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#87 June 2001
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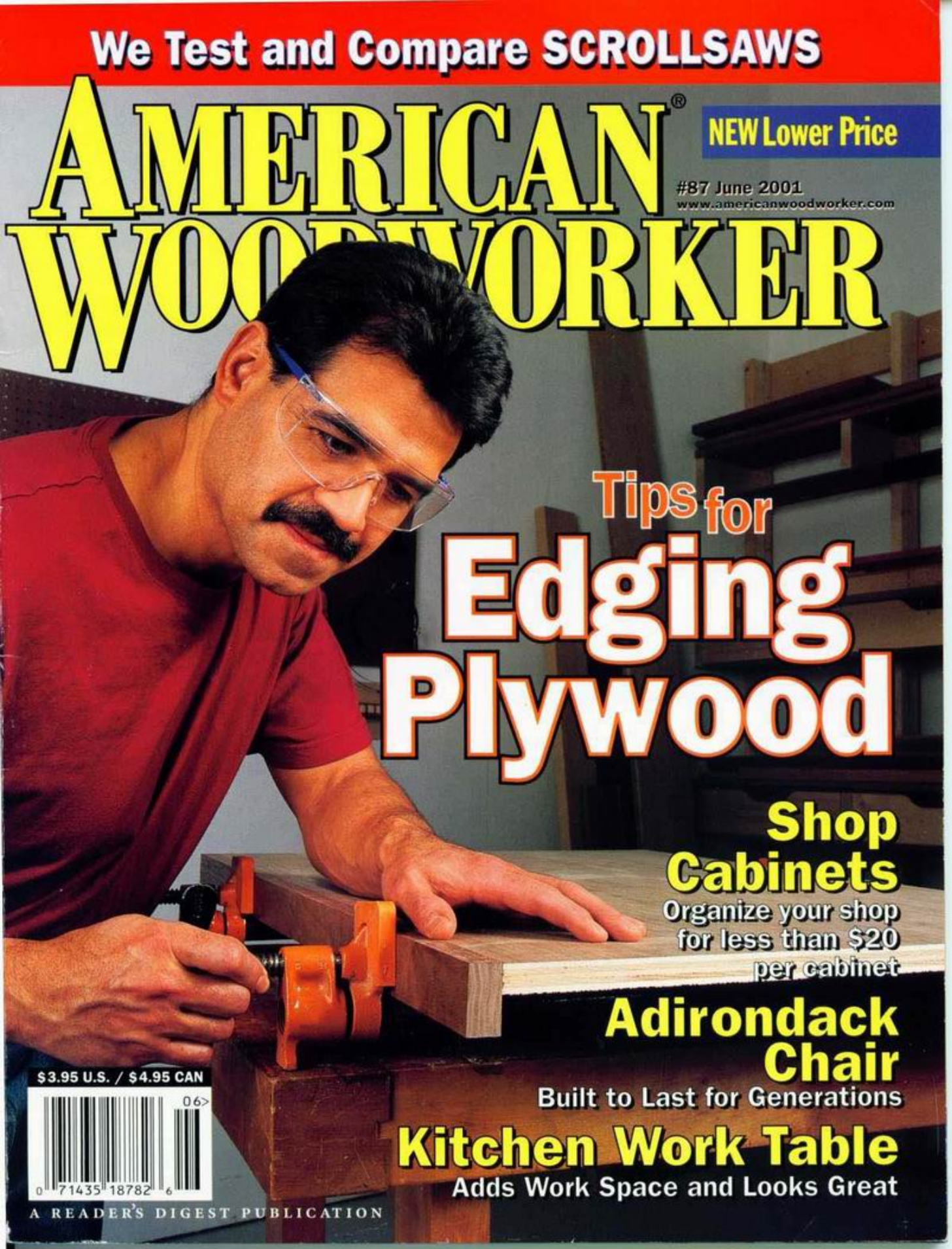

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A READER'S DIGEST PUBLICATION

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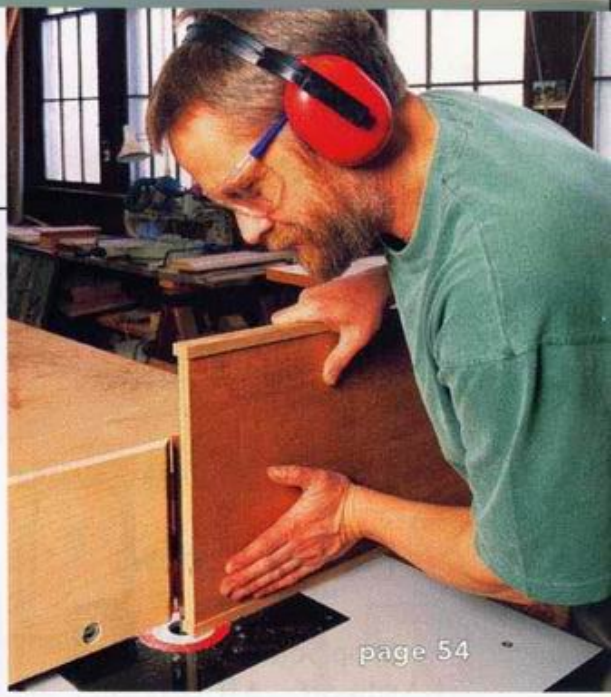

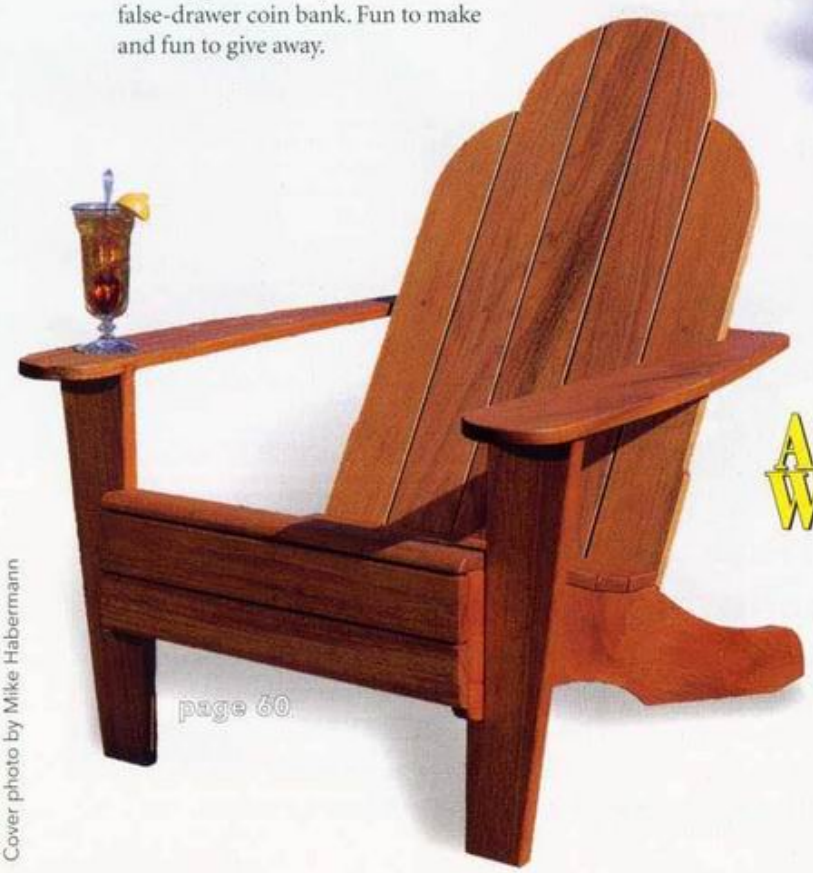

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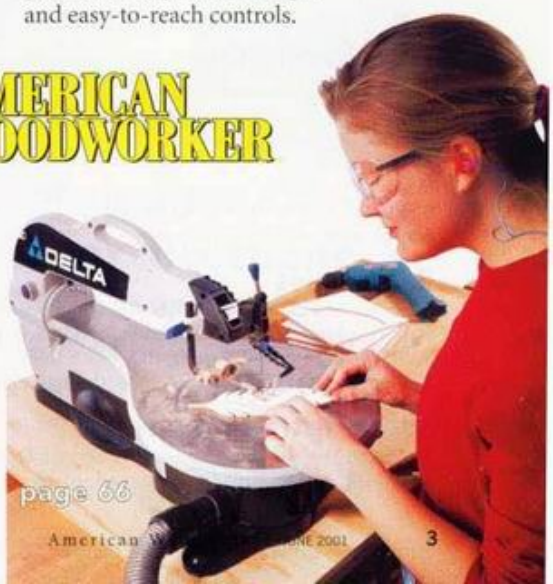

Cover photo by Mike Habermann

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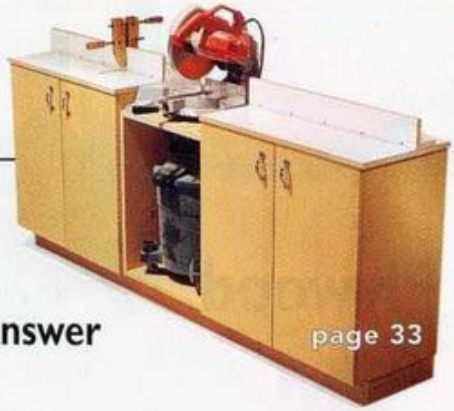

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Edited by **Randy Johnson**

Question & Answer

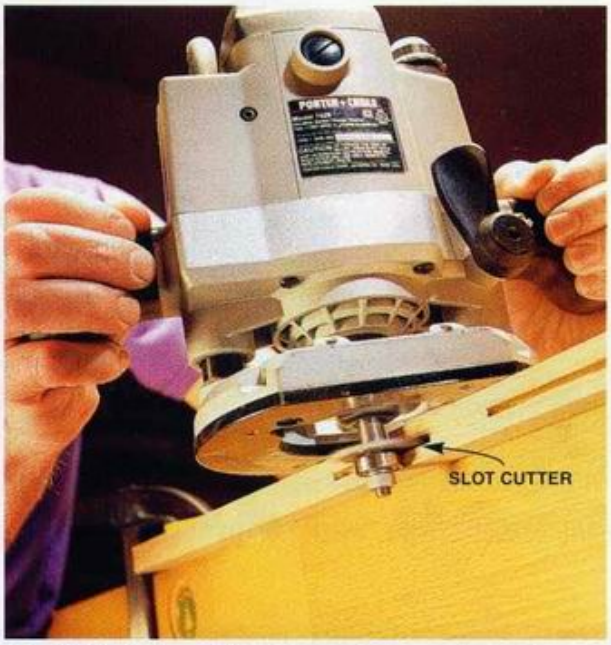
Slot Cutter vs. Plate Joiner

Q. I saw an ad for a slot-cutting router bit. I have a router and buying the bit instead of a plate joiner would save me a lot of money. Is there a downside to this cheaper option?

Greg Watman
Plains, ND

A. It depends on what kind of joints you plan to make. A slot cutter does a good job with flat edge-to-edge or end-to-end joints (Photos 1, 2 and 3). Other joints can present some problems:

- A butt-corner joint (Photo 4) can be made, but requires the extra step of clamping a support board to the piece with the face slot. This gives your router a broader surface to rest on.
- On a tee-butt joint (Photo 5) you can rout the end slot but it is impossible to cut the face slot in the other board.



Cutting biscuit slots with a slot cutter is easy on flat work.

- A corner miter (Photo 6) is best handled using the slot cutter in the router table with an angled jig to hold the work. If your pieces are very big this can get quite cumbersome.

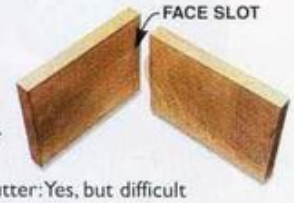
A plate joiner (photo below), on the other hand, will make all of these joints with ease. It also has built-in dust collection.

1
Edge-to-edge joint
Slot cutter: Yes
Plate joiner: Yes

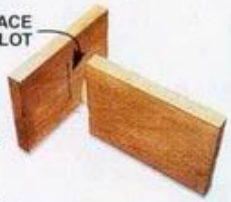
2
Flat-tee joint.
Slot cutter: Yes
Plate joiner: Yes

3
Flat-end miter
Slot cutter: Yes
Plate joiner: Yes

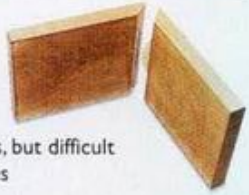
4
Butt-corner joint
Slot cutter: Yes, but difficult
Plate joiner: Yes

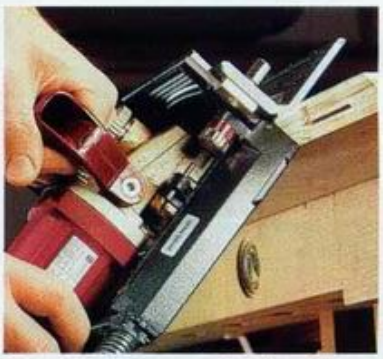


5
Tee-butt joint
Slot cutter: Not possible
Plate joiner: Yes



6
Corner miter
Slot cutter: Yes, but difficult
Plate joiner: Yes





Cutting angle joints with a plate joiner is quick and easy. It's possible, but awkward, to do this with a router.

Source
Woodcraft Supply, (800) 225-1153
Biscuit slot-cutting router bit
#24D71, 1/4-in. shank; $20.
#24D72, 1/2-in. shank; $20.

ART DIRECTION: VERN JOHNSON AND BARBARA PEDERSON • PHOTOGRAPHY: BILL ZUEHLKE

Question & Answer

Perfectly Flush?

Q. I recently bought a plate joiner in hopes that it would help me get perfect alignment when edge-to-edge gluing. I'm still getting some unevenness at the joints. What gives?

Ralph Jefferson
Crestview, WV

A. Biscuits help considerably with alignment, but getting absolutely perfect alignment is unlikely. Having glued up what seems like acres of tabletops, I find that slight variations in wood thickness, minor warpage or loose-fitting biscuits can all throw off the joint. A slight tipping up or down of the plate joiner can also cause a misaligned joint.

You can overcome some of this misalignment during glue-up by tapping or pressing high spots into place before fully tightening the clamps. Otherwise it's best to accept a slightly uneven joint and then sand or scrape it flush.

Another option is a spline joint. Use a slot cutter in your router. Then mill your own spline to fit. Because the spline joint runs the full length of the board, it offers very consistent alignment.

How Much Light?

Q. My husband wants to turn our basement into a TV room so I have to move my shop to the garage. I want to fix it up right and one of the big questions I have is how much lighting do I need?

Gina Carson
Minneapolis, MN

A. Pages could be written on how to best light a shop area and it can get quite confusing with terms like foot candles, lumens and Kelvin temperatures. But here are some basic guidelines that'll help you as you set up your shop.

- Fluorescent lights cost less to operate than incandescent lights.
- Use 3/4 to 1-1/2 watts of fluorescent light per square foot. (This equals five to nine 48-in.-long two-bulb fixtures for an average two-car garage.)
- Fluorescent fixtures with electronic ballasts save energy, and operate quietly with very little flicker.
- Locate additional task lights over machines and workbenches.
- Use a dedicated 15-amp circuit and load it with no more than 1,400 watts.
- For incandescent light, use 2-1/4 to 4-1/2 watts per square foot. (This equals 11 to 22 100-watt bulbs for an average two-car garage.)
- When possible, paint the walls and ceiling a light color.
- Work with a licensed electrician and secure a permit before you begin the work.

Dead Battery Recycling

Q. I love my rechargeable tools but I'm getting a drawer full of dead batteries. I know I shouldn't throw them out with the trash but what can I do with them?

Sara Lopez
Dallas, TX

A. You're right. The trash is the wrong place for used batteries. Trash gets burned, buried or both. Many of the metals used in rechargeable batteries are hazardous and can end up in our air or ground water if disposed of improperly.

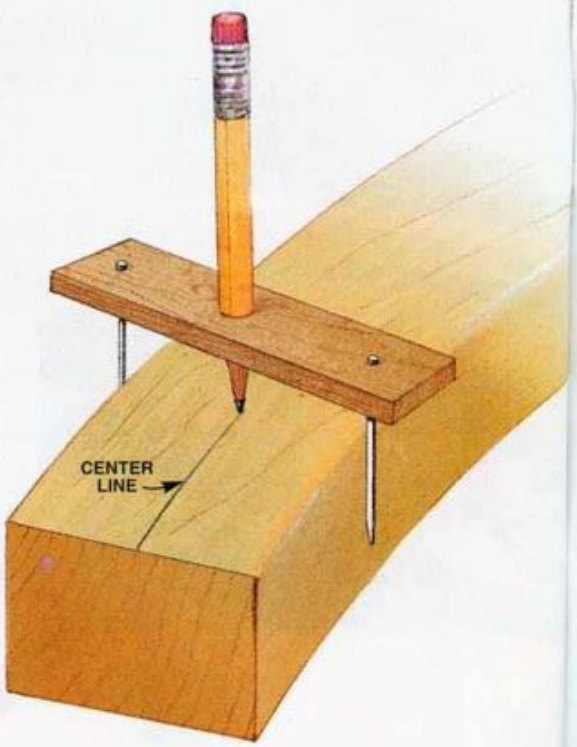
The right place for disposal is one of 20,000 national "Charge Up to Recycle" collection sites. They include ACE Hardware stores, Batteries Plus, Circuit City, Radio Shack, Target, WalMart and Zellers, to name a few. They accept several types of rechargeable batteries (nickel cadmium, lithium ion, nickel metal hydrite and small sealed-lead batteries). They do not accept car batteries.

The Rechargeable Battery Recycling Corporation (RBRC) takes the used batteries and reclaims the metal and recycles the rest of the batteries to make new ones. For more information about a drop-off location near you, call (800) 8-BATTERY (800-822-8837) or visit www.rbrc.com. *AW*

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

WorkShop Tips

Versatile Center Gauge



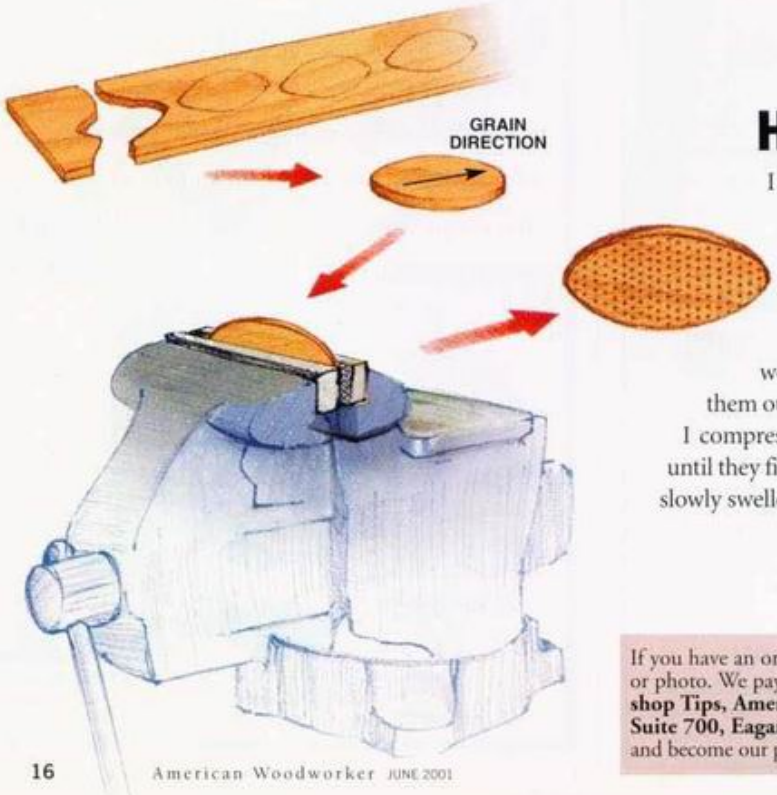
I wanted to add accent dowel "dots" down the center of some slightly curved, tapered table legs. Sounds simple, but I nearly pulled my hair out trying to accurately find the center of these legs using a ruler! I was about to tick off the center of the leg every 1/4 in. to get the curve I wanted.

Forget it! I came up with a clever, self-centering gauge that works on any board, straight, tapered or curved.

I drilled a snug-fitting hole for a pencil in the middle of a 1/2 in. by 1/4-in. stick. Then I drilled two smaller holes for 10d nails an equal distance from the pencil hole. I spaced these holes so the distance between them was a little larger than the widest section of the leg.

I placed the gauge over the tapered leg and rotated it until the nails contacted the sides. I drew the center line of the board while keeping the nails against the side. Try it, it really works!

Steve McHugh
Page, WA



Homemade Biscuits

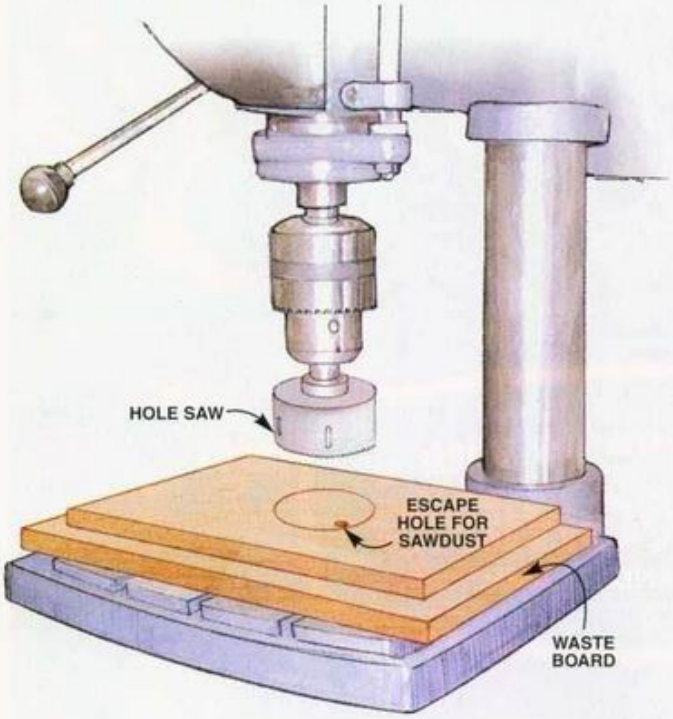
I needed 50 biscuits to build my bookcase and wouldn't you know it, I came up a few biscuits short! It was Saturday night and all the stores were closed, so I decided to improvise.

I traced a few biscuits on a piece of wood planed to about 3/16-in. thick and cut them out on the bandsaw. They were a little thick, so I compressed them in the jaws of a machinist's vise until they fit snugly. During glue up, the water in the glue slowly swelled the new biscuits and locked them tight.

Steve Malcom
New London, MA

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

EDITOR: RANDY JOHNSON • ART DIRECTION: VERN JOHNSON • ILLUSTRATION: MELANIE POWELL



Smooth-Cutting Hole Saw

I cut a lot of discs and large-diameter holes in my shop. I was puzzled for the longest time because I was getting vibration and smoke. It even happened with new hole saws.

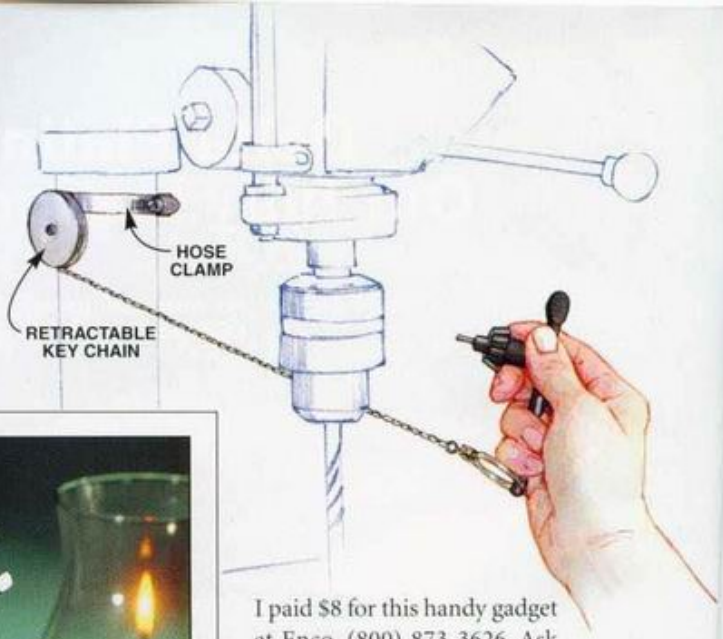
Eventually it dawned on me that the culprit wasn't my antiquated drill press, but the simple fact that a hole saw doesn't clear its own chips very well. Give those chips a place to go, and they won't clog up the saw!

My easy solution is to predrill a 3/8-in. or larger hole in the edge of the waste, next to where the saw will cut. Drill this escape hole all the way through the workpiece, and into the waste board. Now the chips have a place to go. They fall away from the saw teeth and into this hole. This allows the hole saw to spin without the least bit of chatter.

Paul Williams
Fridley, MN

Retractable Chuck Key

After losing three chuck keys I attached the fourth to a plain, old retractable key chain. Now I don't have to turn my shop inside out looking for my chuck key because it's always within easy reach. I turned the holder upside down because the chain pulls out more smoothly that way.



I paid $8 for this handy gadget at Enco, (800) 873-3626. Ask for part #844-0144.

Vincent R. Lucrezi
Little Falls, SD

Glove Finger Chisel Protectors

My chisels used to get dull and rusty rattling around in my toolbox. No more! I found a clever way to protect them. I cut the fingers off some old leather work gloves. Then I poked holes with an awl and threaded a drawstring through the holes. Now I just slide the chisel blades into the "pocket" and close it tight with the drawstring.

I found that by drizzling some 3-In-One oil into the pockets, the oil soaks into the leather and ends up rubbing off on the chisels. Now the chisels don't rust any more either! I wipe the chisels with a clean cloth before use so the oil won't contaminate my wood.

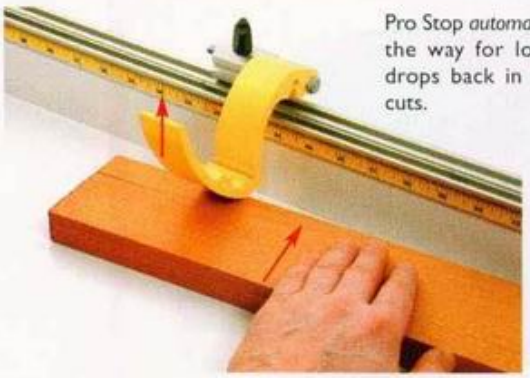
Daniel Losinger
Chatsworth, NJ
AW

Product Reviews

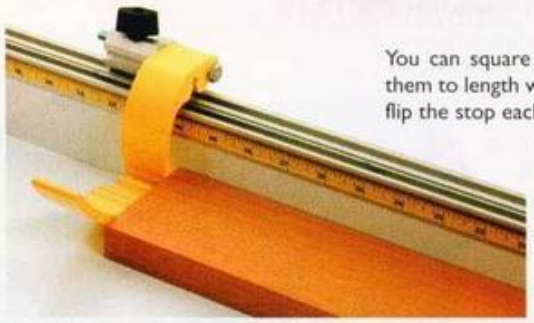
Quick-Action Stop

FasTTrak's Pro Stop knows when to get out of the way. Whether mounted to the fence of your tablesaw's miter gauge or to the fence of your miter saw, this time-saver lifts itself out of the way whenever you need to cut a long piece. You no longer have to stop each time and do it yourself.

