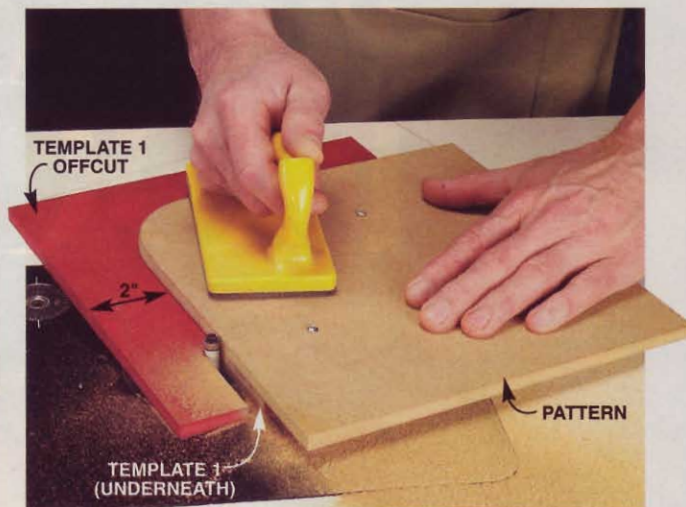
1-1/8-in.-dia. bearing

3/4-in.-dia. flush-trim bit and a 1/4 x 1/2-in. slot cutter

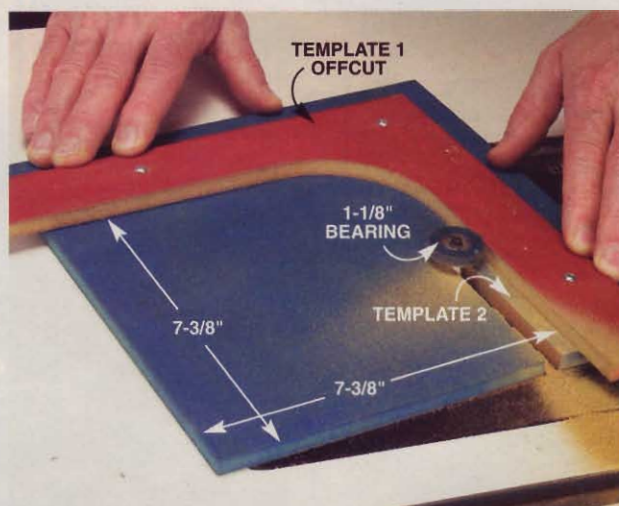
FIGURE A THE KEY: MATCHING TEMPLATES



Two templates guarantee a tight joint on the rounded corners: Template 1 cuts the outside radius on the tabletop and Template 2 cuts the inside radius on the hardwood edging. Perfect-fitting templates produce perfect-fitting edging.



1 The key to making perfectly mating parts is to rout precise templates. Use a pattern shaped to the corner radius on the tabletop to make Template 1. The offcut is then used to make Template 2.



2 Use the offcut from routing Template 1 to make Template 2. A large bearing is put on the same bit to create the required offset. This guarantees that Template 2 nests perfectly against Template 1.

1 bit, 2 bearings

This router bit and bearing are at the heart of this technique. The basic 3/8-in.-dia. flush-trim bit is used to cut one template. The offcut piece from that process is used to guide the big 1-1/8-in. bearing on the same bit to create the second template.

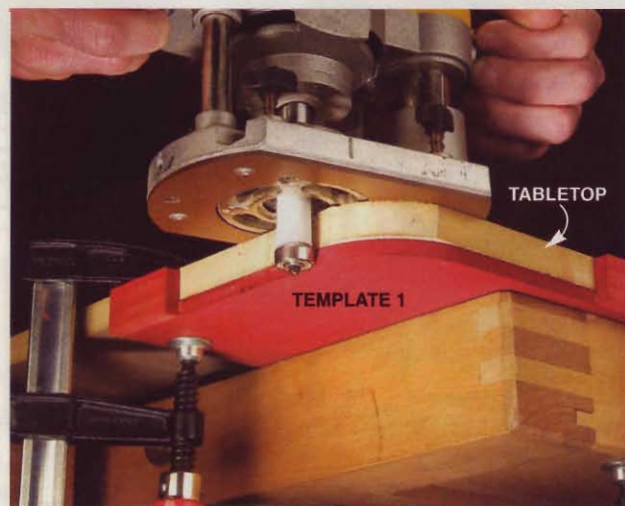
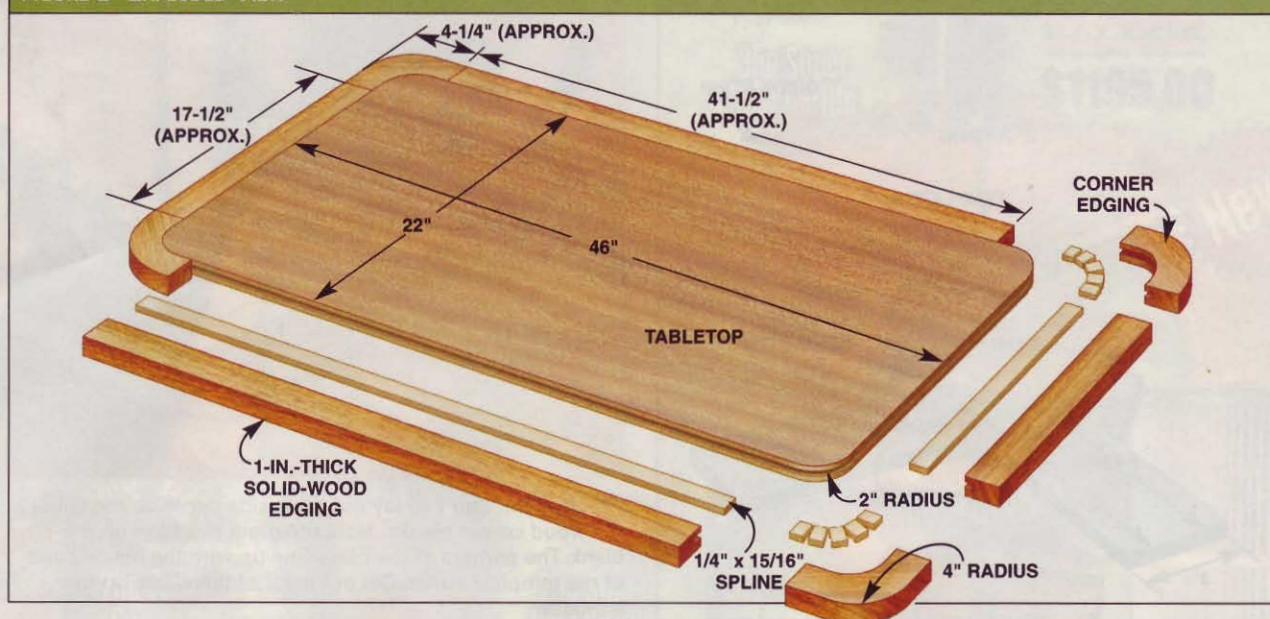
The large bearing creates just the right amount of offset to produce a perfectly matched set of templates.

