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101

BEST-EVER

# Workshop Projects

2002

**31** storage ideas

**20** homemade tools

**13** work supports

**27** handy jigs

plus many more!



Heirloom-quality tools you'll treasure for years

Create storage for all your tools and accessories



from the editors of **WOOD** magazine



**Build a super space-saving sawhorse**

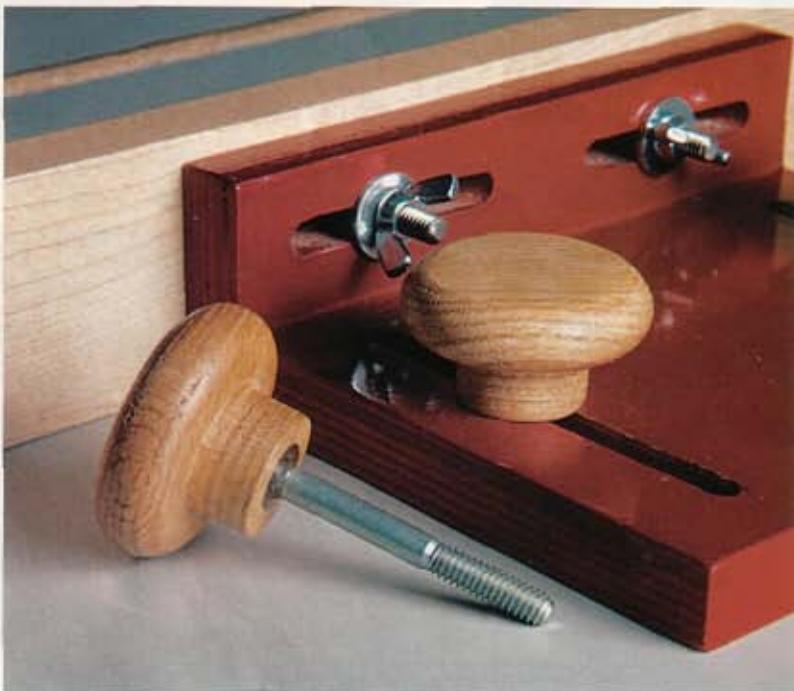
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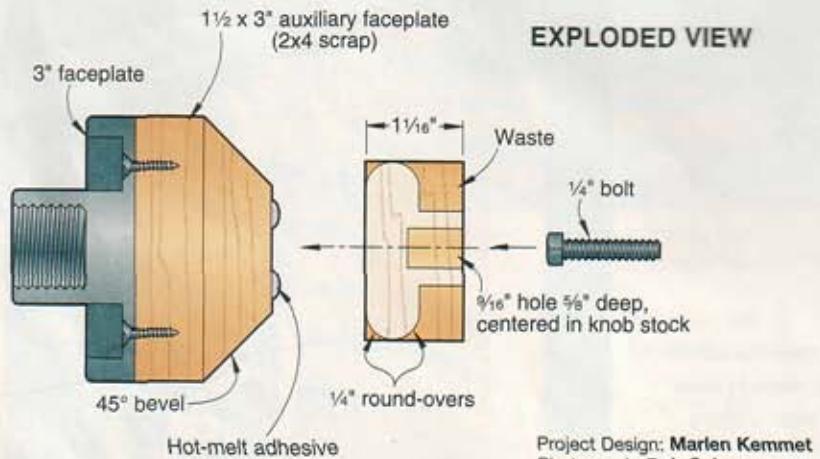
# thrifty hold-down knobs

Turn to the lathe for savings.



You can sink a lot of money into knobs with threaded studs, such as those used on the router-table fence shown above. "Why not make them?" we asked ourselves the other day when we needed four knobs for a project.

To make your own knobs, start by mounting a piece of oak to an auxiliary faceplate, as shown below. Then, using a skew or small gouge, turn the knob to shape and sand smooth. Next, drill a  $\frac{1}{16}$ " hole with a Forstner bit, and epoxy a  $\frac{1}{4}$ " hexhead bolt into the hole. Before epoxying, check that the bolt fits the mating T-nut and that the exposed thread will be long enough to go through the stock and into the T-nut. Our knobs measured 2" in diameter. ♣



EXPLODED VIEW

Project Design: Marlen Kemmet  
Photograph: Bob Calmer  
Illustration: Jamie Downing

Better Homes and Gardens®

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# saw-blade selector

Slotted holder keeps your blades in sight and ready.

Wall-mount this handy holder near the stationary saws in your shop, or, if you like, place it on a convenient benchtop. You'll find it the ideal storage project for organizing an assortment of saw blades and a dado-blade set.

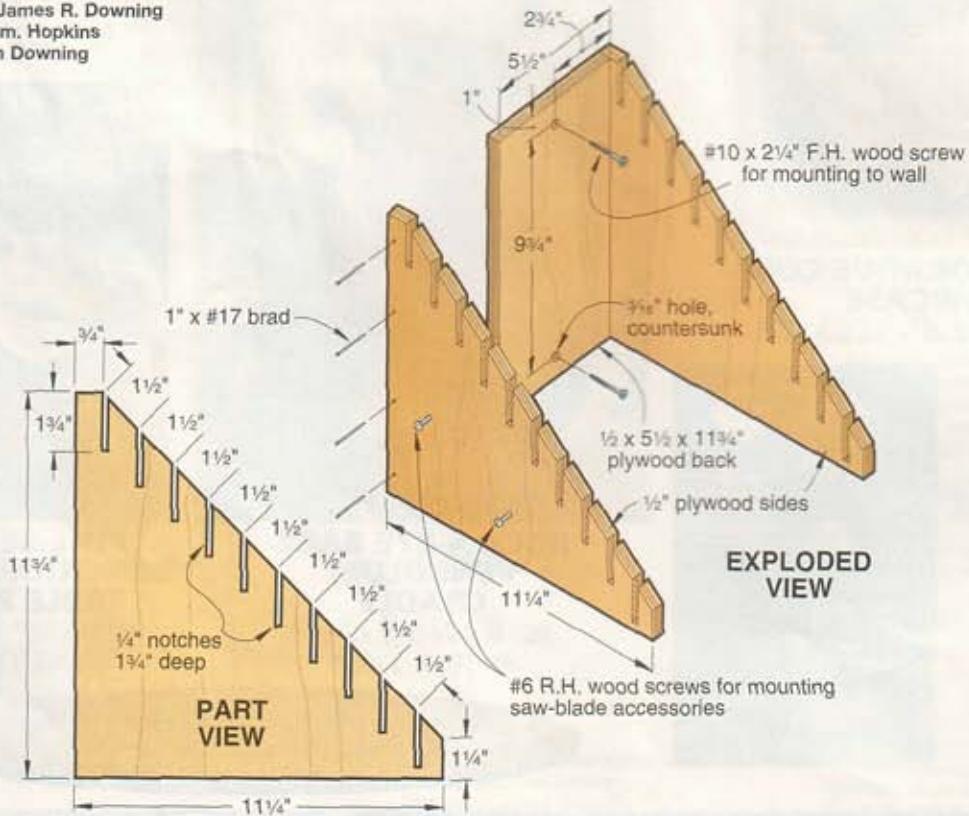
To make the notches, cut the side pieces to shape, and mark the notch locations. Then, mount a  $\frac{1}{4}$ " dado blade to your tablesaw, tilt the blade  $45^\circ$  from center, and using your miter gauge with an attached auxiliary wood fence for support, make the cuts. 



Project Design: James R. Downing

Photography: Wm. Hopkins

Illustrations: Kim Downing



# stay-put pipe clamp pads

Forget scrapwood. Once you try these easy-to-make pads, you'll want to crank out a pair for every pipe clamp you own.

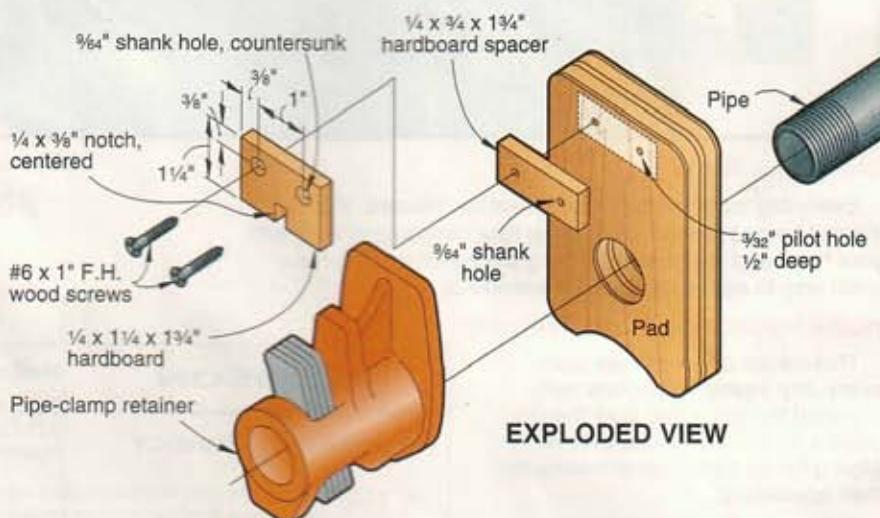
Trying to hold a scrapwood pad in place while snugging up a pipe clamp can prove next to impossible. And, the small base on most pipe clamps also makes them prone to tipping over. Our easy-to-make pipe-clamp pads solve both of these annoying problems.

The pads shown here fit a Pony-brand  $\frac{3}{4}$ " pipe clamp, but you can adapt the design to fit other brands and sizes. For a  $\frac{1}{2}$ " pipe clamp, bore a  $\frac{1}{8}$ " hole. The size, shape, and location of the retainer notch also may vary.

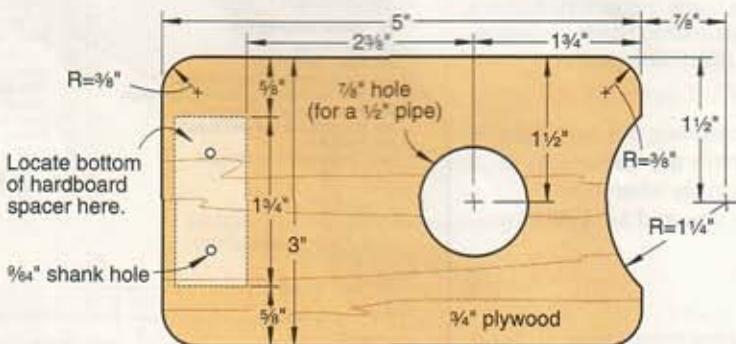
To start, cut a  $\frac{3}{4} \times 3 \times 24$ " piece of plywood, then lay out the shape and hole locations for four pads, where dimensioned on the pattern below right. Cut the pads to shape, and then drill the holes where marked. Sand or rout a slight round-over on all the edges. Cut the hardboard spacers and retainers to size, attach them with screws as shown, and you're all set to clamp down on your next project. ♦

## PAD PATTERN

Note: Enlarge 200% to make full-size pattern.



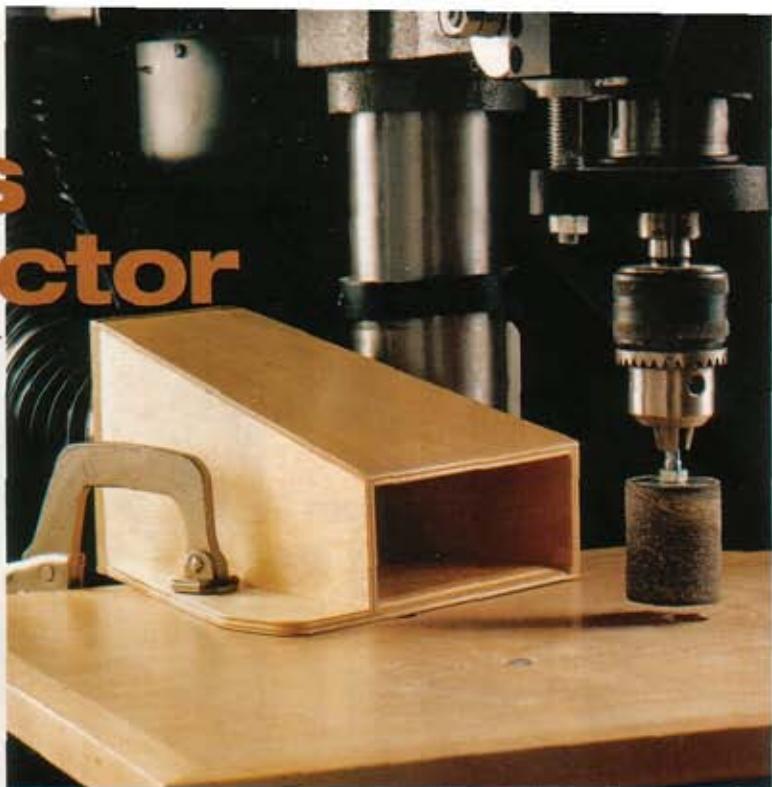
EXPLODED VIEW



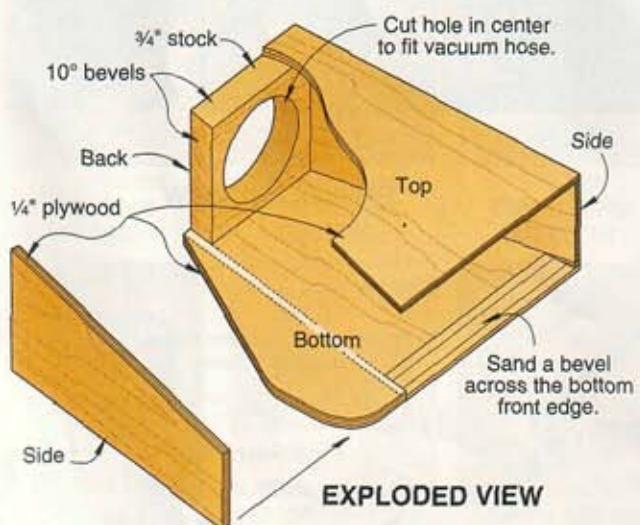
# drill-press dust collector

Airborne debris doesn't stand a chance with this device.

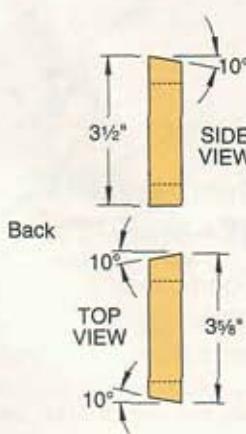
Wood chips and sawdust don't stay around long when you hook up this clamp-down collector to your shop vacuum or dust-collection system. You'll breathe a lot easier and cut down cleanup time, too. Use the Exploded View and Parts View drawings to construct the collector from  $\frac{1}{4}$ " plywood and  $\frac{3}{4}$ " stock. Cut or sand  $10^\circ$  bevels across the top and sides of the  $\frac{3}{4}$ "-thick back, where shown below. To reduce sawdust buildup at table level, sand a bevel across the front edge of the bottom piece.



Project Design: James R. Downing  
Photograph: Hetherington Photography  
Illustrations: Kim Downing

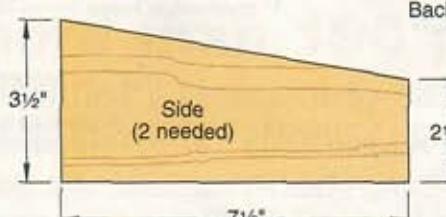


EXPLODED VIEW

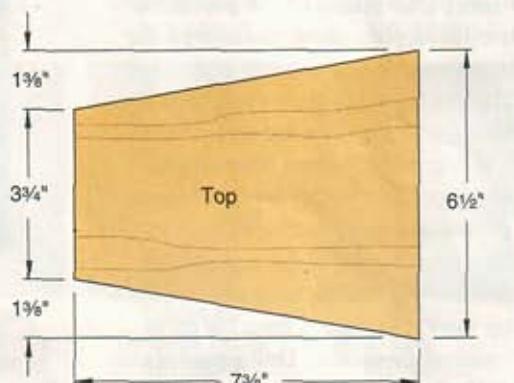


SIDE VIEW  
Back

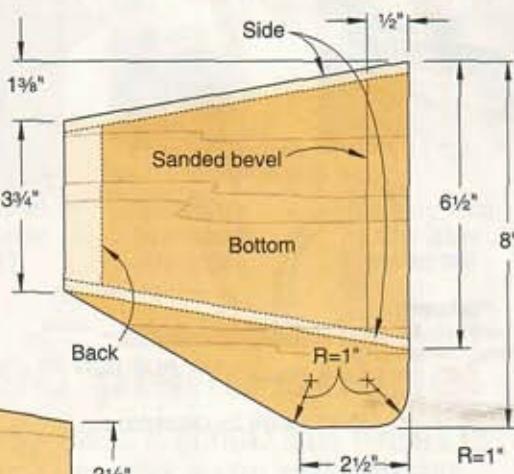
TOP VIEW  
Back



Side (2 needed)



Top



Sanded bevel  
Bottom

PARTS VIEW

# adjustable angle jig

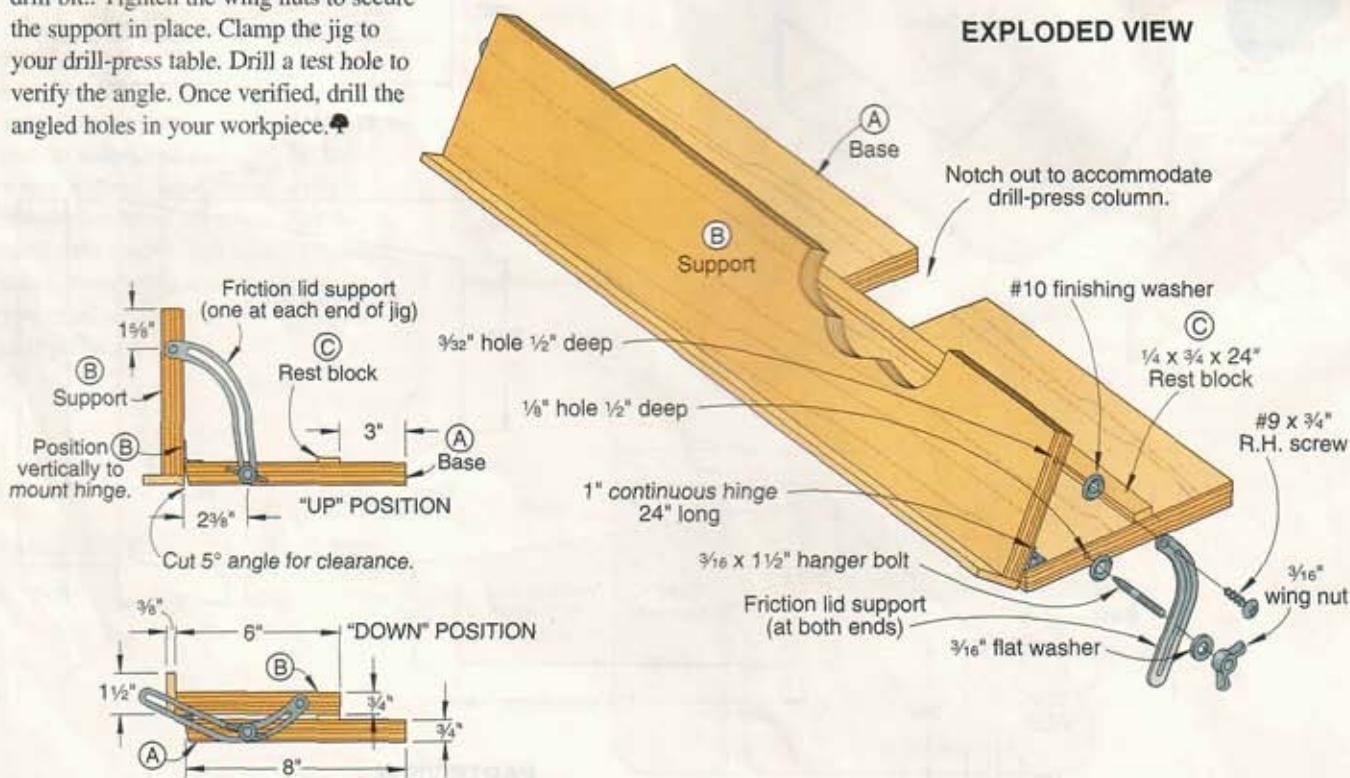
Make this simple tool for your drill-press table and you'll never have to eyeball the angle of a hole again.

Build the jig as shown and dimensioned on the drawings. The base (A) must be longer than your drill-press table so the friction lid supports (one at each end of the jig) clear the table ends. Use a piano hinge to secure the adjustable support (B) to the plywood base (A). A pair of friction lid supports allow you to angle the support and lock it securely in position. The rest block (C) allows you to position the support parallel to the drill-press table.

To use the jig, loosen both wing nuts so the support can swivel freely. Then, using a T-bevel or an adjustable triangle to set the required angle of the support to the drill bit. Tighten the wing nuts to secure the support in place. Clamp the jig to your drill-press table. Drill a test hole to verify the angle. Once verified, drill the angled holes in your workpiece. ♦



EXPLDED VIEW



# storage ideas

## 5 great clamp ...

Solve your clamp-storage problems once and for all with one or more of our five custom holders. These clever wall-hung helpers not only keep all your clamps at arm's reach, they also look great doing it.