The secret is Pro Stop's unique curved foot. As you push the board against the fence, it gently lifts Pro Stop's foot and slides right under it. Remove the board, and Pro Stop drops back in place, ready to resume action. Although it's designed for FasTTrak fences, Pro Stop mounts on any extruded aluminum T-slot system and works with fences between 2-1/2 and 3-1/4-in. tall.



Pro Stop *automatically* lifts out of the way for long pieces and drops back in place for stop cuts.



You can square boards and cut them to length without having to flip the stop each time by hand.

Pro Stop; $20
Woodworking FasTTrak, Inc.
(888) 327-7725
www.woodworkingfasttrak.com

A Better Benchtop Mortiser

This new benchtop mortiser is better than any of the machines we tested last August (AW #81, page 73). The General International 75-050MI addresses the main weakness of benchtop mortisers—fence-mounted hold-down systems that don't work very well.

The 75-050MI's hold-down mechanism mounts on the dovetailed front of the main support column, and is completely separate from the fence, which locks onto the base. The hold-down is a large, two-part casting equipped with a big lock knob. Even though these castings aren't machined and don't fit perfectly, this hold-down mechanism works much better than any of the others we tested.

The 75-050MI cut clean, 1/2-in.-wide mortises in solid oak without a hitch, once we removed the vise. The vise is supposed to hold the workpiece against the fence, but on our sample machine it caused problems. A board clamped to the base was more effective than the vise.

Thumbs up to the 75-050MI because of its superior hold-down, slow operating speed (1,720 rpm) and the leverage offered by its 23-in.-long handle.

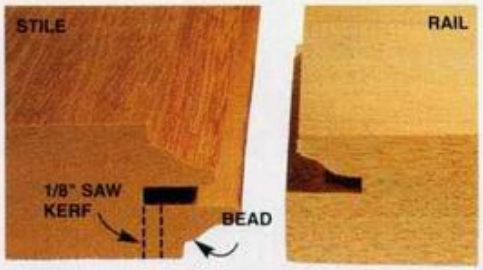
Model 75-050MI Benchtop Mortiser;
$350, including four chisel sets.
General International, (514) 326-1161, www.general.ca

ART DIRECTION: PATRICK HUNTER • PHOTOGRAPHY: STAFF

Time-Saving Router Bits for Glass Panel Doors

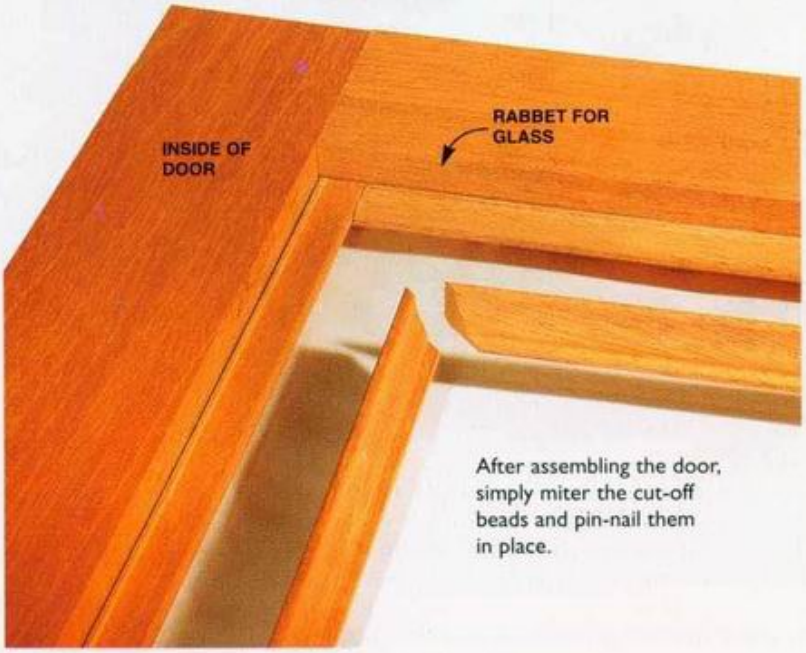
Whenever I make glass panel doors, I hate having to take time to make those skinny little moldings that hold the glass in place. That's why I like Freud's new "recoverable bead" glass panel door sets. Each set contains a matched pair of stile and rail cutters. In addition to forming an interlocking joint with a rabbet for the glass, the profiles these cutters create include decorative beads designed to be cut off, "recovered" and used to hold the glass. Perfect color and grain matches are guaranteed because the beads are cut from and fastened back onto the same pieces.

These cutter sets must be used in a router table equipped with a fence. Three profiles, quarter-round, ogee, and beaded are available. Any doors you make with them will look as good open as they do closed.



After routing the stiles and rails, a single tablesaw cut creates a piece of retaining molding and a rabbet for the glass. Once the bead has been cut off, the stile fits the end-grain profile made by the rail cutter.

Recoverable Bead Glass Door Bit Sets; $130.
#99-280, quarter-round; #99-281, ogee; #99-283, beaded.
Freud, Inc.
(800) 334-4107



After assembling the door, simply miter the cut-off beads and pin-nail them in place.

Product Reviews

More Time for Glue-Ups

When was the last time you heard of a product getting better by being slower? That's exactly the case with Titebond's Extend wood glues. Compared to original Titebond and Titebond II, these new formulations have *triple* the open time (15 minutes at 70 degrees and 50-percent relative humidity), while retaining similar clamp times and bond strengths. This is great news for any woodworker facing a complicated glue-up, be it a chair, a bent lamination or a big cabinet.

Unlike original Titebond and Titebond II, it's natural for these "extend" formulations to settle. Just remember to shake the bottle before use. Titebond Extend glues cost about 20-percent more than the originals.

Titebond Extend Wood Glue
$5/pt., $20/gal.
Titebond II Extend Wood Glue
$6/pt., $22/gal.
Franklin International, (800) 347-4583
www.titebond.com

Slow-Speed Grinder at a Great Price

Three features on Craftsman's new 6-in. Grinding Center caught my eye: the variable speed motor, the tool rests and the price—$80!

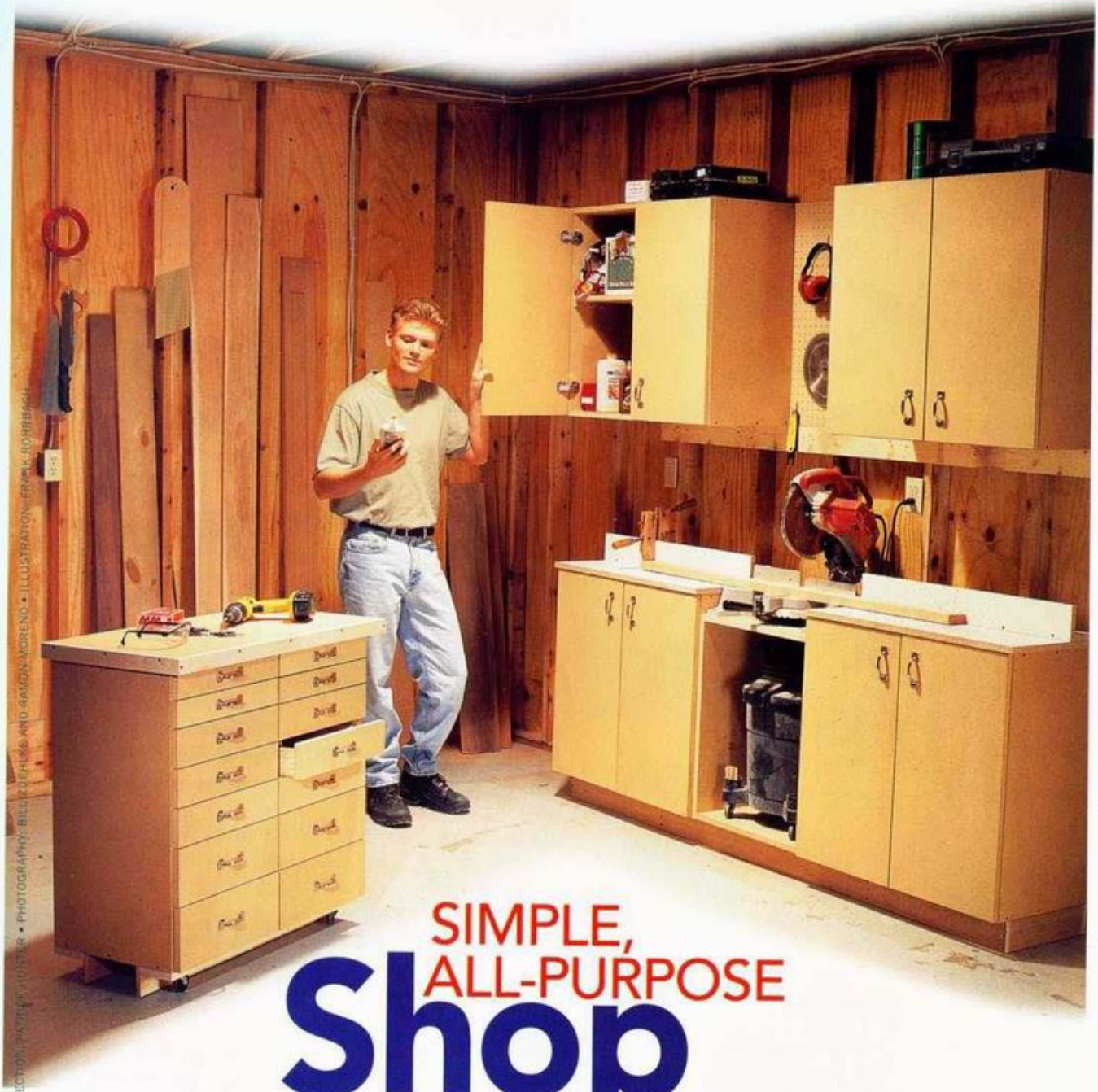
The 1/5-hp. motor has a top speed of 3,450 rpm, but slows all the way down to 2,000 rpm. This slow operating speed is a big plus when you grind chisels and plane irons, because they're much less likely to overheat and lose temper.

Craftsman 6-in. Grinding Center
#21152; $80.
(800) 697-3277
www.sears.com

This little grinder has better tool rests than most machines. Each rest, big enough to support a plane iron, pivots on an L-shaped support arm, which is slotted for in-and-out adjustment. The tool rest locks positively to the support arm because both mating surfaces are toothed. Unfortunately, these teeth limit the adjustability of the tool rest to 15-degree increments. This makes fine adjustment of the grinding angle difficult; it must be made by loosening the nuts and moving the support arm in and out.

This grinder is compact, portable and reasonably priced. The one I tried out operated smoothly, with enough power and minimal vibration. It comes with a 60-grit gray grinding wheel, a work light, a wire brush wheel, an accessory for sharpening twist drill bits and a wheel dresser. For sharpening, I'd recommend replacing the stock wheel with a cooler-cutting white one (60-grit white wheel, 131-N6X60; $33, The Cutting Edge, 800-790-7980). Overall, this is an impressive package for the price. AW

Shop Solution Special



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SIMPLE, ALL-PURPOSE

Shop Cabinets

Open the foldout!

SIMPLE, ALL-PURPOSE

Organize your shop in a weekend, for less than $20 per cabinet!

By Jean Bartholome

Walk into a typical small cabinet shop, and you're likely to find simple, functional cabinets made of inexpensive sheet goods. Not that these pros couldn't make furniture-grade cabinets for their shop if they wanted, but when there are customers waiting and bills to pay, shop cabinets get built fast, cheap and solid.

These cabinets are right out of this tradition. They're fast to build, so you can move on to building real furniture for your home. They're sturdy and flexible, so you can adapt them to all sorts of storage needs, even heavy tools and hardware. And best of all, they're cheap. We built eight of them for $17 each, including the hardware. The drawer units, complete with all their drawers, cost $28 when built in pairs. All the material and hardware should be available at your local home center.

MULTI-PURPOSE CABINETS

These basic cabinets can be used on the wall, on the floor, on wheels, back-to-back—any way you want. As you can see, we used them as the foundation for several basic pieces of shop furniture. The drawers range in size from a bit more than 1-in. deep, for small tools, to almost 6-in. deep for heavy stuff. The drawer design is so simple you can easily modify the dimensions and customize the sizes.

You can also use these cabinets as outfeed support for your tablesaw. With a 3/4-in. top and casters or a base underneath, the total height of the cabinet will be 34 in., a common height for tablesaws.

ROLLING SHOP CARTS are always handy. This one uses two cabinets, and is the same height as our tablesaw. You could also use four or six cabinets for a larger rolling assembly table or an outfeed table.

A ROLLING TOOL CHEST is made from two drawer units, with a top and casters. Because this chest will carry a lot of weight, reinforce the bottom with braces.

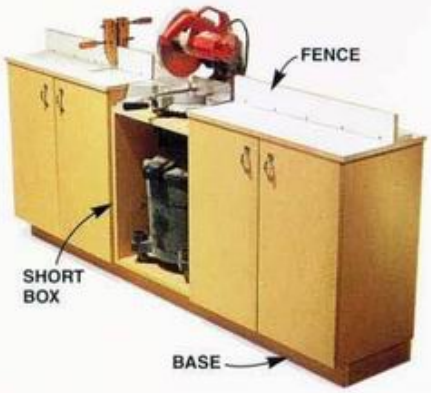
SUPPORT A WORKBENCH with two or three cabinets. This bench has a plinth to raise the cabinets up off the floor, and a top of MDF edged with hardwood.

SHOP CABINETS

A WIDE CABINET is easily made from one of the basic cabinets. Flip the cabinet sideways, cut a new, longer nailer, and use double doors in front.

MAKE EXTRAS for the laundry room, garage, or wherever you need utility storage.

with two or
linth to raise
top of MDF



A MITER SAW STAND is built from four or six cabinets with a shorter box in the middle to support the saw. A narrower base ties all the units together and provides a toe space.

These cabinets are flexible! You can adapt them for all sorts of uses.

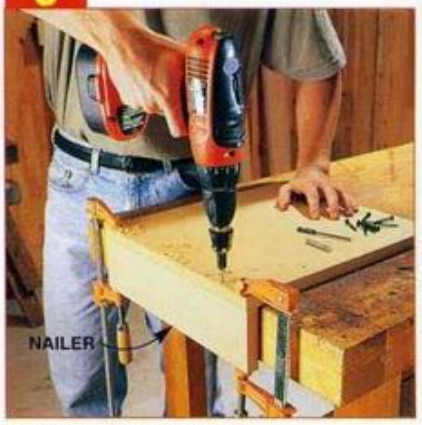
1

RIP THE SHEET MATERIAL FIRST, to get it to a manageable size. The MDF is heavy and produces tons of fine dust when cut, so have a helper and some dust control handy.

2

CROSSCUT THE STRIPS OF MDF. A simple shop-made sled makes it easier to get accurate cuts on these large pieces, although you'll need to support the far end. A hinged stop on the sled allows you to flip the stop up for the first cut, then flip it down for the final cut. The result: every piece is accurate and identical.

3



JOIN THE TOP AND THE NAILER with utility (drywall-type) screws and no glue. Clamp the pieces to get the alignment perfect, then drill the pilot hole and countersink. A quick-change unit and combination bit makes this operation go quickly.

FIG. A SHOP CABINET

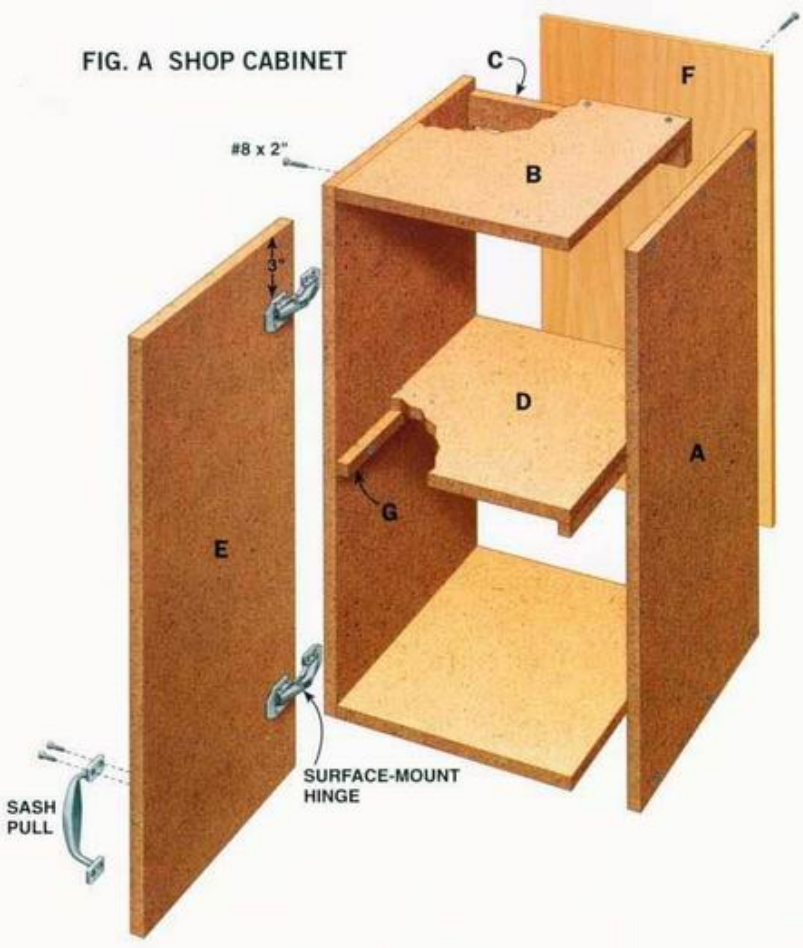


FIG. B SCREW HOLES

HE
ywall-
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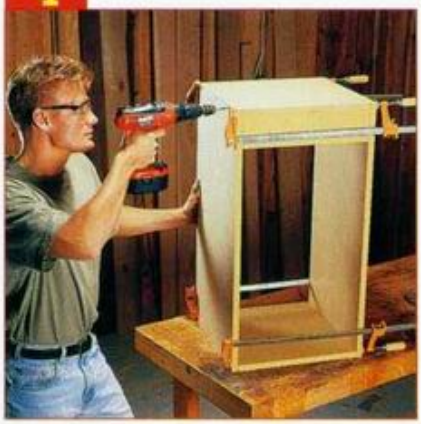
ES

ANCE: 9/64"
3/32"

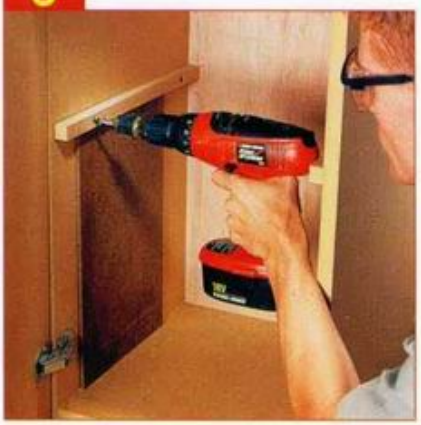
RANCE: 11/64"
1/8"

4



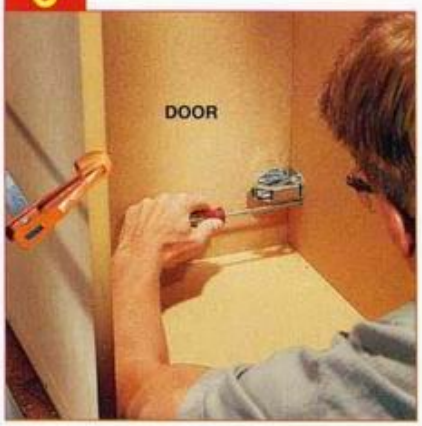
JOIN THE REST OF THE BOX the same way, using clamps to get parts aligned. These joints are plenty strong with just screws, so no messy glue cleanup is required. Plus, if you ever want to modify the cabinet, it will come apart neatly.

5



ATTACH CLEATS FOR THE SHELVES, using a piece of scrap to align them. This may not be the prettiest shelf support in the world, but it's strong, cheap and completely adjustable.

6



HANG THE DOOR from inside the cabinet. This is a pretty weird-looking way to do it, but it works great! Simply attach the hinges to the door, then clamp the door to the cabinet box so it's aligned all the way around, and then screw the hinges to the inside of the cabinet. Finally, screw on the back of the cabinet.

MATERIALS

We made our cabinets out of medium-density fiberboard (MDF) because it's strong and inexpensive. MDF paints like a dream, but you could also use a clear finish or no finish at all on these cabinets.

Although MDF comes in 49-in. x 97-in. sheets, the cabinets are designed so you could also use fir or birch plywood in normal 4x8 sheets without changing any dimensions.

MDF is not a perfect material, however. It's heavy, for one thing, so get help if you're going to install these cabinets on a wall. Attach them very securely to studs using 3-in. drywall screws. The drawer unit should not be hung from a wall at all. It's simply too heavy.

The other drawback to MDF is that it only holds screws well when they are correctly installed. The screws can't be too close to an edge, or they'll split the material (see Oops!, at right.) You must drill good pilot and clearance holes (Fig. B) or the screws will snap or fail to hold. And finally, coarse-thread utility or deck screws will hold better than fine-thread drywall screws.

MODIFYING THE DESIGN

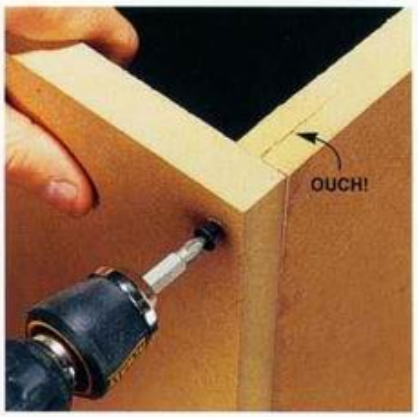
We have designed these cabinets so you get the most number of cabinets from the least amount of material. However, it is easy to modify the dimensions to suit your needs. You can put more shelves in the cabinets, more drawers in the drawer unit, or turn the drawers into trays. Don't make the cabinets more than about 32-in. wide, however, because MDF sags under its own weight.

You may want to use a different material altogether. You could go upscale by choosing birch plywood with solid-wood edging. Or make the cabinets white and easy to clean with melamine-covered particleboard.

TOOLS AND SUPPLIES

We've come up with a building process for these cabinets that makes handling the sheet material as easy as possible. The first step, whether you're making one cabinet or a dozen, with drawers or without, is to rip each full sheet into three long pieces (see Cutting Diagrams, page 42) These more manageable pieces can then be crosscut and ripped narrower, as needed.

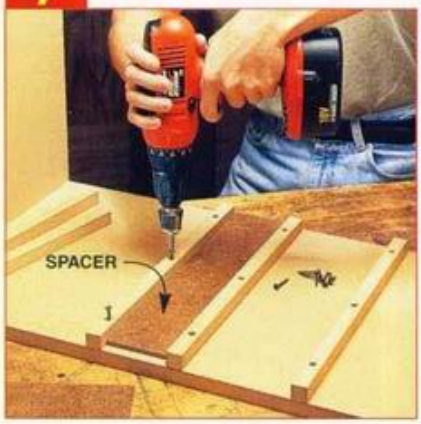
Oops!



FIBERBOARD is so dense that it can split if you screw too close to the edge, even with a pilot hole. If this happens, push some glue into the split, withdraw the screw, and clamp. Redrill the pilot hole and you're back in business.

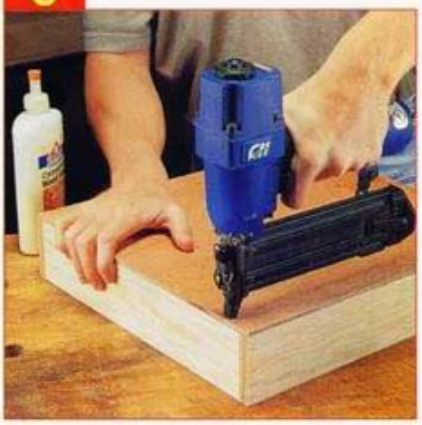
The Drawer Units

7



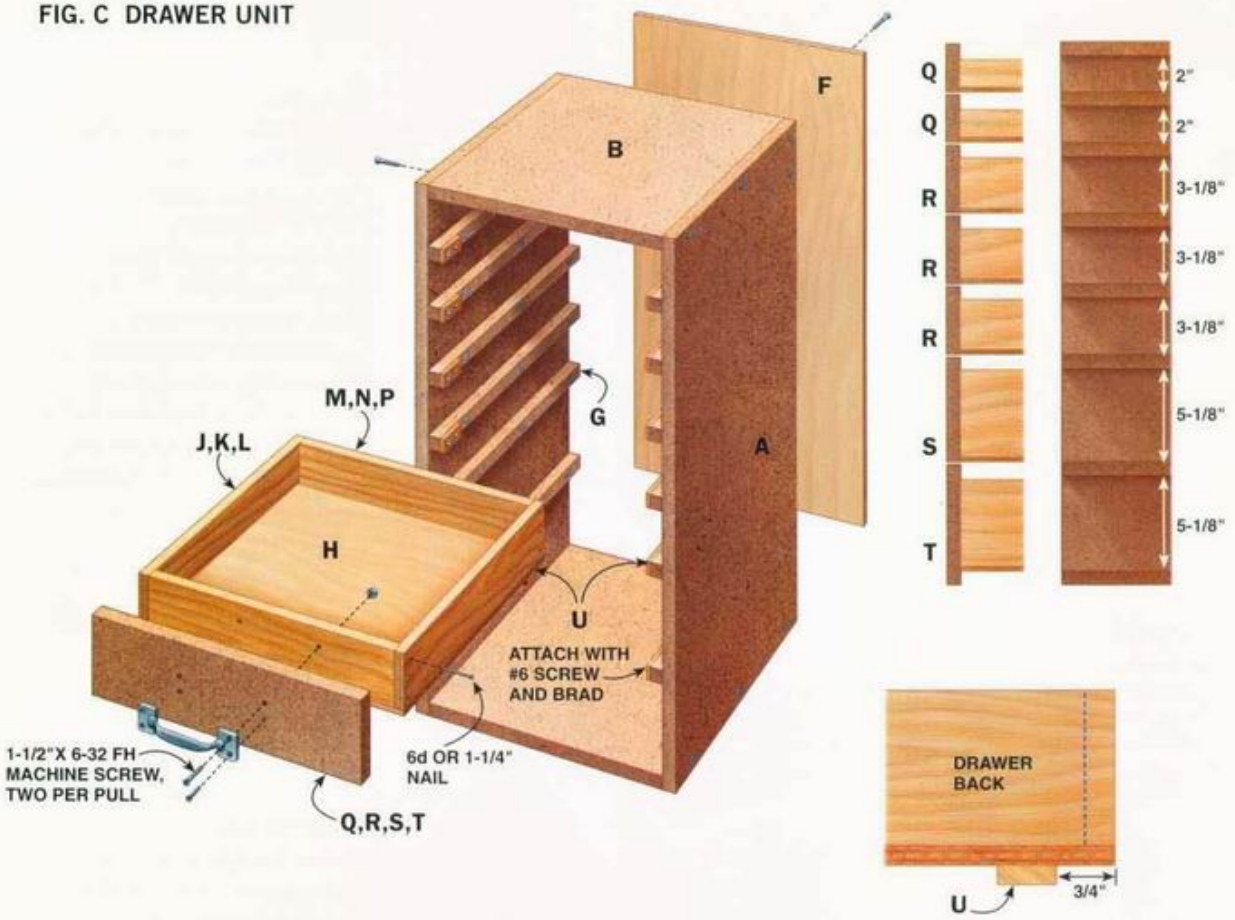
ATTACH DRAWER CLEATS, using a spacer to get them square and the same distance from the bottom of the side. Start at the bottom, and as you move up the side, rip the spacer to a narrower width, as needed.