BUILD THE TEMPLATES

Templates 1 and 2 (Fig. A, above) produce the curved outside corner on the tabletop and the matching inside on the solid-wood edging. To make the matching templates, you first need to make a one-time pattern to cut the profile on Template 1 (Photo 1). That template's profile is cut from a 10-in.-square blank that yields an offcut. The offcut in turn is used to make Template 2, ensuring a perfect fit.

To make the one-time pattern, use a compass to lay out the corner arc radius you desire on a 10-in.-square piece of 3/8-in. MDF. Saw and sand the corner to final shape. Attach the pattern with screws to another 10-in. square of 3/8-in.-thick MDF. Use a 3/8-in.-dia. bottom-bearing flush-trim bit

FIGURE B EXPLODED VIEW



3 Rout the round corners on the tabletop using Template 1 and a flush-trim bit.



4 Rout the spline slot on the tabletop's edge. Splines align and strengthen the joint between the edging and the tabletop.

to cut out Template 1 on the router table (Photo 1). Add guide strips to the sides to complete Template 1.

Use the offcut from Template 1 and a 1-1/8-in.-dia. bearing on your 3/8-in.-dia. bit to make Template 2 (Photo 2). Use a corner blank as a spacer to locate the guide strips on the bottom of Template 2 (Fig. C, page 76). The strips center the corner blank in the jig. You'll need to build a hold-down jig (Fig. D, page 77). Template 2 is used in conjunction with the hold-down jig to rout the curve on the inside of the corner edging. You may have to adjust the cutout and/or the height of the spacer blocks on the jig to accommodate different radii or edging thicknesses.

Template 3 is used to create the outside curve on the

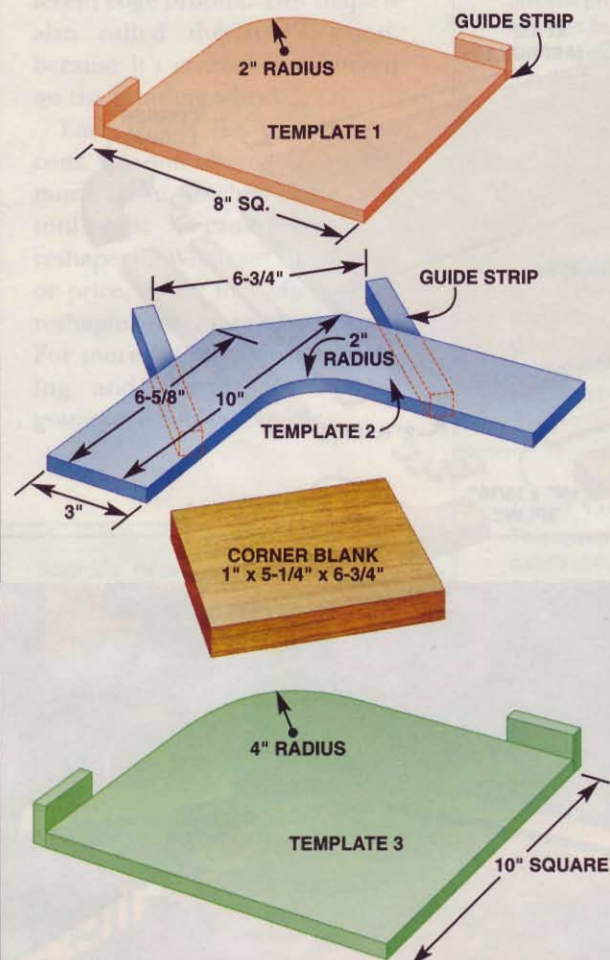
hardwood border. Simply saw and sand it to final shape and add guide strips.

ROUT THE PARTS

Cut the tabletop to final length and width. Cut the curved corners 1/16 in. to 1/8 in. oversize using a jigsaw. Clamp Template 1 to the bottom side of the tabletop. Rout the curve with a bottom-bearing bit (Photo 3). I prefer a 1/2-in.-shank bit in this step, because you get less chatter than with a 1/4-in.-shank bit.

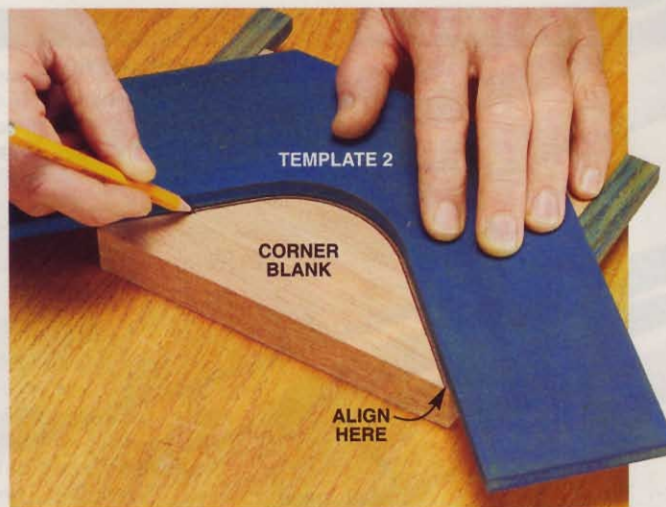
The next step is to rout the slots for the splines in the edge of the tabletop (Photo 4). The splines are made from hardwood. Rip the splines on your tablesaw, leaving them a

FIGURE C THREE TEMPLATES

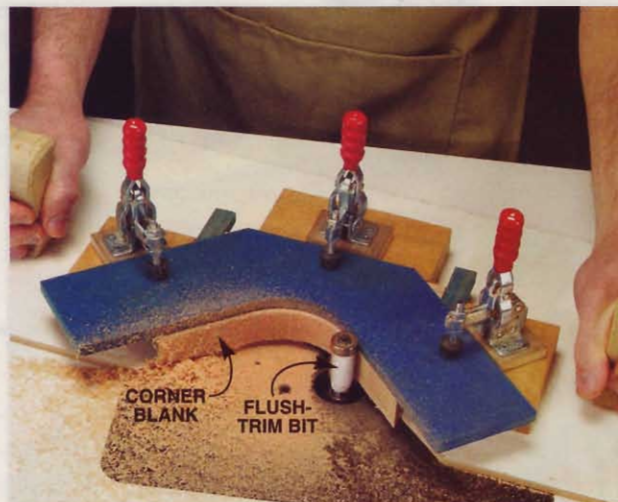


Template 1 for routing the rounded corner on the tabletop core.
Template 2 for routing the inside curve on the corner edging.
Template 3 for routing the outside curve on of the corner edging.

All three templates are made from a 3/8 x 10 x 10-in. MDF blank.



5 Use Template 2 to lay out the inside curve on the solid-wood corner blanks. Note the grain direction on the blank. The corners of the blank line up with the inside edge of the template curve. Cut out most of the waste on the bandsaw.



6 Flush-trim the inside curve on the corner blank. Hold the template and the corner blank firmly together with a clamping jig. The jig also keeps your fingers a comfortable distance from the spinning bit.

bit thicker than the slots. Take the splines to your planer and shave off the thickness until you get a snug fit in the slots. Cut the splines to length, including a number of 1/2-in.-long segments for use on the corners (Fig. B).