1. Spring-clamp holder
2. Bar-clamp rack
3. Locking C-clamp support
4. C-clamp rack
5. Handscrew-clamp organizer



# organizers

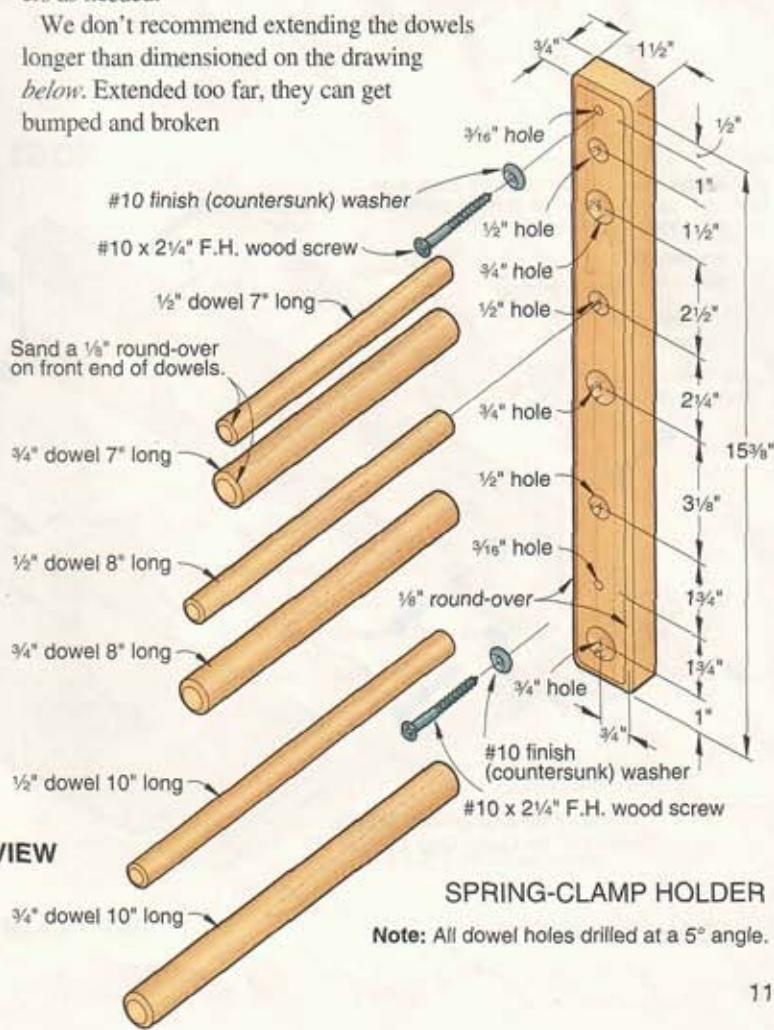
1

## Simple, sturdy, spring-clamp holder



A backboard with protruding dowels does the job for supporting 4", 6", and 9"-long spring clamps. If you've got a similar assortment of these clamps, the rack shown here should suffice. If you've got quite a collection, extend the board or make two or more holders as needed.

We don't recommend extending the dowels longer than dimensioned on the drawing below. Extended too far, they can get bumped and broken.



2

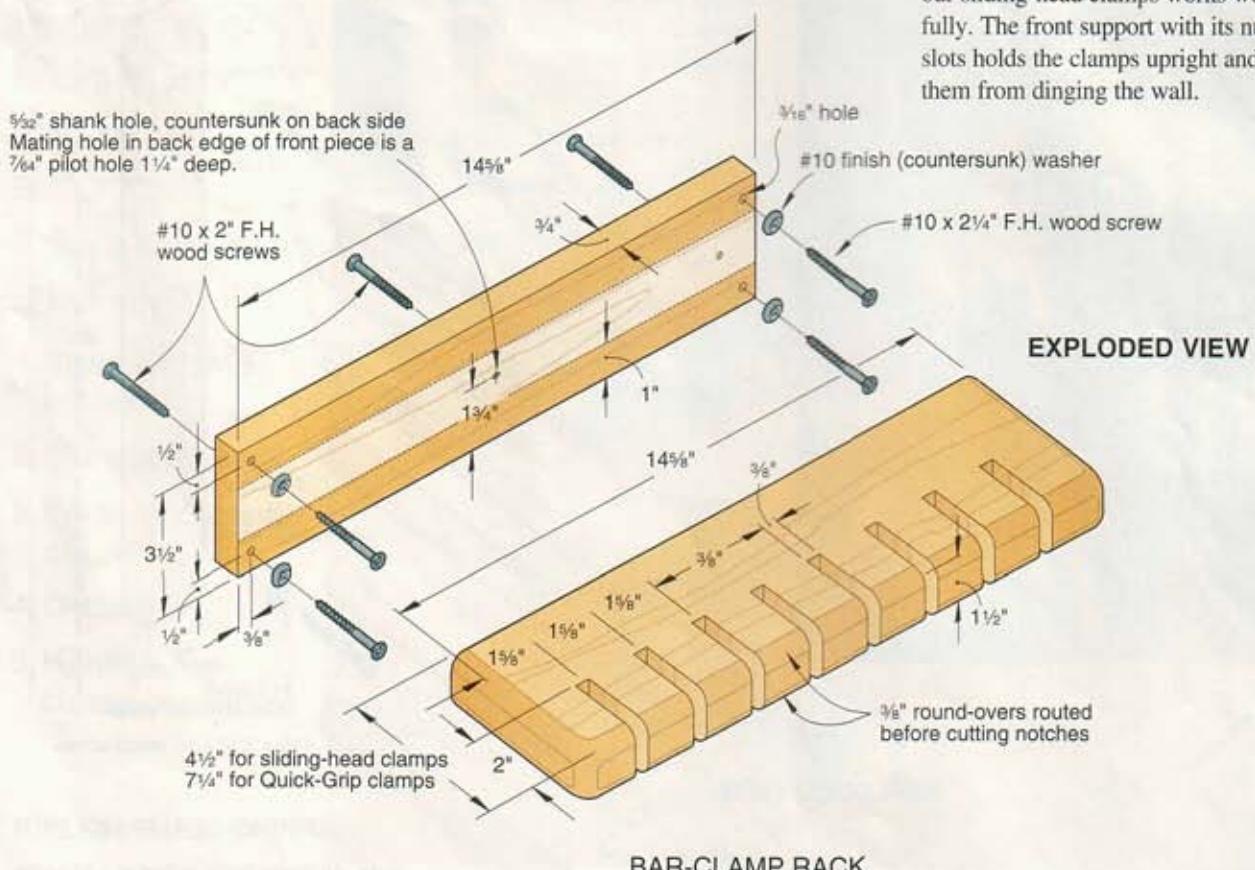
## Home for Bar clamps



The slots in this quick-and-easy holder allow you to store your sliding-head clamps in perfect order by simply resting the head on the horizontal support. Without the slots, you'd have to tighten the jaws to hold a clamp in place, and then loosen the jaws when you want to remove the clamp from the holder.

To make the slots, cut the horizontal support to shape, rout  $\frac{3}{8}$ " round-overs along the edges and corners, and mark the notches  $1\frac{1}{8}$ " on center. Mount a  $\frac{3}{8}$ " dado blade to your tablesaw, and raise the blade 2" above the saw table. Mount a wood extension to your miter gauge, and make the cuts where marked. As shown in the photo on page 10, we built and placed three racks end to end. You could also lengthen the two parts, and cut the number of slots needed to match your supply of clamps.

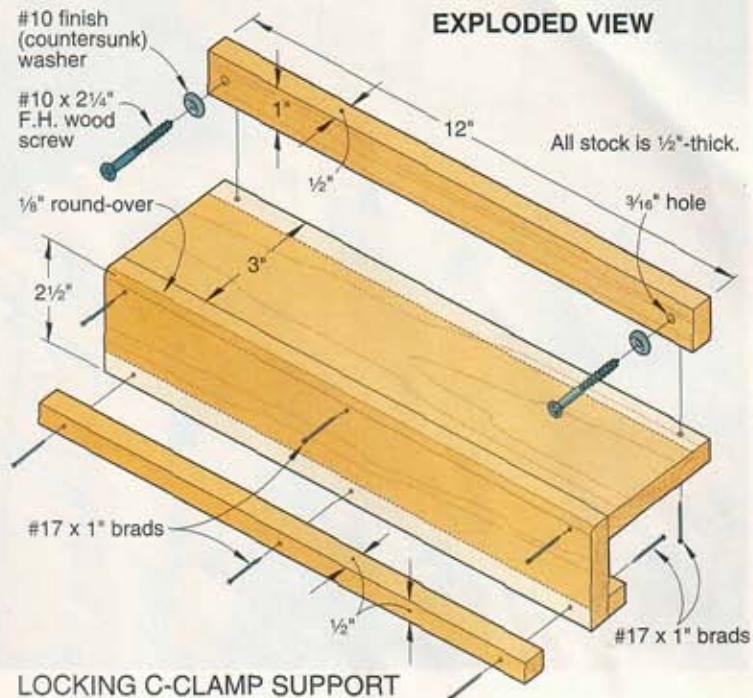
For Quick-Grip clamps, we found that an extended version (2 3/4" more from front to back) of the rack used to support our sliding-head clamps works wonderfully. The front support with its numerous slots holds the clamps upright and keeps them from dingng the wall.



### 3 Nifty support for locking C-clamps



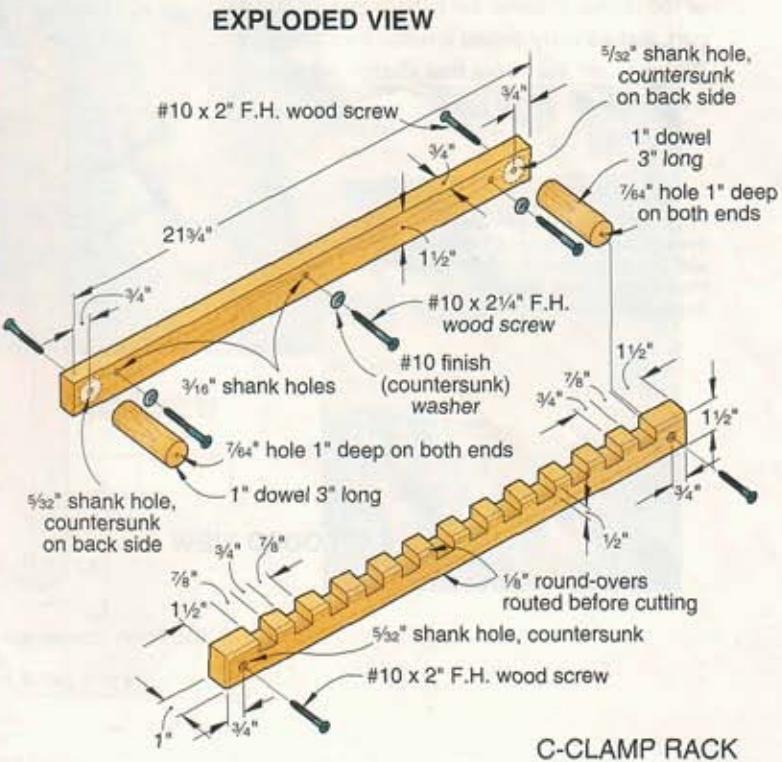
Projects often require clamping pressure applied several inches in from the outside edges for a good bond. When this happens, we turn to our locking C-clamps, the largest of which has a throat depth of over 15". To hang our collection of locking C-clamps, we found this screw-together support an organizer's dream.



### 4 All-in-a-row C-clamp rack



When the job calls for plenty of clamping pressure, no-nonsense C-clamps provide the answer. To hang and organize this type of clamp, build our four-piece wall-mounted hanger with its notched front support. The notches allow you to hang the clamps on the rack without having to tighten them.



## 5

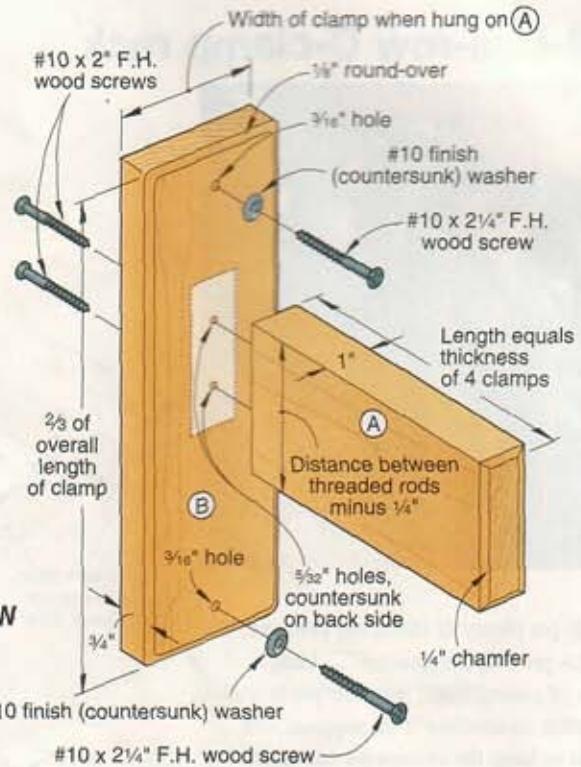
## Handscrew-clamp hangout



If there was ever a simpler organizer for handscrew clamps, we haven't seen it. Just cut the support extension (A) to fit between the threaded rods of the clamp, chamfer the outside end of the support, and securely mount it to the backboard (B). We've found that about four clamps per support is a full load.

Produced by Marien Kemmet  
Project Designs: Richard Tollesfson;  
Jim Boelling; James R. Downing  
Photographs: Wm. Hopkins  
Illustrations: Roxanne LeMoine

## EXPLODED VIEW



HANDSCREW-CLAMP ORGANIZER

# double-duty clamp/lumber rack

Great storage for both!

Lumber inventories in the typical home woodworking shop always vary. If you stock up on material to make a big project or a lot of holiday gifts, the stacks of lumber on the floor can become a traffic hazard. But if you build a permanent home for those planks, the space sits idle when your wood supply dips.

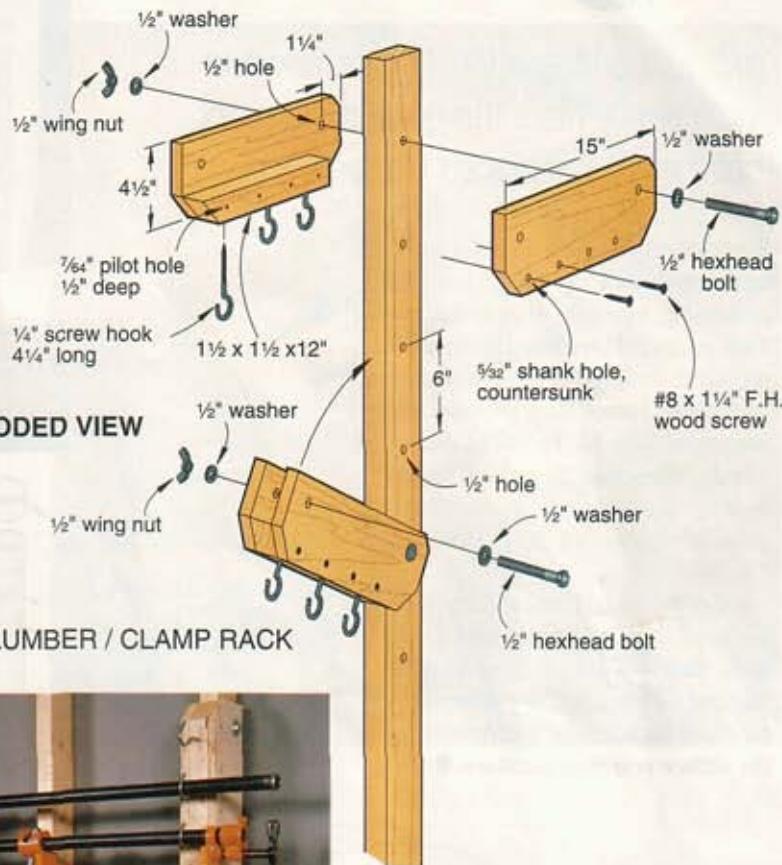
Here's one solution—foldable racks that can keep pipe clamps tucked against the wall, but drop for instant lumber storage when you need it.

With sides of  $\frac{3}{4}$ " plywood and center blocks of 2x material, these brackets are strong and easy to make. The rear pivot point rotates around a  $\frac{1}{2}$ " bolt that's placed in the wall stud or, if the wall studs are covered, in a 2x4 upright secured to the top and bottom of the wall. The series of holes (on 6" centers) in the stud or upright lets you position the brackets right where you need them, and also provides a locking bolt location when they're folded.

The clamp-holding feature requires just three  $\frac{1}{4} \times 4\frac{1}{4}$ " screw hooks threaded into each center block. They'll hold  $\frac{1}{2}$ " and  $\frac{3}{4}$ " pipe clamps, as well as clamp styles with square or rectangular bars. Find all the needed hardware at your local hardware retailer or home center. 

**Illustrations: Roxanne LeMoine**

**Photographs: Hetherington Photography**

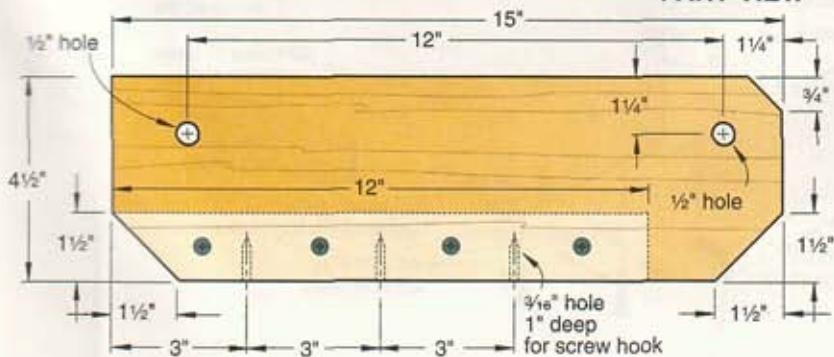


## **EXPLODED VIEW**

## LUMBER / CLAMP RACK



### PART VIEW



# scrollsaw-blade organizer

With just a little effort and scrapwood you'll finally have the perfect place for those easily misplaced blades.

Scrollsawers know that laying their hands on the right blade can be tricky and time-consuming, especially if these tiny cutting tools get mixed together. This handy little organizer, designed to separate and store your blades comes from *WOOD®* magazine reader John M. Turok of Coon Rapids, Minnesota. To build it, all you need is a small bit of scrap stock and some  $\frac{1}{2}$ "-diameter ( $\frac{5}{8}$ " O.D.) CPVC pipe and caps.

For still more convenience, drill a few extra holes in a rack top to hold scrollsaw tools, such as Allen wrenches. Consider labeling the tubes for easy reference. You can hang the unit on a wall or set it on a flat surface near your scrollsaw. ♣



## **EXPLODED VIEW**

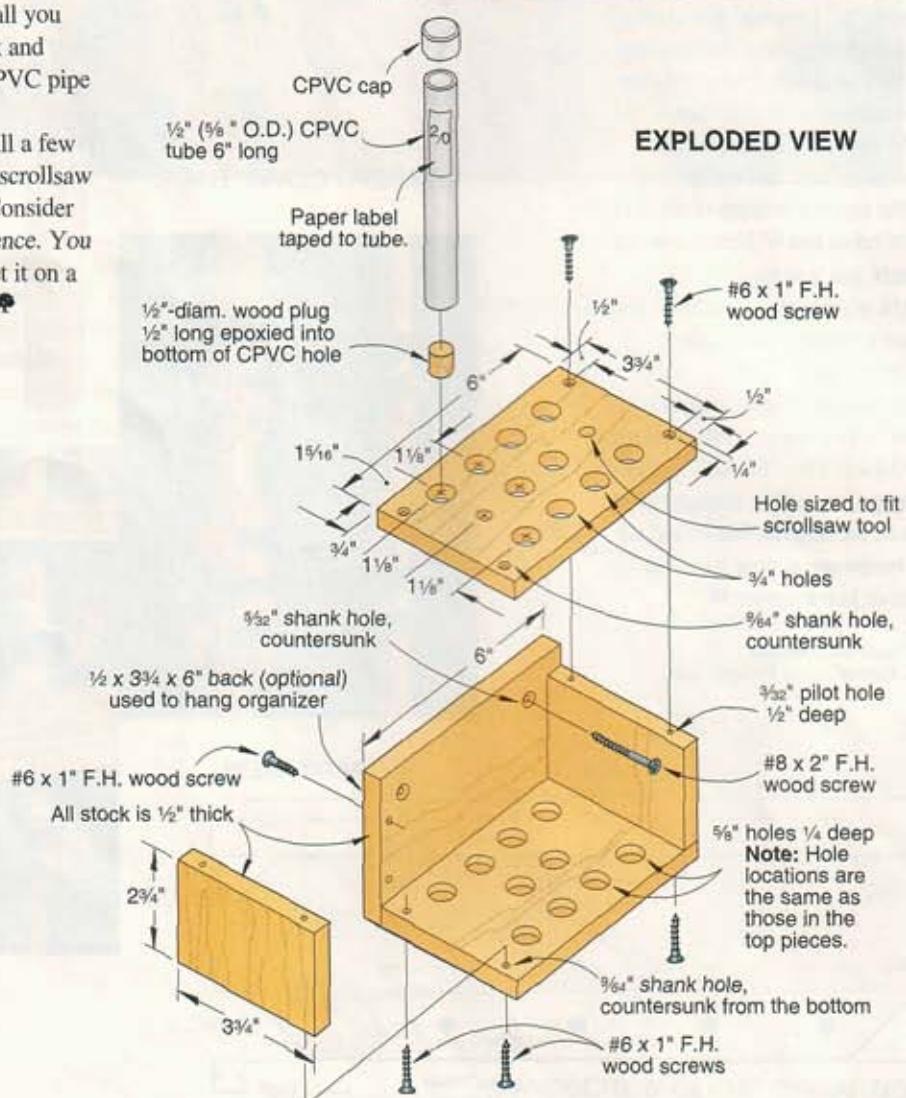


Illustration: Jamie Downing  
Photograph: Wm. Hopkins

# scrollsaw-blade drawer

Make this fabulous little storage unit with common cove moldings available at any home center.