8



DRAWER BOXES are made from 1/2-in. plywood, held together with nails and glue. You can simply hammer them in, but a brad nailer makes this part of the project go *much* faster. The 1/4-in. plywood bottom is glued and nailed directly to the bottom of the drawer.

FIG. C DRAWER UNIT



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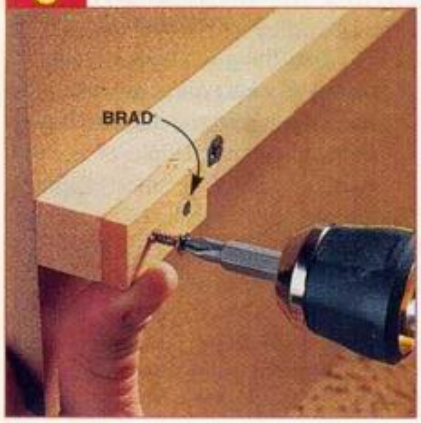
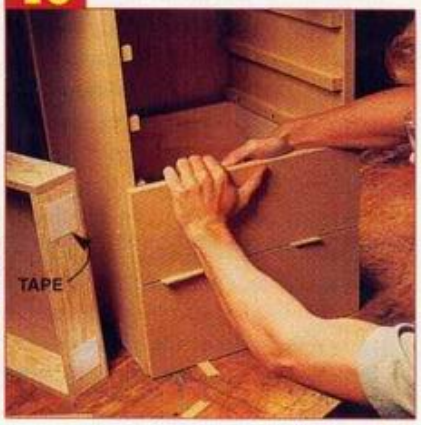


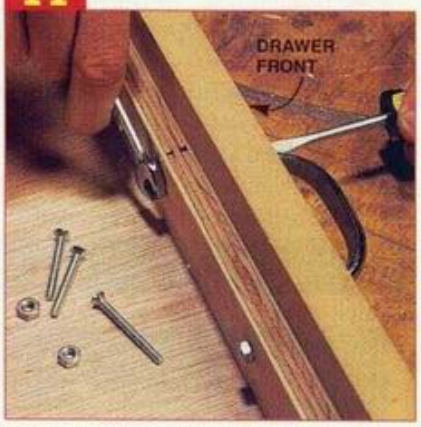
DRAWER STOPS, one on the drawer and one on the cleat, prevent the drawers from falling onto your toes if they're pulled out all the way. Remove the front stops if you prefer to be able to pull the drawer out to use as a tray.

10



ATTACH THE DRAWER FRONTS to the drawer boxes while they're in the cabinet. Use double-faced tape to hold each front in place, once you have it perfectly aligned.

11



BOLT ON THE PULLS so they hold the drawer front to the drawer box securely. Center each handle on the drawer front.

Utility Cabinets (4)

Overall Dimensions: 29-3/4" H x 15-3/4" W x 15-3/4" D

Part	Name	Qty.	Dimensions	Material
A	Side	8	3/4 x 15-1/2 x 29-3/4	MDF
B	Top and Bottom	8	3/4 x 14-1/4 x 15-1/2	MDF
C	Nailer	4	3/4 x 3-1/2 x 14-1/4	MDF
D	Shelf	4	3/4 x 14-3/16 x 15-1/4	MDF
E	Door	4	3/4 x 15-1/2 x 29-1/2	MDF
F	Back	4	1/4 x 15-3/4 x 29-3/4	MDF
G	Cleat	8	3/4 x 3/4 x 15-1/4	MDF

Hardware

Shop Cabinets (4)
4 sash pulls
4 pair surface-mount knuckle hinges
#8 x 2" coarse-thread utility screws
#6 x 1-1/4" coarse-thread utility screws

Drawer Units (2)
14 sash pulls
#6 x 1-1/4" screws
#8 x 2" screws
28 6-32 x 1-1/2 FH bolts with nuts
6d finish nails
1" brads

Drawer Units (2)

Overall Dimensions: 29-3/4" H x 15-3/4" W x 15-3/4" D

Part	Name	Qty.	Dimensions	Material
A	Side	4	3/4 x 15-1/2 x 29-3/4	MDF
B	Top and Bottom	4	3/4 x 14-1/4 x 15-1/2	MDF
F	Back	2	1/4 x 15-3/4 x 29-3/4	Lauan
G	Cleat	24	3/4 x 3/4 x 15-1/4	Pine
H	Drawer Bottom	14	1/4 x 14-1/8 x 15-1/4	Lauan
J	Drawer Side	8	1/2 x 1-1/2 x 15-1/4	1/2" BC Plywood
K	Drawer Side	12	1/2 x 2-3/4 x 15-1/4	1/2" BC Plywood
L	Drawer Side	8	1/2 x 4-3/4 x 15-1/4	1/2" BC Plywood
M	Drawer Back	8	1/2 x 1-1/2 x 13-1/8	1/2" BC Plywood
N	Drawer Back	12	1/2 x 2-3/4 x 13-1/8	1/2" BC Plywood
P	Drawer Back	8	1/2 x 4-3/4 x 13-1/8	1/2" BC Plywood
Q	Drawer Front	4	3/4 x 2-5/8 x 15-1/2	MDF
R	Drawer Front	6	3/4 x 3-3/4 x 15-1/2	MDF
S	Drawer Front	2	3/4 x 5-3/4 x 15-1/2	MDF
T	Drawer Front	2	3/4 x 6-3/8 x 15-1/2	MDF
U	Drawer Stop	24	1/4 x 3/4 x 1-1/2	Luan

TIP

PAINT BEFORE YOU CUT
If you want to paint your cabinets, save yourself some work by painting the parts before assembly. The paint might get a little scuffed while you're building, but all it'll need is a final coat and some work on the screw holes.

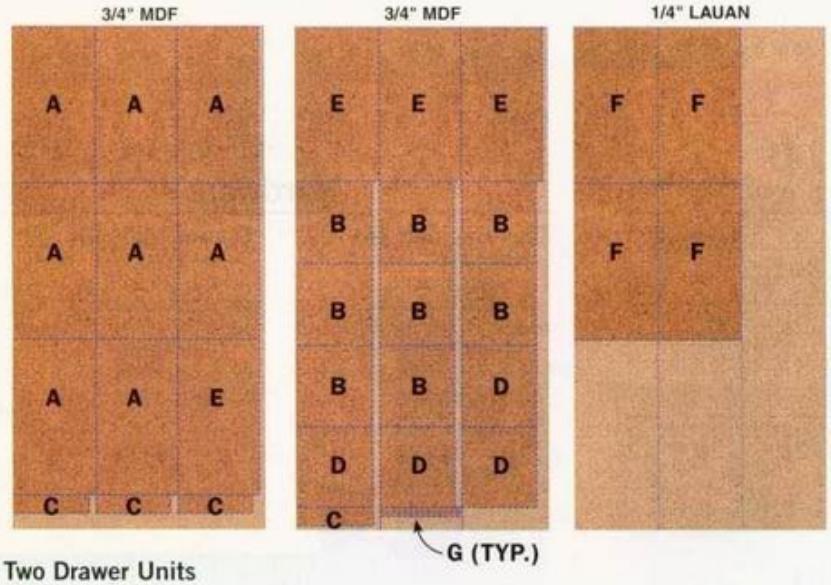
An easy way to crosscut sheet material accurately is with a crosscut sled on your tablesaw. You can build a full-featured sled (see The Ultimate Crosscut Sled, # 75, Oct. '99, page 38), but we've included a simpler design here that'll work just fine (at right).

In the tool department, very little is required. You'll need a tablesaw, a drill, four 18-in. capacity clamps and a quick-change driver/countersink attachment for your drill (Photo 3). In addition, because MDF is extremely dusty stuff to cut, we strongly recommend wearing a good dust mask and having a dust collector on your saw.

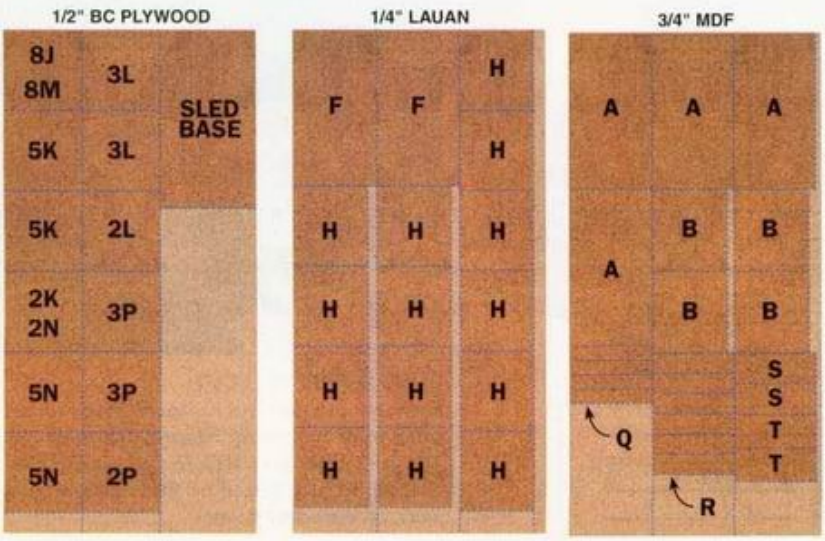
This is the kind of project where air tools excel, so if you can get your hands on them, you'll save a lot of time. A brad nailer speeds up building the drawer boxes (Photo 8), and can eliminate clamps during assembly of the cabinets (Photo 4). A narrow crown stapler does a fast and effective job of holding the backs on the cabinets and the bottoms on the drawers.

Cutting Diagrams

Four Cabinets



Two Drawer Units



CONSTRUCTION OVERVIEW

The first thing to consider is how many and what type of cabinets you want. We suggest you build the basic shop cabinets in multiples of four or eight. This makes the most efficient use of your materials (see Cutting Diagrams).

The drawer units are best made in multiples of two. You'll be able to make seven drawers in each cabinet with only one sheet of 1/4-in. plywood. If you're only building four of the basic cabinets, there will be plenty of 1/4-in. plywood left over for additional drawers, but if you're building eight, you'll have to buy more. No matter how many drawers you make, one sheet of 1/2-in. plywood is plenty for two cabinets full of drawers, *and* a crosscut sled.

BUILDING THE CABINETS

If you're going to build the simple crosscut sled at right, the first thing to do is rip your 1/2-in. plywood into three strips: two 14-3/4-in. wide and one at 18-in. wide. Crosscut the 18-in. strip using a circular saw, a jig saw or a tablesaw. Then proceed with the building steps for the simple crosscut sled given at right.

The basic building steps for the cabinets are shown in Photos 3 through 11. Begin by ripping your MDF into 15-1/2-in.-wide strips. Then crosscut to give you the sides (A), the doors (E) and the tops and bottoms (B). Rip the shelves (D) to width and cut the nailers and cleats out of the remaining material. Check all the parts to be sure they're square and that all parts of a given size are within 1/16-in. of each other.

The cabinet assembly process is pretty fail-safe, because you clamp the pieces together first to get all the edges lined up, and no glue is used. Even after you've screwed pieces together, they can be taken apart and redone if you've made a mistake.

BUILDING THE DRAWER UNITS

The drawer units start with a case that's the same as the basic cabinet, except it doesn't have a door, shelf or nailer. With the cabinet boxes made, install the cleats that support the drawers (Photo 7). Build the drawer boxes next. Use glue on all the joints, because the nails aren't enough on their own. Attach the drawer fronts (Photo 10), the pulls (Photo 11) and that's it. AW

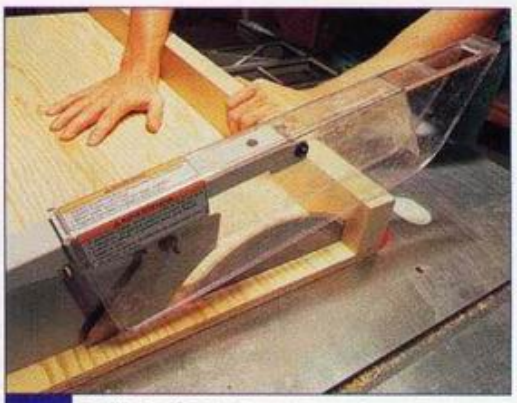
Thanks to Jean Bartholome, Sax, MN for this Shop Solution.

A Simple Crosscut Sled

This sled makes it much easier to accurately cut large pieces of sheet stock and pieces that are too wide and awkward for your miter gauge. With only three pieces, it shouldn't take you more than an hour or so to build. We've included a simple stop, which makes it much easier to cut multiple parts to the same length.

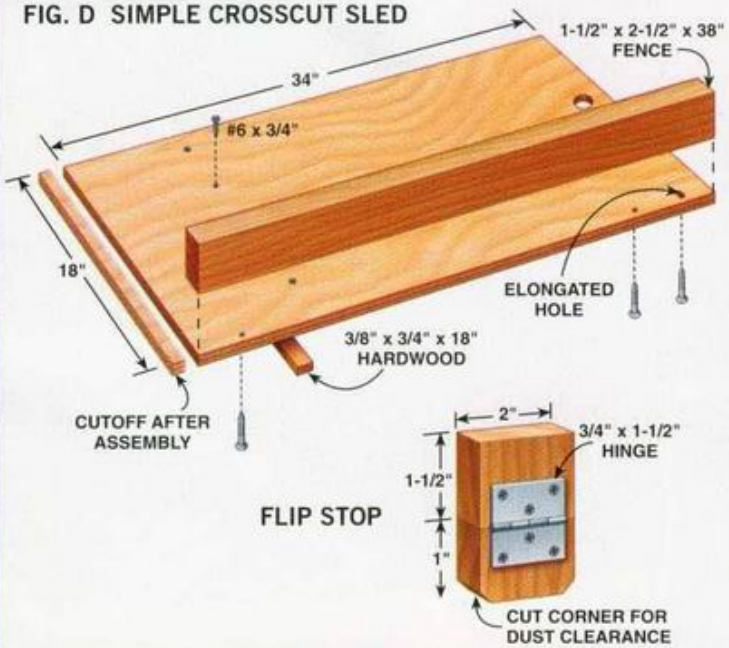
Begin by cutting out the three pieces for the sled. Make sure the strip that goes into your miter gauge slot has a snug-sliding fit. Screw the strip to the sled so the sled overhangs the tablesaw blade by about 1 in. and is square to the back edge of the sled. Attach the fence so it's also square to the back edge of the sled. Screw the fence through the elongated slot, so it has a little adjustability. Run the sled through the saw to trim it even with the saw blade (Photo 1). Test cut a 12 to 16-in.-wide piece of plywood (Photo 2) and check the cut for square. Adjust the fence position until your cut is perfectly square. Fasten the fence permanently with a couple more screws.

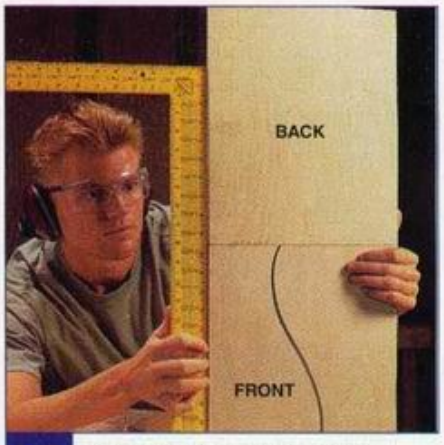
The stop can be flipped out of the way for the first cut on a board, then flipped down and used for the final cut.



1 BUILD THE SLED wide enough so that your first cut trims off the end of the sled. That way, the end of the sled will line up perfectly with the blade.

FIG. D SIMPLE CROSSCUT SLED

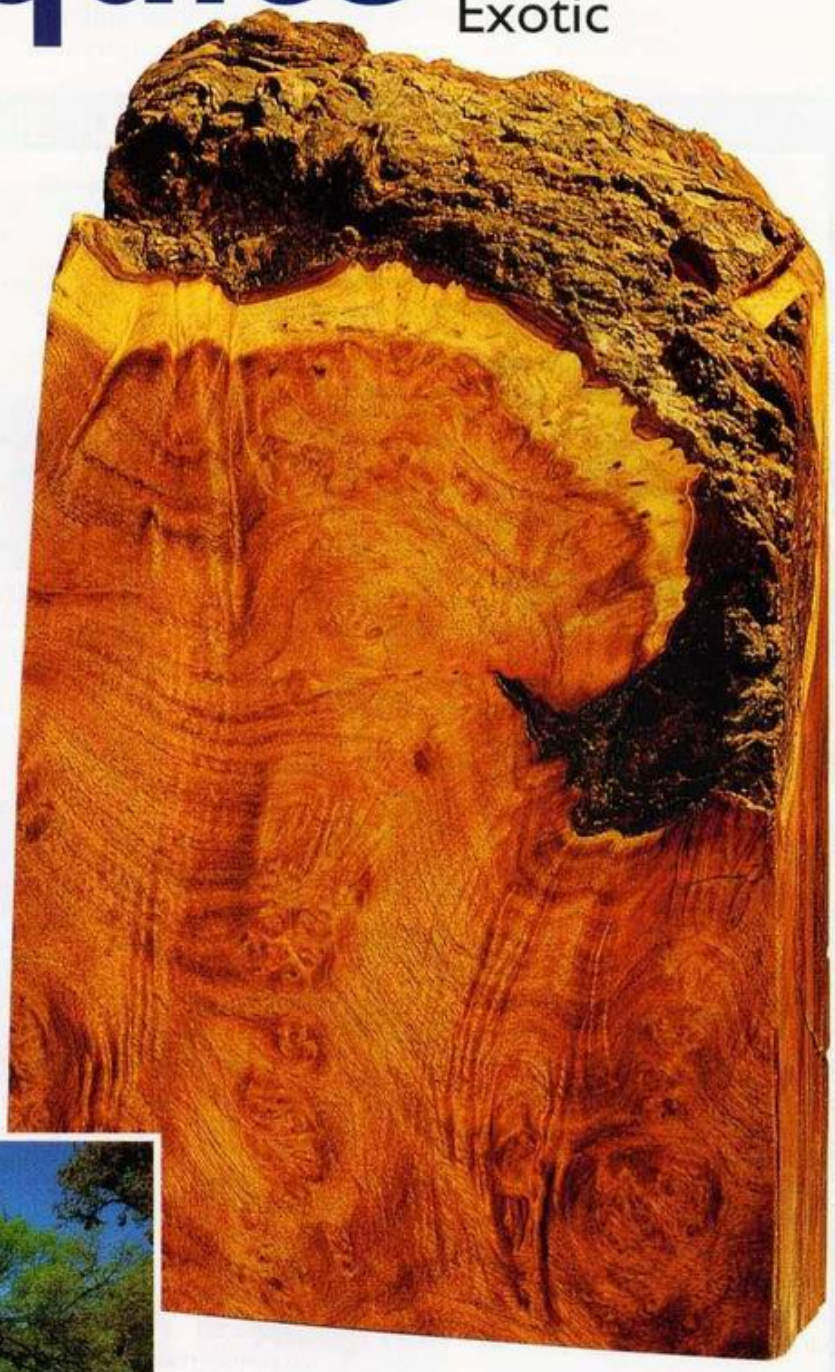




2 TEST FOR A PERFECT CUT by cutting a wide piece of plywood, flipping one half over, and butting the pieces together. The edges should be perfectly straight.

Mesquite

Renewable American Exotic



Looking for a unique wood for a special project? Look no further than the short-bodied mesquite tree of the southwestern United States. Its swirling grain, variable color and numerous character defects—ring shake, ingrown bark, mineral streaks, borer holes and dormant buds—offer a treasure trove of hidden beauty for the woodworker.

A Renewable Resource

Mesquite grows on more than eighty-two million acres in the southwestern United States, and on more than four times that much non-rain forest area in Mexico and South America. Mesquite trees sprout profusely from cut stumps, so the trees grow back naturally after harvesting. Mesquite grows like a weed, and has invaded nearly twenty-five million acres of rangeland over the past 50 years, becoming a nuisance for ranchers. Although the physical properties of mesquite are more like a rain forest tree, mesquite is clearly a renewable resource.

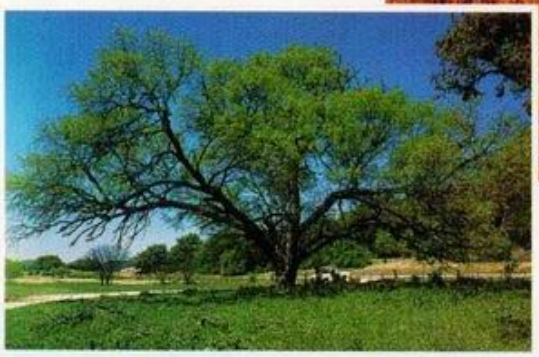


PHOTO BY KEN E. ROGERS

Mesquite trees grow in abundance in the Southwest, and typically have a short trunk with many horizontal branches.

EDITOR: KEN COLLIER • ART DIRECTION: PATRICK HUNTER • PHOTOGRAPHY: BILL ZUEHLKE, UNLESS OTHERWISE INDICATED • ILLUSTRATION: DON RAYMOND

The Way Wood Works

Exquisite Color, Exquisite Grain

Mesquite's dark, rich reddish brown wood rivals other fine native hardwoods such as walnut and cherry, and exotic species like rosewood, mahogany and cocobolo.

Mesquite's grain is open and fine-to-medium textured, rather like mahogany (although much harder). The wood is easy to work, despite its hardness, finishes smoothly, and polishes to a high, natural sheen. The sapwood is pale yellowish white in color and about 1/2 to 1-in. wide regardless of how big the board is. The heartwood ranges from dark yellowish brown, through shades of gray-brown to deep reddish, almost purple-brown.

Mesquite is often dramatically figured, with crotch, bird's-eye and burl figure.

One of the distinctive characteristics of mesquite is that, unlike many other dark woods, it doesn't get black, muddy or bleached with exposure to sunlight. Mesquite wood typically ages to a uniform, warm, dark reddish brown with exposure to the sun's ultraviolet light (see bowl, page 50).

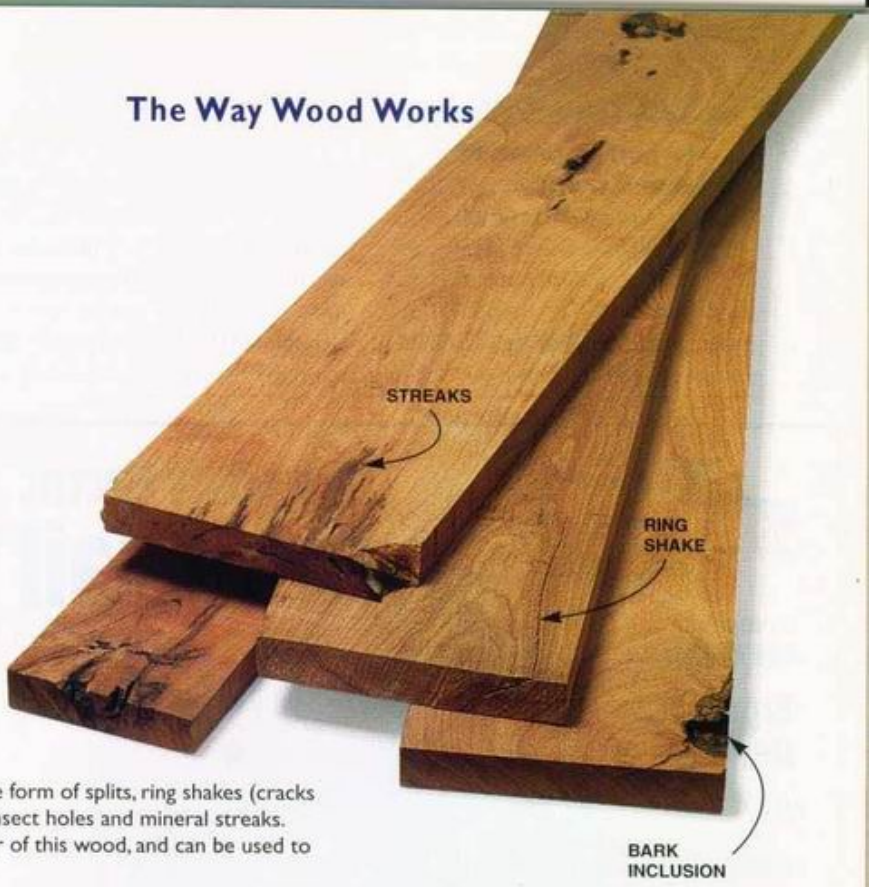
Mesquite often has dramatic figure. There is feathered figure in wide and deep limb crotches where the grain figure from the limbs and trunk blend. Crotch wood is great for special projects such as pens, jewelry box tops and small wood turnings. A special treat is the crotch wood where three, four or more limbs come together.

Wood from mesquite's root-collar (at the ground line) has numerous, often hundreds, of dormant buds just under the bark, revealed as distinctive bird's eye figure. This is especially beautiful on the curved surfaces of turnings.

Burls are very common in mesquite, and present an additional source of highly figured wood. Mistletoe burls grow at locations where a bird deposited a mistletoe seed on a limb, and as the mistletoe grew, it created havoc in the growth tissue of the tree. The result is a long, swollen burl. The highly irregular grain is great for lamps and natural-edged vessels. In some trees, the burl figure goes through the entire tree!

Defects are Common

You'll rarely find mesquite as clear boards or chunks. The wood is full of bark inclusions, mineral stains, insect holes and even the occasional grown-over rock. Particularly characteristic of mesquite is "ring shake" where the wood splits along a growth ring of the tree. Most woodworkers choose to take advantage of these defects by including them in their work, consolidating cracks and other problems with epoxy. Because of these defects, mesquite is most commonly used in turnings, sculpture and one-of-a-kind work where the defects add to the character of the piece.



Mesquite has many character defects, in the form of splits, ring shakes (cracks that follow growth rings), bark inclusions, insect holes and mineral streaks. These are an essential part of the character of this wood, and can be used to great aesthetic advantage.

The Way Wood Works

Mesquite Boards are Short and Narrow

Mesquite trees have short trunks with lots of branches. Consequently, the lumber doesn't easily fit National Hardwood Lumber Association (NHLA) grading guidelines. Although an NHLA grading standard has been developed for mesquite, few sawmillers use it. If you tell a mesquite sawmiller, "I need eight or ten 12-ft. mesquite boards to build a large table," he'll probably tell you that he's been cutting mesquite for more than 20 years and has only seen a couple of boards near that size. With mesquite, the watchword is "short and narrow." A clear 2-in. x 6-in. x 6-ft.-long clear board is extremely rare.

Mesquite trees are small, so the boards are short and narrow. They are usually not graded by standard hardwood grades, but by appearance.

Straight mesquite logs are typically 5 to 8-ft. long at most, and 15 to 18-in. in diameter. Longer and larger logs usually contain excessive ring shake or are too crooked to yield long, straight, clear lumber.