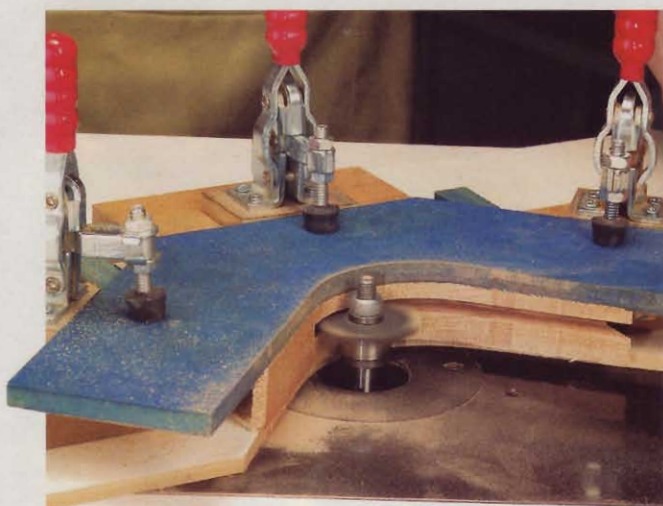
Mark the inside curve on the corner blanks (Photo 5) and rough-cut on the bandsaw. Clamp the corner blank and Template 2 into the hold-down jig and rout the inside curve (Photo 6). Rout a couple extra corner pieces. You will use them later for test cuts.

Install the slot-cutting bit in your router table. Use the extra corner blanks to test the height of the slot cutter until the blank sits just a whisker above the veneer (Photo 7).

Next, slot the straight molding parts. You'll have to reset

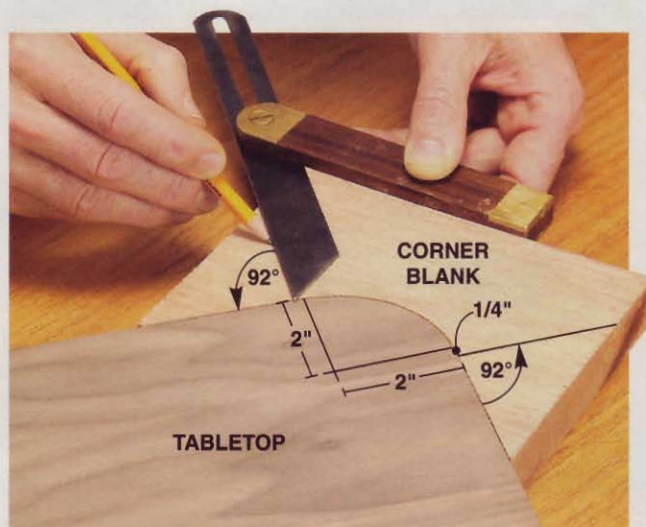
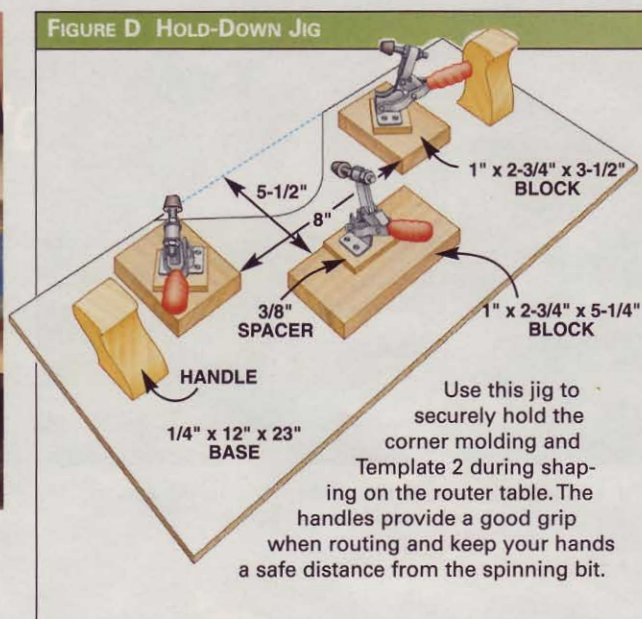
the slot-cutter height, because you won't be using the hold-down jig. If you make moldings that are wider than 2 in., it is a good idea to reinforce the miters with splines or biscuits.

Mark lines on the tabletop at 90 degrees to each side at points 2 in. from a corner (Photo 8). Hold a corner blank to the tabletop and mark it for the miter cuts. Draw the miter lines 92 degrees to the tabletop's edge. This creates a wedge-shaped pocket that makes it easier to get a tight joint between the straight and curved edging (Fig. E, page 78). You only need to draw miter lines on one blank. It will be used to set up the tablesaw miter gauge for all the corner cuts.

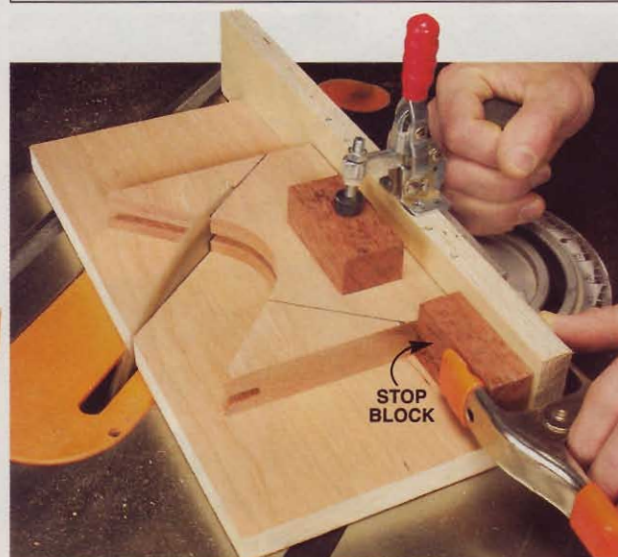


7 Slot the inside edge of the corner molding. Position the slot so the top of the edging is slightly proud of the veneered center.

FIGURE D HOLD-DOWN JIG



8 Mark the miter cut locations on the corner blank. The cuts should start 1/4 in. beyond the point where the curve ends. This keeps the joint off the curve where it would cause a gap.



9 Miter the corner blanks. Set the miter gauge to 47 degrees. Use a clamping jig with a stop block to hold the molding in place. Cut one corner; then flip over the corner and cut the second corner.

Cut the miters on your tablesaw with the miter gauge set to 47 degrees (Photo 9). Use a stop block and clamp to hold the corner molding in place. Don't worry if the cut misses the pencil lines slightly. The finished size of the corner molding isn't critical because of the built-in 1/4-in. safety margins.

ATTACH THE EDGE MOLDING

Here's where the sweat starts to break out on a woodworker's brow. At this point, you've taken care of the joint between the edging and the tabletop. Now the problem is fitting all eight edging pieces end to end around the perimeter. The first step is to attach the four corner blanks

(Photo 10). Next, use a test board to determine the precise angle for the ends of the straight molding (Photo 11). Test-fit every joint. You may have to tweak the angle for each end on the straight pieces.