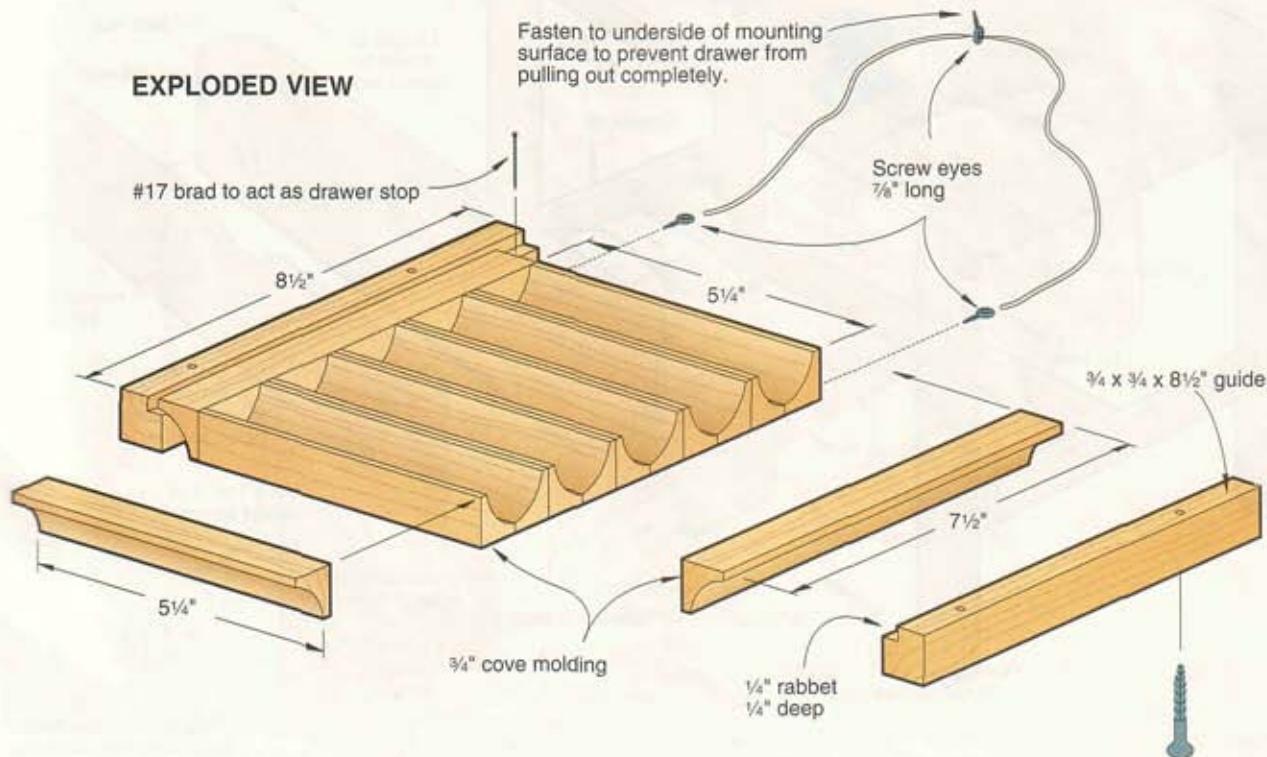
Tired of constantly fussing around with your scrollsaw blades? With this clever helper made from common cove moldings, you can easily retrieve blades by reaching in with a finger and sweeping the blades up along the curved edge of each hollow.

To build the drawer, glue and clamp the cove pieces together. Then, screw the guides underneath your bench or scrollsaw stand. A string keeps the drawer from sliding out too far, and a brad nailed to one guide stops the drawer flush with the front of the bench. ♣

Project Design: James R. Downing  
Photograph: Hopkins Associates  
Illustration: Roxanne LeMoine



## EXPLODED VIEW



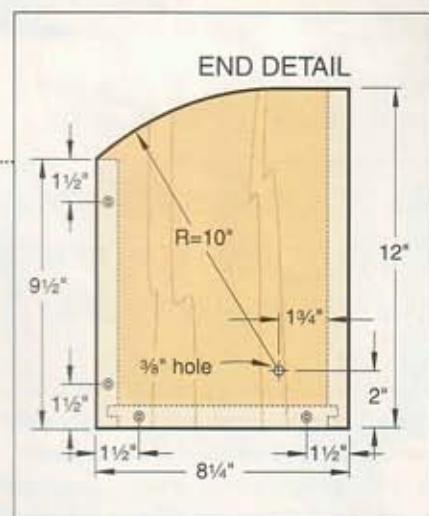
# **workbench tool crib**

Keep power tools out of sight and out of the way, yet right at hand when you want them, with this easy-to-make workstation helper.

To store his tools close at hand, reader Donovan Nagel of Madison, Wisconsin, designed and built this flip-down tool crib that neatly secures in place beneath the benchtop. He stores power tools in it, but you can use it to suit your needs.

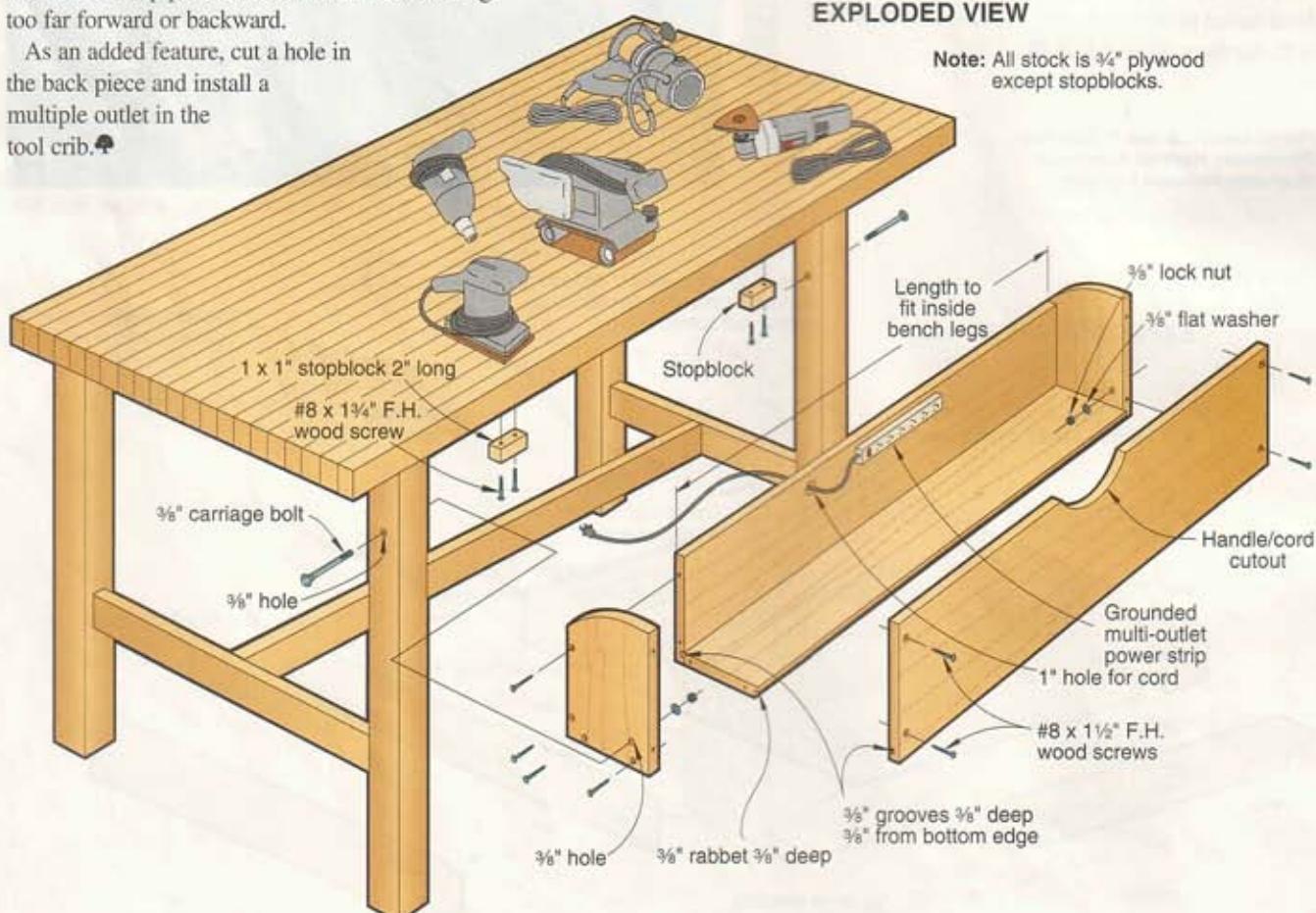
Simply build the crib as shown to fit between the legs of your workbench. Fasten it in place with two  $\frac{3}{8}$ " carriage bolts. To put your crib into action, simply pull on the handle cutout and swing it out. A pair of stops screwed to the bottom of your workbench help prevent the crib from ever falling too far forward or backward.

As an added feature, cut a hole in the back piece and install a multiple outlet in the tool crib.



#### **EXPLODED VIEW**

**Note:** All stock is  $\frac{3}{4}$ " plywood  
except stopblocks.



Project Design: Donovan Nagel  
Illustrations: Kim Downing

# simple saw rack

Hang up your saws safely and readily at hand.

Tired of hanging your handsaws on peg-board hooks or worse, nails? If so, dress up your shop with this sturdy maple organizer. As dimensioned on the drawing, we glued  $\frac{1}{8}$ "-thick spacers between the supports for regular handsaws and  $\frac{3}{8}$ "-thick spacers for backsaws. Then, we glued the top between the ends and on top of the support strip. For safety, hang all of your saws with the teeth facing the wall. 

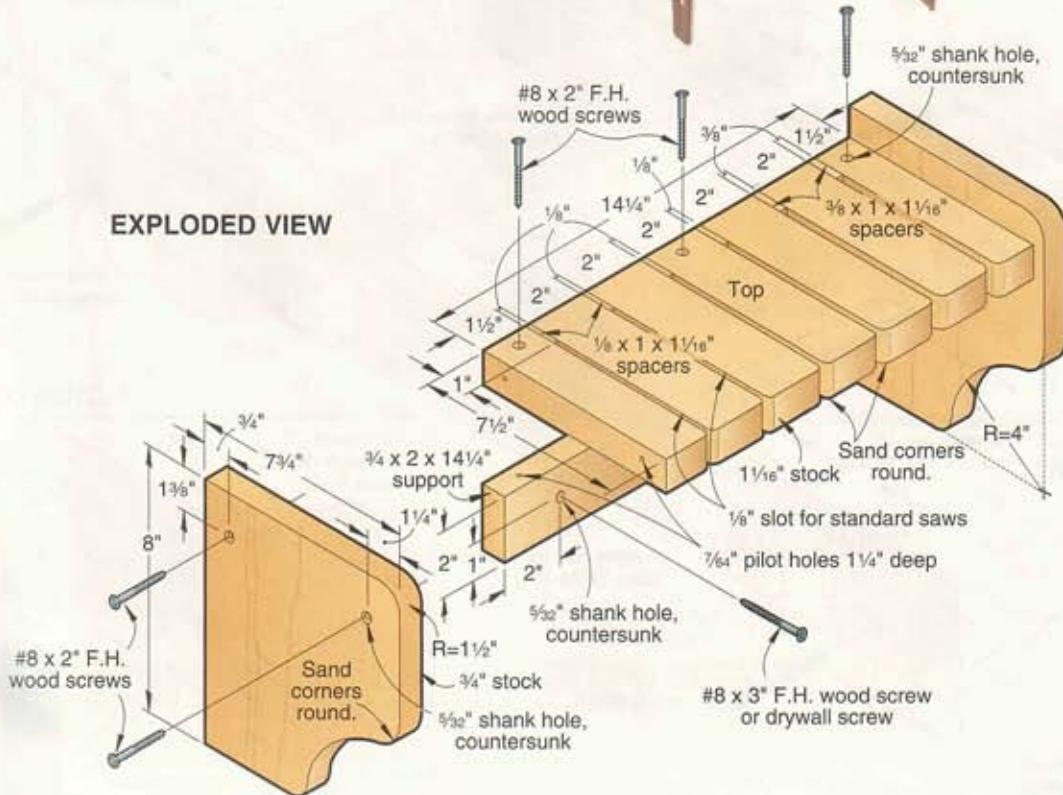
Project Design: Merwin Snyder

Photograph: Wm. Hopkins

Illustration: Jamie Downing; Mike Henry



EXPLODED VIEW



# ready wrench rack

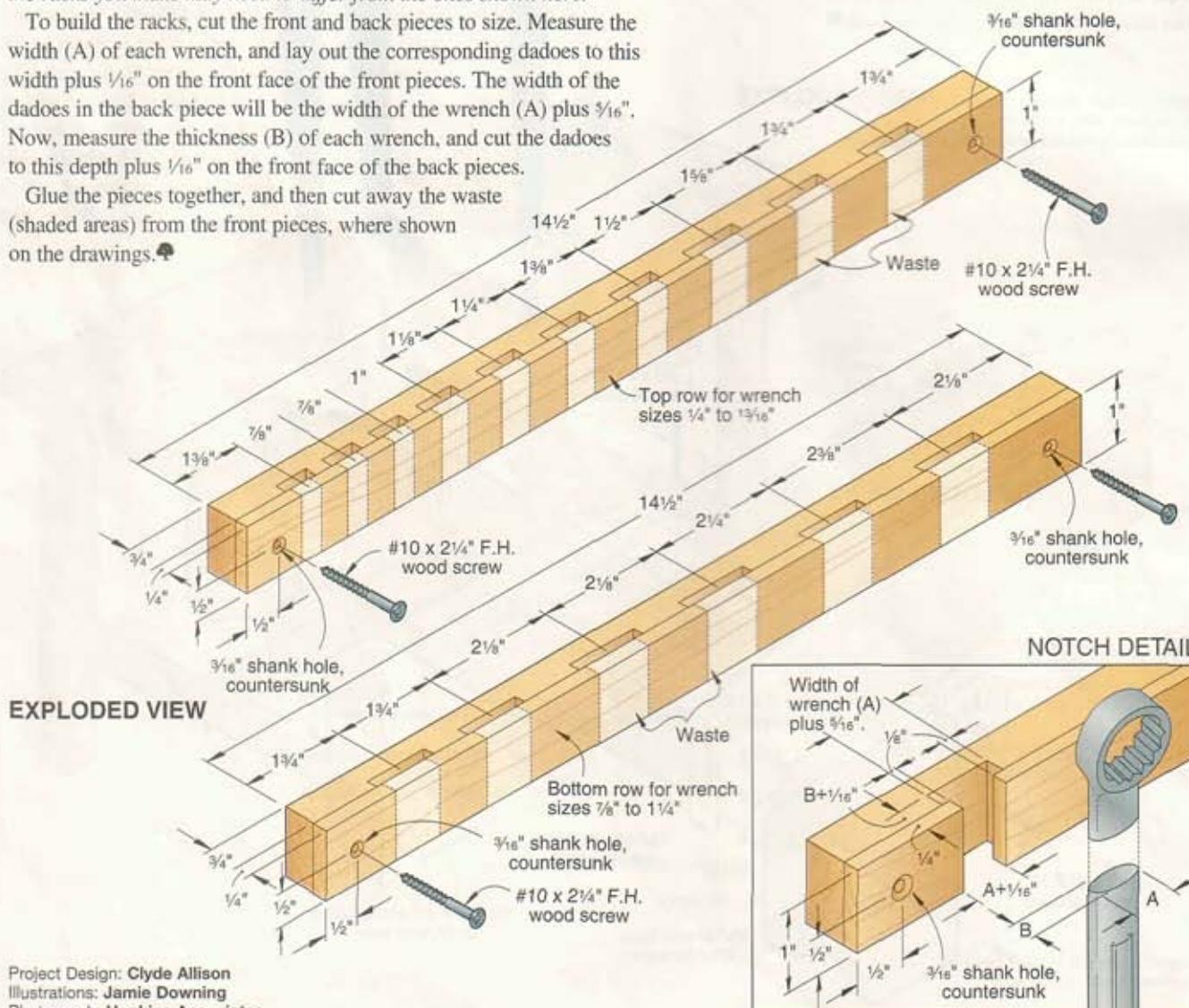
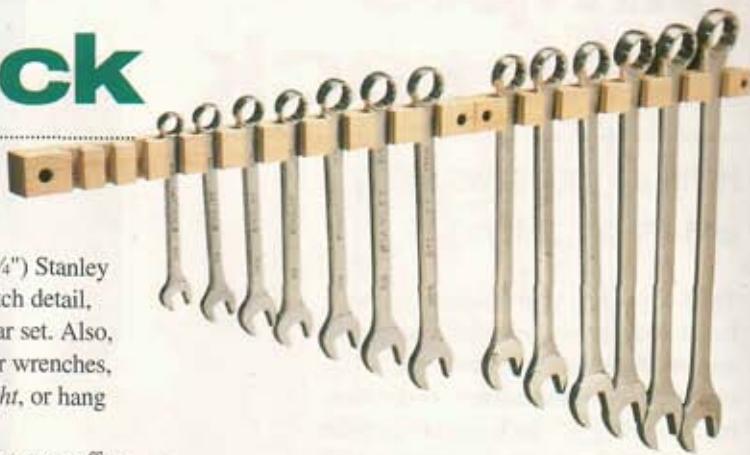
Hang 'em up and keep 'em handy!

We built our racks to handsomely hold a 16-piece ( $\frac{1}{4}$ " to  $1\frac{1}{4}$ ") Stanley combination wrench set. As described *below* and on the Notch detail, you may need to change a few dimensions for your particular set. Also, depending upon how much space you have for hanging your wrenches, you may want to place the racks end to end, as shown at *right*, or hang one rack under the other.

**Note:** In our research, we discovered that several manufacturers offer slightly different wrench designs and sell sets containing varying numbers of wrenches. For this reason, the size and number of openings in the racks you make may need to differ from the ones shown here.

To build the racks, cut the front and back pieces to size. Measure the width (A) of each wrench, and lay out the corresponding dadoes to this width plus  $\frac{1}{16}$ " on the front face of the front pieces. The width of the dadoes in the back piece will be the width of the wrench (A) plus  $\frac{1}{16}$ ". Now, measure the thickness (B) of each wrench, and cut the dadoes to this depth plus  $\frac{1}{16}$ " on the front face of the back pieces.