You should expect to pay $5 to $8 or more per bd. ft. of kiln-dried, surfaced lumber and $12 or more for premium boards with exceptional beauty. However, air-dried rough lumber is often all you'll be able to find.

Mesquite lumber is often graded into four general appearance grades:

Premium: large size and fine figure

No. 1: large size and/or much clear surface measure

No. 2: average size and average clear surface measure

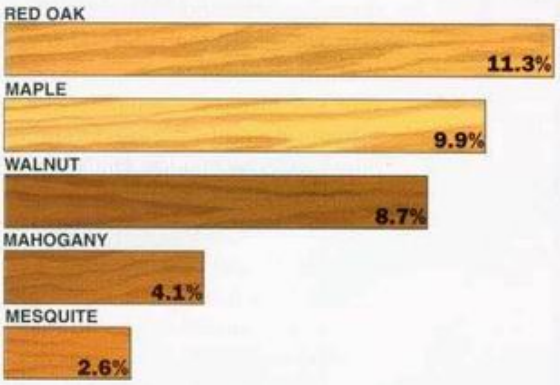
No. 3: much defect with the integrity of the board compromised. This grade is usually cut up for small projects.

The rule when buying mesquite is to work closely with your supplier (see Sources, page 53). Make sure they know what you want regarding size and color, because mesquite, with all its defects, is extremely variable.

Exceptional Stability

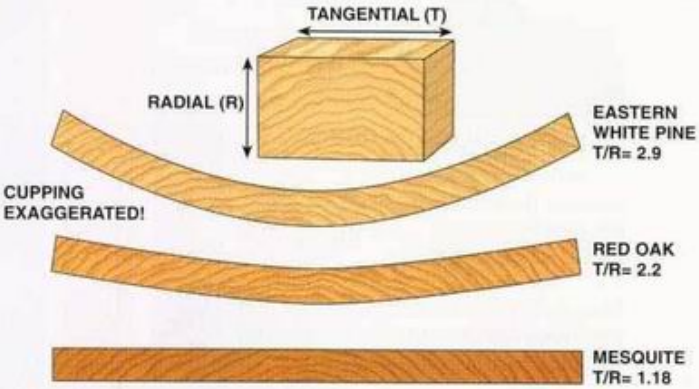
Mesquite is amazingly stable, completely unlike any other American species. Its maximum dimensional change due to fluctuations in moisture content is about one-fourth that of woods such as oak and walnut. And unlike most other woods, mesquite's dimensional change is about the same in both the radial and tangential directions (Fig. B). This means no cupping. A square of mesquite stays a square, and a circle stays a circle.

FIG. A MESQUITE DOESN'T MOVE MUCH



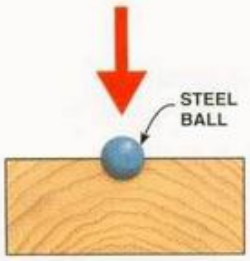
MESQUITE EXPANDS AND CONTRACTS much, much less than any common hardwood. These values represent the change in width of plain-sawn boards with a swing in moisture content from 6 to 14 percent.

FIG. B MESQUITE DOESN'T DISTORT

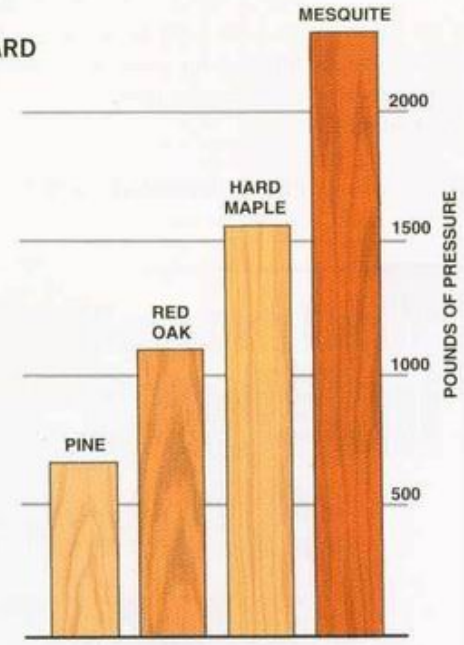


CUPPING is usually the result of plain-sawn boards shrinking more in the tangential direction than radially. In most American species, this ratio is more than 2 to 1. In mesquite, it's close to 1 to 1; so boards stay flat, a square stays a square and turnings stay cylindrical.

FIG. C MESQUITE IS HARD



A STANDARD TEST for wood hardness is to measure the force required to drive a 7/16-in. steel ball halfway into a flatsawn board. Mesquite is much harder than other North American hardwoods.



VESSEL BY ALAN LACER

Mesquite shines as a turning wood, where its defects make for visual interest. It's also easy to cut when green and dries without distortion.

PHOTO BY KEN E. ROGERS

Watch out for the sapwood! Insects love it, especially when the wood is green, but also after you've built your project.

Tough, Hard and Easy to Finish

Mesquite's high silica content, high extractive content and extreme hardness can dull your tools quickly, especially if you force the wood through your saws and planers too fast. Start with sharp tools and resharpen about twice as often as usual. Wipe your saw blades occasionally with a solvent (like mineral spirits) to minimize extractive buildup. Unlike some dark, hard exotic species, mesquite does not have much natural oil, so it doesn't clog sandpaper and can be glued easily with standard glues.

Mesquite finishes well with many types of wood finishes. Because it's so hard, mesquite polishes beautifully with fine sanding grits and buffing, so often very little finish may be needed.

Prince of Turning Woods

Mesquite truly shines on the lathe. Its fantastic character marks and swirling fine-textured grain, along with its extreme stability and hardness, make mesquite a joy to turn. Green mesquite works like butter on the lathe, with long strings of curlings falling to the floor. The heat from sanding will dry the surface enough for you to put a finish on while the wood is still green. The wood dries nice and slowly (and without warping) through the finish.

Avoid the Sapwood!

You'll be tempted to use mesquite's yellowish sapwood because of its attractive contrast with the dark heartwood. Don't! Wood-boring insects love the sapwood and are attracted to it immediately after the tree is felled. They also can infest your project's sapwood years later. It's heartbreaking to turn a fantastic vessel or make an exquisite jewelry box, only to later find little piles of yellow sawdust lying around its base.

Watch Out for the Dust

Some woodworkers have immediate allergic reactions to the chemical extractives in mesquite dust. Others develop the reaction over time. Always wear a face mask and use a dust collection system on your power tools. A few of my woodworker friends in Texas didn't take this concern seriously and they've had to give up woodworking because of allergies they developed over the years.

Mesquite dust can sometimes cause an allergic reaction, so wear a dust mask and use dust collection on your power tools.

Save the Scraps for Your Barbecue!

When you work with mesquite, you get an added bonus. Waste, end cuts and even the sawdust can be used in the barbecue for that world-renowned mesquite smoke flavor. Visit a local grocery store and you'll see people paying big bucks for mesquite wood chips packaged in five or 10-pound sacks. Make your own instead! AW

PHOTO COURTESY OF WEBER-STEPHEN PRODUCTS CO.

Sources

The mesquite industry is a small, cottage industry that is constantly changing. A complete, regularly updated list of mesquite sources is available from Ken E. Rogers, P.O. Box 9009, 2910 Normand Drive, College Station, TX 77842, (979) 229-7868, www.brazosmesquite.com. The complete story of mesquite, can be found in the author's book, The Magnificent Mesquite, University of Texas Press, November 2000, www.amazon.com; $20. Signed copies are available from the author.

Mesquite lumber can be obtained from the following sources:

Cedar Canyon Woodworks, 11729 Lime Creek Rd., Leander, TX 78641; (512) 331-7978
e-mail: ccwdwrks@flash.net

Quality Hardwoods, 2684 Hwy. 290 East, Fredericksburg, TX 78624
(830) 997-6503
e-mail: qhardwoods@fbg.net

Texas Kiln Products, 170 Texas Kiln Place, Smithville, TX 78957
(512) 360-4385
e-mail: texaskiln@aol.com

WCW Mesquite, Rt. 1, Box 68-B, Hondo, TX 78861
(830) 426-3000.

Tips for Edging

By Ed Krause

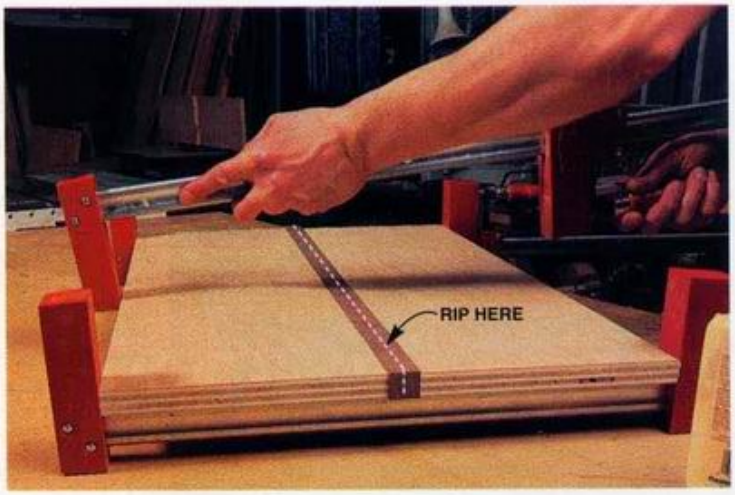
Flush Cutting on the Router Table

It's darn hard to glue on edging so it's perfectly flush. Rather than knock yourself out trying to do the impossible, glue on edging that's 1/8-in. wider than your plywood. Then trim the overhanging edges with a flush-cutting bit in your router table. With this production-shop technique, you can zip through a stack of plywood in no time at all.

Make an extra-tall fence for your router table to steady the plywood. When you install the fence, leave a gap at the bottom so there's clearance for the edging. Adjust the fence so that it's exactly even with the bearing on the bit, and you're in business.

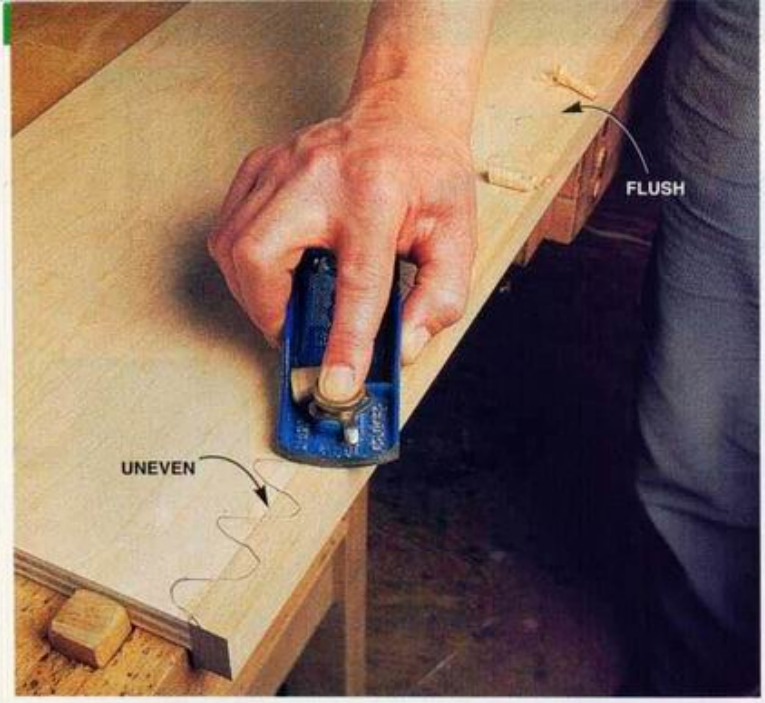
Two-for-One Edging

Gluing one strip of edging between two shelves takes fewer clamps and requires less setup. You also get even pressure the full length of the edging without using cauls. Once the glue is dry, rip the assembly down the middle and joint the edging. You'll be done in half the time it takes to glue each shelf individually.



EDITOR: TOM CASPAR • ART DIRECTION: PATRICK HUNTER • PHOTOGRAPHY: MIKE HABERMANN

g Plywood



Pencil Marks Protect Veneer

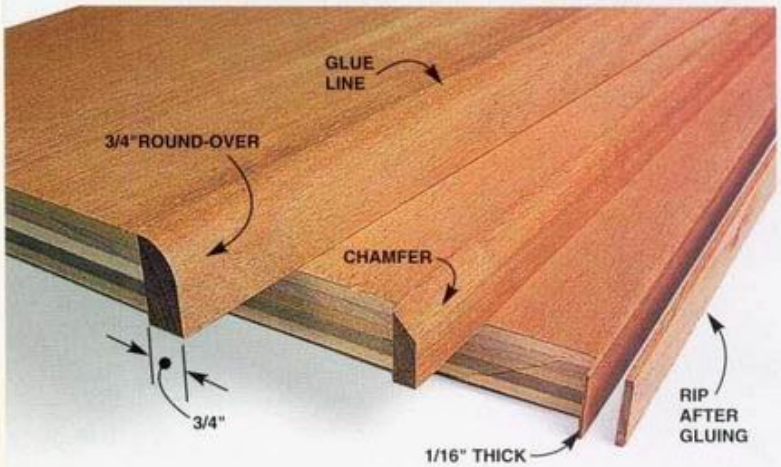
Nothing can derail a project like going through the veneer on your plywood with a belt sander or a plane! There's simply no way to fix it. I always take the simple precaution of drawing a pencil line across the edging and the plywood. When I cut into the half of the line that's on the plywood, it's time to stop. That's when I know both surfaces are perfectly flush.

Flush Ends Every Time

This well-known tip may seem obvious, but it's worth remembering before you blindly follow any cutting list for edged plywood.

Cut your edging and plywood about 1/2-in. longer than the final length. Glue on the edging and trim both at the same time on the tablesaw. The plywood and edging will be perfectly flush every time.

For edging with an overhang, support the plywood from underneath to get a clean cut on the top surface. The support also minimizes tear-out on the bottom of the plywood.



Hide the Glue Line

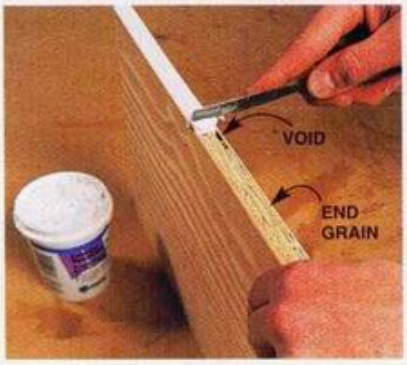
Here are three strategies for disguising your edging *after* glue up:

- Thickness the edging so it's barely larger than the radius of a round-over bit. After gluing, even up the edge and rout the round-over. The curve will begin right near the glue line, obscuring the transition from veneer to solid wood.
- Chamfer the full thickness of the edging. Cut as close to the glue line as you can without exposing the veneer's thin edge.
- Rip 1/4-in.-thick edging after you glue it on. Set up your tablesaw so the remaining edging is a bit more than 1/16-in. thick. Then sand or joint off the saw marks and break the sharp corners with sandpaper. The result is an invisible joint. This thin shop-made edging is more durable than commercial iron-on edge banding.

Tips for Edging Plywood

Fill Painted Edges

Make inexpensive plywood look like solid wood by filling voids and end grain with exterior spackling compound (about $3 a pint). Let the spackling compound dry for half an hour, round over the edges of the plywood with a router bit or sandpaper and sand the edge smooth. Brush on a primer and top coat and you've made economical materials look classy.



Versatile Edge Clamps

These new spring clamps from Jorgensen make applying thin edging a snap. Simply squeeze the clamp open, push the flexed piece of spring steel against the edging and let go. The non-marring jaws grip the plywood so the clamp doesn't slide backward. The jaws can be adjusted to exert from 1 to 50 lbs. of pressure.

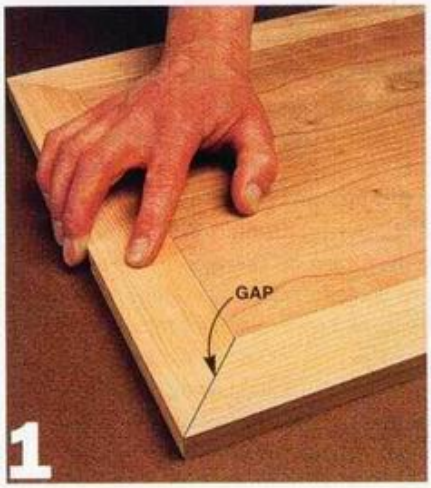
These handy clamps are perfect for curved edges, where pipe clamps are notoriously difficult to set up.

Source

Woodcraft Supply, (800) 225-1153
3-way edge clamps, 1-in. opening and depth, #129374; $3.50 each.
1-1/2-in. opening and depth; $5 each.

Oops!

Wouldn't you know it, I cut the last miter for my framed tabletop too short! Rather than start over with a new piece, I used my jointer to "lengthen" the short piece and make a perfect fit. Sound impossible? Here's one way to stretch a board:

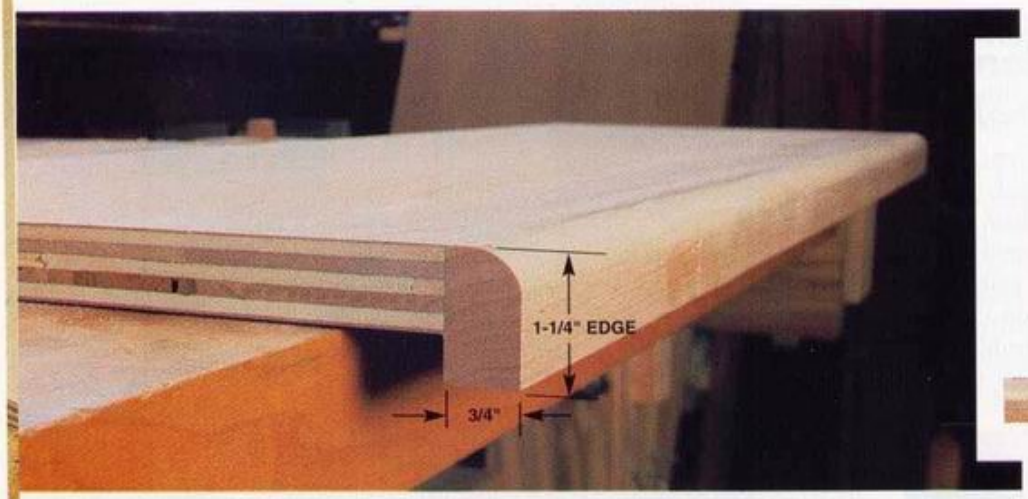


Nuts! There's a noticeable gap between the miters!

I jointed the inner edge of the miscut piece, taking very little off. Because the ends of the board are mitered, the inner edge gets a bit longer with every pass.

Now it fits perfectly, but the points of the miters don't quite line up because jointing the board made it narrower, too. A little fudging will fix that. I tapered the neighboring frame piece with a plane until the points met.

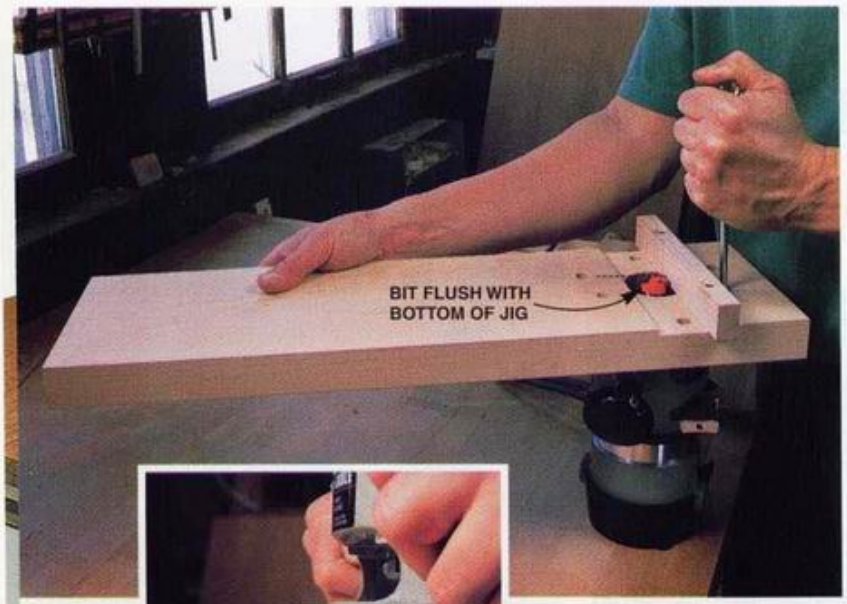
Tips for Edging Plywood

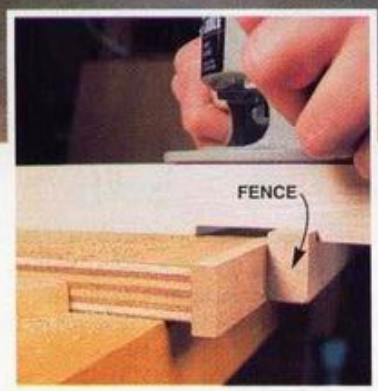


Stiffer Shelves

Beef up plywood shelves with wide edging so they can bear more weight without noticeably sagging. I rip the edging from 3/4-in. stock and turn it on its side, giving the illusion that my shelves are made from expensive, thick wood. Nope, they're just plywood!

For more information on edging shelves so they won't sag, see AW #75, October 1999, page 75.





Source
Woodworker's Supply,
(800) 645-9292
Freud mortising bits, 1/2-in. to 1-1/4-in. dia.; $11 to $18, plus shipping.

Precision Trimming Jig

Make perfectly flush joints on large pieces of edged plywood with this portable jig. Glue on your edging so it's anywhere from 1/16-in. to 1/8-in. proud of the plywood. (You don't have to be fussy because a router will cut through the excess in no time.)

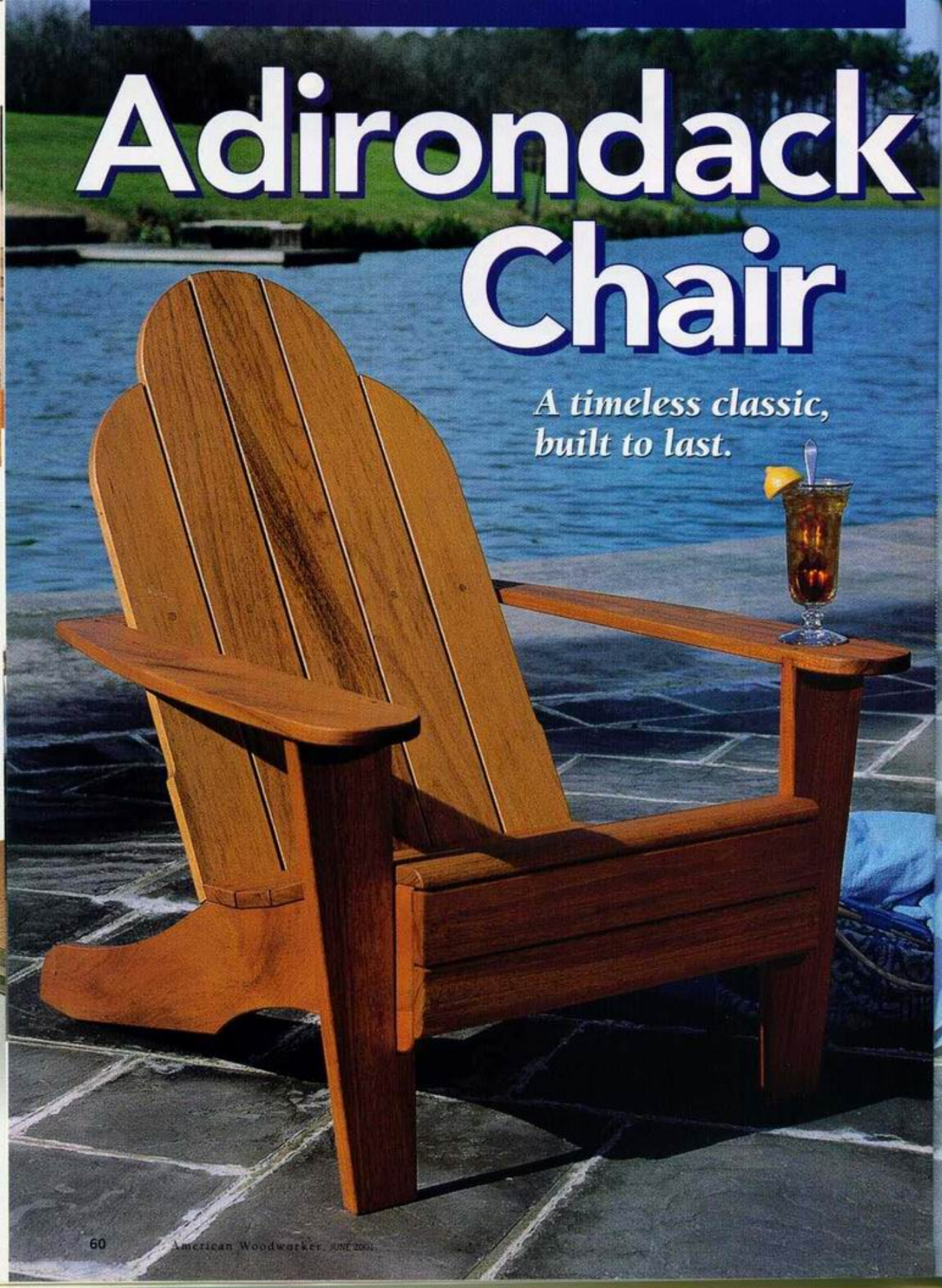
You can use any size straight bit with this jig, but to cut *wide* edging in one pass, go with a mortising or dado bit. They're both designed to make extremely smooth surfaces.

To set up the jig, lower the router bit until it's flush with the bottom. Then turn the jig over, turn on the router and run the fence along the edging. The long arm of the jig acts as a counterweight to balance the router.

There's a catch, though: if you're edging three or four sides of one panel, you'll have to glue and trim them one at a time. This jig won't cut into a corner! AW

Adirondack Chair

A timeless classic, built to last.



Upstate New York is famous for its rustic vacation homes, tucked away in the Adirondack Mountains. Visit one of these getaway spots and you're likely to come across a familiar style of outdoor furniture named after the region. The Adirondack chair has a low seat, wide arms and a tall, sloping back. It's perfect for reading, visiting with friends or just idling away the hours. The problem is, most Adirondack chairs don't do what you'd expect them to do: hold up to weather.

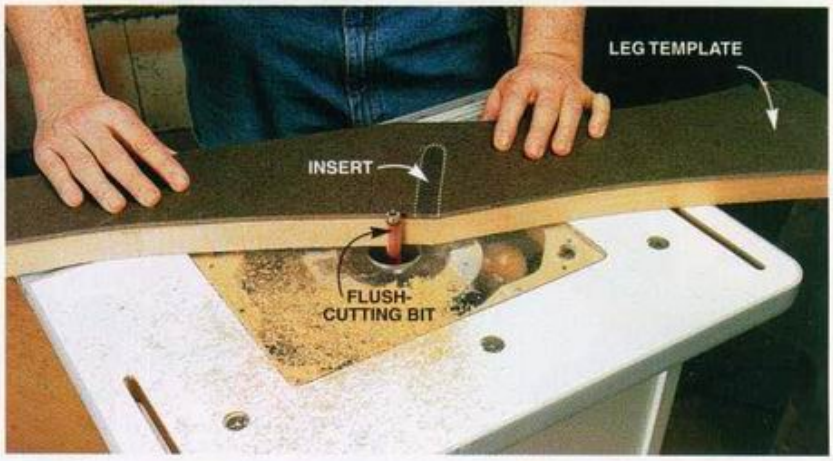
The typical Adirondack is built from pine and protected by a layer or two of paint. Joinery is simple; butt joints and nails do the trick. But yearly painting is necessary to keep the pine from rotting, and the nails that secure the slats to the frame seem to pop up like flowers in spring. Also, joint failure where the arms join the front legs is all too common. That's because the nails in the arms do not hold well in the end grain of the legs. When you combine that problem with dragging the chair by the arms for passing lawn mowers and the like, it's no wonder this joint is prone to failure.