Attach the straight moldings to the tabletop one at a time. If you have cut one too short, don't worry—you have a second, even a third chance. The secret is shown in Fig. E (page 78). Use a liberal amount of glue on the end grain joints, because end grain absorbs more glue than side grain does. Complete the tabletop by routing the outside curve on the edging with Template 3 (Photo 12). Carefully sand or scrape the solid-wood edging flush with the tabletop. For some added detail, you can rout a cham-



10 Glue the corner blanks to the tabletop. An angled clamping block makes the job easier.



11 Trim the angle on a scrap board until you get a perfect fit with the corner edging. Use that angle to cut the corresponding end on the full-length piece of straight edging.



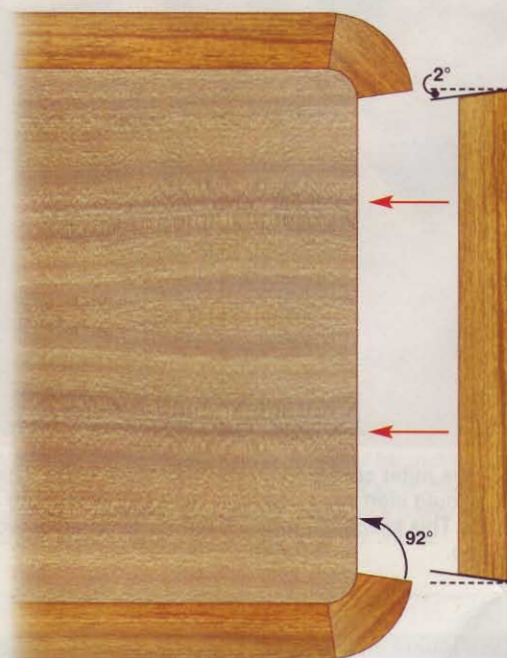
12 Rout the outside curve on the corner molding using Template 3 after all the edging is installed. Sand the edging flush with the veneer and add a slight round-over for a friendly look and feel.

fer, round-over or other profile around the edge of the solid-wood molding. We used two different wood species to help highlight the edging in the photos. The technique also works great using a single wood species.

Want to try this technique on a real project? Check out the "Teak Coffee Table" on page 69.

Sources The Wood & Shop Inc., (314) 731-2761, www.woodnshop.com MDF, 3/8 in. x 2 ft. x 4 ft., \$7. • Jesada Tools, (800) 531-5559, www.jesada.com 1/4-in. shank, 3/8-in.-dia. flush-trim bit, #606-095, \$15. Rabbit-master plus bearing kit (includes 1-1/8-in.-dia. bearing), #791-703, \$23. 1/2-shank, shear-action flush-trim bit, #606-690, \$26. 1/4-in. slot cutter with bearing, #622-364A, \$21.

FIGURE E FITTING THE STRAIGHT PIECES



Here's a slick system that takes the stress out of fitting the edging. First, glue on the four corners. Then, cut all straight pieces an extra 1/4 in. wide. Carefully cut the straight moldings to final length. If you cut one too short, joint 1/32 in. off the inside edge. This will effectively lengthen the inside edge by about 1/16 in. and give you a second chance. By decreasing the width from the inside edge, you actually make it longer. It's weird, but true. When you get a tight fit, rip the excess from the outside edge of the piece.

Essential Tablesaw Blades

Choose complementary blades
for perfect results

In the dark ages of woodworking, before carbide, you never used the same blade for ripping and crosscutting. Cutting plywood required yet another blade. Today, hybrid blades allow you to avoid blade changes entirely—unless you want absolutely perfect results. Then it's better to have more than one blade. I'll show you how to choose the right primary blade and then which blades would make the best companions.

by Tim
Johnson

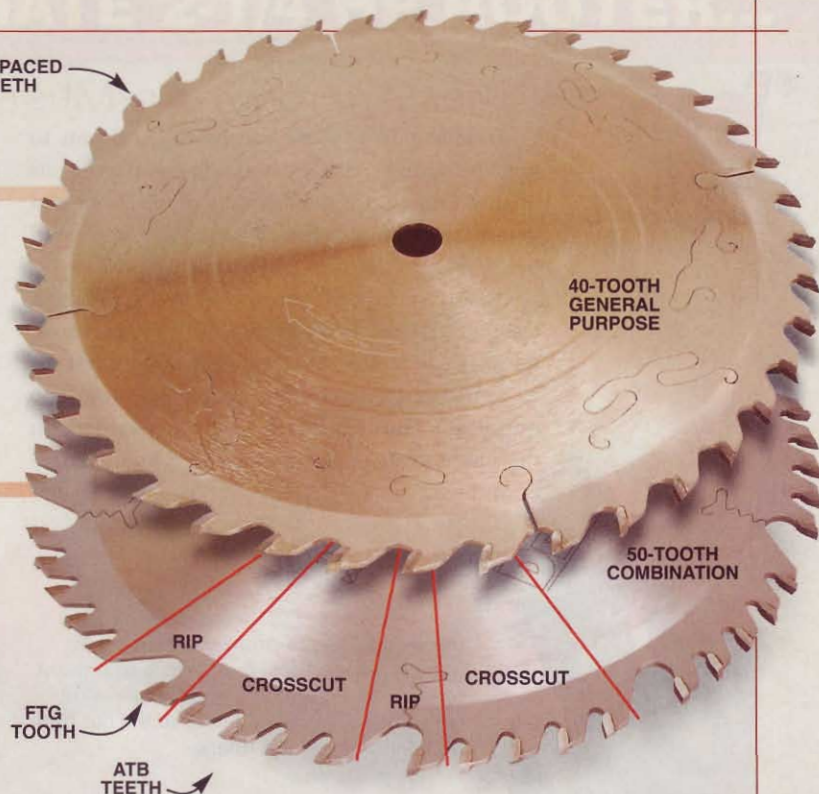
PRIMARY BLADE CHOICES

40-TOOTH GENERAL PURPOSE BLADE

A 40-tooth general-purpose blade is the best choice for a primary blade and the one blade every woodworker should have. These blades have evenly spaced, alternately beveled (ATB) teeth. **Examples:** Amana #PR1040, \$50; DeWalt #DW7657, \$48; Infinity #010-040, \$90.

50-TOOTH COMBINATION BLADE

A 50-tooth combination blade, the original hybrid design, is half rip and half crosscut. These blades have 40 closely spaced, alternately beveled (ATB) teeth, like a crosscut blade, and 10 widely spaced flat-topped (FTG) teeth fronted by large gullets, like a rip blade. These blades are good, but 40-tooth general-purpose blades, a newer hybrid design, are better.



START WITH A 40-TOOTH GENERAL-PURPOSE BLADE

Every workshop needs a primary tablesaw blade that can satisfactorily make every cut in every material. Two types of blades fit that bill: 50-tooth combination blades and 40-tooth general-purpose blades (see photo, above).