Glue the pieces together, and then cut away the waste (shaded areas) from the front pieces, where shown on the drawings. ♦



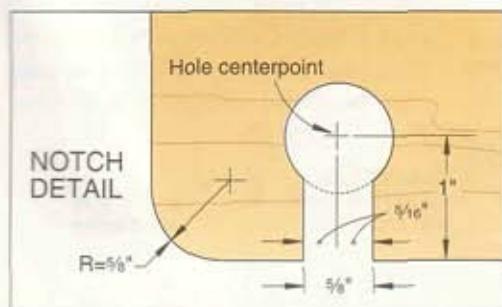
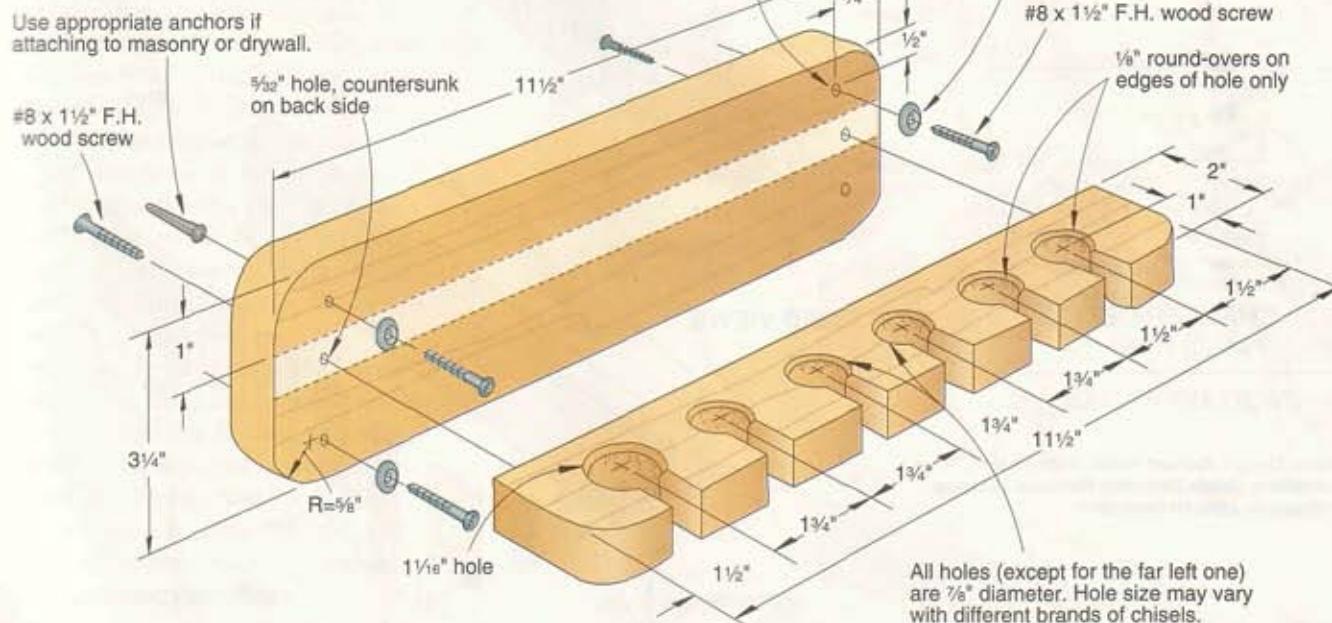
Project Design: Clyde Allison  
Illustrations: Jamie Downing  
Photograph: Hopkins Associates

# top-notch chisel rack

You won't need much time or materials to make our practical wall-mounted holder.

Sometimes, the best ideas are also the simplest. For this handy little shop project, we went to our scrap pile for the material and invested about a half hour of shop time. Now, we have a top-notch rack for our chisel set.

*Note: All stock is  $\frac{3}{4}$ " thick. Hole sizes may vary with different brands of chisels.*



EXPLODED VIEW

Project Design: Raymond Russell  
Photograph: Hopkins Associates  
Illustrations: Kim Downing

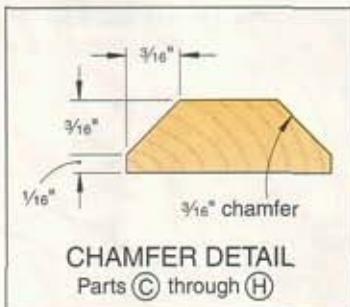
# **customized chisel rack**

Keep sharpened chisels  
safe and sound and easy to  
find when you need one.

- find when you need one

**Note:** We built our rack for a set of Stanley no. 60 chisels. The dimensions might vary slightly for your chisel set.

You can use this practical rack as a free-standing unit, or remove the feet and fasten it to your workshop wall. Either way, this project displays your chisels proudly and protects their finely honed edges. 



**CHAMFER DETAIL**  
Parts C through H

**Project Design: Richard Baker, Hilltop Lakes, Texas  
Illustrations: Jamie Downing; Roxanne LeMoine  
Photograph: John Hetherington**



**WALL-MOUNTED CHISEL RACK**

Diagram showing the exploded view of the Wall-Mounted Chisel Rack. It consists of a main board (A) and eight chisel blocks (B-H). Dimensions: Main board (A) is 13 1/4" long, 1 1/2" high, and 3/4" thick. Chisel blocks (B-H) are 1 1/2" high, 1 1/4" wide, and 1 1/2" deep. Each block has a 5/32" shank hole, countersunk on the bottom side. A #8 x 2" F.H. wood screw (C) is used to secure each block to the board.

**EXPLDED VIEWS**

**TABLETOP CHISEL RACK**

Diagram showing the exploded view of the Tabletop Chisel Rack. It consists of a base board (A) and eight chisel blocks (B-H). Dimensions: Base board (A) is 23/4" high, 1 1/2" wide, and 1" thick. Chisel blocks (B-H) are 1 1/2" high, 1 1/4" wide, and 1 1/2" deep. Each block has a 5/32" shank hole, countersunk on the bottom side. A #8 x 1" F.H. wood screw (C) is used to secure each block to the board. A note specifies that the outside edge of block (I) is flush with the end of block (B).

**Note:** Outside edge of (I) is flush with end of (B).

**Drill a 7/64" pilot hole 5/8" deep into bottom of (A) and (B) for wood screw.**

# **stay-put tool holders**

Our Peg Board rack keeps tools ready for work.

Wall-mounted perforated hardboard provides ideal tool storage—as long as you can get the hanger “pegs” to stay put. Faced with that challenge, we designed tool holders that attach firmly, but takes only a minute or two to move to a new, more convenient location on the perforated hardboard.

To make the pliers holder, mark slots where shown on the drawing at *right*, and drill  $\frac{1}{2}$ " holes at each end of the marked slots. Drill slightly over-lapping holes to remove the stock between the end holes, and smooth up the sides of the slots with a chisel. Then, attach the wrought steel desktop fasteners (Part no. 866826, available from Woodworker's Supply, 800/645-9292) to the holder, as shown.

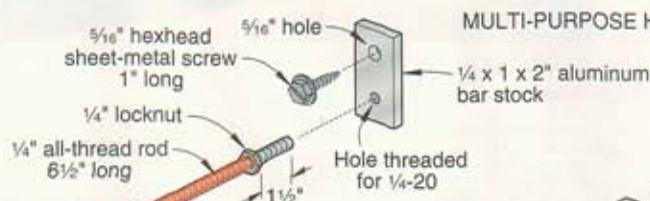
The 5/0 handscrew-clamp holder, shown at *right top*, mounts to the perforated hardboard with a short length of  $1\frac{1}{2}$ " aluminum bar stock and two hex-head sheet-metal screws. For larger size handscrew clamps, make the wooden block longer, and wider.

By using varying lengths of all-thread rod, you can create multi-purpose hangers for bar clamps or individual tools, such as the adjustable wrenches in the photograph. We dipped the all-thread rod in plastic coating for protection from sharp edges and to provide a no-slip surface to keep tools in place. 

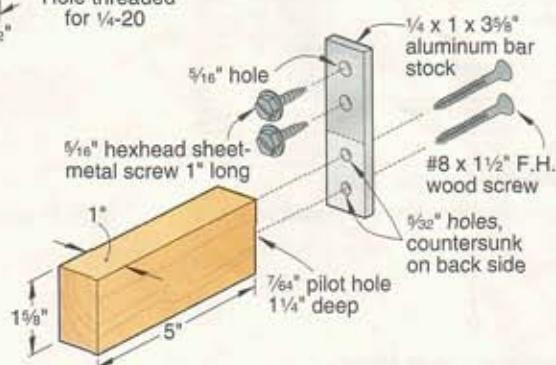
**Note:** When you install the mounting screws in the perforated hardboard, just snug them up; over-tightening will easily strip out the holes in the hardboard.



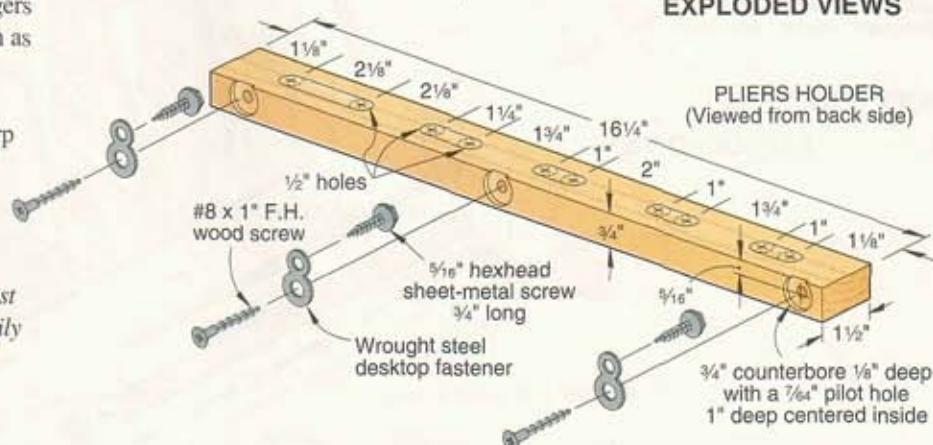
#### MULTI-PURPOSE HANGER



5/0 HANDSCREW  
CLAMP HOLDER



## EXPLODED VIEWS



Project Design: James R. Downing  
Illustrations: Roxanne LeMoine  
Photograph: Bill Hopkins

# cutoff catchall

This upright organizer gives you a place to put the stock that might otherwise be lost or tossed.

Designed to hold cutoffs and other short pieces upright, this handy organizer allows you to see at a glance what stock you have available. And its wall-hugging profile takes good advantage of limited shop space. ♣



## materials list

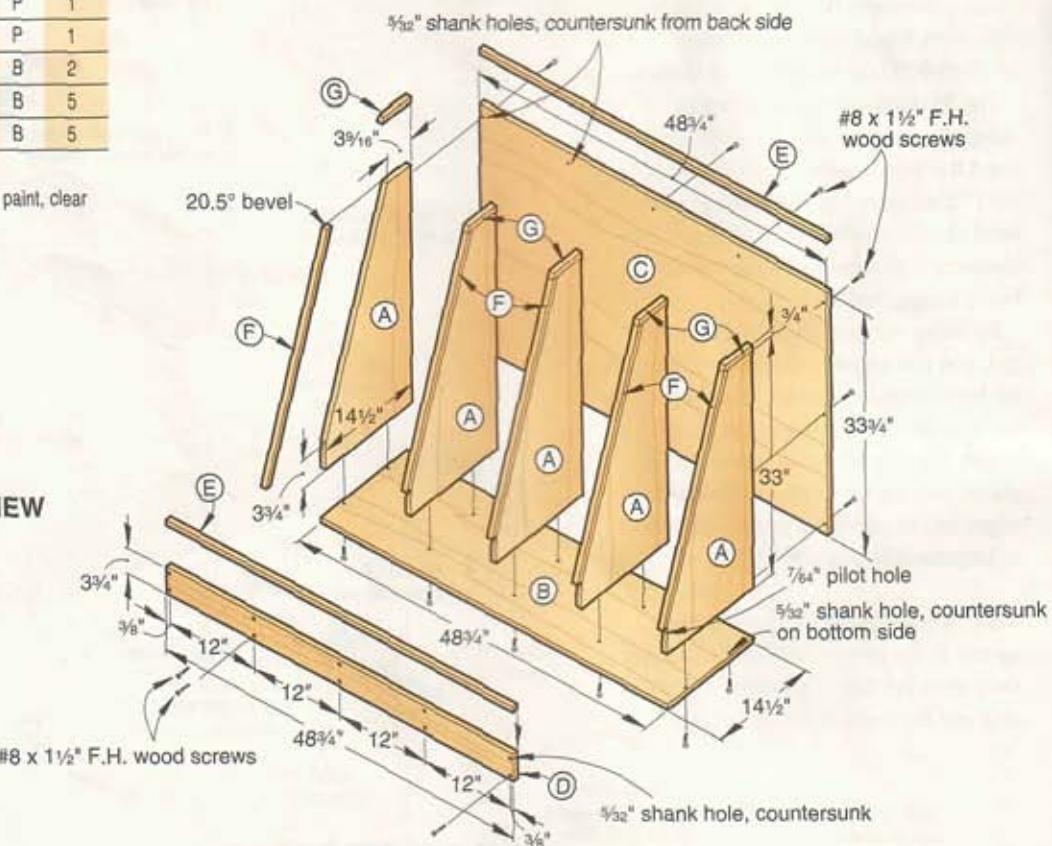
Part	FINISHED SIZE				
	T	W	L	Mtl.	Qty.
A divider	3/4"	14 1/2"	33"	P	5
B bottom	3/4"	14 1/2"	48 1/4"	P	1
C back	3/4"	33 3/4"	48 1/4"	P	1
D front	3/4"	3 3/4"	48 1/4"	P	1
E trim	3/4"	3/4"	48 1/4"	B	2
F trim	3/4"	3/4"	31 1/2"	B	5
G trim	3/4"	3/4"	4 1/8"	B	5

Materials Key: P-plywood, B-birch.

Supplies: #8x1 1/2" flathead wood screws, paint, clear finish.

Project Design: Clyde Allison  
Illustration: Jamie Downing  
Photograph: Hopkins Associates

## EXPLODED VIEW



# 3-ring binder drilling jig

Ready to store your *WOOD®* magazines in an easy-to-find location? Prepare them for a three-ring binder with this handy drilling jig.

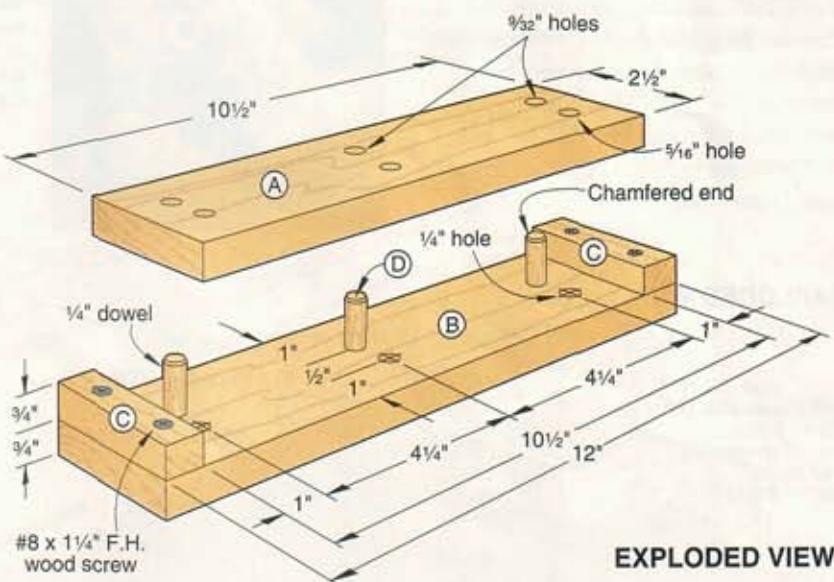
- 1 Rip, then crosscut the drill guide (A), base (B), and cleats (C) to size.
- 2 Clamp one cleat to each end of the base. Then, glue and screw the cleats to the base. (We used a drill/countersink bit to pre-bore the screw holes.)
- 3 Mark the location of the drill guide holes and those for the dowel pins (D) on part A. (See the drawing at right for correct positioning.) Now, clamp parts A to the B/C assembly and drill the holes through both part A and the base. (Place a piece of scrapwood beneath the base when drilling to prevent chipping.)
- 4 Cut the walnut pins (D) to length and chamfer one end of each. Glue the pins into the  $\frac{1}{4}$ " holes in the base. Using a  $\frac{9}{32}$ " bit, enlarge the  $\frac{1}{4}$ " holes in A for an easier fit of the pins through the guide.
- 5 Test the fit by sliding the guide onto the dowels; sand if necessary.
- 6 Finish-sand all the parts and apply a polyurethane or lacquer finish. (When applying the finish, try to keep it out of the drilled holes.) Apply wax to the pins for a smoother fit into the guide. ♣

## materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Qty.
A drill guide	$\frac{3}{4}$ "	$2\frac{1}{2}$ "	$10\frac{1}{2}$ "	M	1
B base	$\frac{3}{4}$ "	$2\frac{1}{2}$ "	12"	M	1
C cleats	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$2\frac{1}{2}$ "	M	2
D dowel pins	$\frac{3}{8}$ " diam.	$1\frac{1}{2}$ "	W		3

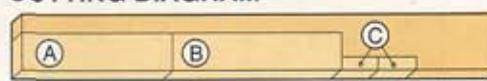
Materials Key: M=maple, W=walnut dowel.

Supplies: #8x1 1/4" flathead wood screws (4), polyurethane or lacquer finish, wax.



EXPLODED VIEW

## CUTTING DIAGRAM



$\frac{3}{4} \times 3\frac{1}{2} \times 36$ " Maple

Design: Raymond A. Dobelstein  
Photograph: Scott Little  
Illustrations: Roxanne LeMoine

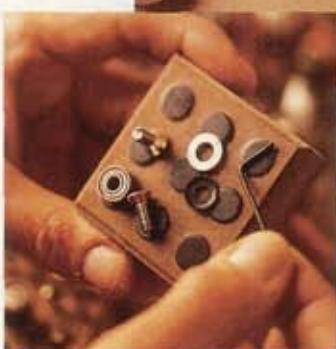
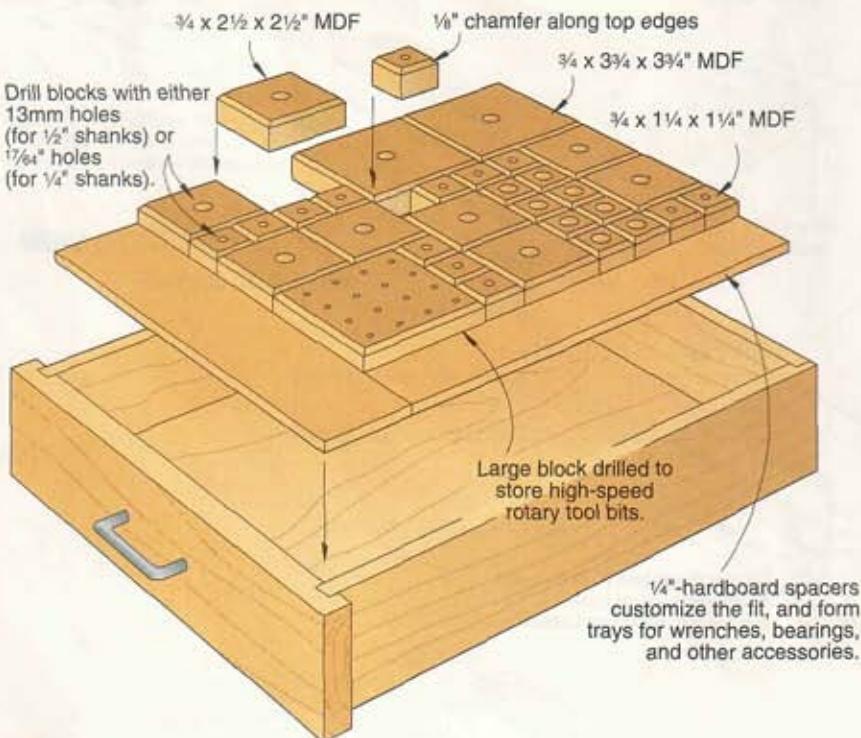
# router-bit storage

It's as easy as 1-2-3.

Most router-bit storage systems force you to guess how many bits you'll add to your arsenal in the coming years. *WOOD®* magazine's Dave Campbell neatly sidestepped that dilemma by designing this modular storage system that fits in any drawer and easily grows to meet your expanding bit collection. A 1-2-3 progression of block sizes maximizes the number of possible arrangements. Dave set aside one large square, and drilled it to hold rotary-tool bits.

To build your modular storage, rip  $\frac{3}{4}$ " MDF (medium-density fiberboard) into  $1\frac{1}{4}$ "-,  $2\frac{1}{2}$ "-, and  $3\frac{3}{4}$ "-wide strips, then crosscut them into squares. Drill centered, slightly oversized holes for easy bit removal;  $1\frac{1}{6}$ " and 13mm holes for  $\frac{1}{4}$ "- and  $\frac{1}{2}$ "-shank router bits, and  $\frac{7}{64}$ " and  $\frac{5}{64}$ " holes for  $\frac{3}{32}$ "- and  $\frac{1}{8}$ "-shank high-speed rotary tool bits.

## EXPLODED VIEW



To add versatility to this system, simply bore holes into the module(s) of your choice and glue in craft magnets. They hold small steel parts just great. Our thanks to Jeff Hilton of Mission Viejo, California, for sending in this tip.

*Note: Finding a  $3\frac{3}{64}$ " bit to drill the oversized holes for  $\frac{1}{2}$ " shanks is nearly impossible. Commonly used to install metric hardware, a 13mm bit is a readily available substitute.*

Slightly countersink the holes' edges. Chamfer the blocks' top edges on your table-mounted router. Hold the parts with a padded jointer pushblock to keep your fingers safely away from the router bit.

Pour some Danish oil-type finish into a small container, and dip the blocks. After wiping off the excess finish with a rag, dry the blocks on a window screen propped on sawhorses.

With the finish dry, arrange the blocks in your drawer. Fill in the extra space in the drawer with snug-fitting pieces of  $\frac{1}{4}$ " hardboard. You can use these tray-like spaces for storing accessories. ♣

Written by Robert J. Settich  
Project Design: Dave Campbell  
Illustration: Roxanne LeMoine; Lorna Johnson  
Photographs: Douglas E. Smith

# reference center

Two simple projects, one great idea:  
Give the notes or papers you need  
a place to be stored, then studied.