Our improved Adirondack chair eliminates all these maintenance headaches.

- **No paint or varnish!** Mahogany never needs finishing and weathers to a beautiful silver-gray color.
- **No loose joints!** Sliding dovetails and mortise-and-tenon joints keep this chair rock solid through many seasons.
- **No nails or exposed screw heads!** Plugged stainless steel screws mean you'll never have to get the hammer and nail set out before you can sit in the chair.

The result is a comfortable, low-maintenance chair that lasts.

You'll need about 16 bd. ft. of 4/4 and 12 bd. ft. of 5/4 mahogany. Expect to spend about $90 on materials for one chair. You'll also need a tablesaw, a bandsaw or jigsaw, a plunge router, a drill press and waterproof glue or epoxy.

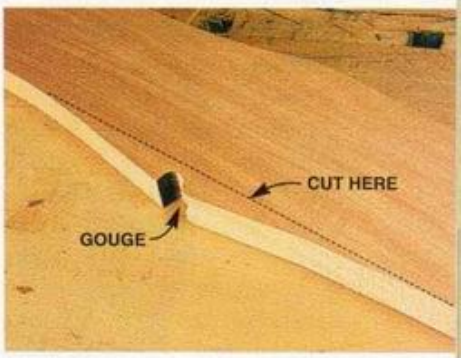


1 **Rout the shape of the legs, arms and back slats** using a hardboard template as a guide for the bearing of a flush-cutting bit. Fasten the template to the stock with double-faced tape. Make an insert to fill the gap created by the dovetail sockets in the arm and back leg templates.

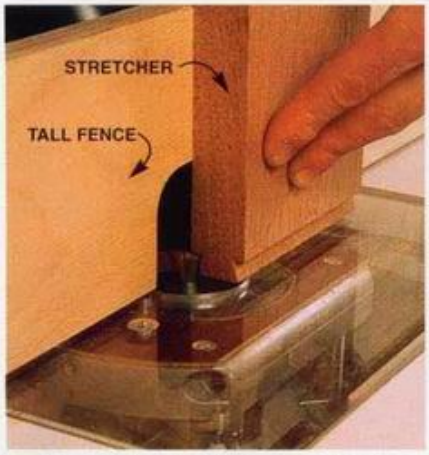
Oops!

Oh, no! I forgot to put the insert into the dovetail slot before routing the shape! This made a big gouge in the back leg and I was almost done shaping too!

To fix this loused-up leg, I first made a cut parallel to the grain to remove the gouge (see photo). Then I cut a strip from a similar board so the grain ran in the same direction as the grain on the leg. I glued the block in place, sanded it flush and tried it again—this time *with* the insert.



2 **Rout the dovetail sockets** in the back legs and arms using a dovetail bit and guide bushing. Set the bit to the depth of the socket, plus the thickness of the template. Then rout the socket by following the notch in the template.

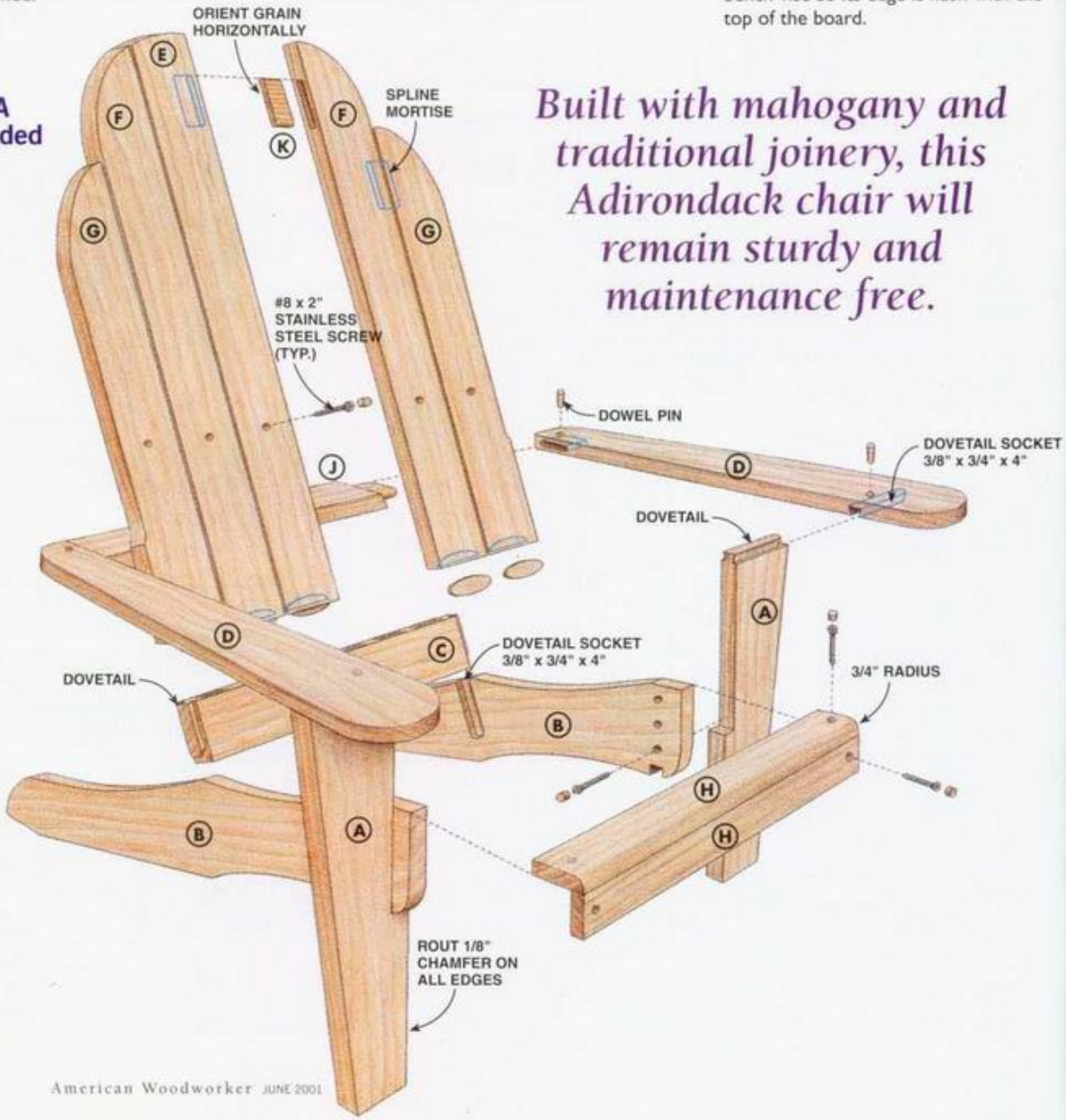


3 **Rout the dovetail in the stretcher** with the same dovetail bit you used to cut the slots. A tall fence on the router table helps steady the piece as it's machined.

4 **Round the ends of the dovetails** so they fit the slots in the legs and arms. Make scoring cuts with a handsaw. Then pare to shape with a chisel.

5 **Cut the arm mortise using a plunge router** and an edge guide. To steady the router, clamp a scrap board to the bench, and clamp the arm in the bench vise so its edge is flush with the top of the board.

FIG. A
Exploded View



Built with mahogany and traditional joinery, this Adirondack chair will remain sturdy and maintenance free.

6 **Support the backs of the arms** with two sticks. Bandsaw notches in the top and bottom of the sticks to help hold the back of the arms level with the fronts during assembly.

7 **Mark for screw holes** in the back slat by holding an adjustable square against the back rail. Run the line from the side of the slat to the front, then transfer the mark to the remaining slats.

MAKING THE TEMPLATES

You'll probably want to make at least two of these chairs. Templates make this easy. Template routing allows you to shape a number of curved or irregular-shaped parts quickly and precisely.

Bandsaw your templates from 1/4-in. hardboard to the exact shape of the legs, arms and back slats shown in Figs. B and C on pages 64 and 65. Fair and smooth the edges with a rasp or some sandpaper wrapped around a curved block.

To determine the size of the dovetail notches in the arm and leg templates, measure the difference between the outside diameter of your guide bushing and the diameter of the bit (we used a 5/8-in. guide bushing and a 1/2-in.-dia. dovetail bit). Add this measurement (1/8 in., in our case) to the width and length of the 3/4 in. x 4-in. finished socket (see Arm and Back Leg, Fig. C). Cut the template notches on the bandsaw and clean them up with a rasp.

The Back Slat Templates

You'll need to make two templates for the back slats: see Fig. B, page 64.

The Back Leg Template

We've simplified making this template. Just take the back leg pattern in Fig. B to a copy center and follow the directions for enlargement. In case you don't have access to a copier, we've added a grid diagram so you can lay out a template by hand.

The Front Leg Template

To create the notch on the front leg template (Fig. C), raise the blade on your tablesaw to full height and saw most of the waste. Finish up the cut on the bandsaw. Bandsaw the taper on the front leg. Then clean up the saw marks with a rasp or file.

The Arm Template

No tricks here; just use the illustration in Fig. C as your guide.

SHAPING THE PARTS

Template-rout the shapes of the legs, arms and back slats on a router table. The technique is simple. Use the template to trace the shape of your workpiece onto the wood. Bandsaw the stock slightly oversize. Now attach the template to the workpiece with small squares of double-faced tape, and rout the work by riding the template against the bearing of a flush-cutting bit (Photo 1). When you've finished routing, pop off the template with a putty knife.

CUTTING THE JOINTS

Rout the 3/8-in.-deep dovetail sockets in the arms and back legs (Photo 2).

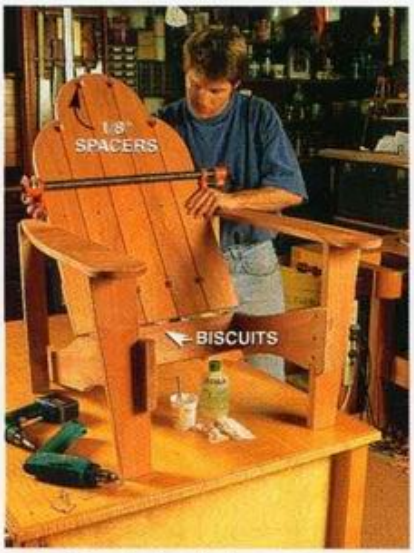
Cut the dovetails in the stretcher (C) and the front legs on the router table, with the same dovetail bit used to rout the sockets (Photo 3). Round the end of each dovetail (Photo 4).

Rout the back rail (J) tenons in the same manner as the dovetails using a 1-1/4-in.-long straight cutter in place of the dovetail bit. Round the corners of the tenon with a rasp.

Mortise the arms using a plunge router equipped with an edge guide and a 1/4-in. spiral up-cutting bit (Photo 5). Rout slots for the crossgrain splines (K) that join the back slats in the same manner.

Make the splines (K) by rounding the edges of a 1/4 in. x 3 in. x 12-in. board with a rasp so they fit the mortises in the back slats. Cut four 7/8-in. splines on the tablesaw.

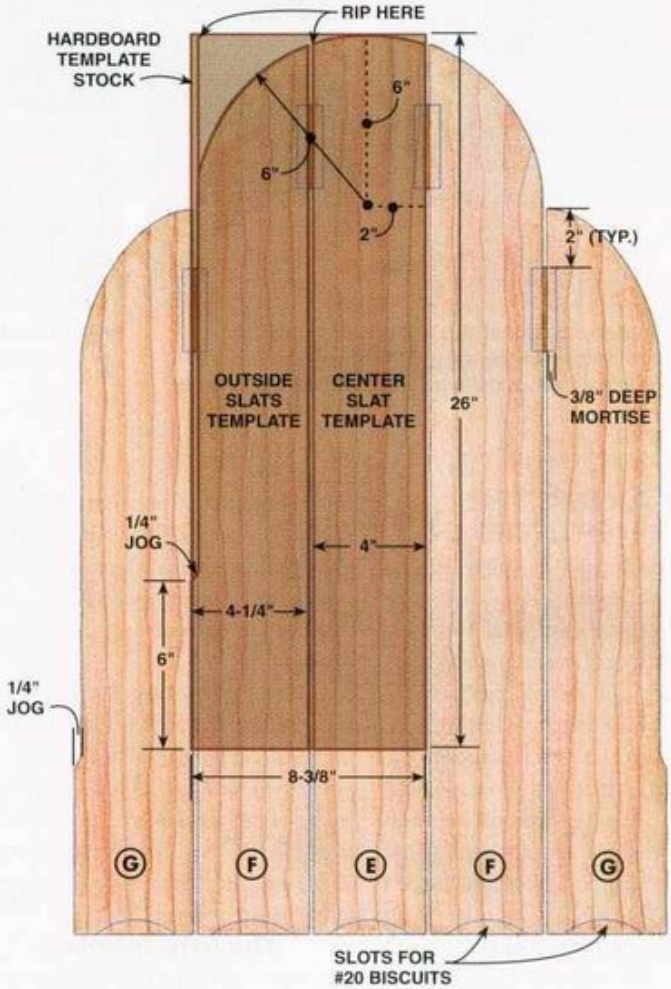
Use a biscuit joiner to cut the slots in the bottom of the back slats and the stretcher. You could also groove the parts on the tablesaw and join the back slats to the stretcher with a 1/4-in.-thick spline.



8 **Glue the back slats to the stretcher.** Use a pipe clamp to hold the back assembly in position and join the slats to the stretcher. Use 1/8-in.-thick scrap spacers to create the correct gap between the slats.

FIG. B Templates For Back Slats

The back slats require two templates: one for the center slat (E) and another for the tall and short slats (F and G). Start with a single 8-3/8 in. x 26 in. piece of template stock. Draw a 6-in. radius at the top with a compass. Rip the 4-in. center slat template from the right side. Rip the outside slat template to 4 in., but stop about 6 in. from the bottom. Finish the 1/4-in. jog on the bandsaw. Bandsaw the top curves and rasp smooth.



ASSEMBLING THE CHAIR

For the ultimate in weather resistance we used epoxy to glue up the chair. Other waterproof glues, such as Titebond II, will also work fine.

The chair goes together in stages. First, join the back legs to the stretcher. Then, join the arms to the front legs. Add the back rail to the arm/front leg assembly. Use scrap sticks to support the arms while you screw the back legs to the front legs (Photo 6). Pull the arms tight to the back rail with a pipe clamp. Drill and peg the four arm joints.

With the back rail in position, hold a back slat against the rail and mark it for the counterbored screw hole (Photo 7).

Epoxy the splines into the back slats using 1/8-in.-thick scrap spacers to create the correct gap between the slats. (Go easy with the epoxy. Squeeze-out between the slats is hard to remove.) Clamp the back slats together with a single pipe clamp. Epoxy the biscuits in the stretcher. Then set the entire back slat assembly onto the stretcher (Photo 8). Once the slats are positioned in the stretcher, screw them to the back rail.

Installing the seat slats is simple: drill and counterbore all the holes in the slats, then position them using 1/8-in. spacers as before, and drive the screws home.

Finally, cut the plugs for the screw holes on the drill press with a plug cutter. To visually blend in the plugs, orient the face grain of the plugs with the grain of the chair and pare them flush to the surface with a chisel.

FINISHING AND CARE

Mahogany weathers to a beautiful silver/gray patina so there's no need to finish this Adirondack chair. To prevent end grain checks where the chair will come in contact with the ground, apply thinned epoxy. Thinning the epoxy 50 percent with acetone allows the mixture to soak more deeply into the pores.

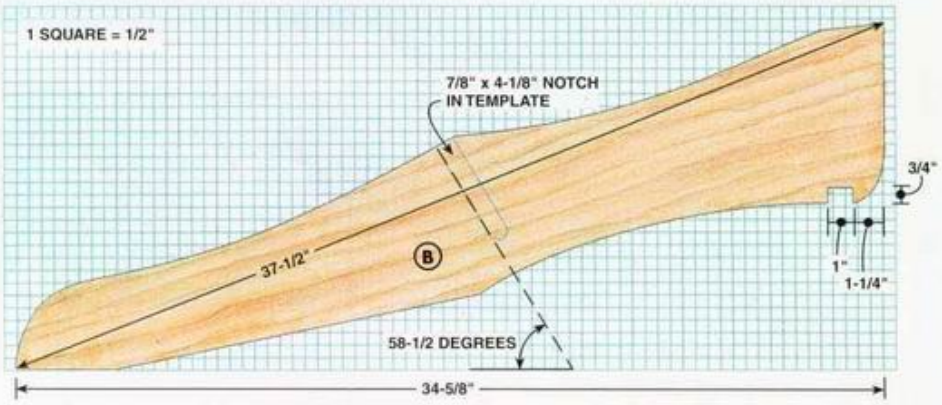
This Adirondack will provide you with years and years of outdoor lounging pleasure without ever having to lift a finger, except to move the chair to follow the shade over the course of a lazy afternoon. AW

FIG. C Chair Parts

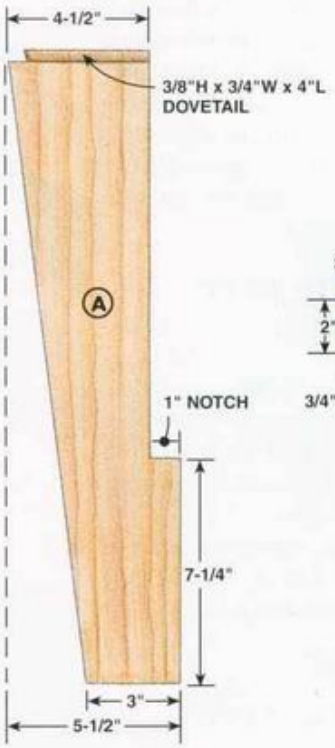
How to Enlarge this Pattern

Use a copier to enlarge the back leg pattern at right by 200 percent. Enlarge it again by 200 percent, then enlarge this copy by 183 percent for a full-size template. You may have to tweak the last enlargement to get an exact copy. Cut out the outline with scissors and trace it onto a 1/4-in. hardboard template blank (see "Shaping the Parts," page 63).

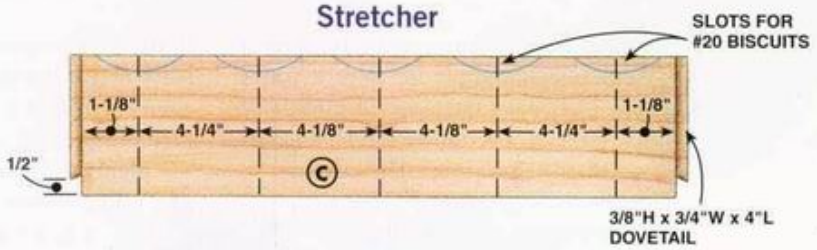
Back Leg



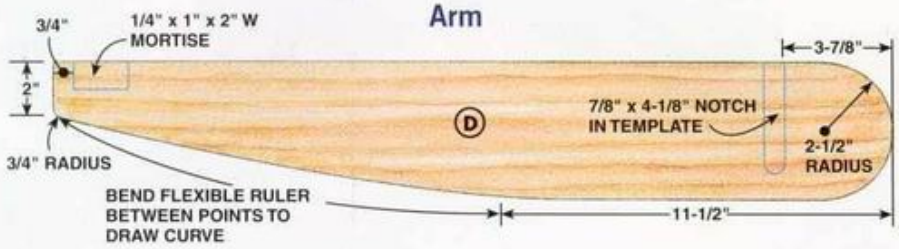
Front Leg



Stretcher



Arm



Back Rail

CUTTING LIST

Part	Name	Qty.	Dimensions
5/4 MAHOGANY			
A	Front Leg	2	1 x 5-1/2 x 20-3/8
B	Back Leg	2	1 x 7 x 37-1/2
C	Stretcher	1	1 x 4-1/2 x 19-3/4
4/4 MAHOGANY			
D	Arms	2	3/4 x 5 x 30-3/8
E	Center Back Slat	1	3/4 x 4 x 32
F	Tall Back Slats	2	3/4 x 4 x 32
G	Short Back Slats	2	3/4 x 4-1/4 x 26
H	Seat Slats	8	3/4 x 3 x 21
J	Back Rail	1	3/4 x 3-3/8 x 23
K	Splines	4	1/4 x 3 x 7/8

SOURCE

Highland Hardware, (800) 241-6748
1/4-in. spiral up-cutting bit, #10.45.11; $19
1-1/2-in. flush trim bit, #10.22.28; $35
3/8-in.,Snug Plug Cutters, #07.70.13; $13
G-2 Epoxy, #16.50.11; $20
Double-faced tape, #169438 (1-1/2" x 42' roll); $7
#8 x 2" stainless steel screws, #B451503; $13 for a box of 65.

This is a new and improved version of a previously published American Woodworker story. Chair design by Andy Rae.

Scroll

17 entry-level saws under $500.

Scrollsaws excel at cutting intricate curves in wood, metal and plastic. Even if you're only marginally interested in traditional scrollsaw projects, a scrollsaw can be a handy addition to any woodshop. The cuts are extraordinarily smooth and require little or no sanding. Beyond cutting curves, a scrollsaw can be used to make dovetails, coped cuts in moldings and intricate fretwork for period furniture.

SNOWFLAKE PUZZLE BY JOE ZULKOSKY

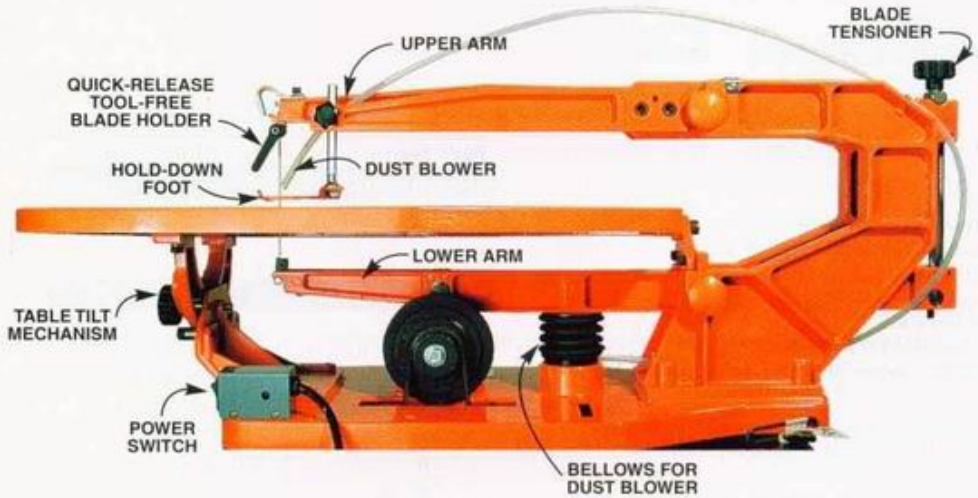
Scrollsawing is a lot of fun. If you're looking for a way to get other members of your family interested in woodworking, a scrollsaw is the perfect tool. From basic pattern work to the most sophisticated intarsia, scrollsawing has something for everyone and for many people it is the *only* type of woodworking they ever do.

Scrollsaws are relatively safe and non-threatening compared to other woodworking machinery. Their quiet and user-friendly nature allows even first-time scrollers to make some pretty impressive projects while still offering plenty of challenges for the expert. Be forewarned—scrollsawing is addictive and you may find yourself waiting in line to use yours!

THE TEST

Professional-level saws start at around $1,000. For this test we looked at entry-level scrollsaws priced at less than $500. The fact that there are 17 saws in this category is a testament to the popularity of scrollsaws. Most of the machines we tested were benchtop models that can be stored in a cabinet.

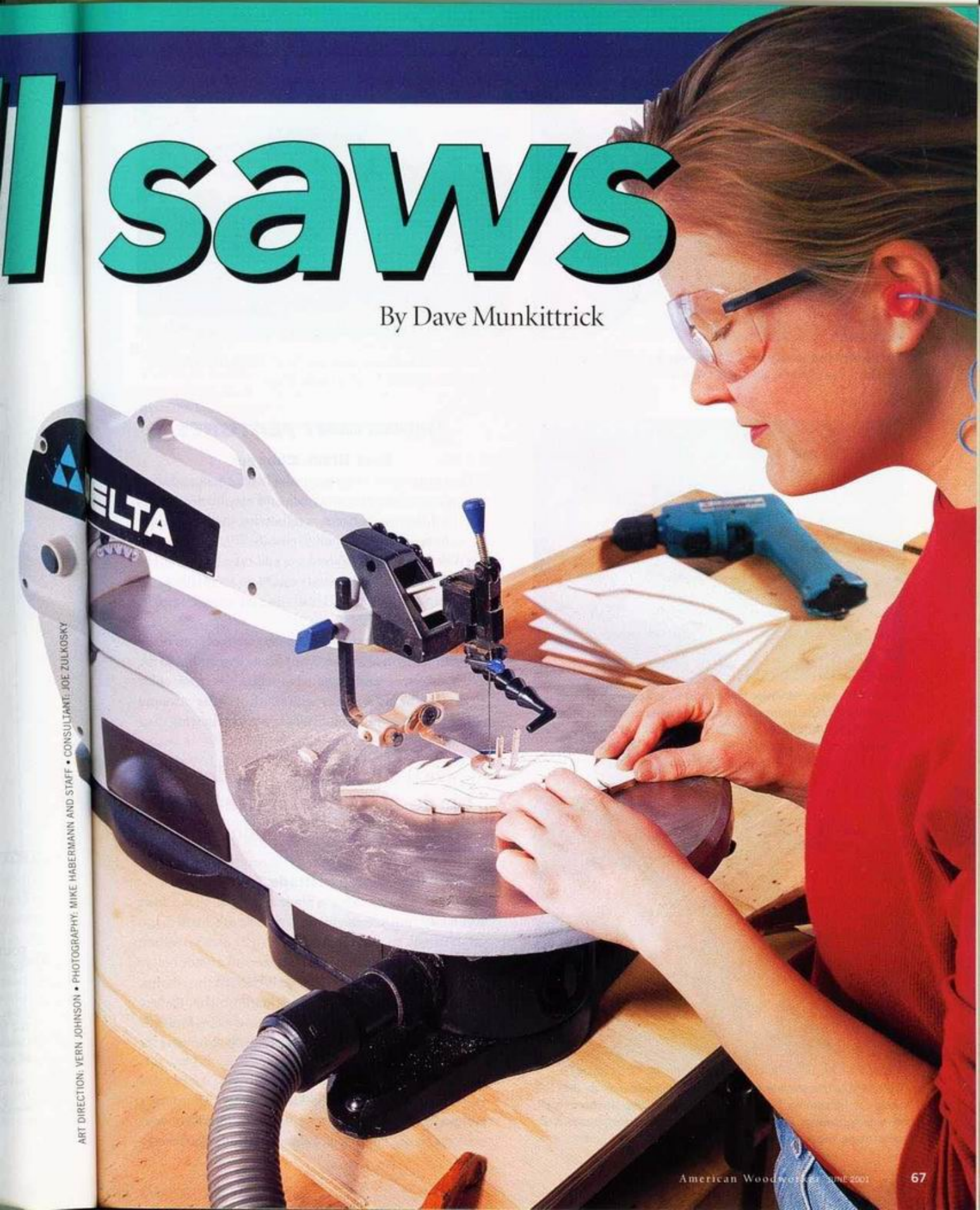
Because frequent blade changes are a fact of life in scrollsawing, we looked closely at how easy this task was to accomplish on each saw.