Both types are designed to replace separate rip and crosscut blades, which are distinctly different. Rip blades are designed to cut in line with wood fibers. They have large gullets for sawdust removal and 10 to 40 flat-topped, widely spaced

teeth that cut aggressively. Crosscut blades are designed to slice across wood fibers without tearing them. They have smaller, more numerous gullets and 60 to 100 alternately beveled, closely mounted teeth that cut cleanly.

The 50-tooth combination blades have two kinds of teeth, some for ripping and some for crosscutting. The teeth on 40-tooth general-purpose blades are adept at both ripping and crosscutting.

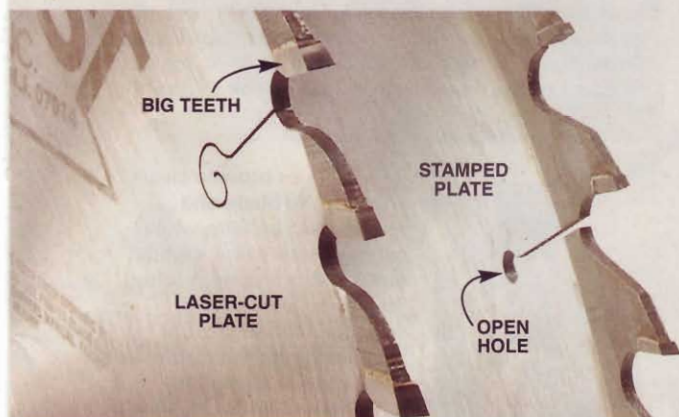
For a primary blade, I prefer the 40-tooth general-purpose blades. They rip slightly faster than the 50-tooth blades, because they have fewer teeth, and crosscut just as well, because all the teeth are crosscut-friendly. This tooth design also leaves less bottom-side tear-out on hardwood plywood.

The 50-tooth combination blades have some minor advantages. They're often less expensive than 40-tooth blades and they're better for cutting dadoes and grooves, because the top of the kerf is virtually flat.

Choosing a primary blade isn't difficult, because the difference in cut quality between good blades is marginal. With so many good general-purpose blades available, your priority should be to avoid economy blades (see photo, left).

The sawblade market is extremely competitive, so don't worry about price gouging. Just choose blades that fit your budget. The general-purpose blades I tried cost \$45 to \$100. The higher-priced blades performed marginally better, but there wasn't a stinker in the bunch.

Spot good quality at a glance. The best blades don't scrimp on carbide or steel. Designed for long life, their teeth can be resharpened many times. Economy blades almost always have thin, stamped steel plates. Expansion slots that end bluntly in open holes signal old technology and a noisy blade.



BLADE ANATOMY AND MUST-HAVE FEATURES

Understanding blade anatomy allows you to quickly identify a blade's function—and gauge its quality. Function is indicated by tooth count and geometry. (These characteristics are discussed below and on the next page.)

Quality starts with two must-have features: A laser-cut plate and teeth made from hard, microscopic grains of carbide. You can't tell by its appearance whether a blade has these two important features. If they aren't specified on the blade or its packaging, call the manufacturer and ask.

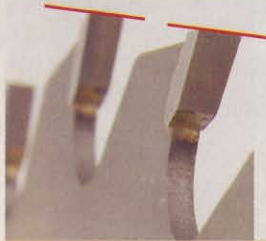
Laser-cut plates improve blade stability. They're made from harder steel than old-fashioned stamped plates. Laser-cut plates on top-quality blades are processed further, to remain virtually dead flat and vibration-free during operation. Economy blades often have laser-cut plates, but they may lack any additional stabilizing processes, such as flat-grinding or tensioning.

For sharpness and durability, the best teeth are molded from the tiniest particles of the hardest carbide. Look for particle sizes less than 1 micron and for C4-grade hardness.

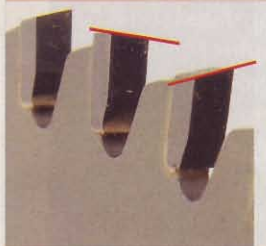
TOOTH GEOMETRY

Tooth geometry includes the top profile (see photos, left), the hook angle (see photo, below) and the relief angles (see photo, bottom). The top profile and angles work together. For example, rip blades have flat teeth, high hook angles and wide relief bevels for fast cutting.

Different manufacturers typically use different combinations for the same cutting application. Manufacturers may also offer more than one blade for the same application. One profile/angle combination produces a cleaner cut; another combination is more durable.



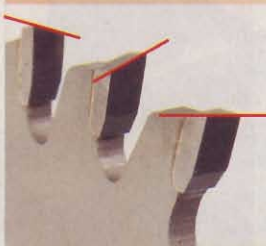
Flat Top Grind (FTG) teeth plow through the wood. They're primarily used on rip blades, where a fast feed rate is important to prevent overheating and bottom-side tear-out isn't an issue because the cut runs parallel to the wood fibers.



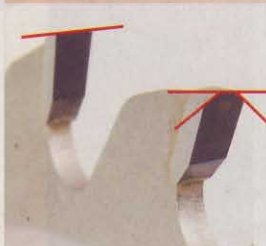
Alternate Top Bevel (ATB) teeth cut like knives, scoring the wood to minimize tear-out. Bevel angles vary: Increasing the angle improves cut quality but reduces durability. ATB teeth are used on crosscut, general-purpose and some rip blades.



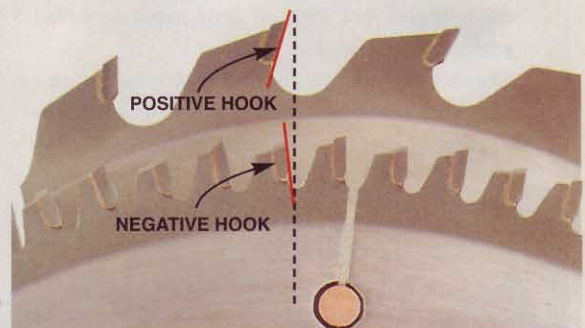
High-Angle Alternate Top Bevel (Hi-ATB) teeth have steep bevel angles (30 to 40 degrees) to cut melamine perfectly without tearing out the paper-thin face veneers. This tooth configuration is also great for hardwood plywood. These steeply beveled teeth are less durable than regular ATB teeth, though.



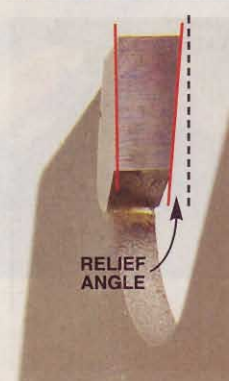
Alternate Top Bevel/Raker (ATB/R) This configuration groups crosscutting teeth and ripping teeth in five-tooth clusters. Designed for both ripping and crosscutting, it's featured on 50-tooth combination blades.



Triple-Chip Grind (TCG) teeth have beveled corners. On the blade, they alternate with FTG teeth. TCG teeth don't have scoring bevels, so they're very durable. They're used on glue-line rip blades and blades for melamine board, laminates and other manufactured materials when tooth durability is most important.