Keep reference material close at hand with this two-project setup. Simply swing the table up when you need to take a few notes or consult reference material. When you're not using it, collapse the brackets and the table folds back against the wall. The cabinet, with its drop-down door, provides necessary storage for books, magazines, tool catalogs, and other shop-related papers. Fit the table with an inexpensive stool, and you've created a comfortable workstation. ♣



## EXPLODED VIEW

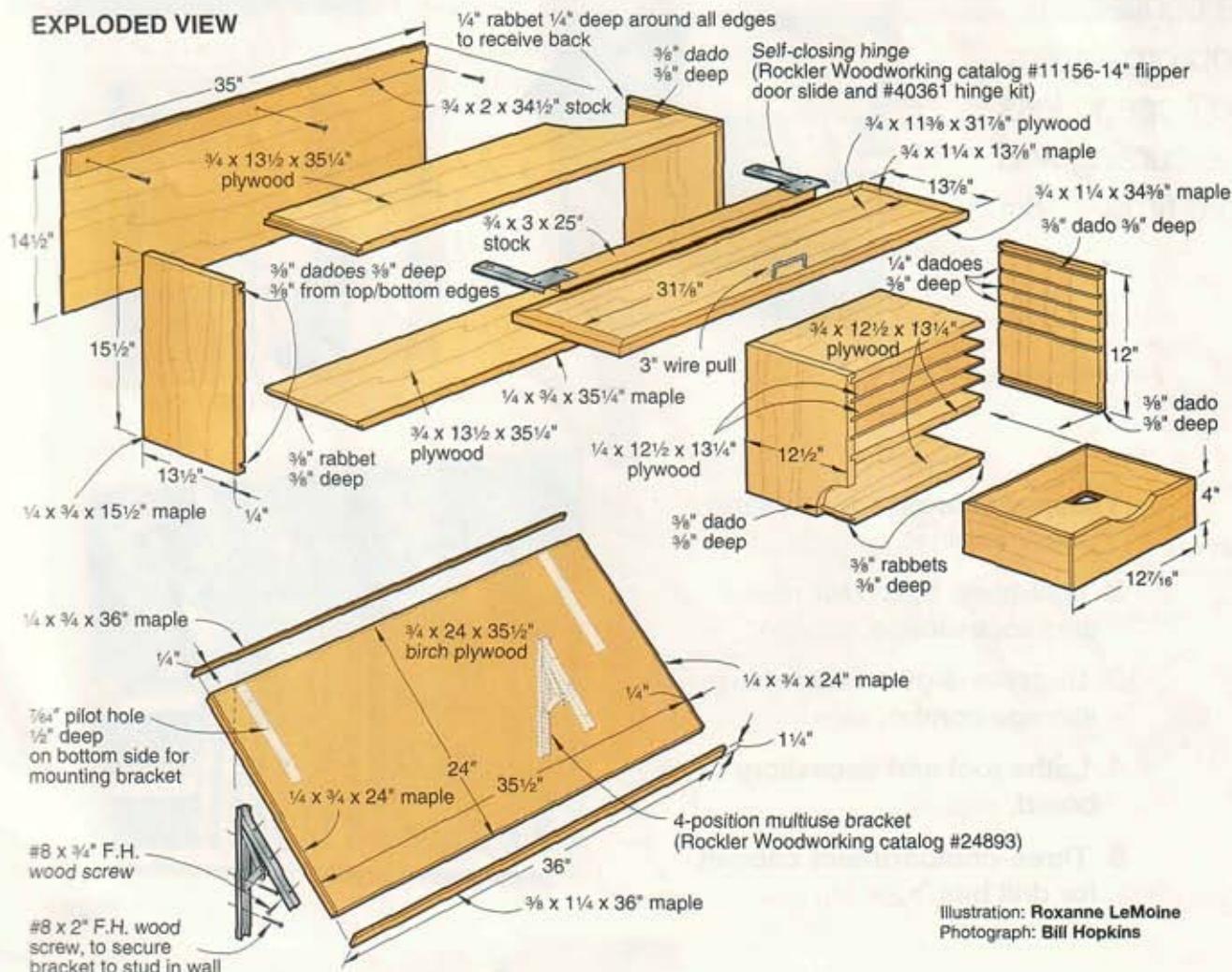


Illustration: Roxanne LeMoine  
Photograph: Bill Hopkins

# 5 super shop organizers

If you're like us, you don't like hunting around for your tools when you could be working on a project. With our five convenient shop organizers, you'll spend less time cursing and more time working!



1



2



3



5



4

1. Super-smooth sander/sandpaper cabinet, page 29.
2. Wall-hung board for router and accessories, page 30.
3. Under-and-over table clamp storage combo, page 31.
4. Lathe tool and accessory board, page 32.
5. Three-compartment cabinet for drill bits, page 33.



## 1

# All-in-One Sander Cabinet



You'll spend less time gritting your teeth and more time sanding when you store everything you need— Sanders, sandpaper, and sanding belts—in one convenient wall-hung cabinet. The cabinet accommodates a portable belt sander and a palm-grip sander.

**1** From a sheet of  $\frac{3}{4}$ " particleboard, lay out and cut parts A through I to finished size. (We cut E and F to size plus 2" in length to allow for ease in bevel-cutting these pieces later.)

**2** Bevel-cut the front end of the shelves (E, F) for the two sanders to a  $60^\circ$  angle; the back end to a  $30^\circ$  angle. Cut dadoes in the shelf dividers (D) and inside the right-hand side (C), where shown on the drawing.

**3** Glue and screw the back (A), bottom (B), and sides (C) together. Then, glue and screw the cleats (J, K) and the slanted shelves (E, F) in position. Drill two holes in the back for screws or wall anchors, according to wall-stud spacing.

**4** Loose-fit the shelf dividers (D) and shelves (G, H), starting with the left-

hand divider and working toward the right-hand one. As you slide in the center and right-hand shelves (H), glue in the false back (I) for each shelf, where shown on the drawing.

**5** Glue and screw the top (B) on the cabinet. Sand all edges flush. Mask off the pine cleats, then paint all exposed surfaces to the desired color. Cut the pine trim strips (L, M, N, O) to finished size. Finish all the pine pieces with polyurethane or other clear finish. Attach the trim strips to the cabinet face. Attach cup hooks for electrical cords. Finally, hang the cabinet.

## materials list

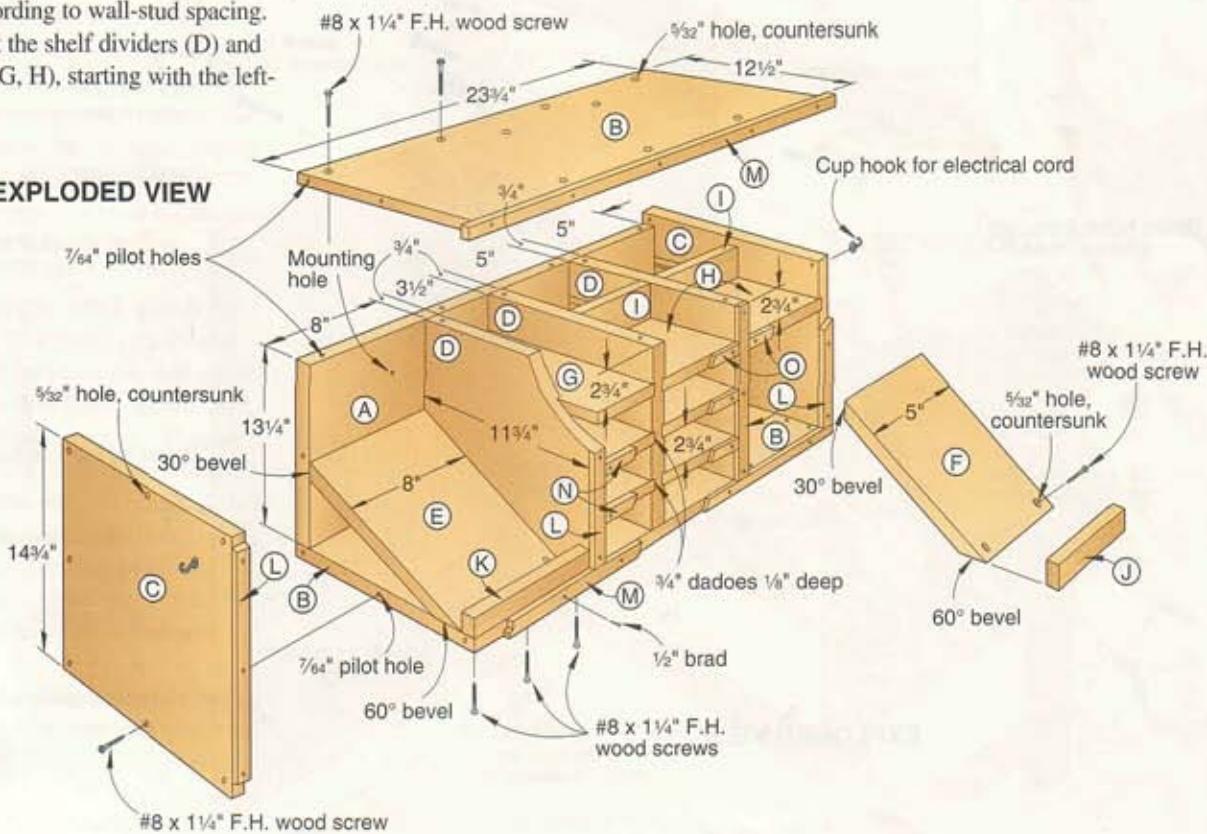
Part	FINISHED SIZE			
	T	W	L	Matl. Qty.
A back	$\frac{3}{4}$ "	$13\frac{1}{4}$ "	$23\frac{3}{4}$ "	PB 1
B top & bottom	$\frac{3}{4}$ "	$12\frac{1}{2}$ "	$23\frac{3}{4}$ "	PB 2
C sides	$\frac{3}{4}$ "	$12\frac{1}{2}$ "	$14\frac{1}{4}$ "	PB 2
D dividers	$\frac{3}{4}$ "	$11\frac{1}{4}$ "	$13\frac{1}{4}$ "	PB 3
E* shelf	$\frac{3}{4}$ "	8"	$12\frac{3}{4}$ "	PB 1
F* shelf	$\frac{3}{4}$ "	5"	$12\frac{3}{4}$ "	PB 1
G shelves	$\frac{3}{4}$ "	$3\frac{3}{4}$ "	$11\frac{1}{4}$ "	PB 3
H shelves	$\frac{3}{4}$ "	$5\frac{1}{4}$ "	$6\frac{1}{4}$ "	PB 4
I false back	$\frac{3}{4}$ "	$2\frac{1}{4}$ "	5"	PB 5
J cleat	$\frac{3}{4}$ "	$1\frac{1}{4}$ "	5"	P 1
K cleat	$\frac{3}{4}$ "	$1\frac{1}{4}$ "	8"	P 1
L trim	$\frac{1}{4}$ "	$\frac{3}{4}$ "	$13\frac{1}{4}$ "	P 5
M trim	$\frac{1}{4}$ "	$\frac{3}{4}$ "	$25\frac{1}{4}$ "	P 2
N trim	$\frac{1}{4}$ "	$\frac{3}{4}$ "	$3\frac{1}{2}$ "	P 3
O trim	$\frac{1}{4}$ "	$\frac{3}{4}$ "	5"	P 4

\*Cut these pieces oversize, then bevel cut to final lengths.

Materials Key: PB—particleboard, P—pine.

Supplies: #8x1 $\frac{1}{4}$ " flathead wood screws,  $\frac{1}{4}$ " brads, 1 $\frac{1}{2}$ " cup hooks (2), latex paint, wall anchors or screws for wall mounting.

## EXPLODED VIEW



## 2

## Time-Trimming Router Organizer



When you want to use your router, you don't want to waste time routing through drawers and toolboxes for router bits, wrenches, and other accessories. This compact, wall-mounted organizer keeps everything you need, including your router, in plain sight.

**1** Cut the mounting board (A) to the finished size shown in the Materials List. Lay the board on a flat surface, and position the accessories you want to hang on the board. The drawing below shows the dowel sizes and locations for typical accessories—wrenches, router edge guide, and one or more trammel bases for cutting circles. Once you've established locations for your accessories, drill  $\frac{3}{8}$ "-deep holes in the board for the dowels and cut the dowels to length. To make the  $15^\circ$  hole for the router dowel, use an adjustable drill guide, or make a  $15^\circ$ -angle drilling guide similar to the  $30^\circ$  guide shown on page 31.

**2** Cut the  $\frac{3}{4} \times \frac{3}{4}$ " trim strips (B, C) to finished lengths. To make the bit shelf (D), cut two pieces of  $\frac{3}{4}$ " stock slightly oversize and laminate them together, face to face, with woodworker's glue. When the glue has dried, cut the piece to finished length and width, beveling the back edge to a  $30^\circ$  angle, where shown on the drawing below. Radius the front corners and rout a  $\frac{1}{4}$ " round-over on all edges except the back.

**3** Lay out and drill shank holes in the bit organizer for your router bits. You may want to leave extra space on the bit organizer for future acquisitions. Our organizer holds 24 bits of various sizes.

**4** Paint the mounting board the desired color. After the paint dries, nail the trim strips to the edges of the board. Apply clear polyurethane or varnish to the pine trim pieces, dowels, and bit organizer. Glue the dowels into the board, and attach the cup hooks and bit organizer to the board.

Mount the board to the wall with screws, making sure to align the board's mounting holes with the wall studs.

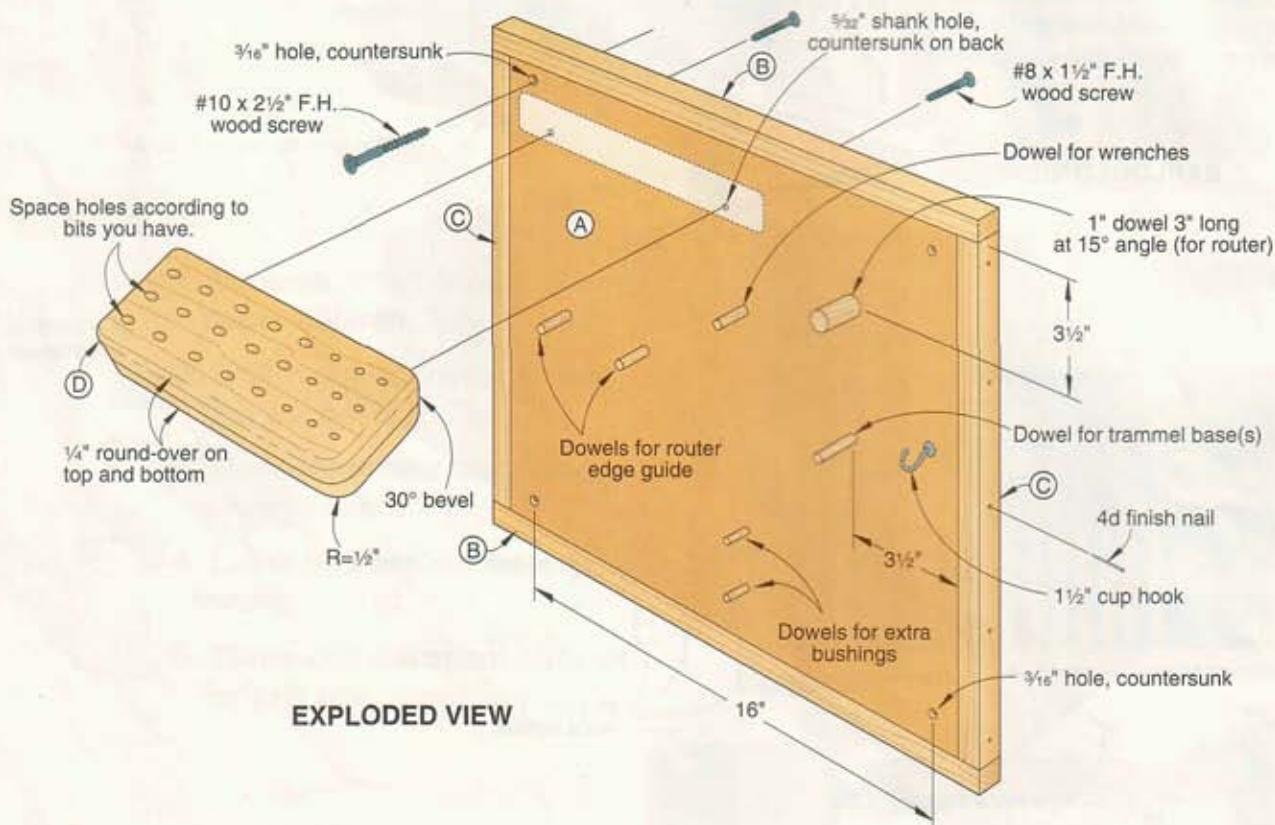
### materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Cty.
A mounting board	$\frac{3}{4}"$	$16"$	$18"$	PB	1
B trim	$\frac{3}{4}"$	$\frac{3}{4}"$	$19\frac{1}{2}"$	P	2
C trim	$\frac{3}{4}"$	$\frac{3}{4}"$	$16"$	P	2
D bit shelf	$1\frac{1}{2}"$	$5"$	$10"$	P	1

\*Laminated from 2 pieces of  $\frac{3}{4}$ " pine.

Materials Key: PB—particleboard, P—pine.

Supplies:  $1\frac{1}{2}$ " cup hook, 3d finish nails, #10x $2\frac{1}{2}$ " flat-head wood screws, 1" dowel,  $\frac{1}{4}$ " dowel,  $\frac{1}{4}$ " dowel.



## 3

## Clamp-Rack Combo



Where's the best place to hang your clamps? Right where you use them—at the clamping bench. The overhead rack easily holds several dozen small clamps of any type. You can hang your longer bar clamps and pipe clamps directly on the bench itself for convenient, easy access.

**1** Cut the 2x4 for the overhead rack to the desired length. (We cut ours slightly shorter than the length of the workbench.) Then drill holes for the two  $\frac{1}{4}$ " threaded hanger rods, where shown on the drawing. If you want to hang the rack crosswise to the joists, adjust the length of the 2x4 and/or rod-hole locations to correspond with joist spacing. Or, you can nail support blocks between the joists and suspend rods from them.

**2** Use the hacksaw to cut the threaded rods to a length that will position the rack about 6" lower than the final anticipated height. Attach the threaded rods to the 2x4 rack, then to ceiling joists, using the fasteners specified on the drawing.

**3** Hang a few clamps on the rack, and then adjust the rack to a convenient height. (We positioned our rack about  $3\frac{1}{2}$ ' above the table surface so taller projects, such as a stool in the photo on page 28, would fit underneath it.) Cut off the rod ends extending beneath the 2x4.

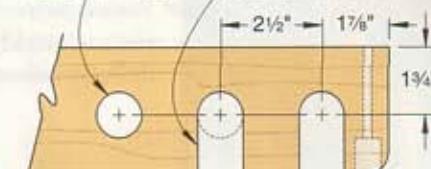
### Bench pegs and rack

**1** Drill the 30°-angled holes for the pegs, using an adjustable drill guide or the homemade drill guide, shown on Drawing 1B. Space the holes 4" apart.

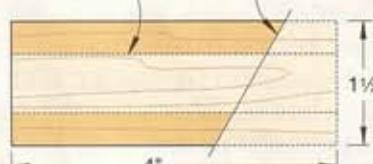
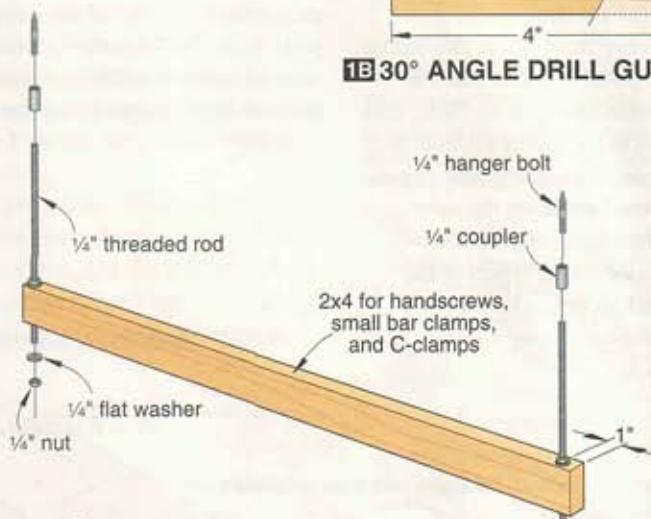
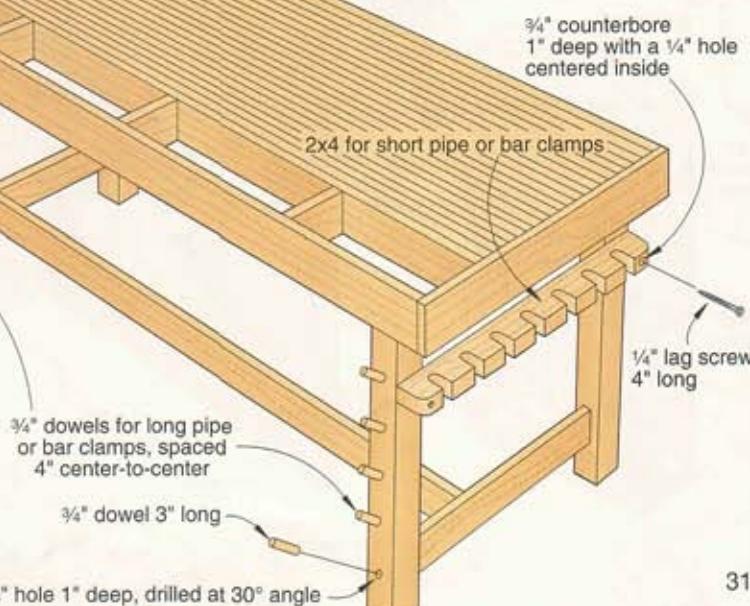
**2** Cut 2x4 rack to the desired length. To make the notches, use a  $1\frac{1}{4}$ " hole saw or drill bit, and cut the holes  $1\frac{1}{2}$ " center to center; then complete cutout with a handsaw. Attach the rack to the bench, where shown on Drawing 1.