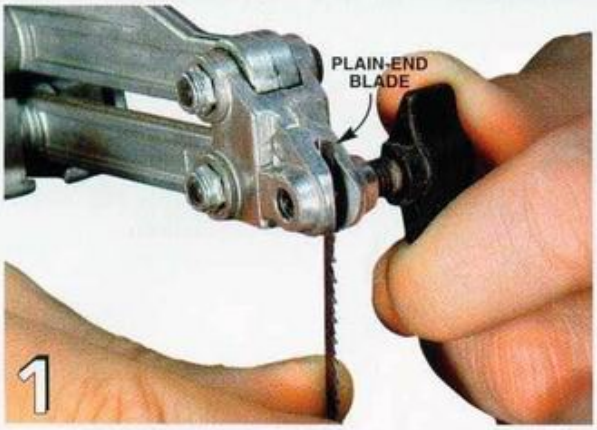
ART DIRECTION: VERN JOHNSON • PHOTOGRAPHY: MIKE HABERMANN AND STAFF • CONSULTANT: JOE ZULKOSKY

l saws

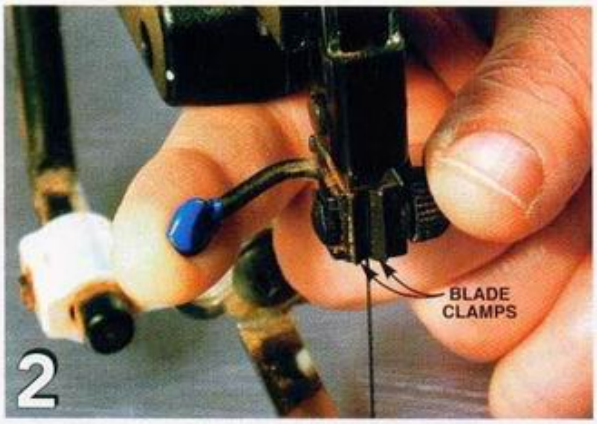
By Dave Munkittrick



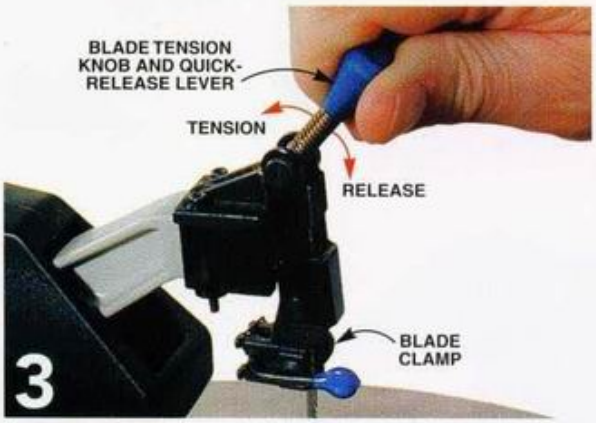
ART DIRECTION: VERN JOHNSON • PHOTOGRAPHY: MIKE HABERMANN AND STAFF • CONSULTANT: JOE ZULKOSKY



Tool-free blade clamping is the way to go. Most tool-free systems use a threaded knob to clamp the end of the blade in place.



A flip of a lever clamps the blade in place with Delta's Quick Set II blade clamps. Although the lever system is a fast way to clamp the blades, we found the Quick Set II clamps have a "sweet spot" where the blade is held most securely. This makes it a little fussier to position small blades.



A quick-release blade tensioner speeds up blade changes. Flip the lever forward and all the tension is released so the blade can be removed. Replace the blade and flip the lever back to restore tension. Fine-tune the tension by turning the built-in adjustment knob and you're ready to saw.

You just can't beat the lifting upper arm on the DeWalt for threading blades. Release the blade from the upper holder, lift the arm, thread the workpiece over the blade, lower the arm, reattach the blade and you're ready to go.

IMPORTANT FEATURES

Easy Blade Changes

It's not unusual to make dozens of blade changes during a single scrollsaw project. Quick and easy blade changes are the difference between scrollsawing that's a pleasure or a chore. The Craftsman, Delta 40-570, 650 and 680, DeWalt, Dremel and Ridgid saws all offer blade clamps that are both easy to use *and* require no tools (Photo 1). Delta's unique Quick Set II blade uses a lever to clamp the blade in seconds flat (Photo 2).

Changing blades on saws that require tools can really try your patience. Holding a tiny blade in position in the cramped space under the table while simultaneously tightening the blade holder with an Allen wrench can put a damper on anyone's enthusiasm for scrollsawing.

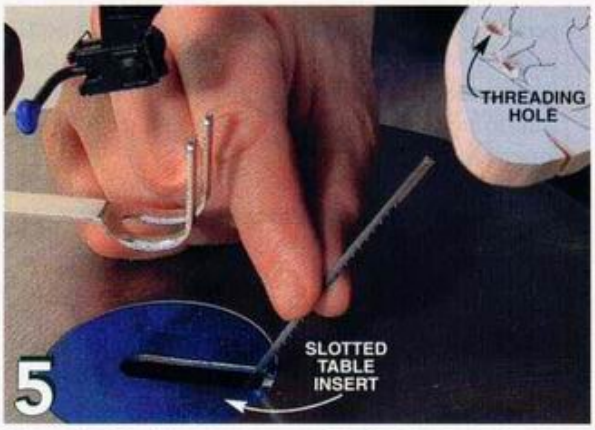
Well-designed, tool-free blade clamps are the keys to enjoyable scrollsawing.

Quick-Release Blade Tensioner

We prefer a quick-release blade tensioner that allows you to set and release blade tension with little or no adjustment to the tension knob (Photo 3). When changing blades, tension must be taken off a blade before it can be removed. Once a blade is back in the clamps, tension must be restored. Saws without this feature require cranking a knob to release the tension for blade removal, then cranking the tension back up again after the blade has been replaced.

Easy Blade Threading

Fretwork requires making cutouts in the middle of your stock and is accomplished by threading the blade through



Slotted table inserts are great for blade threading. They allow the blade to tip far enough forward so blade threading can be accomplished without removing the blade from the lower holder. You can also make zero-clearance throat plates for delicate work, such as marquetry.

a pre-drilled hole in the pattern. DeWalt's moveable upper arm (Photo 4) and the slotted table inserts on the Craftsman, Harbor Freight and all the Delta machines simplify blade threading (Photo 5). That's because the blade only needs to be released from the top holder. On other machines, the blade has to be completely removed before it can be threaded back through the workpiece.

Low Vibration

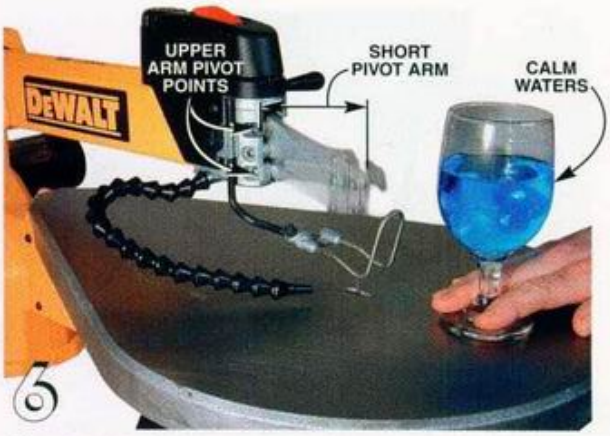
Scrollsaws are often used for hours at a stretch, so low vibration is a godsend. The DeWalt saw was noticeably smoother than the others we tested. No doubt the heavy cast iron table helps absorb vibration but perhaps the reason for its smooth operation is the arm design. DeWalt has moved the pivot points of the moveable arms forward, thus shortening the arms and greatly reducing vibration (Photo 6).

Another smooth-running saw is Delta's 40-650. Delta uses lightweight Kevlar arms and a heavy cast iron table to reduce vibration on the saw.

Most scrollsaws have pivot points toward the back of the saw (Photo 7). The long arms moving up and down at 1,700 strokes per minute make these saws more prone to vibration.

Easy-to-Reach Controls

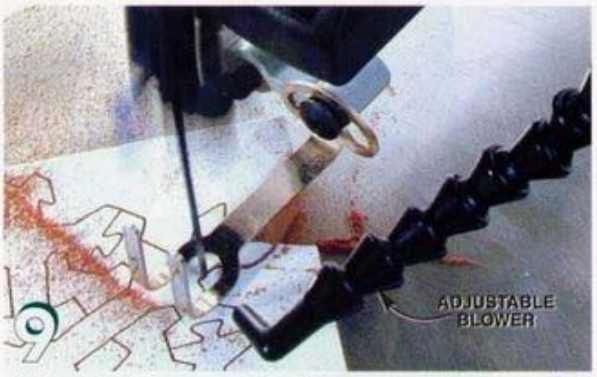
The Delta 40-650 and the DeWalt are the only saws with *all* their controls, including power and speed adjustment, up front and on top where they can be easily seen and reached (Photo 8). While this is a great convenience for most users, it's almost a necessity for others. One of the great things about a scrollsaw is that it can be used in the seated position. This allows people confined to wheelchairs, or those who don't want to stand for long



Vibration is minimal on the DeWalt, due in part to the short pivot arms that hold the blade.

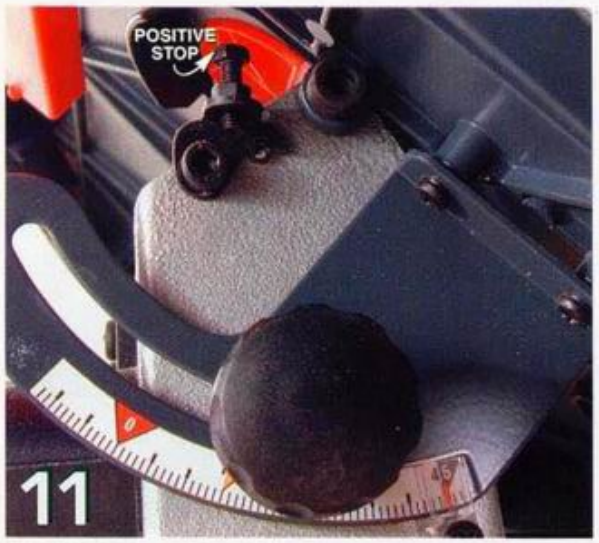
Vibration is more pronounced on all the other saws because of their long pivot arms.

All the controls are on top and up front on the DeWalt. That means all operations can be performed without having to reach into awkward or blind areas under the table or at the back of the upper arm.



Adjustable blowers are best because they can be set to blow the dust away from the operator. Fixed blowers are often ineffective because they're positioned too far from the blade.

A shroud enclosing the area beneath the table provides the best dust collection. The Dremel (shown here) and Delta's 40-570 both feature shrouded dust collection. Dust collection on scrollsaws keeps the area under the table clear of dust and debris, but you still need a mask and a dust blower to deal with the dust that accumulates on the workpiece.



We liked the positive 90-degree stop and easy-to-read scale on the Craftsman table-tilting mechanism. A table that tilts 45 degrees one way and at least 15 degrees the other allows you to cut dovetails.

periods, to enjoy scrollsawing. Having to reach to the back of the saw to tension your blade is especially difficult in the seated position. And fumbling around under the table to adjust speed or find the power switch is a hassle for everyone.

Electronic Variable Speed

Electronic variable speed is a must. Simply turning a knob to vary speed sure beats manually moving a belt around on a set of pulleys.

The ability to instantly slow the cutting speed to negotiate tight curves is a real plus. Also, non-wood materials like metal, plastic and thin veneers cut better at slower speeds. And you'll appreciate the higher speed capability when it comes to cutting patterns in 3/4-in. hardwood.

Adjustable Dust Blowers

Scrollsaws come equipped with either fixed or adjustable blowers. Adjustable blowers are our favorite because they can be set in almost any position to maximize dust removal (Photo 9). Nothing is worse than having to huff and puff to clear a path in the sawdust as you cut. Most fixed blowers require a wrench to adjust or are permanently set so the dust is blown back at the operator. Blowers get their air from a bellows that's pumped by the up and down action of the saw arm.

Dust Collection

It's not easy to collect dust from a scrollsaw, which is why they all come with blowers. The Delta 40-570 and the Dremel have the most effective dust collection. Both saws concentrate the vacuum's power with a shroud that encloses the blade area under the table (Photo 10). But plenty of dust still accumulates on the workpiece and the top of the table, as you saw. In general, dust collection on these saws helps with the housekeeping, but don't put away your dust masks.

Tilting Tables

We like tables with a positive stop at 90 degrees because manually squaring the table can be a hassle (Photo 11). Scrollers tilt the table to create a host of special effects like incised lettering, sawing chamfers, inlays and marquetry. A table that tilts 45 degrees one way and at least 15 degrees the other allows you to cut dovetails on your scrollsaw.

OTHER FEATURES

Table Size: Large tables provide better support.
Weight: A heavy machine can dampen vibration but makes the machine difficult to move.
Throat depth: Scrollsaw cuts often involve swinging the workpiece a full 360-degrees. A 16-in. throat can accommodate a 32-in. workpiece.

EDITORS' CHOICE

The **DeWalt DW788** 20-in. variable-speed scrollsaw ($420) is a hands-down winner. This saw offers features that make it user-friendly for the amateur but sophisticated enough to satisfy the demands of an advanced scroller. The DW788 offers:

- lowest vibration of all the saws tested
- an upper arm that lifts up to clear the way when threading a blade for pierced work
- a beautifully simple quick-release, tool-free blade changing system
- all controls are up front and on top
- a large table that fully tilts left and right
- an adjustable blower
- electronic variable speed
- two-way tilting table with 90 degree stop.

On the downside:

- lacks dust collection
- it could use a lock to hold the upper arm up for blade threading
- it requires a wrench to adjust the angle of the hold-down foot for cutting with the table tilted
- it is a bit heavy for portability.

Best Buys

The **Delta 40-570** ($230) is a well-designed, user-friendly machine. It offers:

- unique, tool-free, quick-release blade clamps
- up front and on top controls (with the exception of the power and speed controls)
- a slotted table insert that aids in blade changes and blade threading
- dust collection shroud
- fully adjustable dust blower
- electronic variable speed.

On the downside:

- speed and power controls are located under the table
- the table tilts only one way
- it's on the heavy side for portability.

The **Ridgid SS1650** ($170) is an excellent machine for the money. It is the only totally tool-free saw we tested, right down to the angle adjustment on the hold-down foot.

The Ridgid SS1650 offers:

- low vibration
- electronic variable speed
- dust collection
- light-weight
- great price.

On the downside:

- the blade tensioner is located at the back
- the blade tensioner lacks a quick release
- the table tilts only one way
- it has a fixed blower.

PUZZLE BY JOE ZULKOSKY

OUR RECOMMENDATIONS

All the saws we tested did a fine job of making scroll cuts in wood. What set several saws apart are features that increase efficiency and convenience. Tool-free, quick-change blade clamping systems along with controls that are up front and on top are critical features.

The DeWalt is our Editors' Choice. Coming in a close second was Delta's 40-650 which has most of the features we looked for, but lacks DeWalt's moveable upper-arm and has a smaller table size and throat capacity. The Delta also uses a C-arm design where both the upper and lower arms are attached, forming a "C" that pivots on one point at the back. This causes the blade to rock back and forth as it moves up and down, making for a more aggressive, but slightly rougher cut.

MAKE AND MODEL	AVERAGE STREET PRICE IN $	BLADE TYPE	TOOL-FREE PLAIN-END BLADE CLAMPS	QUICK-RELEASE BLADE TENSIONER	ALL CONTROLS UP FRONT AND ON TOP	ELECTRONIC VARIABLE SPEED	BLOWER TYPE A=adjustable F=fixed	DUST COLLEC-TION	SLOTTED TABLE INSERT	
CENTRAL MACHINERY	85	PLAIN & PIN-END	N	N	N	Y	F	N	Y	
CRAFTSMAN #21636	170	PLAIN & PIN-END	Y	Y	N	Y	F	Y	Y	L
DELTA 40-530	110	PLAIN-END	N	Y	N	N	F	N	Y	
DELTA 40-540	150	PLAIN-END	N	Y	N	Y	F	N	Y	
DELTA 40-570	230	PLAIN-END	Y	Y	N	Y	A	Y	Y	
DELTA 40-650	400	PLAIN-END	Y	Y	Y	Y	A	N	Y	L1
DELTA 40-680	495	PLAIN-END	Y	Y	N	N(1)	A	Y	Y	L1
DEWALT DW788	420	PLAIN-END	Y	Y	Y	Y	A	N	N	L4
DREMEL 1680	220	PLAIN & PIN-END	Y	Y	N	Y	A	Y	N	L4
GRIZZLY G1257	170	PIN-END	N	N	N	Y	F	N	N	L4
MAKITA SJ401	170	PLAIN & PIN-END	N	Y	N	Y	F	Y	N	L4
PRO-TECH 3303	140	PLAIN & PIN-END	N	Y	N	Y	F	Y	N	L5
PS WOOD 14"	460	PLAIN-END	N	Y	N	N(1)	F	N	N	L45
RIDGID SS1650	170	PLAIN & PIN-END	Y	N	N	Y	F	Y	N	L
RYOBI SC162VS	110	PLAIN & PIN-END	N	Y	N	Y	F	Y	N	L45
TRADESMAN 8354SL	120	PLAIN & PIN-END	N	Y	N	N	A	N	N	L
TRADESMAN 8366SL	170	PLAIN & PIN-END	N	Y	N	Y	A	Y	N	L

KEY: (1) speed adjusted with step pulleys

For a little over $200 we found a pair of excellent saws; Delta's new 40-570 and Dremel's Model 1680. Both machines offer great features at a reasonable price. But the Delta 40-570 is a smoother-running machine with a quick-release blade tensioner positioned at the front of the upper arm instead of the back, and a slotted table insert.

There are a lot of good saws in the $150 to $200 range that suffer from one major defect; most require one to three separate tools for changing blades and adjusting the hold-down foot. Only Ridgid incorporates a totally tool-free system in their $170 saw.

Finally, if you're curious about scrolling but can't justify spending more than $100, we found Central Machinery's saw to be a pleasant surprise. It's a bare bones machine that gets the job done for a mere $85!

LEAF WREATH BY FRANK KROYER

SLOTTED TABLE INSERT		TABLE TILTS	POS. STOP FOR 90 DEG. TABLE SETTING	APPROX. TABLE AREA IN SQ. INCHES	WEIGHT LBS.	THICKNESS CAPACITY IN INCHES	THROAT CAPACITY IN INCHES	SOURCE	COMMENTS
Y		L45	N	101	27	2	16	Harbor Freight (800) 423-2567	Plain-end blade clamps are very difficult to use; model #41889.
Y		L12/R50	Y	178	31	2	16	Sears (800) 377-7414	Easy-read table tilt scale.
Y		L45	N	111	40	2	16	Delta (800) 438-2486	Exposed lower arm behind table is a potential safety problem; easy-read scale; very hard to get at bottom blade holder.
Y		L45	Y	111	50	1-3/4	16	Delta (800) 438-2486	Toolless blade holder on top only; soft start; exposed lower arm behind table is a possible safety problem.
Y		L45	Y	148	65	2	16	Delta (800) 438-2486	Tilt readout up top; soft-start motor.
Y		L15/R45	Y	207	73	2-3/8	18	Delta (800) 438-2486	Soft-start motor; older C-arm design.
Y		L15 /R45	Y	229	98	2	20-1/2	Delta (800) 438-2486	Awkward pulley/belt change for speeds.
N		L47/R47	Y	247	61	2	20	DeWalt (800) 433-9258	Smoothest running saw; hard-to-read speed-control knob.
N		L45/R45	Y	141	39	2	16	Dremel (800) 437-3635	Preset detents for 90, 15, 30 & 45 degrees; comes with a work light.
N		L 45 /R 5	N	103	37	1-1/2	16	Grizzly (800) 523-4777	Plastic shield blade guard is awkward to adjust and collects dust; location of tensioning knob very awkward.
N		L45/R15	N	131	32	2-1/4	16	Makita (800) 462-5482	Awkward dust port location; motor surges when a load is put on, making cutting control more difficult.
N		L50 /R15	N	131	31	2-1/4	16	Sears (800) 377-7414	Awkward dust port location; motor surges when a load is put on, making cutting control more difficult.
N		L45/ R35	N	114	28	2-1/4	13-3/4	PS Wood (800) 939-4414	Blade change is very awkward; hold-down foot can't be adjusted for angled cuts; lots of vibration; exposed belt and pulley; speed change is awkward.
N		L45	Y	161	37	2	16-3/8	The Home Depot (800) 430-3376	Only totally toolless machine; no quick release on blade tension.
N		L45/R15	Y	97	26	1-3/4	16-1/4	Ryobi (800) 525-2579	Awkward dust port location; knob to secure tilting scale; motor surges when a load is put on, making cutting control more difficult.
N		L47	Y	105	50	1-3/4	16	Power Tool Specialists (800) 243-5114	Plastic shield blade guard is awkward to adjust and collects dust; weak blower.
N		L47	Y	105	45	2	16	Power Tool Specialists (800) 243-5114	Awkward dust port location.

CHOOSING SCROLLSAW BLADES

What is the secret of scrollsawing success? A decent saw is only part of the story. The most important factor is the blade itself. With the right blade in your saw, you'll not only work quickly and accurately, but you can almost eliminate one of the biggest hassles of scrollsaw work—sanding.

To get the best results you have to pick the right size and type of blade for the material you're cutting and then make sure it is properly tensioned.

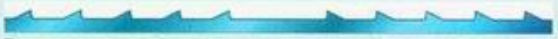
Types of Blades

Scrollsaw blades come in two forms: pin end and plain end (at right). Plain-end blades, because of the larger selection in types and sizes, are quickly replacing the old style pin-end blades. Pin-end blades have one big advantage: They don't require tools for blade changes. With the advent of tool-free plain-end blade clamps, however, this advantage is all but irrelevant.

There are five major types of plain-end scrollsaw blades (below). Each is available in a variety of sizes.

Skip-tooth blades have every other tooth removed for better chip removal. They excel at fast cuts with a smooth finish on most solid-wood applications, although they tend to tear-out wood fibers on the bottom surface of the work, especially on plywood. $5 for a package of 12.

Double-tooth blades have every third tooth removed. This creates a flat space for efficient chip removal. Like the skip-tooth blade, these are good general-purpose blades that strike a balance between smoothness of cut and speed. $5 for package of 12.



Reverse-tooth blades are skip-tooth blades with several teeth pointing upward at the bottom of the blade to reduce tear-out and splintering on the underside of plywood. $7 for a package of 12.

Tip: Set your reverse-tooth blade so a few of the upward-pointing teeth clear your workpiece on the upstroke.

Crown-tooth blades have double-ended teeth that cut on both the downstroke and the upstroke. This means splinter-free cuts in plywood. The double-cutting action also prevents melting when cutting plastic. $5 for a package of 12.

Spiral-tooth blades cut in every direction, but they can leave a ragged edge. They're best for work that is too long to swing through the throat of your saw. $7 for a package of 12.

Precision-ground blades track better and last longer than standard blades. Their teeth are ground, not milled. These blades are available in several styles. They cost a bit more, but are well worth it. $8 for a package of 12.

Sources: Eagle America, (800) 872-2511 and Woodworker's Supply, (800) 645-9292.

Size Comes First

Blades come in numerical sizes ranging from #2/0 to #12 and coarser. Lower-numbered blades are thinner and narrower and have more teeth per inch (tpi).

When choosing a blade size, consider the hardness of the material you're cutting. Hardwoods and other dense materials generally cut better with coarser blades. Very thin materials, such as veneers and thin plywood, require fine-tooth blades. Also, the more intricate your patterns, the smaller your blade should be.

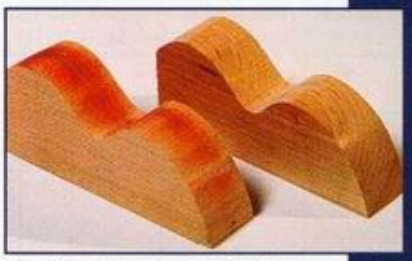
Tension It Correctly

Many novice woodworkers don't tension their scrollsaw blades enough. Insufficient tension makes the blade tend to drift when sawing and causes premature blade breakage.

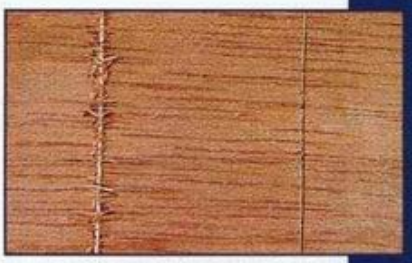
Experienced scrollsawyers gauge blade tension by the pitch of the blade when it's plucked. Another method is called the "1/8-in. rule," which states that the blade shouldn't deflect more than 1/8 in. when you press your work against it. AW

Scrollsaw blades come in two basic forms: plain end and pin end. Plain-end blades are the first choice of seasoned scrollsaw users because they are available in a much wider variety of styles and sizes.

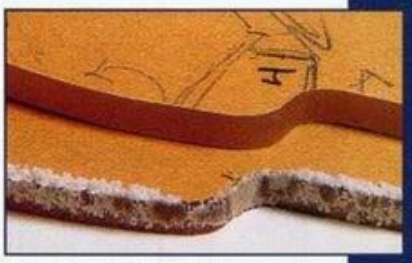
COMMON PROBLEMS



Burning. Burned edges (left) mean the blade is too fine for the material. A coarser blade clears sawdust better, reducing friction and burning (right).