Hook angle refers to the pitch of the teeth. They tilt forward or backward from a line drawn through the center of the blade. Blades with high, or positive, hook angles cut aggressively. Their forward-leaning teeth produce fast feed rates with minimal effort. As the hook angle decreases, the feed rate slows but cut quality improves. Rip blades have the highest hook angles. General-purpose blades have fairly high hook angles. Crosscut blades have low to negative hook angles.

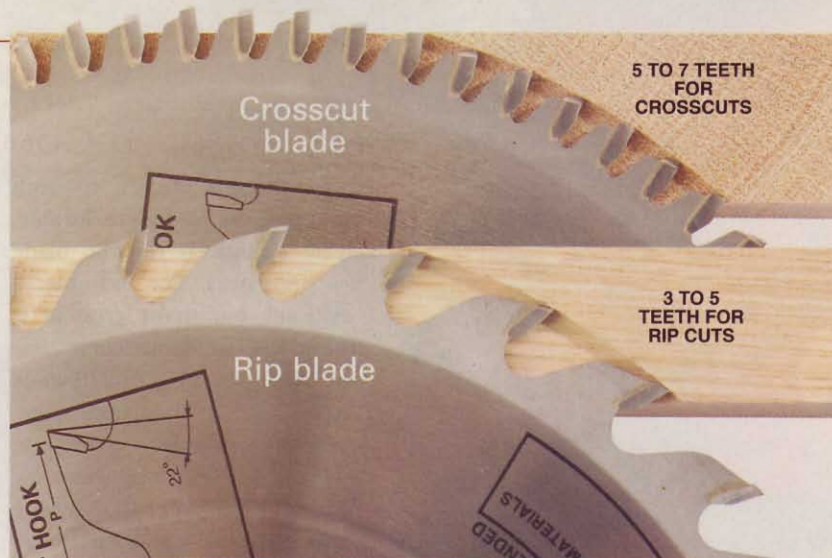


Relief angles provide clearance for the blade and reduce heat buildup while cutting. Teeth bevel slightly outward from bottom to top. Shallower bevels leave smoother cut edges, but because of the reduced tolerance, require a precisely tuned saw to avoid burning the wood.

TOOTH COUNT

In general, a blade with more teeth makes a smoother cut but runs hotter. To avoid overheating, three to five teeth should be engaged during a rip cut (see photo, right). For crosscuts and sheet goods, five to seven teeth should do the work.

To maintain the correct engaged-tooth ratio, a blade with fewer teeth for cutting thick stock would be ideal. Another solution is to adjust the blade's height (with the blade guard in place). Raising the blade higher reduces the number of teeth in the cut. It also increases the hook angle, which makes the blade more aggressive, so the cut's quality decreases.



ADDITIONAL FEATURES

SOUND DAMPENING

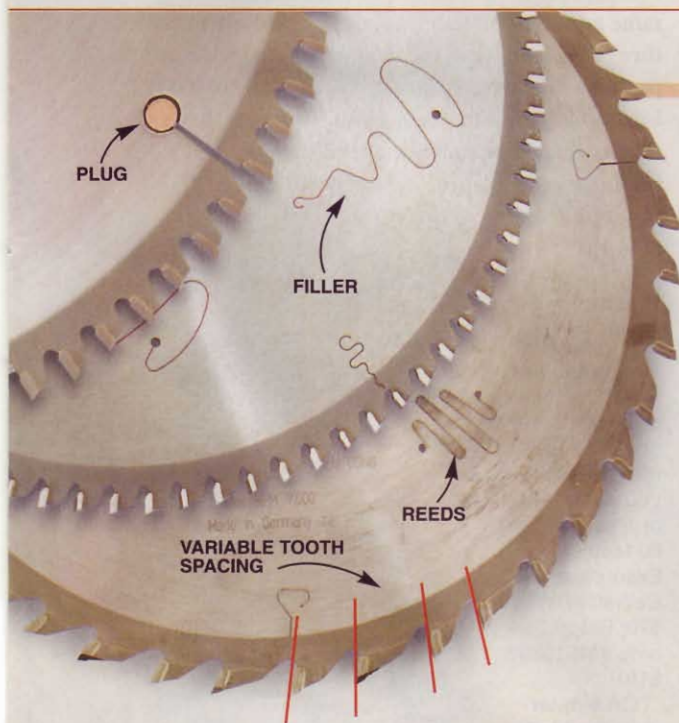
Sound-dampened blades are noticeably less noisy. But even with the quietest blade, sawing requires hearing protection. Sound dampening also reduces vibration, so it makes a blade run smoother. Methods include vibration-absorbing fillers and plugs, laser-cut reeds and variable tooth spacing. Using one finger as an arbor, test a blade for effective dampening by snapping the plate. A dull thud is good; a dinner-bell ring is bad.

THIN KERF

Thin-kerf blades are a boon to overworked motors. If your saw frequently bogs down during cuts, switch to a thin-kerf blade. It removes about 25 percent less material, so your motor doesn't work as hard.

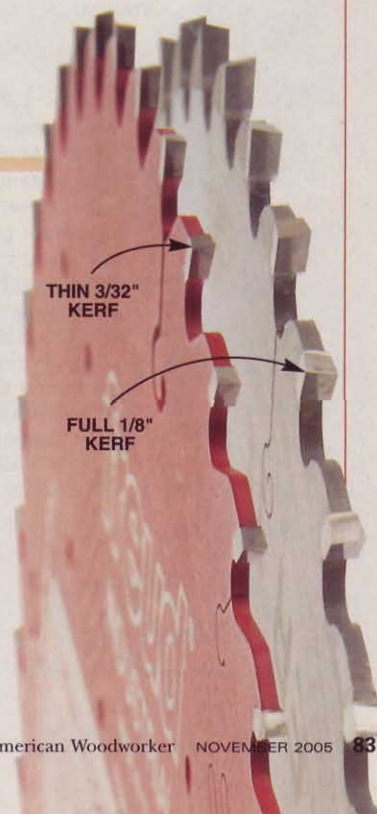
State-of-the-art thin-kerf blades cut just as well as regular kerf blades, although most manufacturers recommend using stabilizers for optimum performance. Material savings are often touted as another benefit, but they're negligible: It'll take 32 cuts to save 1 in. of wood.

Examples: Freud #LU86R010, \$35; Forrest #WW-10-40-7-100, \$90.



BLADE COATINGS

Are blade coatings beneficial? The answer varies with who's talking. Manufacturers who apply coatings claim they help blades run cooler, make them easier to clean and fight corrosion. Manufacturers that don't apply coatings allow that coatings help with cleaning, but claim they don't provide other significant benefits.



RECOMMENDED COMPANION BLADES

Even though today's 40-tooth general-purpose blades are durable, relying exclusively on one blade has drawbacks. For example, a critically important crosscut is sure to appear immediately after you've ripped miles of 2-in.-thick white oak. For best results, you should have at least two blades, so you can keep one sharp for critical cuts. Instead of buying two identical blades, it makes

more sense to choose a good companion for your primary blade.