**Supplies:** 2x4,  $\frac{1}{4}$ " lag screws 4" long (2),  $\frac{1}{4}$ " threaded rod,  $\frac{1}{4}$ " nuts and washers,  $\frac{1}{4}$ " hanger bolts,  $\frac{1}{4}$ " couplers,  $\frac{1}{4}$ " dowel stock.

**Step 1**  
Drill a  $1\frac{1}{4}$ " hole.  
**Step 2**  
Use a saw to finish cutting the notch.

**1A NOTCH**

**Step 1**  
Drill a  $\frac{3}{4}$ " hole in scrap.  
**Step 2**  
Cut block off at 30° angle.

**1B 30° ANGLE DRILL GUIDE****1 EXPLDED VIEW**

## 4 Lathe Tool Board



Your lathe work will take a turn for the better when you can quickly grab needed tools and accessories from this convenient lathe-tool board.

**1** Cut the mounting board (A), tool holder (B), magnet support (C), and slanted accessory holders (D) to size, bevel-ripping the front edge of C at 30° and the back edge of each D at 30°. Cut trim pieces (E, F) to size.

**2** Drill  $\frac{1}{4}$ "-deep holes in the tool holder (B)  $\frac{1}{4}$ " larger in diameter than the butt of your lathe-tool handles. Next, drill  $\frac{1}{4}$ "-deep holes in the accessory holders (D) for your circular sanding attachments and live centers. Drill holes the same diameter as the shanks of your accessories. Radius the front corners of the tool holder and accessory holders, and rout a  $\frac{1}{4}$ " round-over along all edges except the back.

**3** Paint the board the desired color and let dry. Then lay the board flat and position the tool holder, magnet support, and accessory holders. Position your turning accessories on the open area. Mark and drill dowel holes  $\frac{3}{8}$ " deep to hang these items, and cut dowels to length.

**5** Nail the trim pieces (E, F) to the board. Apply polyurethane to all trim except the front edge of the magnet support. Affix the adhesive-backed magnetic strip, available at crafts supply stores, to the front of the magnetic support.

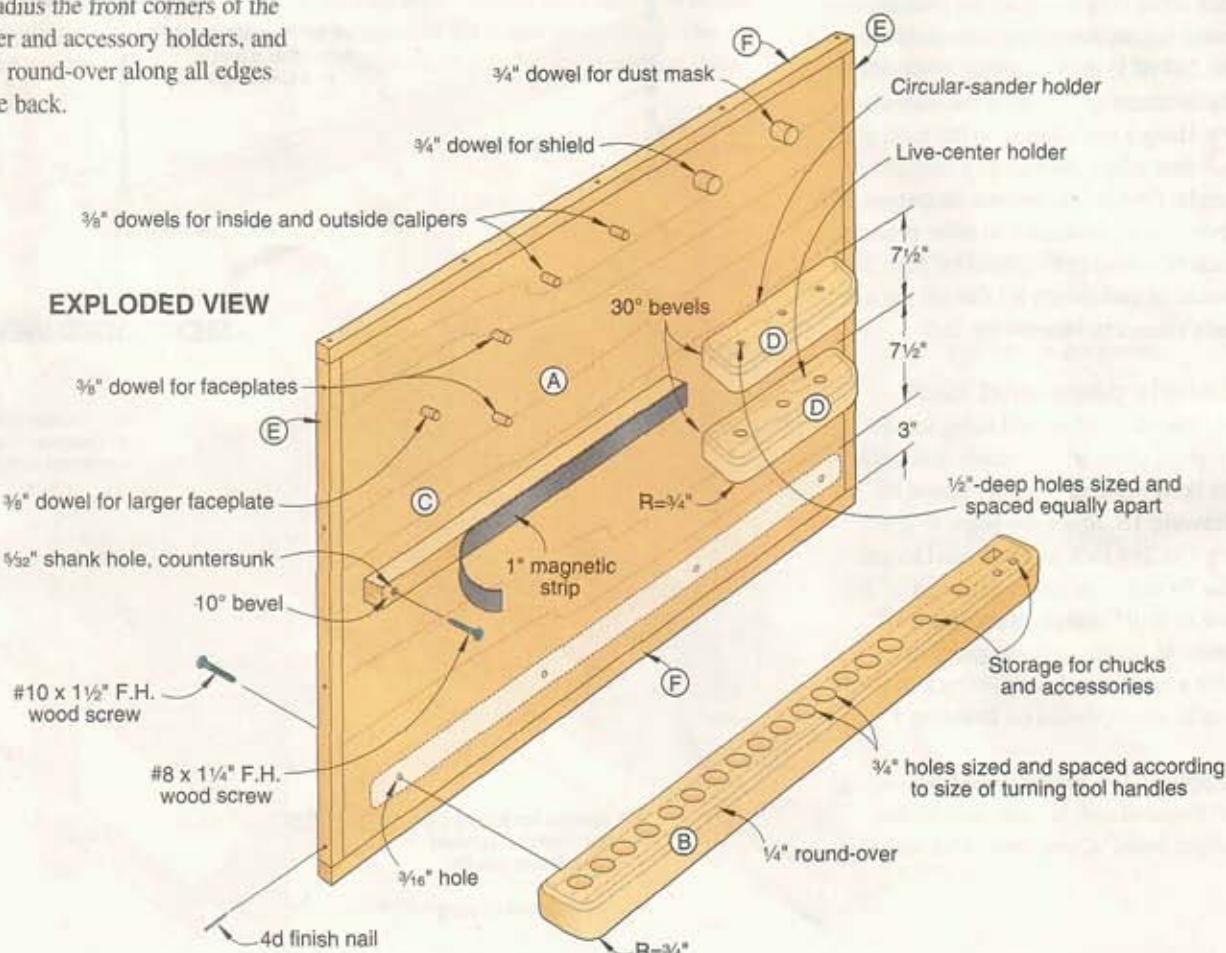
### materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Qty.
A mounting board	$\frac{3}{4}$ "	36"	48"	PW	1
B tool holder	$1\frac{1}{2}$ "	3"	46"	F	1
C support	$\frac{3}{4}$ "	1"	$34\frac{1}{4}$ "	F	1
D holders	$1\frac{1}{2}$ "	3"	6"	F	2
E trim	$\frac{3}{4}$ "	$\frac{3}{4}$ "	36"	P	2
F trim	$\frac{3}{4}$ "	$\frac{3}{4}$ "	$49\frac{1}{2}$ "	P	2

Materials Key: PW-plywood, P-pine, F-fir.

Supplies: #10x1 $\frac{1}{2}$ " flathead wood screws,  $\frac{3}{8}$ " dowel stock,  $\frac{3}{8}$ " dowel stock, 4d finish nails, polyurethane. Flexible magnetic strip.

### EXPLODED VIEW



## 5

## Swing-a-Bit Cabinet



This swing-out wall cabinet holds a surprising number of assorted drill bits and accessories. To make it, you first assemble the box, then rip-cut it into three separate sections.

**1** Rip and crosscut a piece of  $\frac{3}{4}$ " pine to  $6\frac{3}{8} \times 52"$ . From it, cut two pieces  $7\frac{3}{4}"$  long (A) and two pieces  $17\frac{1}{8}"$  long (B). Rabbet the ends of the two longer pieces, where indicated on the Basic-Box drawing below.

**2** Glue and clamp the top and bottom pieces (A) to the two side pieces (B) to form the frame. Now, cut the plywood sides (C), then attach them to the frame.

**3** After the glue dries, use your tablesaw and rip fence to rip the frame into three sections to the widths shown in the Exploded View drawing.

**4** Cut shelves (D, E, F) to finished size. Drill holes in the shelves and sections 1 and 3 for drill bits.

**5** Glue and nail the shelves to the frame sections where shown on the drawing. Attach the cleats (G) to the bottom of section 2. Connect the frame with hinges.

**6** Cut two pieces of  $\frac{3}{4}$ " pine  $1\frac{1}{2} \times 34"$  then laminate to form a piece  $1\frac{1}{2}"$  thick. From this, cut the mounting bracket pieces (H, I) to finished size. Rabbet both ends of I and one end of H.

**7** Assemble the bracket pieces with glue and reinforcing dowels, then radius the ends and corners. Drill holes in the bracket upright for wood screws or wall anchors.

**8** Drill pivot holes in the mounting bracket and in Section 2 for the dowel pivot pins. Cut the bottom pivot pin to length and glue it into the bracket. Cut the removable top pin to length and

glue the wooden ball to it. Mount the bracket to the wall and the cabinet to the bracket.

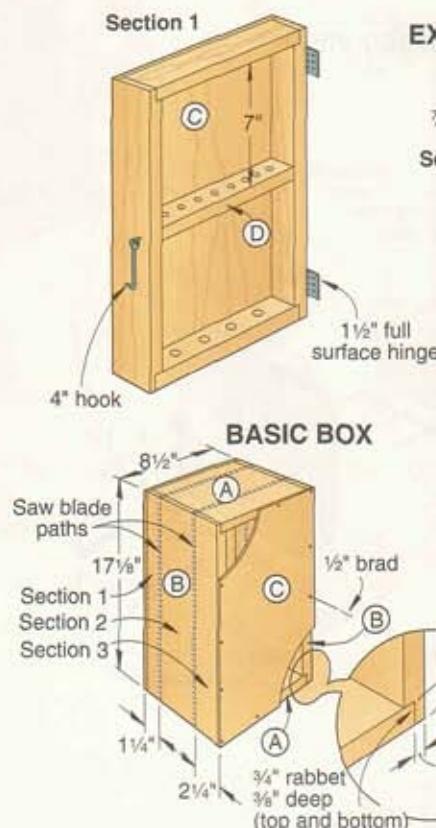
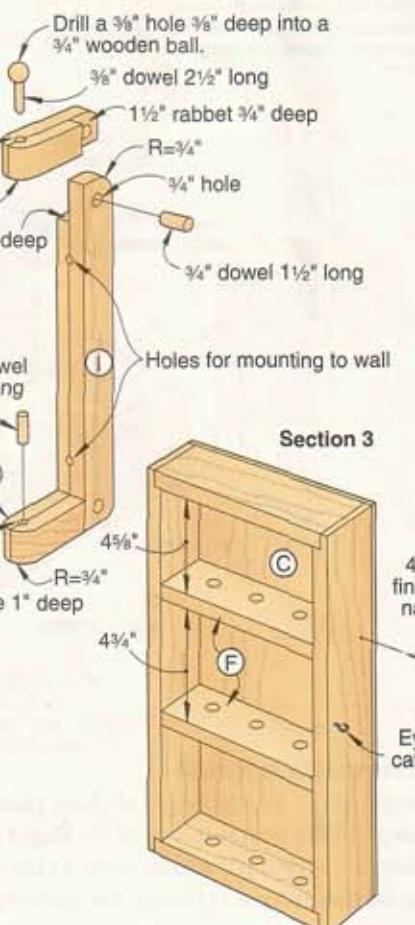
## materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Qty.
A top & bottom	$\frac{3}{4}"$	$6\frac{3}{8}"$	$7\frac{1}{4}"$	P	2
B sides	$\frac{3}{4}"$	$6\frac{3}{8}"$	$17\frac{1}{8}"$	P	2
C sides	$\frac{1}{8}"$	$8\frac{1}{2}"$	$17\frac{1}{8}"$	PW	2
D shelf	$\frac{3}{4}"$	$1\frac{1}{8}"$	$7"$	P	1
E shelf	$\frac{3}{4}"$	$3\frac{1}{4}"$	$7"$	P	1
F shelves	$\frac{3}{4}"$	$2\frac{1}{8}"$	$7"$	P	2
G cleats	$\frac{3}{8}"$	$\frac{3}{8}"$	$7"$	P	2
H brackets	$1\frac{1}{2}"$	$1\frac{1}{2}"$	$6\frac{1}{4}"$	P	2
I bracket	$1\frac{1}{2}"$	$1\frac{1}{2}"$	$20\frac{1}{8}"$	P	1

\*Laminated from 2 pieces of  $\frac{3}{4}$ " pine.

Materials Key: PW-plywood, P-pine.

Supplies:  $\frac{1}{2}$ " brads and 4d finish nails,  $\frac{3}{8}$ " dowel,  $\frac{3}{4}$ " wooden ball, 2 pairs of  $1\frac{1}{4}$ " full surface hinges, screws for mounting to wall, 4" hook-and-eye latch, polyurethane.

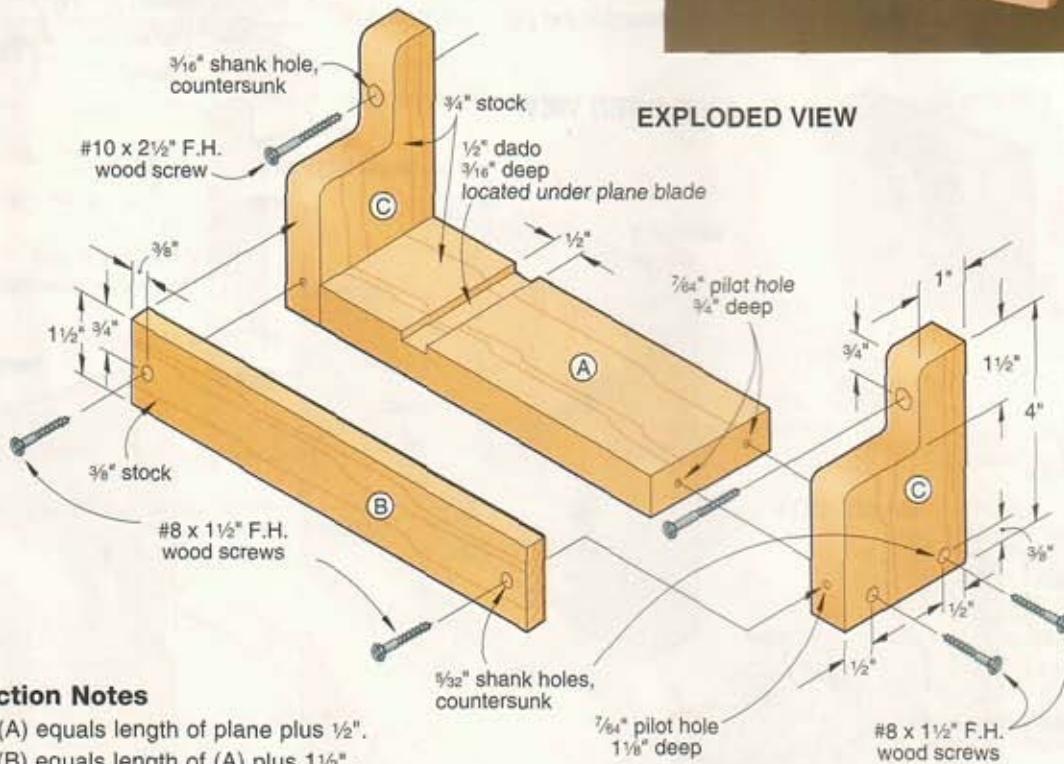
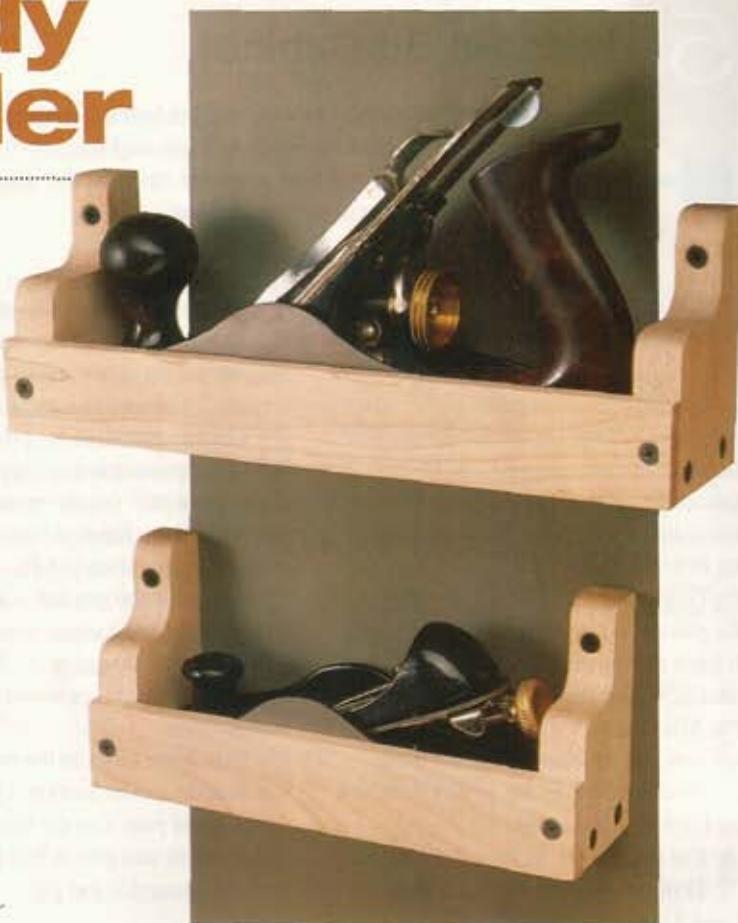


# plain-handy plane holder

With just a little time and some scrapwood, take storage for an essential tool to a higher plane.

Like all precision tools in the shop, your planes need and deserve safe, sturdy storage. Consider this adaptable wall-hung organizer the answer, regardless of which size planes you may own. Using the design shown and the construction notes *below*, you can build these holders from scrapwood. Then, secure them to your shop wall, or to a piece of plywood attached to the wall. We included a dado in the base (A) to protect the plane blade from damage. ♣

Project Design: Kevin Heilman  
Photograph: Wm. Hopkins  
Illustration: Jamie Downing



## Construction Notes

Length of (A) equals length of plane plus  $\frac{1}{2}$ ".

Length of (B) equals length of (A) plus  $1\frac{1}{2}$ ".

Width of (A) and (C) equals width of plane plus  $\frac{1}{2}$ ".

Locate the dado in (A) under the plane blade.

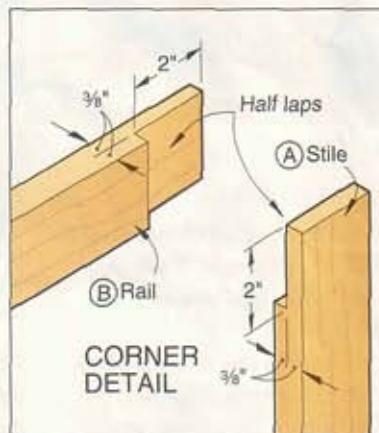
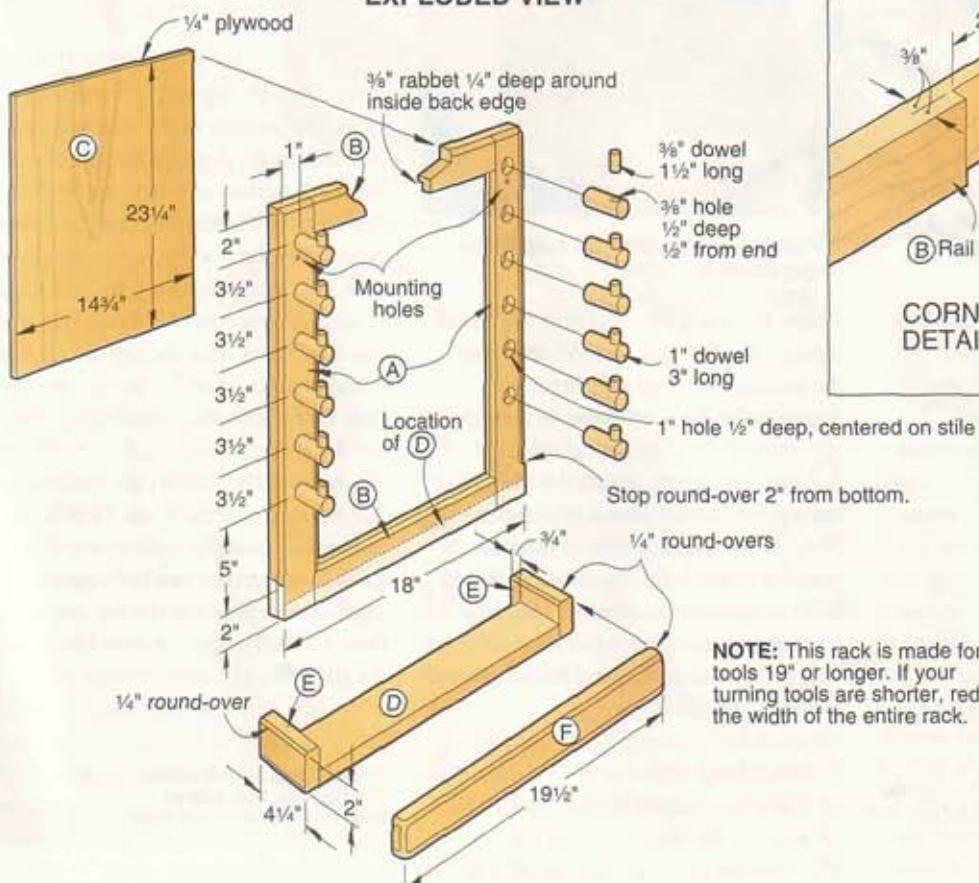
# level lathe tool rack

With the look of a fine gun rack, this storage unit keeps long-handled turning tools in a secure horizontal display.