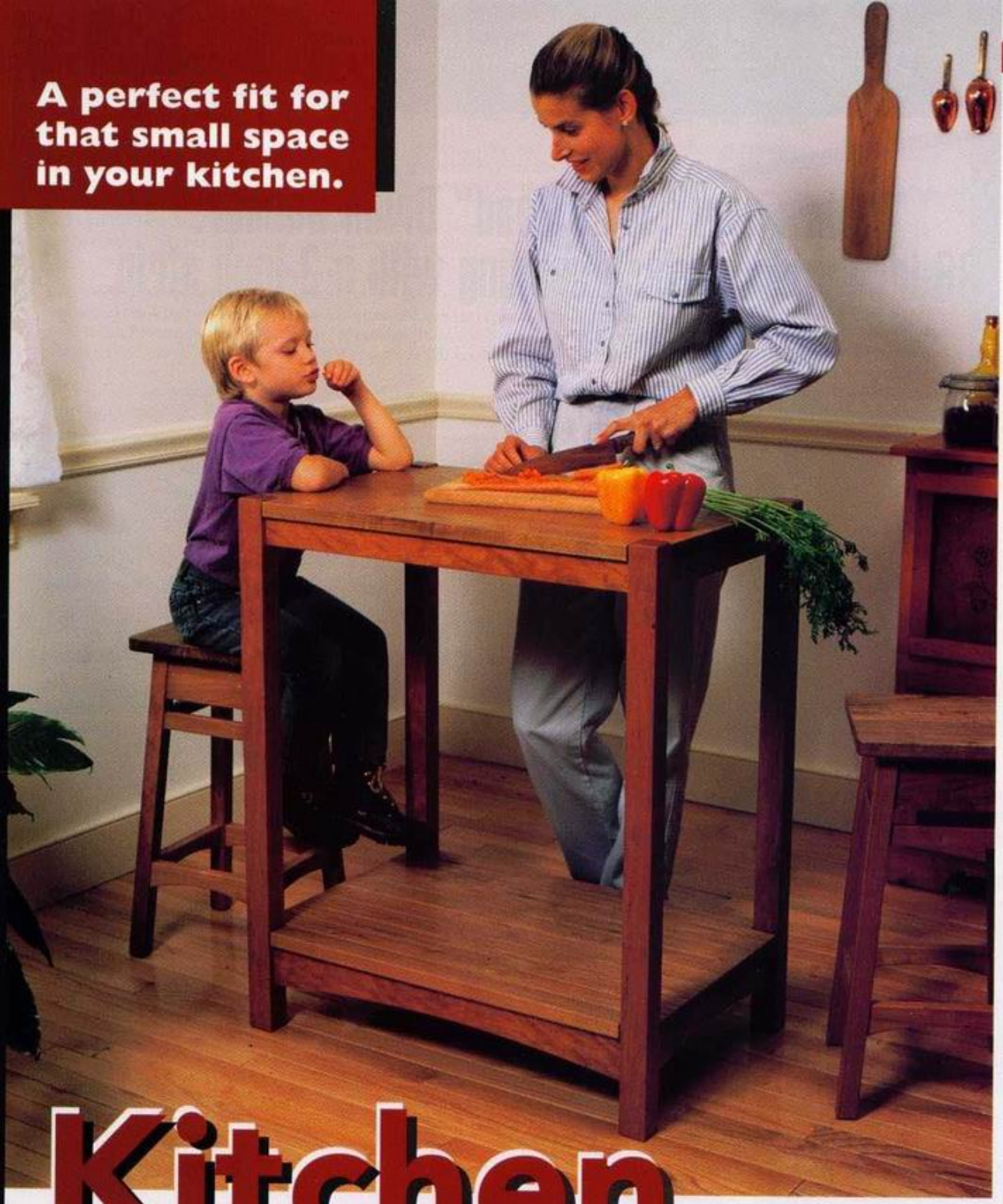


Tear-out or splintering. Torn fibers on the bottom surface of your work (left) can usually be avoided by using a reverse-tooth blade (right).



Meltdown. Standard blades and fine-tooth blades tend to melt acrylic (bottom), but coarser "crown-tooth" blades produce a smooth edge (top).

A perfect fit for that small space in your kitchen.



Kitchen Work Table

EDITOR: TIM JOHNSON • ART DIRECTION: VERN JOHNSON • PHOTOGRAPHY: ANDY RAE, RAMON MORENO AND JOHN HAMEL • ILLUSTRATION: FRANK ROHRBACH, DON RAYMOND AND HEATHER BRINE LAMBERT

Here's a compact work table that you could tuck away in a corner or use as a central island for daily activities. It's the same height as standard kitchen countertops, so it's perfect for food preparation and other standing chores.

The Cutting List on page 79 has two sets of dimensions; one for the 18-in. by 30-in. table shown here and another for a larger 24-in. by 36-in. version. You can easily build either table in a couple of weekends. You'll need a tablesaw, a stacked dado set, a bandsaw or saber saw, a drill press and a chop saw. You'll also need a plunge router to cut the mortises and the curves on the rails.

Use your favorite hardwood, but substitute hard maple for the top if you plan to use it as a cutting surface. To make the smaller version, you'll need about 12 bd. ft. of 5/4 stock for the top and slats, four 3-1/2 ft. lengths of 2-in. square stock for the legs and 5 bd. ft. of 4/4 stock for the aprons, rails and stretcher. For the larger version, you'll need 20 bd. ft. of 5/4 and 7 bd. ft. of 4/4 stock. If you don't have a jointer and planer, have your lumber milled at the lumberyard.

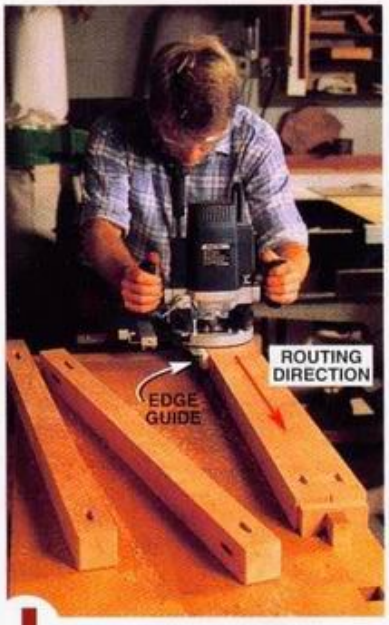
Mortise the Legs

When laying out the legs, orient the end grain in a pleasing pattern because it will be visible at the corners of the finished top. Plunge-rout the mortises, using an edge guide for your router and a 3/8-in.-dia. up-cutting spiral bit (Photo 1).

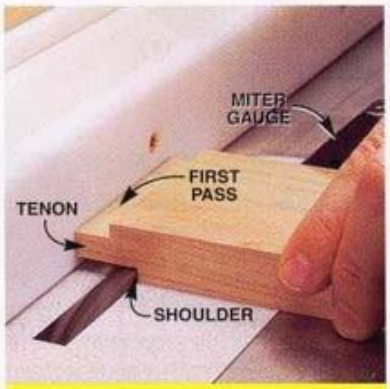
Once you've cut the mortises, switch to a 1/4-in.-dia. straight bit and plunge-rout the slots in the aprons for the top fasteners, using the same gang-cutting method (Fig. A, Detail 2).

Tenon the Aprons and Rails

Cut tenons on the tablesaw using a carbide-tipped, stacked dado set (Photos 2 through 4). Any roughness on the tenon cheeks left by the cutters can be removed with a chisel or rabbet plane. After the tenons are cut and mitered, round their shoulders (Photo 5).

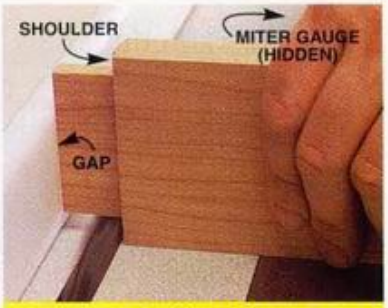


1 KEEP YOUR ROUTER STABLE while plunging the mortises by ganging two legs together. Make several shallow passes until you reach full depth. To maximize the gluing surfaces, the mortises meet inside the leg and the tenons are mitered to fit (Fig. A).



SEE WARNING BELOW

2 CUT TENONS on the aprons and rails with a dado set and the miter gauge. Make a first pass on both sides as shown, then make the final pass using the rip fence to establish the tenon length. Hold the apron tight against the miter gauge and flat on the table. Fine-tune the tenon thickness by adjusting the blade height.



SEE WARNING BELOW

3 CUT SHOULDERS on the ends of the tenon after adjusting the height of the blade. Hold the apron on its edge, tight against the miter gauge and make two passes, as in Photo 2. Keep the tenon slightly away from the fence on the final pass and pare away the remaining waste with a chisel.

4 MITER THE TENONS, making sure the angled edges are oriented properly with the face side of the apron.

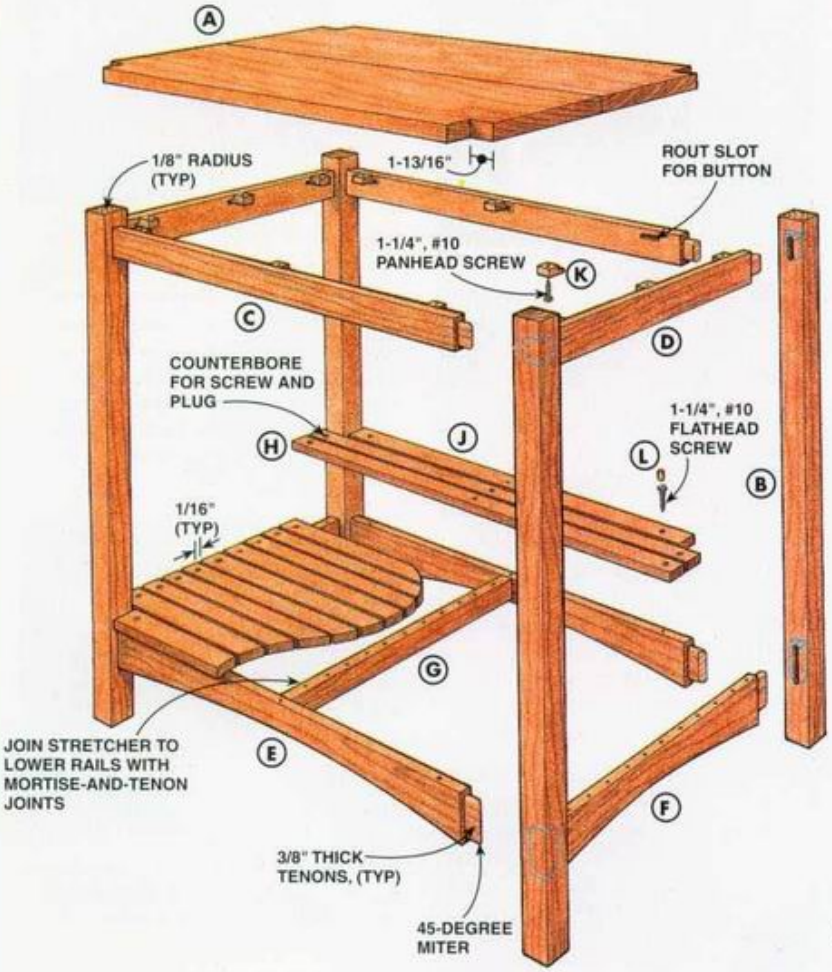
5 ROUND THE SHOULDERS of the tenons with a rasp, making firm forward strokes, so they'll fit the mortises.

SAFETY WARNING

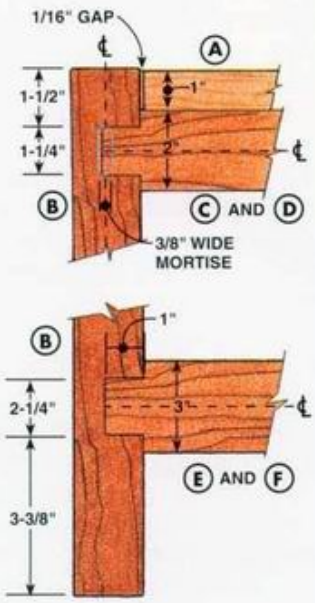
Using the rip fence and miter gauge simultaneously is safe only when there will be no off-cut piece. The blade guard must be removed for this cut. ***Be careful.***

E, RAMON MORENO AND JOHN HAMEL • ILLUSTRATION: FRANK ROHRBACH, DON RAYMOND AND HEATHER BRINE LAMBERT

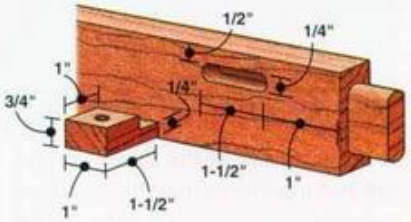
FIG A: Exploded View



Detail 1: Apron and Rail Joints



Detail 2: Slots and Top Fasteners



Rout Curves

The shallow curves on the lower rails keep the table from looking bottom-heavy. Rout them with the help of a double-sided, shop-made jig (Fig. B). First, use the jig to transfer the curves onto the rails. Saw the profiles, slightly oversize, on a bandsaw or with a saber saw. Then attach the rails to the jig and rout the curves (Photo 6).

Notch the Top

The top is notched to fit inside the legs. Leave a suitable gap (min. 1/16 in.) around each leg so the top has room to expand during humid conditions (Fig. A, Detail 1). With the proper setup, these notches can be cut safely and precisely on the tablesaw (Photos 7 and 8).

Attach the Slats

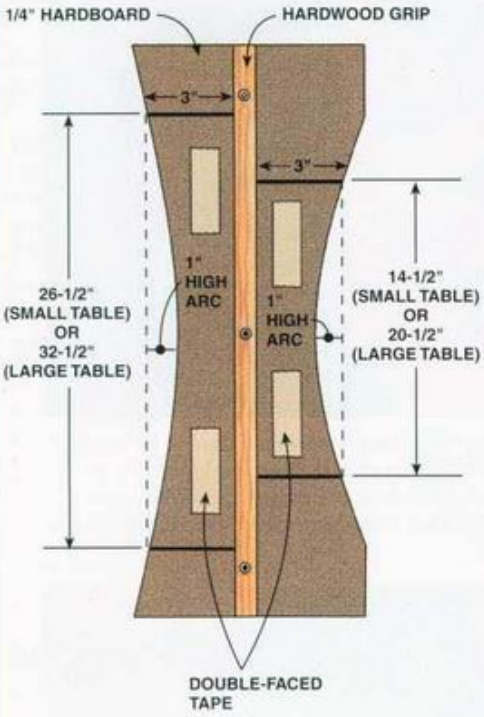
Mill all of the slats and drill counterbored access holes for screws. To space the slats evenly, lay them in place on the lower rails with 1/16-in.-thick shims in between (Photo 9). You may have to joint a couple of slats or add pieces of masking tape to some of the shims to make everything fit.

With the shims in place, align the ends of the slats and clamp them all together. Drill pilot holes into the rails and fasten the slats with screws. Fill the screw holes by gluing in side-grain wooden plugs (see Sources, page 80). When the glue is dry, pare and scrape the plugs flush with the slats.

TIP

Before you fasten the slats to the frame, finish their edges and bottoms. Once installed, these surfaces are difficult, if not impossible, to reach.

FIG B: Jig for Routing the Arched Rails



GUARD REMOVED FOR PHOTO CLARITY. USE YOURS!

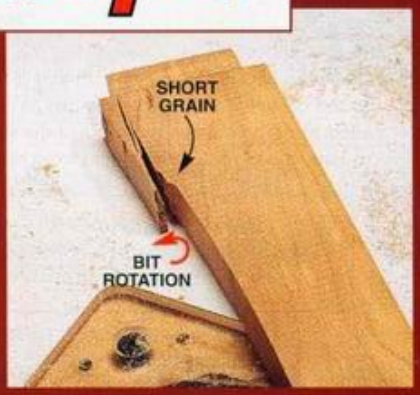
6 ROUT THE CURVED RAILS with a jig (Fig. B) and a flush-trim bit with a top-mounted bearing (see Sources page 80). First rough-saw the curve on the rail, leaving it about 1/8-in. oversize. Then mount the rail on the jig, using double-faced tape. As you rout, the bit's bearing rides on the jig's curved edge. Do half the curve, flip the rail over, and do the other half (see OOPS!, below).

CUTTING LIST

Part	Quantity	Name	Small Table 18 x 30 x 36-1/8	Large Table 24 x 36 x 36-1/8
A	1	Top	1 x 18 x 30	1 x 24 x 36
B	4	Legs	1-3/4 x 1-3/4 x 36-1/8	1-3/4 x 1-3/4 x 36-1/8
C	2	Long Aprons	3/4 x 2 x 28-1/2*	3/4 x 2 x 34-1/2*
D	2	Short Aprons	3/4 x 2 x 16-1/2*	3/4 x 2 x 22-1/2*
E	2	Long Rails	3/4 x 3 x 28-1/2*	3/4 x 3 x 34-1/2*
F	2	Short Rails	3/4 x 3 x 16-1/2*	3/4 x 3 x 22-1/2*
G	1	Stretcher	3/4 x 1-3/4 x 16†	3/4 x 1-3/4 x 22†
H	8	Inner Slats	1 x 1-3/4 x 30 △	
	11	Inner Slats		1 x 1-13/16 x 36 □
J	2	Outer Slats	1 x 1-3/4 x 26-3/8	1 x 1-3/4 x 32-3/8
K	12	Top Fasteners	3/4 x 1 x 1-1/2	3/4 x 1 x 1-1/2
L	30	Side-Grain Plugs	3/8 diameter	
	39			3/8 diameter

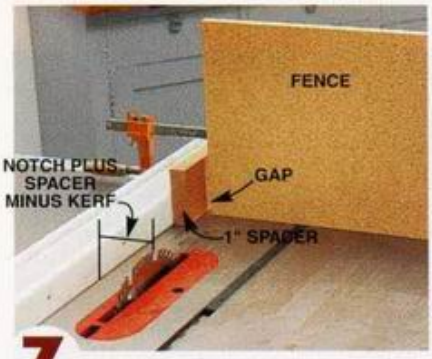
* Includes 1-in.-long tenons on both ends.
† Includes 1/4-in.-long tenons on both ends.
△ Requires nine 1/16-in.-wide shims.
□ Requires twelve 1/16-in.-wide shims.

Oops!



The curve was shaping up beautifully when all of a sudden, *WHAM!*

I forgot that when you rout an arch, the short grain at the back end is likely to get blown out because of the bit's rotation. The best approach is to rout the front half of the curve, stop, and flip the rail end-for-end. Then you'll be routing *with* the grain as you finish the curve.



7 BEFORE SAWING THE NOTCHES, clamp a spacer block to the rip fence, well in front of the blade. Screw a tall fence to the miter gauge, leaving a gap so it won't bind against the spacer. Set the fence to the combined widths of the notch and spacer, *minus* the saw kerf. Raise the blade to the height of the notch.

8 CUT NOTCHES after sliding the top against the spacer block and clamping it firmly to the tall fence. The spacer ensures an adequate gap between the top and the rip fence to keep the off-cut waste pieces from binding.

SAFETY WARNING
The blade guard must be removed for this cut. ***Be careful.***

9 ATTACH THE SLATS, using shims to keep them evenly spaced. Be sure to put one shim between each leg and the adjacent slat. Use a clamp to keep the slats aligned while the pilot holes are drilled and the screws are set. Wooden plugs, glued in the screw holes and sanded smooth, create a finished look.

10 CUT WOODEN FASTENERS for the top from straight-grained stock with evenly spaced dadoes sawn across its length. Black tape on the fence indicates the correct length.

Fasten the Top

To center the top between the legs, use shims of equal thickness all around. Secure the top to the frame with wooden fasteners (Photo 10 and Fig. A, Detail 2). These fasteners allow the top to expand and contract by sliding inside the slots in the aprons.

Apply the Finish

Finish the top and frame separately so you can seal every surface. A wipe-on varnish is a good choice. Follow the instructions on the can, and put on three or four coats. After the first coat, it's a good idea to sand the surface with 220-grit sandpaper.

If you prefer a food-safe finish on the top, use Behlen's Salad Bowl Finish, or Preserve Woodworker's Cream (see Sources, at right). Do not use vegetable oil because it will turn rancid. *AW*

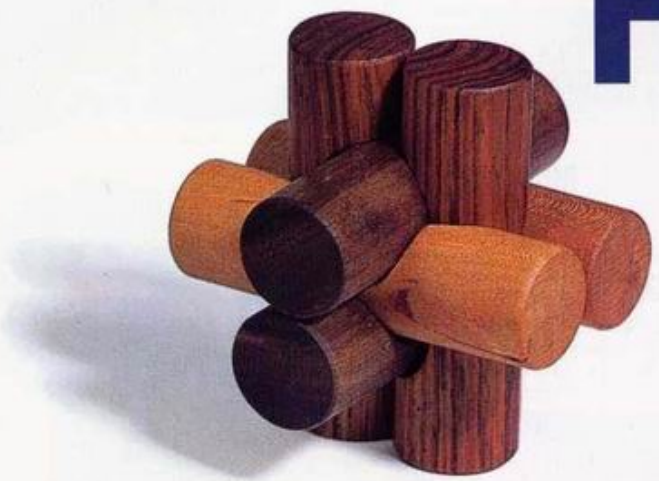
SOURCES

Woodworker's Supply (800) 645-9292
Side-Grain Plugs, 3/8-in. dia., #800-031 oak, #800-035 walnut, #800-039 maple; $8 for a package of 100.
Top-bearing flush-trim bit, #50-112; $23.
Behlen's Salad Bowl Finish #133-008, 1 qt.; $14.
Preserve Woodworker's Cream #952-550, 8 oz. bottle; $13.

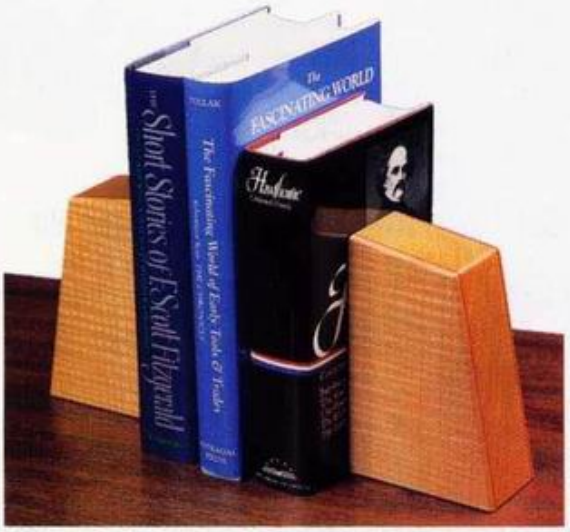
This is a new and improved version of a previously published American Woodworker story. Work table design by Andy Rae.

Three Puzzling Pieces

There's more than meets the eye in these simple projects.



Fiendish Knot Puzzle
Easy to make, but take it apart at your own risk!



Hefty Bookends
They look lightweight, but concealed inside is a center filled with lead shot.

Magic Coin Bank
Place a coin in the drawer... close the drawer... your coin disappears!

EDITOR: TOM CASPAR • ART DIRECTION: PATRICK HUNTER • PHOTOS FOR BOOKENDS: JOHN HAMEL AND SUSANNAH HOGENDOREN ILLUSTRATIONS FOR BOOKENDS: MELANIE POWELL • PHOTOS FOR COIN BANK: JOHN HAMEL • ILLUSTRATIONS FOR COIN BANK: MELANIE POWELL • PHOTOS FOR PUZZLE: PAUL PEARSON AND ANDY RAE • ILLUSTRATIONS FOR PUZZLE: FRANK ROHRBACH

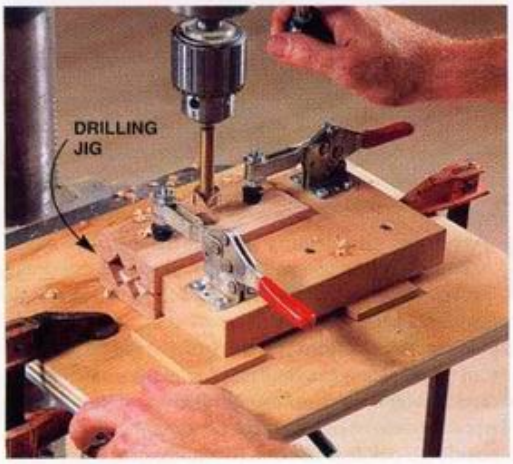
Fiendish Knot Puzzle

Here's a puzzle that's devilishly difficult to solve but quite easy to make. All you need is some 3/4-in. hardwood dowel rod, a 3/4-in. Forstner bit, a tablesaw, and a drill press. At the end of one day in the shop you'll have a dozen of these inexpensive brainteasers to tantalize your friends.

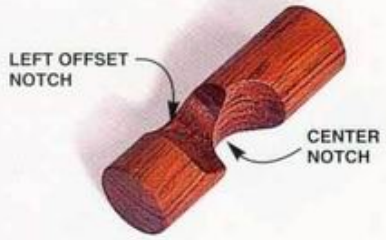
Use dowels made from a hard wood (see Sources, page 89). The kind of dowels you'd find at the local hardware store are probably too soft to cut cleanly, but birch is OK. You'll need about 24 inches of dowel to make one puzzle. A 36-in.-hardwood dowel costs from $3 to $5, depending on the species.

Follow steps 1 through 7 to make this puzzle. The last step is the hardest—that's where you have to put it together!

Actual Size: 2-1/2 in. square

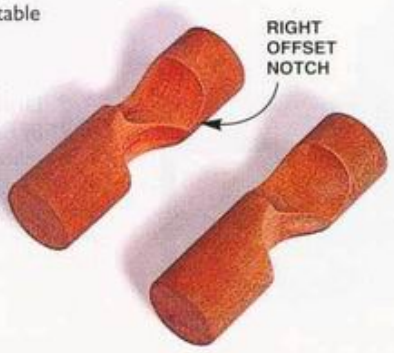


Accurately aligned holes are the secret to making this puzzle work. Make a jig for drilling half-round notches, lock the jig in place on your drill press table and you're ready to go.



Piece #1

Pieces #2 and #3



Pieces #4 and #5

Piece #6

Each puzzle piece is notched in a different pattern. The drilling jig is designed to automatically locate the center and offset notches.

Three Puzzling Pieces

The blade guard must be removed for this cut. **Be careful.**

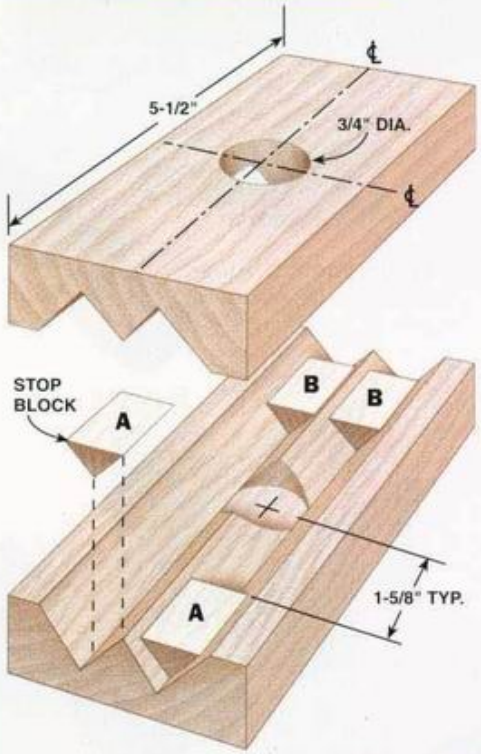
1 Cut the puzzle pieces to length safely and accurately with this jig. You'll need seven 2-1/2-in.-long dowel pieces in all, six for the puzzle plus one extra to balance the drilling jig. Also, cut four 3/8-in.-long pieces to use as spacers in the drilling jig.

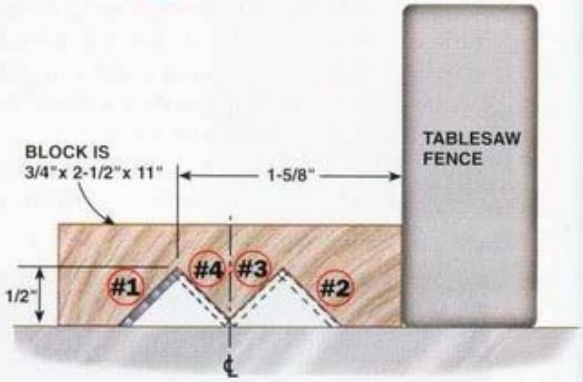
The trick in using this dowel-cutting jig is to avoid trapping the cut-off piece between the stop block and the blade. Instead, butt the dowel up to a removable spacer and withdraw the spacer before you make the cut.