Even with state-of-the-art technology, a general-purpose blade designed to make every cut still won't make any cut quite as well as a specialized blade. For example, a blade designed to cut hardwood-veneer plywood may reduce tear-out by only 5 percent compared to a state-of-the-art general-purpose blade. For demanding users, though, that 5-percent improvement may make all the difference.

If you don't want to compromise, augmenting your general-purpose blade with one or more companion blades is well worth the cost. The same advances in materials, design and manufacture that produce today's excellent general-purpose blades are used to produce specialty blades. As a result, these blades produce better results than ever at their specific tasks. And by having several blades, you'll get a longer service life from each one.

HI-ATB BLADE

Add an 80-tooth Hi-ATB blade if you cut lots of hardwood plywood. Hi-ATB blades leave nearly perfect bottom-side edges on melamine and hardwood plywood. They combine steeply beveled teeth and very low hook angles to virtually eliminate tear-out. You'll also get great crosscuts in solid wood less than 1 in. thick, which makes this blade an ideal companion for your general-purpose blade—its 40 teeth are well-suited to handling crosscutting chores in thick stock.

Hi-ATB blades are called melamine, trim/finish or fine-crosscut blades. The surefire way to identify them is by their tooth profile.

Examples: Freud #LU80R010, \$70; Schumacher & Sohn #156.013.150, \$83.

STANDARD
RIP

GLUE-LINE RIP BLADE

Add a glue-line rip blade if you rip lots of solid wood. At the cost of a slightly slower feed rate than a standard rip blade, a glue-line rip blade leaves cleaner edges that may not require jointing before gluing. Because of its durable TCG teeth, this blade can also cut abrasive manufactured materials like particleboard, which saves your general-purpose blade for crosscutting solid wood and hardwood plywood.

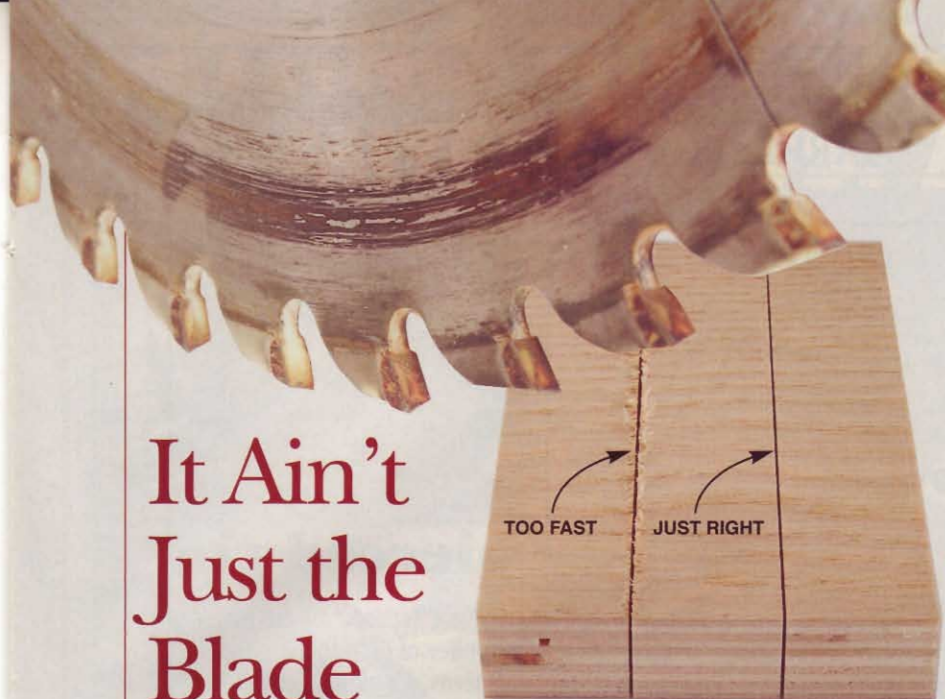
Glue-line rip blades aren't designed for cutting stock thicker than 1 in. and they require a steady feed. As with any blade, you won't get a clean edge if the board bows during the cut. **Examples:** Freud LM74R010, \$60; Amana 610301, \$78

MITER SAW BLADE

Your miter saw should have a miter saw blade, characterized by a low or negative hook. If most of the material you cut is 1-in.-thick or less, go with 80 teeth.

Examples: DeWalt #DW7647, \$70; Ridge Carbide #MC10802, \$110.

On a miter saw, the blade enters the wood from above, so teeth that angle forward (as on general-purpose and combination blades) tend to lift the workpiece. On a sliding miter or radial-arm saw, a blade with an aggressive hook angle can grab the wood and pull itself through—a real safety hazard.



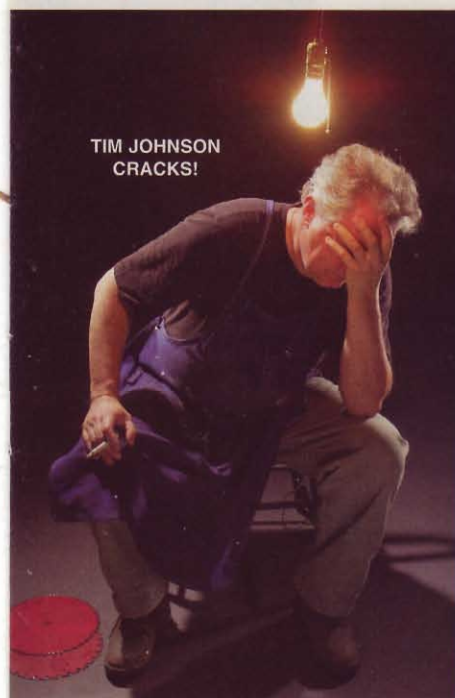
It Ain't Just the Blade

The world's best blade will produce third-rate results if you don't use it correctly or maintain it properly.

Routine cleaning should be a priority. Allowed to accumulate, pitch can cause overheating, because it significantly reduces the tolerance between the teeth and the wood. Overheating weakens the carbide, so the teeth become dull more quickly. Today's biodegradable blade cleaners (such as OxiSolv Blade & Bit Cleaner) make it easy to keep your blades pitch-free.

Good technique is just as important as a good blade. A ragged cut (see photo, above) results from a feed rate that is too fast. Feed rates that are too slow or unsteady can easily produce results that are just as unsightly.

Letting your blade go too long before resharpener is another mistake, because it shortens the blade's life. The duller the teeth get, the more rounded over they become. That means more carbide must be removed to renew the edge.



TIM JOHNSON
CRACKS!

Confessions of a One-Blade Junkie

I used to love my workhorse blade. I kept it in my saw all the time. It ripped and crosscut in hardwood and construction-grade lumber. I used it to cut grooves and dadoes, tenons and lap joints. I raked across it to create coved moldings. It cut plywood, particleboard and melamine. It has been a trusted friend that has given me years of good service.

Now that I've seen what specialty blades can do, though, I can't go back. Their amazingly clean cuts make my eyes pop. Why should I settle for good results when I can get great results? I'll always love my workhorse blade, but I can't be a one-blade woodworker anymore.