Long-handled tools can be cumbersome, especially when you try to store them in vertical racks. As an alternative to vertical storage, this wall-hung organizer makes infinite sense. It even features a tray at the bottom to hold your turning accessories. Get organized, while protecting your tool investment, with this easy-to-make unit. ♦



## EXPLODED VIEW



**NOTE:** This rack is made for tools 19" or longer. If your turning tools are shorter, reduce the width of the entire rack.

# on-the-go glue caddy

Need to get your shop better organized? Here's a great way to start—make a holder for your supplies.



## Forming the disks

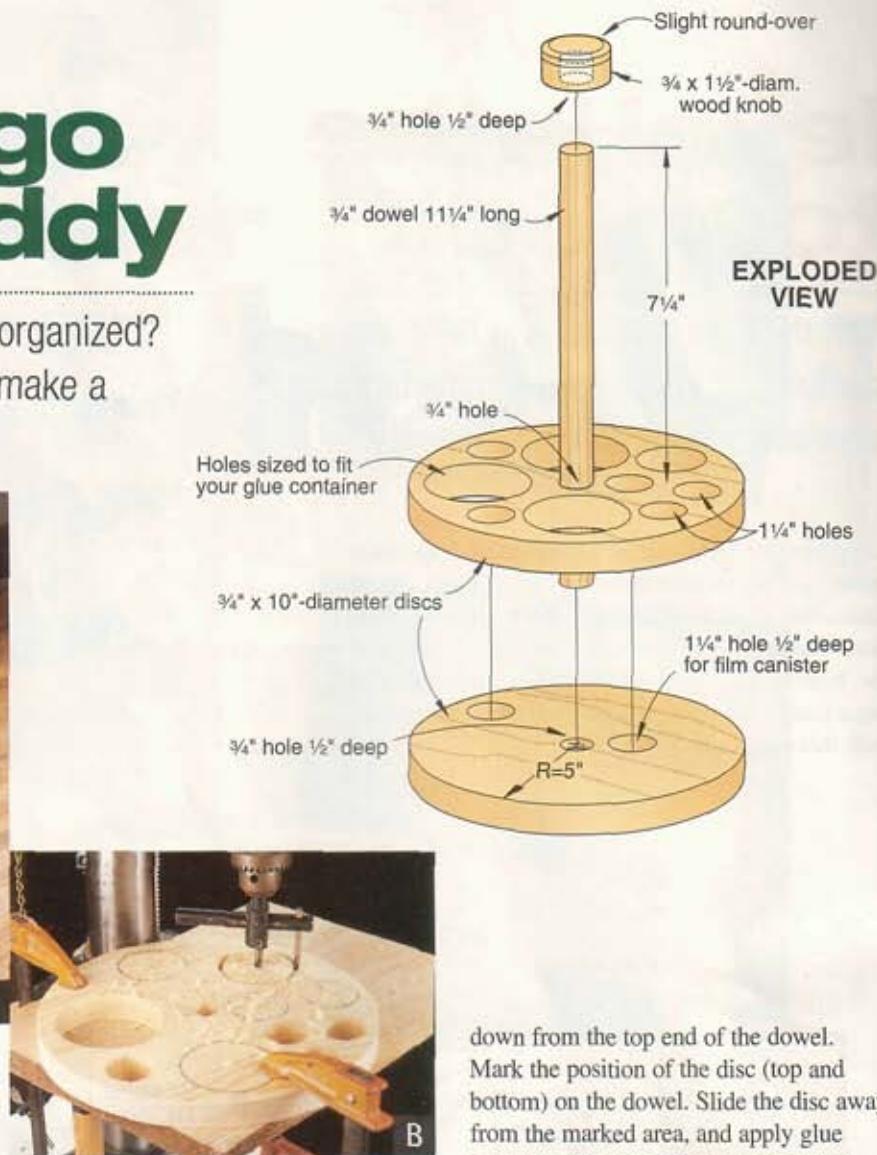
**1** Cut two pieces of  $\frac{3}{4}$ " stock (we used a pine 1x12) to 11" square. If you don't have stock this wide, laminate narrower pieces together.

**2** Find the center of one of the squares by marking diagonals. Mark a 10"-diameter circle at the center.

**3** Stick the two squares together, marked circle up, with double-faced tape. Cut the discs to shape.

**4** Arrange your glue bottles and accessories on top of the discs. Trace around each container. (We added 35-mm film canisters for holding cotton swabs, brushes, and other items used to apply glue into those hard-to-get-at places. We also included a foam cup for soaking the glue brushes after each use.)

**5** To prevent drilling into your drill-press table, mount a piece of scrap material to it. Drill a  $\frac{3}{4}$ " hole through the center of both discs. Then, if you plan on using the film canisters, as shown in



We used a circle cutter for cutting the larger-diameter holes.

**Photo A**, switch bits, and drill 1 1/4" holes through the first disc and 1/2" deep into the second (We used a Forstner bit.) Separate the discs, and remove the tape.

**6** With the 1 1/4" bit still chucked to your drill press, drill holes through the top disc for additional film canisters. Now, using a circle cutter or holesaw, bore the larger holes, as shown in **Photo B**. Bore through the top disc and just a fraction into the scrap top mounted to your drill-press table. Sand both discs and the openings smooth.

## Finishing up

**1** Cut a piece of  $\frac{3}{4}$ " dowel stock 11 1/4" long for the handle.

**2** Slide the top disk onto the  $\frac{3}{4}$ " dowel, and position its top face 7 1/4"

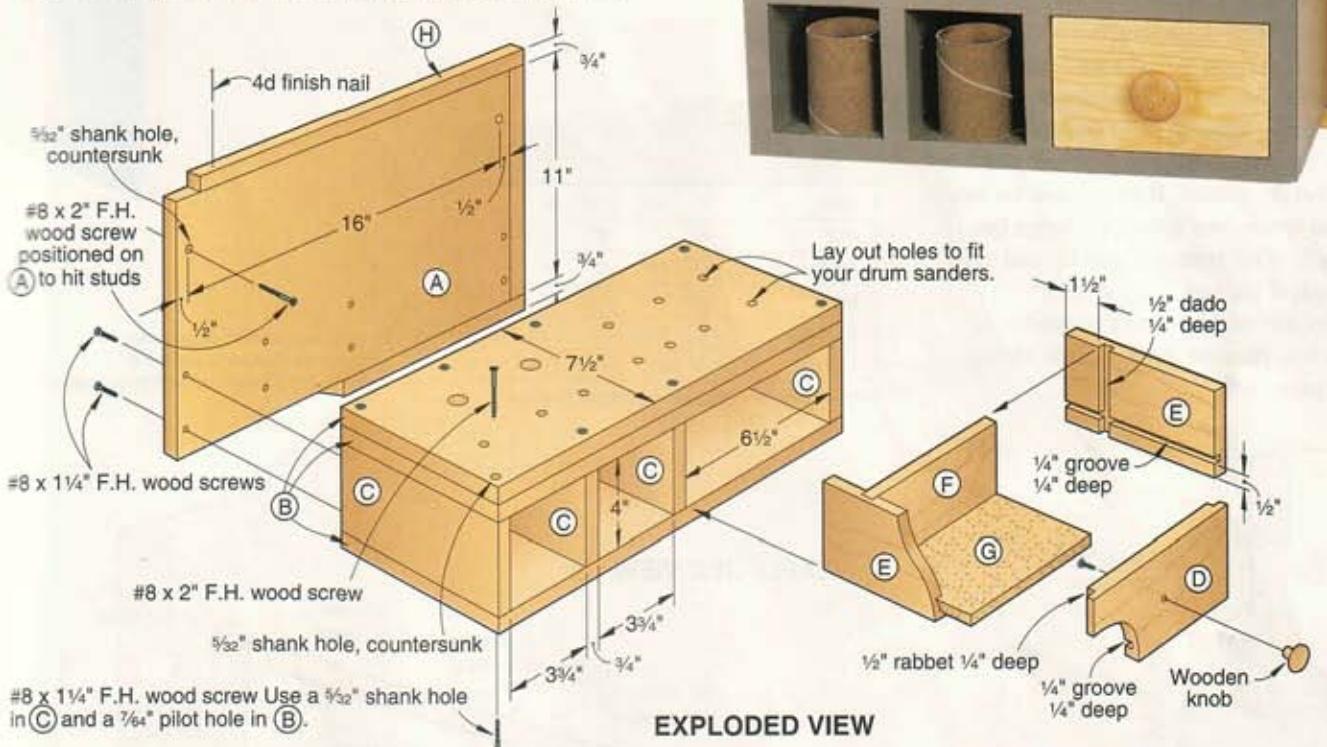
down from the top end of the dowel. Mark the position of the disc (top and bottom) on the dowel. Slide the disc away from the marked area, and apply glue between the marked lines on the dowel. Now, slide the disc back onto the glued area, turn it upside down, and run a small bead of glue around the dowel below the top disc. Later, after the top disc is firmly glued in place, glue the dowel into the  $\frac{3}{4}$ " hole in the base disc, aligning the holes in the discs.

**3** Mark a 1 1/2" circle on a piece of  $\frac{3}{4}$ " stock for the knob. Bore a  $\frac{3}{4}$ " hole 1/2" deep at the centerpoint. Cut the knob to shape on a bandsaw, sand smooth, and glue it to the top end of the dowel. Finally, apply a clear finish to all the parts. ♣

Project Design: Jim Boelling  
Photographs: Bob Calmer  
Illustration: Roxanne LeMoine

# drum-sander holder

Tired of sanding drums and sleeves rolling around your shop? Solve the problem with our wall-mounted holder. Drumshafts fit in holes in the top, while sleeves fit below.



**EXPLODED VIEW**

**1** Cut the back (A), storage box tops and bottom (B), and dividers (C) to size. Laminate the two top pieces. Lay out and drill 1"-deep holes in the top to house the shanks of your drum sanders.

**2** Glue and clamp the storage box together. Drill shank and pilot holes, and drive the screws.

**3** Cut the drawer front (D), sides (E), back (F), and bottom (G) to size. Cut or rout a 1/4" groove 1/4" deep 1/2" from the bottom in the drawer front and sides. Cut a 1/2" dado 1/4" deep 1 1/2" from the back edge of each side. Finally, cut a 1/2" rabbet 1/4" deep along both ends of the front piece.

**4** Glue and clamp the drawer together, checking for square. Drill a hole through the drawer front; attach a knob.

**5** Cut trim pieces (H, I) to size; glue and nail them to the back (A).

**6** Glue and clamp the storage box to the back piece. Drill shank and pilot holes from the back side of the back piece into the back of the box, and screw the back to the box.

**7** Mask off the trim pieces and paint the storage box and back. Remove the masking tape and apply a clear finish to the trim and drawer.

**8** Drill mounting holes through the back piece, and fasten the unit to a wall.

## materials list

Part	FINISHED SIZE				Matl.	Qty.
	T	W	L			
A back	3/4"	11"	17"	PB	1	
B tops and bottoms	3/4"	7 1/2"	17"	PB	3	
C dividers	3/4"	4"	7 1/2"	PB	4	
D drawer front	1/2"	3 1/16"	6 5/16"	P	1	
E sides	1/2"	3 1/16"	7 1/4"	P	2	
F back	1/2"	3 1/16"	5 5/16"	P	1	
G bottom	1/4"	5 5/16"	7 1/4"	HB	1	
H trim	3/4"	3/4"	18 1/2"	P	2	
I trim	3/4"	3/4"	11"	P	2	

Materials Key: P-pine, PB-particulateboard, HB-hardboard.

Supplies: #8x1 1/4" flathead wood screws, #8x2" flathead wood screws, wooden knob, 4d finish nails, masking tape, paint.

Project Design: Bill Lovelace

Photograph: Bob Calmer

Illustration: Roxanne LeMoine

# grab-it-and-go glue tote

Don't let your glue bottles get scattered around your shop. Store them in this easy-to-make mobile home for easy transport.

If your shop gets too cold to store glue safely during the winter, this handy glue tote allows you to haul a half-dozen bottles between the shop and the house with one hand. You can build this project with the box joints shown in the photograph or rabbet the corners. If you choose the box-joint option, you'll need to change the length of the bottom (D) to 12" and the length of the handle (F) to 13 $\frac{3}{8}$ ".

For the two sides and two handles of the box, photocopy the patterns, shown on page 39.

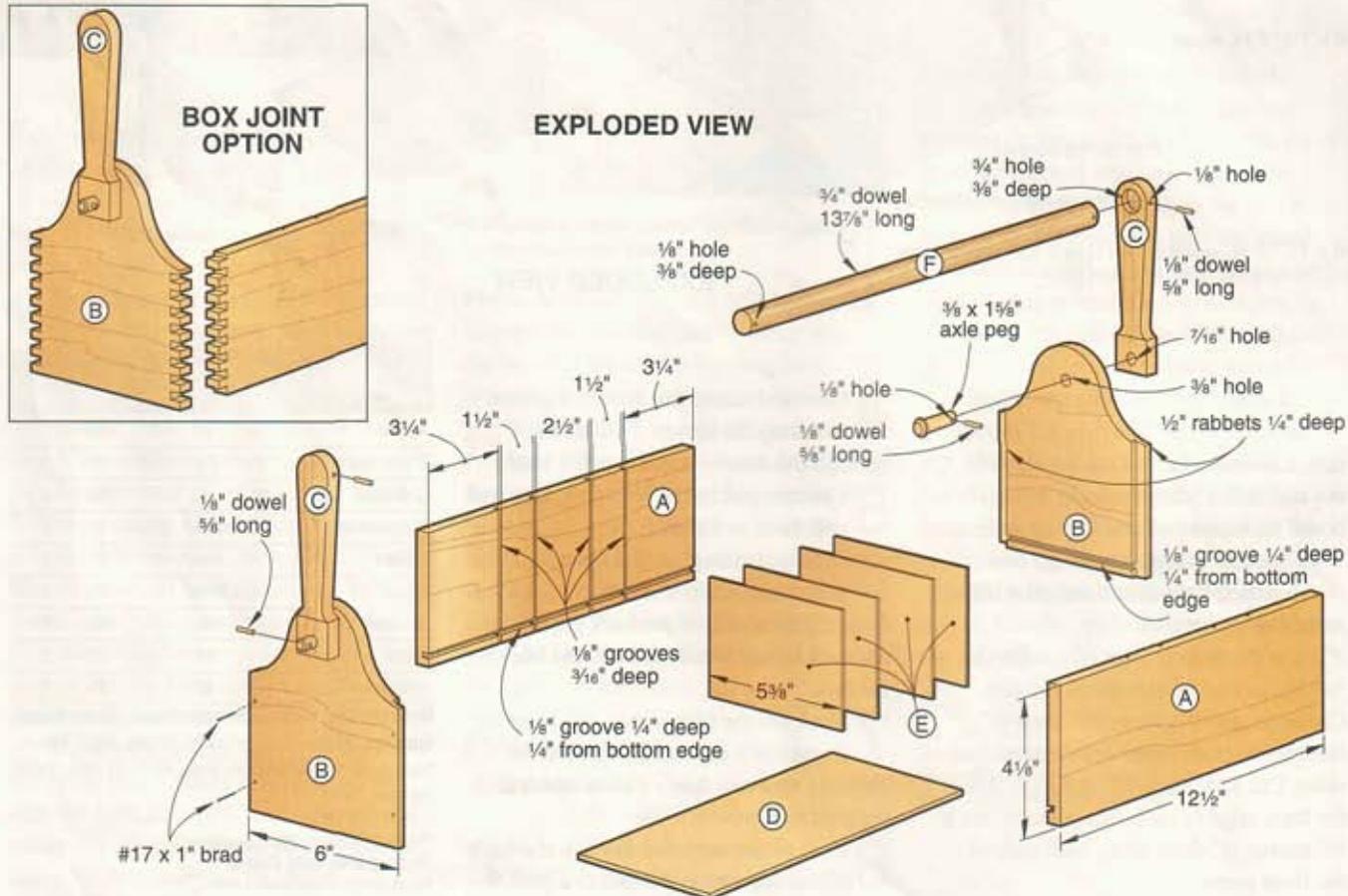


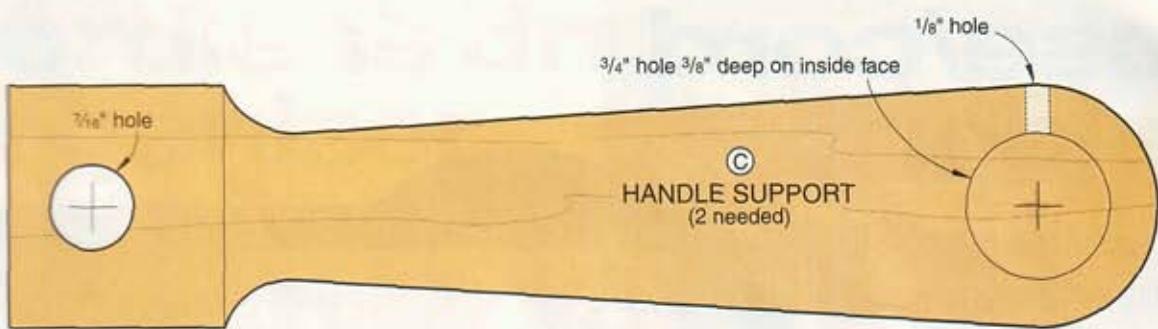
## materials list

Part	FINISHED SIZE				Matl. Qty.
	T	W	L	M	
A sides	1/2"	4 1/8"	12 1/2"	M	2
B ends	1/2"	7"	6"	M	2
C handle supports	1/2"	1 1/4"	6"	M	2
D bottom	1/8"	5 1/2"	12 1/2"	HB	1
E dividers	1/8"	3 3/8"	5 1/8"	HB	4
F handle	3/4" diam.	13 3/8"	D	1	

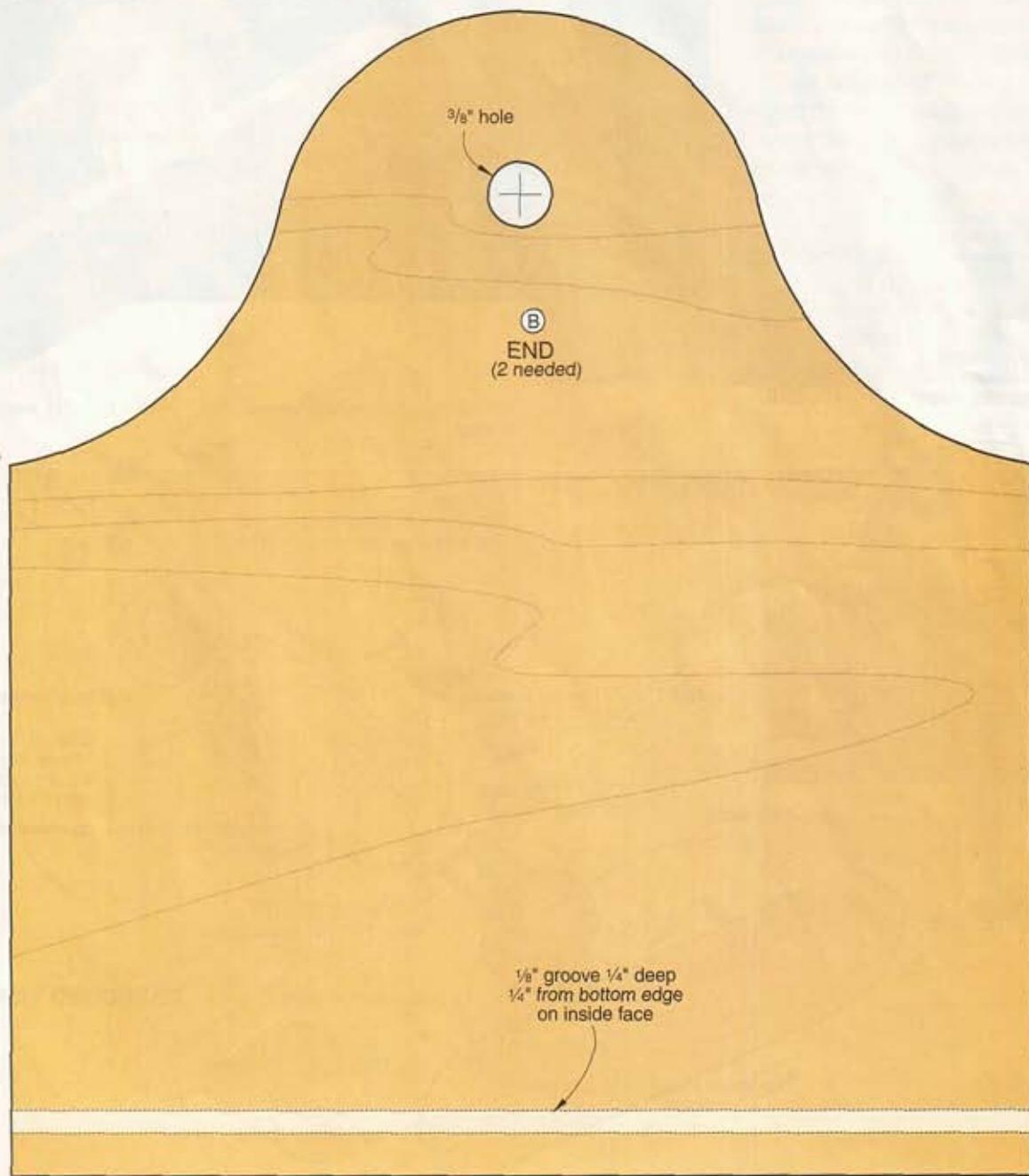
Materials Key: M=maple, HB=hardboard, D=dowel.