2 Make the drilling jig by cutting V-grooves into a hardwood block. First, draw the layout below on both ends of the block with a combination square.

Tilt your tablesaw blade 45 degrees and raise it 1/2-in. above the table. Move the fence to align the blade with cut #1. Make the cut, turn the board end-for-end and make cut #2. Repeat the process for cuts #3 and #4. Caution: Use a push stick and stand to the right of your fence when cutting these pieces. There's a chance the waste may kick back at you.

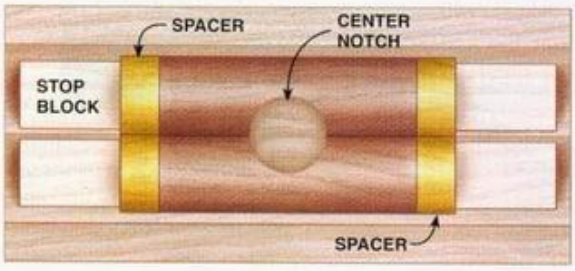
When you're done, check the jig for accuracy by nesting two dowels in the grooves. Their sides should touch.





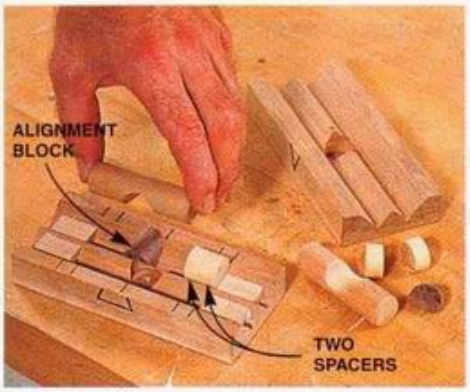
3 Assemble the drilling jig. Cut the V-groove block in half to make the top and bottom pieces of the drilling jig. Stack the pieces together and drill a 3/4-in.-dia. hole exactly in the center.

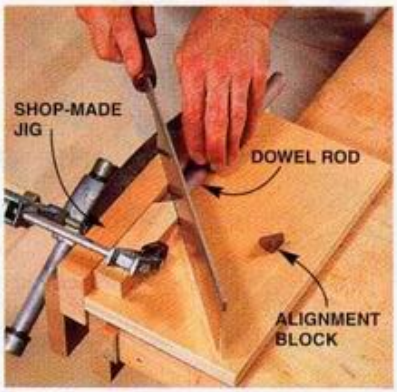
Cut four stop blocks from the triangular waste pieces left over from ripping the grooves. The puzzle pieces and spacers are locked between the stop blocks when you set up the jig (see Step #4, below). For a tight fit, first glue block A to the jig. To position block B, place one of your puzzle pieces and both 3/8-in. spacers in the jig and butt them up to block A. Then butt block B to all three pieces and glue it to the jig.



4 Drill center notches in three pairs of puzzle pieces by nesting them between spacers in the drilling jig (photo, page 83).

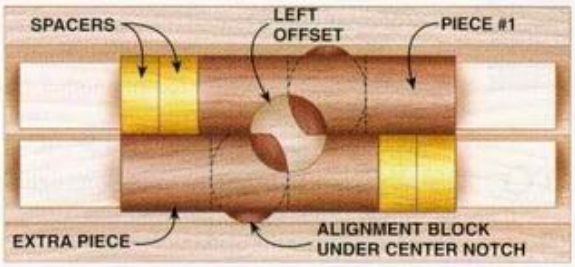
In this set-up, the spacers locate the puzzle piece in the exact center of the jig. In the next steps, the spacers will be shifted around so you can drill notches that are offset from the center by exactly one-half the diameter of the dowel.





5 Insert alignment blocks into the jig for drilling the second set of offset notches. The alignment blocks turn the puzzle pieces 90 degrees to the center notch.

Cut these V-shaped blocks with a shop-made mitering jig. You'll need one block for each puzzle piece. Note: These blocks are too small to cut safely with a power tool.



6 Arrange the drilling jig for offset notches. Drill piece #1 and the extra piece as shown above to make a left offset notch. Drill pieces #2 and #3 the same way.

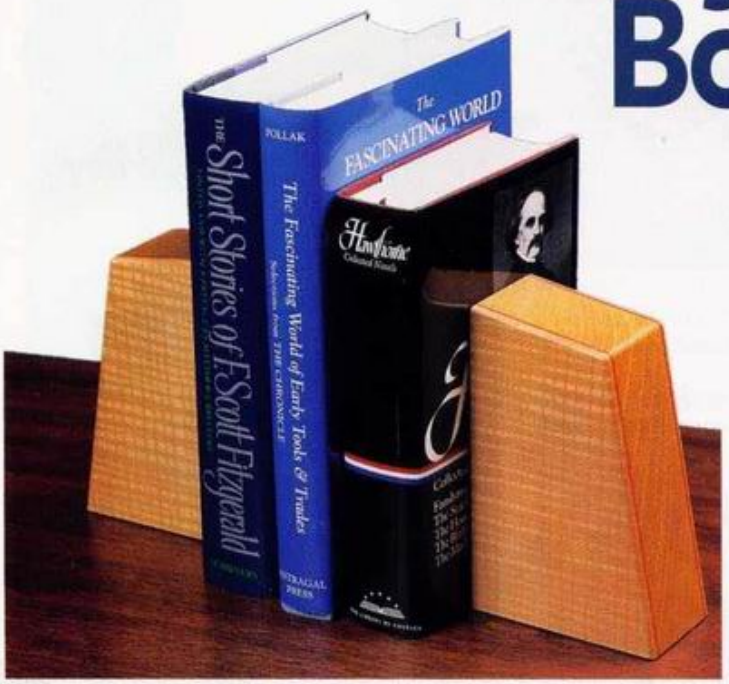
Then, shift the spacers to the opposite ends and drill a second set of *right* offset notches in pieces #2 and #3. Drill pieces #4 and #5 with the spacers in their new positions (see left photo in Step 5).

7 Assemble the puzzle. The numbers used to identify the pieces also represent the order of assembly. This puzzle is so fiendish that we suggest you lightly write the number of each piece on the end to help you figure it out!

If the pieces fit too tightly, you can enlarge the notches with sandpaper wrapped around a dowel.

This is a new and improved version of a previously published American Woodworker story. Puzzle design by John Cauley.

Hefty Bookends



Resaw your own veneer to hide the lead shot inside.

Fill the holes in both sides of the core pieces with a mixture of lead shot and two-part epoxy resin. Be careful not to overfill the holes.

Got a small chunk of figured wood that you'd like to show off? Resaw it into thick veneers and make a pair of matching bookends. They're laminated to conceal holes filled with lead shot. Although these blocks look light, they're actually heavy enough to support a row of large books.

You'll need a bandsaw to cut your figured wood, a large-diameter Forstner bit to drill the holes for the lead shot and a router with a flush-trim bit to even up the bookend's layers.

Making the Laminations

Each face of these bookends has two layers of laminations. The outer layer is resawn from a piece of solid, figured wood. The inner layer is a contrasting color composed of thin sheets of dyed veneer glued one on top of another (see Sources, page 89).

To make the outer layer, smooth the faces of a 3/4-in. thick, 4-in. wide and 13-in.-long figured hardwood block. Set the fence of your bandsaw 1/8-in. away from the blade and resaw both faces of the block, making two pieces of 1/8-in.-thick veneer (see AW #81, August '00, page 46 for more information on resawing). Sand the rough side and cut the pieces in half to make four pieces each about 6-1/2-in. long.

Make the inner layer by building up two or three thicknesses of dyed veneer. Use a veneer saw (see Sources, page 89) to cut the veneer into 4-in. wide by 6-1/2-in.-long pieces. Make two cauls, the same sizes as the pieces of veneer, from 3/4-in. plywood or MDF. Glue the veneer between the cauls. To keep the veneer layers from sticking to the cauls, separate them with newspaper.

Making the Core

For the core, select a piece of solid wood that's close in color to the figured wood you used for the outer layer. Saw the wood into two matching pieces (Fig. A). Then drill a large hole in each

side of both pieces with a 2-in.-dia. Forstner bit (Fig. B).

Fill the holes with a mixture of lead shot and epoxy to add weight to the bookends. Pre-measure your lead shot by pouring it into the cavity. (Lead shot is available at gun shops.) Then mix the lead with two-part epoxy glue and spoon it into the hole. Be sure not to overfill the hole.

Laminating the Core

Cut the figured wood and colored-veneer laminations so they're slightly larger than the core pieces. An overhang of about 1/8-in. all around will allow for the laminations to slip a bit when you glue them to the core.

Use the cauls you made for gluing the colored veneer together to laminate one outer layer and one inner layer to each face of the core blocks. After each face is glued, trim the overhanging laminations with a bottom-bearing flush trim bit in your router.

Round the edges with a small-diameter round-over bit or a block plane and apply a finish. Finally, add felt circles to the bottoms to protect the surface on which these heavy bookends will sit.

This is a new and improved version of a previously published American Woodworker story. Bookend design by Alan Peters.

FIG. A Bookmatched Figure
Create mirror images on the top of your bookends by cutting both core pieces from a single piece of wood. Lay out the angled sides of the blocks with a compass.

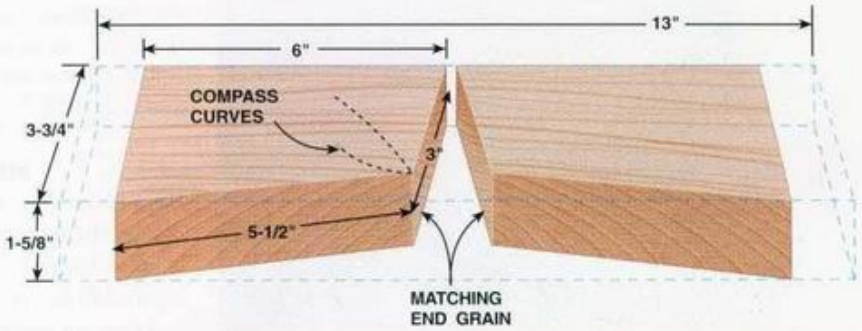
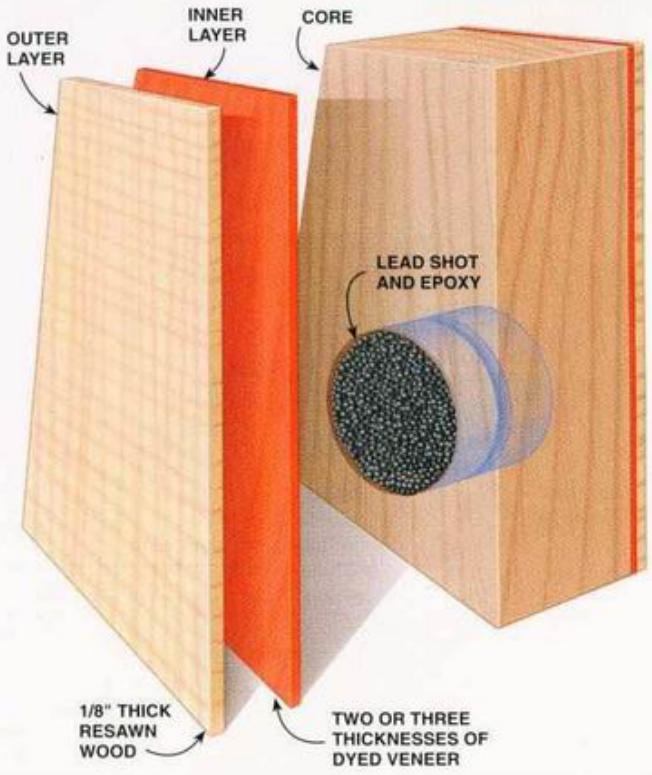
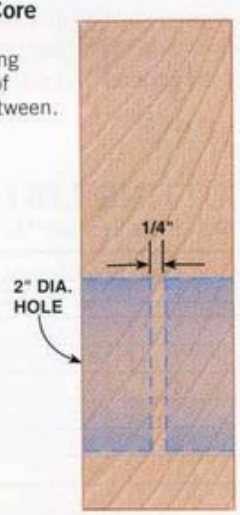


FIG. B Exploded View
Cover the lead-filled core with two layers of veneer. Resaw your own figured wood to make the outer layer. Laminate two to three sheets of dyed veneer to make the inner layer.



Side View of Core
Drill holes from both sides, leaving a small section of solid wood in between.



Three Puzzling Pieces

Magic Coin Bank

CAUTION: COINS MAY PRESENT A CHOKING HAZARD FOR CHILDREN UNDER THREE.

Kids love secrets—and so do adults! This small bank with its sneaky false drawer is a kick to make. You won't need any fancy mechanism to make the drawer; just a few brads. Start building your nest egg; the coin slot is large enough to fit the new Sacagawea Golden Dollar!

Making the Box

Cut the four sides of the bank box from 1/4-in.-thick wood (see Sources, page 89). Cut out the drawer opening with a dado set. You can join the sides of the box any way you want; dovetails, box joints, even a nailed and glued butt joint will do. Glue the box together and plane or sand all the edges and faces even.

Making the Drawer

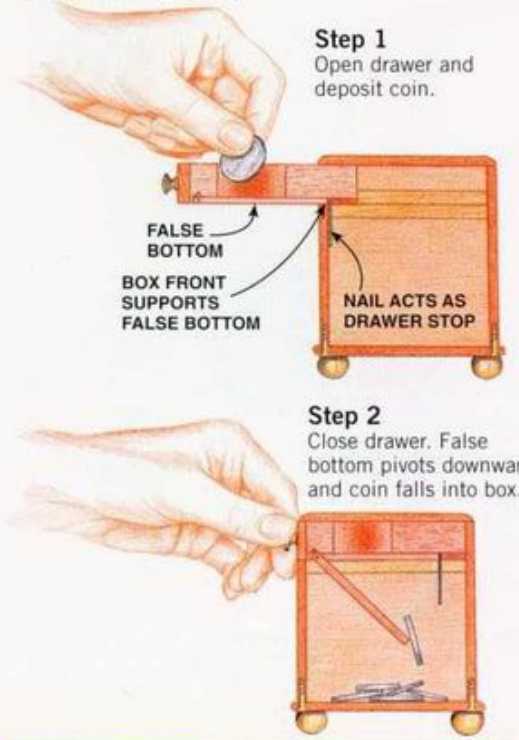
Use a 12-in.-long, 3/4-in.-thick piece of hardwood for the drawer. The finished drawer is actually much shorter, but the blank will be easier to mill as a long piece. Cut the blank to width, drill the coin hole in the middle with a Forstner bit and then cut the dado that holds the false bottom. Cut a notch with a chisel for the bottom to pivot in. Then cut the blank to length.

Make the false bottom from the same wood as the drawer. Attach it to the drawer with small brads. Cut the drawer front to size and glue it to the end of the drawer.

Hanging the Drawer

Make the two drawer runners as one piece about 12-in. long. (One long piece is safer to machine than two short ones.) Cut the rabbet, then cross-cut the runner into two pieces to fit your box. Apply glue to the ends of one of the runners and position the runner in the box.

FIG. A How It Works



CUTTING LIST

Overall Dimensions: 3-7/8"H x 5-5/16"W x 3-5/16"D

Part	Name	Qty.	Dimensions
A	Front and back	2	1/4 x 3 x 5
B	Sides	2	1/4 x 3 x 3
C	Drawer	1	3/4 x 1-5/8 x 2-1/2
D	False Bottom	1	1/8 x 1-1/4 x 2
E	Drawer front	1	1/4 x 3/4 x 1-5/8
F	Runners	2	1-1/2 x 1-1/2 x 2-1/2
G	Top	1	1/4 x 3 x 5
H	Bottom	1	1/4 x 3-5/16 x 5-5/16

Hardware: 1 knob and eight #4, 5/8" L FH screws.

After the glue is dry, use the drawer as a guide to position the second runner. First, apply glue to the ends of the runner. Then, wrap the drawer in a piece of paper to act as a shim, and insert it and the runner into the box. Squeeze the runner tight to the drawer, and remove the drawer and paper. The paper shim ensures a smooth sliding drawer.

Pre-drill a small hole and tap a small finish nail into the underside of the drawer to act as a drawer stop. Hold the nail with a pair of pliers.

Attaching the Top and Bottom

Once you're sure the drawer works, glue the top on the box. Drill pilot holes and screw the bottom in place. To empty the bank, unscrew the bottom.

Epoxy the brass feet and drawer knob (see Sources, below) so a child can't unscrew them. These small parts are a potential choking hazard. *AW*

This is a new and improved version of a previously published American Woodworker story. Coin bank design by Frank Klausz

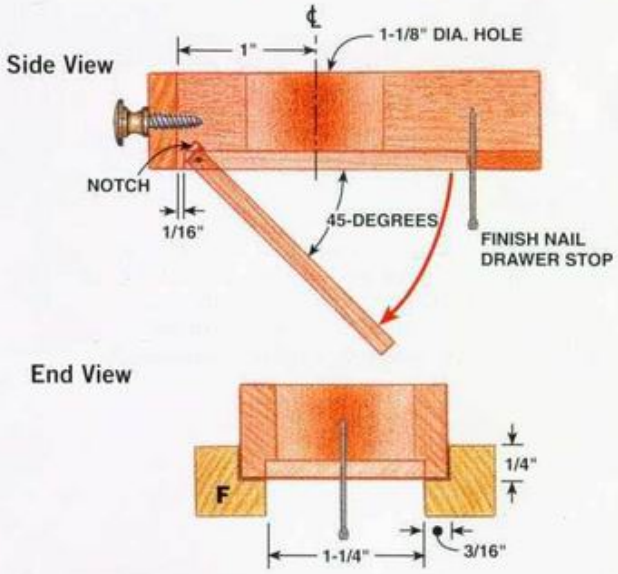
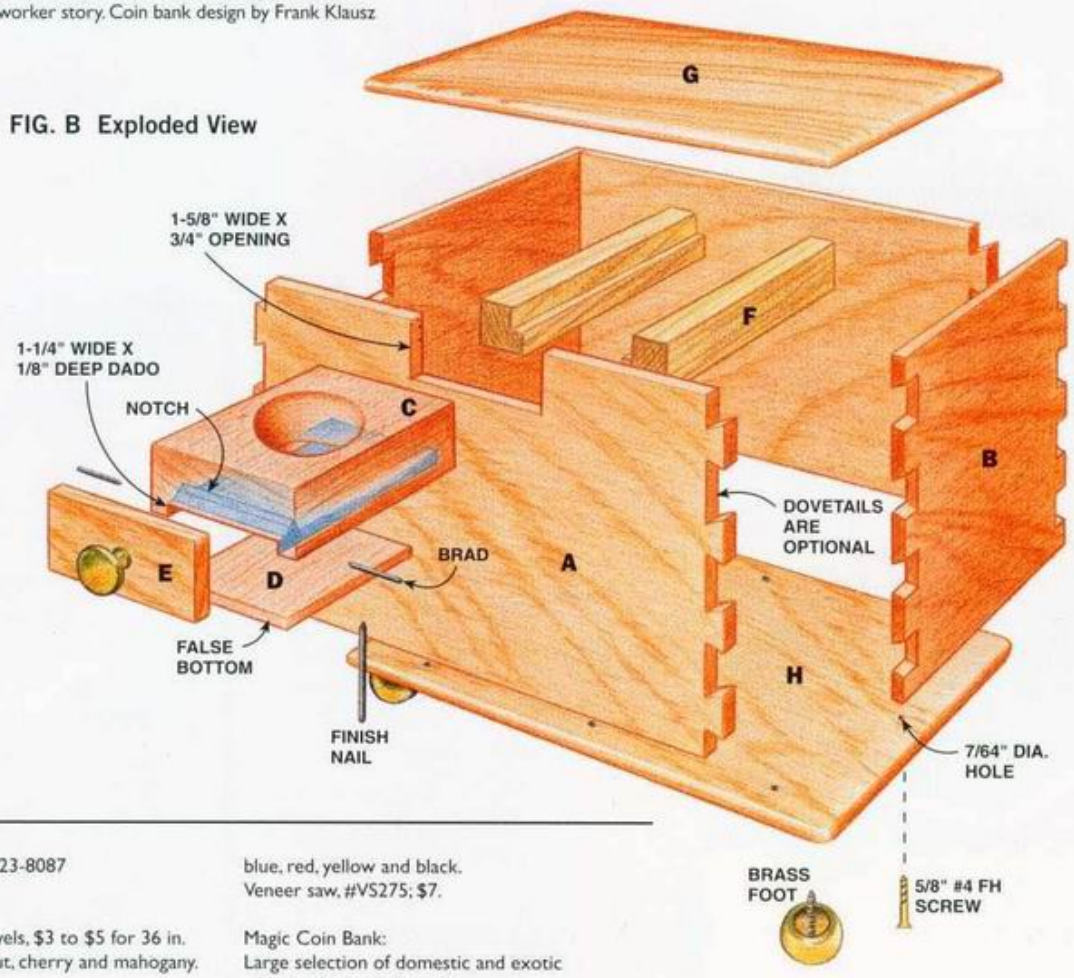


FIG. B Exploded View



Sources

Constantine's, (800) 223-8087

Puzzle:
3/4-in.-hardwood dowels, $3 to $5 for 36 in. Available in oak, walnut, cherry and mahogany.

Bookends:
Large selection of domestic and exotic veneers. Dyed veneers; $2.75/sq.ft. Available in green, blue, red, yellow and black.
Veneer saw, #VS275; $7.

Magic Coin Bank:
Large selection of domestic and exotic 1/4-in.-thick solid wood.
Brass box feet, #JB423; $7 for a set of 4.
Small brass drawer knob, #64C4A; $1 each.

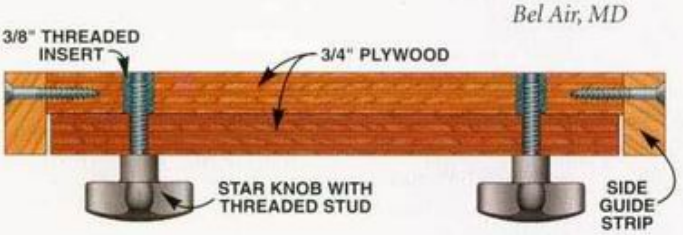
Edited by **Randy Johnson**

Small Shop Tips

Drawbridge Outfeed Roller

In my small shop, most of my tools are on mobile bases. The problem I ran into was my outfeed roller required readjusting every time I brought out my tablesaw. I solved this irritation by rigging an outfeed roller directly to my saw with chain and screw hooks. Because it adjusts in and out and telescopes up and down, the roller support can accommodate almost any length material, and it folds up for easy storage. Best of all, the roller stays true with the saw even on my rough floor. Because my saw is so light, I screwed its legs to my homemade mobile base and added a concrete block to keep it from tipping forward. I put feet on the front side of the base to keep the base from rolling during use.

James Bascom
Bel Air, MD



Source

Woodworker's Supply, (800) 645-9292
#801-127, 22-in. roller; $8.75 each.
#95-505, roller brackets; $3 per pair.
#862-249, star knob with 3/8-in. threaded stud; $1.45 each.
#866-994, 3/8-in. threaded inserts; 65 cents each.

Stable Lumber Rack

My lumber rack is always stacked high with project leftovers. Here's my trick for keeping a wobbly stack tipped in the right direction: I tack a wood shim onto each rack support so the stacked lumber will lean slightly back into the rack. This keeps any leaning towers of lumber from toppling the wrong way!

Anne Soley
Lansing, MI

Shims are available at hardware stores and home centers for about $2 a pack.

ART DIRECTION: VERN JOHNSON AND BARBARA PEDERSON

Sneaky Sheet-Stock Storage

I built my lumber rack about 9 in. out from the wall. This allows me to store sheet goods behind the rack without losing any more wall space. The concrete floor in my garage shop gets damp so I protect the edges of my sheet stock by laying a strip of plywood on the floor. The only downside is I have to move my car and the compressor to get anything larger than 4 ft. out. But hey, that's life in a small shop!

Peter Lundebjerg
Greeley, CO

Tablesaw Wings

I use the space under my contractor's saw to keep my accessories handy. I made "tablesaw wings" by removing the base from my saw and bolting a couple of 4-ft. 1x4s in between the saw legs and the upper housing. I fastened 12-in. x 24-in. trays to the ends of the 1x4s that hang out either side of the saw. The trays hold things like push sticks, inserts, featherboards and the miter gauge.

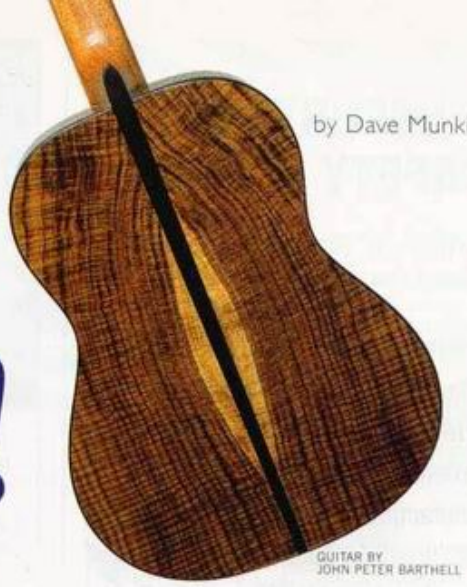
Jay A. Young
Silver Spring, MD

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

Spectacular Wood and Where to Get It

Great Wood!

by Dave Munkittrick



GUITAR BY JOHN PETER BARTHELL

Western Black Walnut

Western or California black walnut (*juglans hindsii*) is a unique, easy-to-work hardwood that's highly prized by furniture and instrument makers worldwide. Unlike the more common American black walnut (*juglans nigra*), western black walnut often yields wide stock (some with dramatic figure) and has warm reddish colors ranging from brown to purple. The wider stock is a result of the ideal growing conditions found along the West Coast of the United States where the trees often reach 4 feet in diameter.

Western walnut's family tree is a bit of a mystery. It's thought to be a cross between California-grown Claro walnut and a Mediterranean walnut species brought over by the Spanish, or American black walnut introduced by settlers from the East. Because western walnut trees were introduced, there are no natural stands; all the trees are basically "yard trees" planted by early settlers. Thus, harvesting the trees doesn't contribute to the depletion of western forests.

Goby Walnut Products has been cutting western black walnut for 26 years, rescuing trees that would otherwise go to waste. They carefully mill and dry their own lumber using a dehumidification kiln that preserves the natural colors in the wood. You can order your walnut from Goby over the phone. The cost of the wood varies from $1 to $20 a bd. ft. (plus shipping) depending on size, quality and figure.

Note: Color and figure varies from tree to tree and board to board. Expect variations in the wood you order. *AW*

Source
Goby Walnut Products
(541) 926-1079
www.gobywalnut.com

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

A 20 in. x 40-in. crotch-cut slab of 5/4 western black walnut with a natural oil finish ($120). Note the beautiful feather pattern that flows into the fiddle-back figure.

ART DIRECTION: VERN JOHNSON • PROJECT PHOTO COURTESY OF GARY GOBY • WOOD PHOTO: MIKE HABERMANN