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SMALL SHOP TIPS

HOLD IT! ROLL IT!
HANG IT! STORE IT!

edited by David Munkittrick



VERSATILE ROUTER-BIT STORAGE

When it comes to router-bit storage, I could write a book. I've tried everything, but I think my latest design is a keeper.

I prefer to keep my bits protected in a drawer. At first, I just drilled some holes in a block of MDF and set that into the drawer. But it proved difficult to thread my hand through the forest of sharp carbide when reaching for a bit. Several bandages later, I had a better idea. I cut 3/4-in. MDF into square blocks small enough to fit in a row inside the drawer but big enough to hold my panel-raiser bit. I left about 1/16 in. of clearance around each block so I can easily lift them in and out. It's best to keep the blocks square, so you don't have to turn one this way or that to fit it in its space. I drilled holes for the 1/2-in. shanks using a 33/64-in. twist bit and for 1/4-in. shanks using a 17/64-in. bit. The slightly oversize holes allow the bits to slip easily in and out.

To avoid reaching into the sharp bits, I cut some 5/16-in. dowel stock to make handles for lifting the blocks. The knobs at the top are made from 3/4-in. wooden balls I picked up at a craft and hobby store. Now it's easy to select just the bit I want and take it right to the router table.

Dave Munkittrick

Source Enco, (800) 873-3626, www.Use-Enco.com
33/64-in. twist bit, #300-0133, \$4 ea. 17/64-in. twist bit, #300-2317, \$3 ea.



QUICK, EASY CLAMP HANG-UP

Clamps hung on the wall are space hogs. I'm always on the lookout for more efficient storage schemes in my all-too-small shop. At the hardware store the other day, I came upon these storage hooks and a light came on. The store clerk thought I was a little deranged when I plopped a dozen or so hooks on the counter. "Gotta lotta things to store?" he asked. "Yup," I replied. I knew what I was doing. For less than a dollar apiece, I had instant overhead clamp storage. Few things in life are this simple. My hooks freed up enough wall space to hang a cabinet for my handheld power tools.

Shelly Jacobson

Source Ladder hooks, available at most hardware stores and home centers, \$1 ea.



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STATEMENT OF OWNERSHIP, MANAGEMENT, AND CIRCULATION

Required by 39 USC 3685

1. American Woodworker
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10. The owner is Home Service Publications, Inc., 2915 Commers Drive, Suite 700, Eagan, MN 55121. RD Publications, Inc., 260 Madison Ave., New York, NY 10016.
11. There are no known bondholders, mortgages, or other security holders owning or holding 1% or more of the total amount of bonds, mortgages or other securities.

12. N/A

13. AMERICAN WOODWORKER

14. Issue date for circulation data: October 2005

15. Extent and nature of circulation:

(i) Average no. of copies each issue during preceding 12 months

(ii) Actual no. of copies of single issue published nearest to filing date

	(i) Average	(ii) Last Issue
(a) Total no. of copies	439,965	428,681

(b) Paid/requested circulation

1. Sales through dealers and carriers	42,554	39,000
Street vendors, counter sales	-	-

2. Paid/requested mail subscriptions 285,536 285,478

3. Other Classes Mailed through the USPS 0 0

(c) Total paid/requested circ. 328,090 324,478

(d) Free distribution by mail (samples, complimentary, and other free copies) 13,552 10,014

(e) Free distribution outside of mail 0 0

(f) Total free distribution 13,552 10,014

(g) Total distribution (sum of 15c and 15h) 341,642 334,492

(h) Copies not distributed 98,323 94,189

(i) Total (sum of 15g and 15h) 439,965 428,681

Percent paid/requested circulation 96% 97%
(15c/15g x 100)

1. This statement of ownership will be printed in the November 2005 issue
2. Certify that all information furnished on this form is true and complete.
(signed) Christopher Gaydos, Director, Circulation Planning

SMALL SHOP TIPS

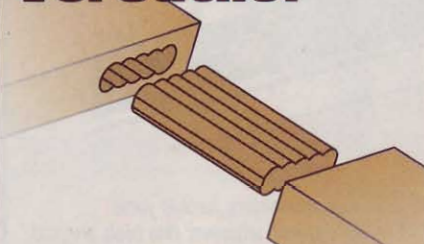


E-Z WRENCH HANGER

One day, after spending 20 minutes looking for my tablesaw's arbor wrench, I decided it needed a permanent home. Drilling a hole through the cast-iron extension wing took less than a minute—my fastest shop improvement ever! I'll confess that my shop is somewhat disorganized, but at least now I always know where to find my arbor wrench.

Patrick Hunter

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PLUG
YOUR
WRENCHES

I know I should unplug my tools before changing blades and bits, but sometimes I forget. So far I've been lucky, but I'd rather be safe, so I came up with a simple solution. Using a hook-and-loop strap, I secured my tool wrenches to the end of the power cords. Now there's absolutely no way I can change a blade or bit without first unplugging the tool. And as an added bonus, I can't misplace the wrenches.

Jay McClellan



If you have an original Small Shop Tip, send it to us with a sketch or photo. If we print it, you'll get \$100! Send it to **Small Shop Tips, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121** or e-mail to smallshoptips@readersdigest.com. Submissions can't be returned and become our property upon acceptance and payment. We may edit submissions and use them in all print and electronic media.

edited by Tim Johnson

ZERO-CLEARANCE CATASTROPHE

Since the next step in my project required tilting my saw blade to 45 degrees, I crouched down to reach the blade-pivoting wheel and watched the scale as I cranked. Starting at about 20 degrees, the wheel became increasingly harder to turn. At 23 degrees, I had to use both hands. At 25 degrees, the wheel stopped altogether. It wouldn't budge. Frustrated, I stood up, only to realize that I had forgotten to remove my zero-clearance throat plate before tilting the blade. Without enough side clearance to pivot, the blade had seized up in the narrow kerf. The result: a cracked phenolic insert, which cost \$20 to replace, and a bent combination blade, which cost \$50. At least I hadn't bent the saw's arbor shaft.

Stephen Primatic

SAW BLADES 'R' US



If you have a woodworking blunder that you're willing to share, send it to us. You'll receive \$100 for each one we print. Send it to **AW Oops!**, American Woodworker, 2915 Commers Drive, Suite 700, Eagan, MN 55121, or e-mail to oops@readersdigest.com. Submissions can't be returned and become our property upon acceptance and payment. We may edit submissions and use them in all print and electronic media.

THE WET LOOK

I started woodworking about three years ago, just after I bought a house. I was pretty green. For my first project, I decided to ebonize the oak kitchen cabinets with black stain. Staining took a long time, but the cabinets turned out great. After cleaning up, I left the house for the rest of the day to let the stain dry.

When I returned late that evening, the cabinets were still very tacky. At first, I couldn't figure out why, but then I made an embarrassing discovery. My cabinets weren't solid oak, as I had assumed; they were particleboard covered with oak-grained vinyl, which couldn't absorb the stain. Fortunately, I was able to remove the tacky mess, but that took even longer than my original staining job.

Those awful fake wood cabinets still reside in my kitchen, but their days are numbered. I'm building new solid-cherry replacements.

Brad Rodriguez