Project Design: Bob Colpetzer  
Illustrations: Roxanne LeMoine  
Photograph: Hetherington Photography





GLUE TOTE FULL-SIZE PATTERNS



# hose/cord holder

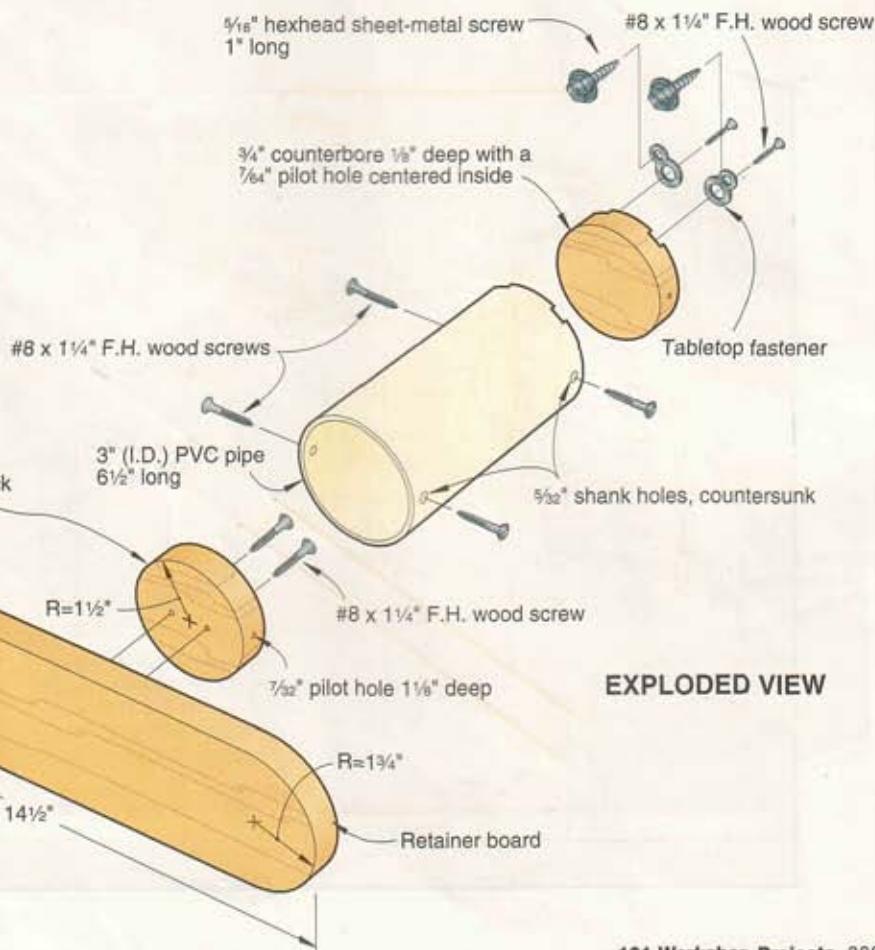
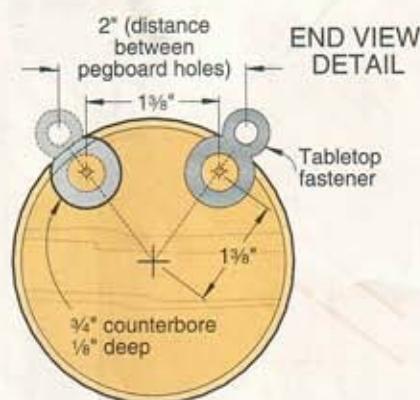
Build our simple solution to everyday entanglements.

Shop-vacuum hoses have a way of unwinding on their own, creating a hazard underfoot. To keep yours in check, build our hose holder. When you install the mounting screws in the perforated hardboard, just snug them up because overtightening will easily strip out the holes. You can use it to wind up messy cords as well. 

Project Design: Erv Roberts

Photograph: Bill Hopkins

Illustrations: Roxanne LeMoine



EXPLDED VIEW

# cordless drill organizer

Keep your drill and accessories within arm's reach in one handy wall-mounted unit.

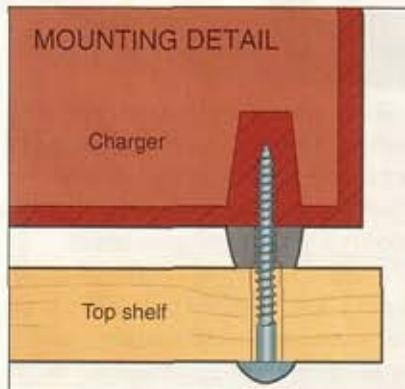
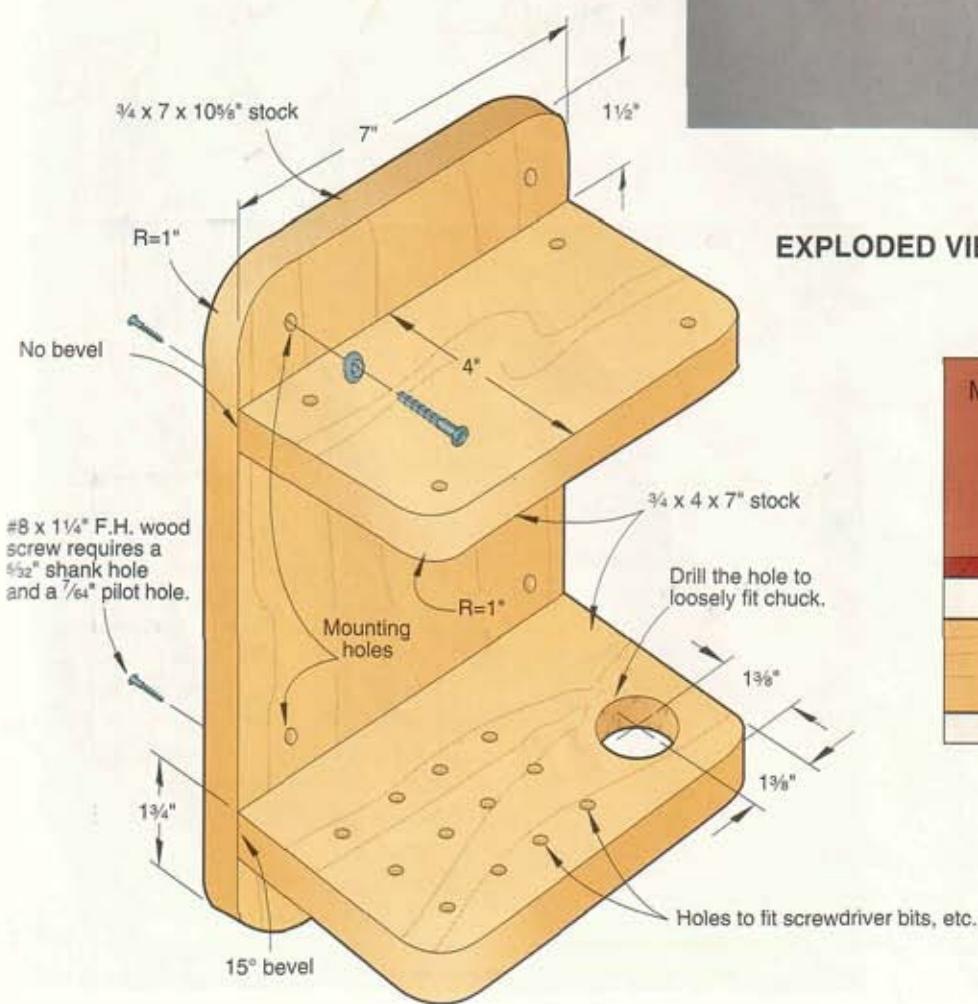
Keep your cordless drill, charger, and bits close at hand—without sacrificing valuable work space with this wall-hung rack.

Build as shown below. To fasten the charger to the top shelf, remove the screws securing the feet to the charger case and replace them with longer ones of the same diameter. ♦

Photograph: Hopkins Associates  
Illustrations: Lorna Johnson



EXPLODED VIEW



# clamp champs

## tablesaw hold-down system

Birds of feather work wonders together. In this case, we're talking about a feather board system, including a fence anti-lift mechanism that gives you additional stock control and safety.

When working with your tablesaw, you'll appreciate the additional stock control and safety provided by this simple feather board system.

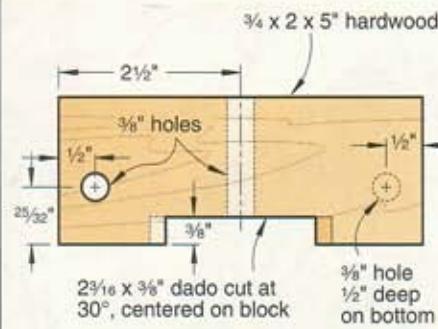
Build a pair of feather board assemblies using the drawing on the *opposite* page as a guide, and attach the mini-channel to the mounting rail (which you may need to modify slightly to suit your fence).

Align the mounting rail flush with your fence's face. Then, drill pilot holes in the rail where shown, and mark their locations on the top of the fence. Drill and tap a hole to accept a #10-32 machine screw at each mark, then attach the rail assembly to the fence.

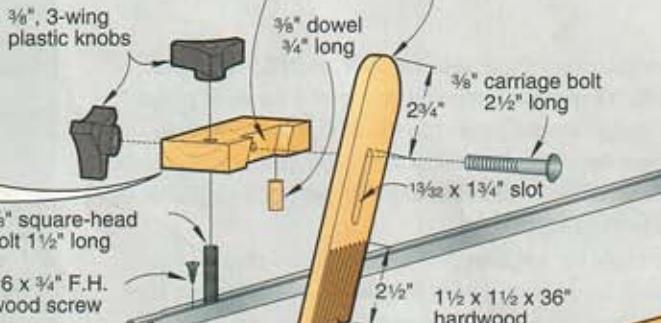
If your fence locks down at the back of the table, you won't need to add the anti-lift assembly shown in the drawings. However, a fence that locks only at the front will raise at the rear without this



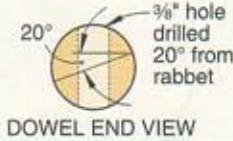
### FEATHER BOARD HOLDER DETAIL



### 2 3/16" dado cut at 30° 3/8 x 2 1/8 x 8 1/8" hardwood

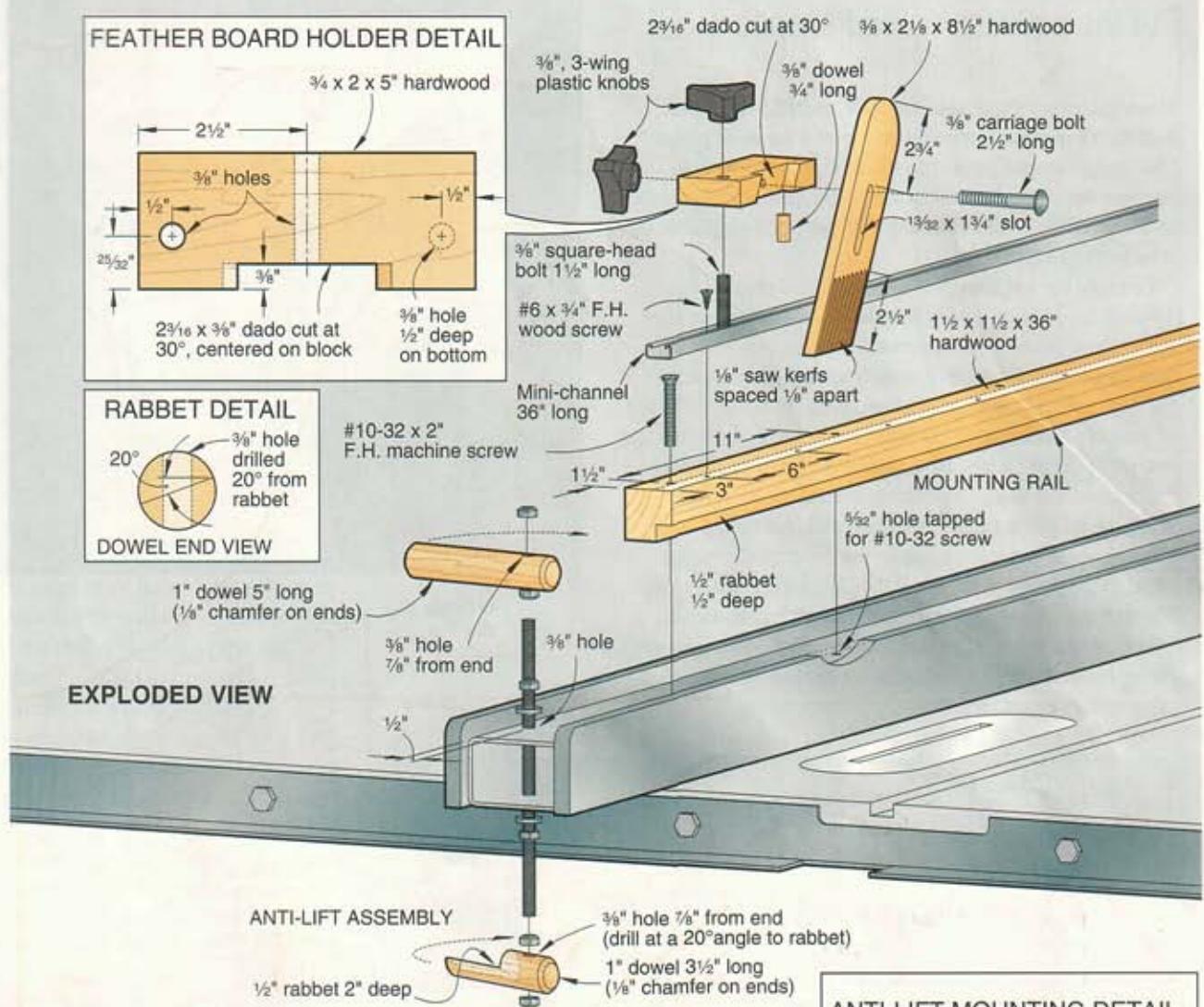


### RABBET DETAIL



#10-32 x 2" F.H. machine screw

### EXPLODED VIEW



mechanism. To cut the 20° rabbet, rip the dowel 2" down its center. Lay the dowel on your drill-press table, oriented as shown in the Rabbet detail drawing, and bore the 3/8" hole to accept the threaded rod.

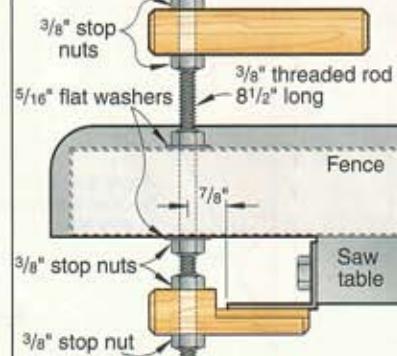
### Buying Guide

**Hardware.** Knobs, square-head channel bolts, and mini-channel for a pair of feather boards. Kit no. TS-FB, \$16.95 ppd. in

U.S. Schlabach and Sons  
Woodworking, 720 14th St.,  
Kalona, IA 52247. Call 800/346-  
9663 to order.

Project Design: James R. Downing;  
Charles I. Hedlund  
Illustrations: Roxanne LeMoine  
Photograph: Steve Uzzell

### ANTI-LIFT MOUNTING DETAIL



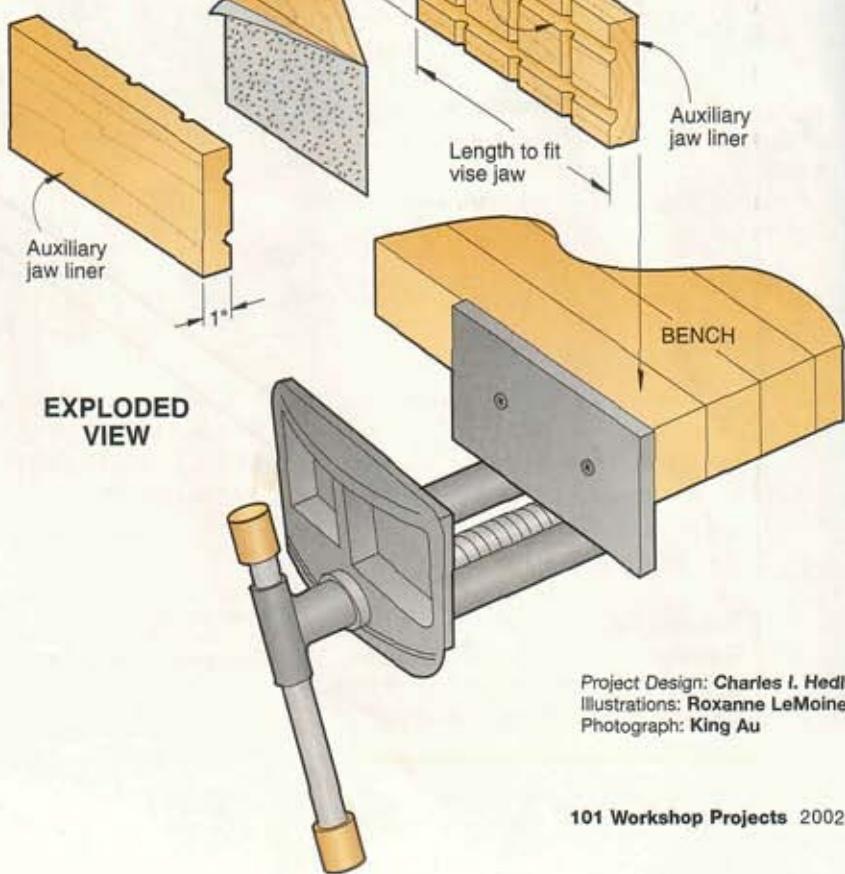
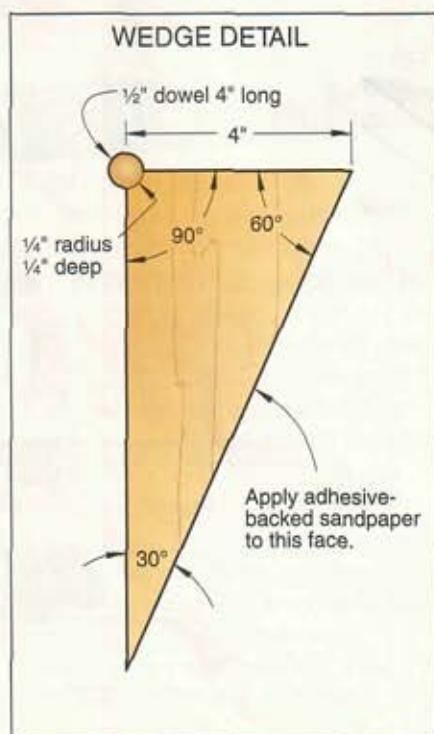
# master of angles

Put the squeeze on odd shapes.

Have you ever struggled to clamp a tapered project part, such as a triangular pediment on top of a frame or plaque? Our wedge-shaped jig and auxiliary vise jaws can help because the vertical dowel in the corner of the wedge pivots in the grooves. With this clamp you can put the squeeze on a variety of angles.

To make the auxiliary jaw liners, cut two pieces of 1"-thick hardwood equal in length and width to your vise jaws. Then, put a  $\frac{1}{4}$ "-radius round-nose bit into your table-mounted router. Rout three equally spaced grooves across the width of the jaw liners and two grooves along the length of the jaws. Center the lengthwise grooves 1" from the top and bottom of the jaw liners. Now, secure the liners to the jaws.

Construct the wedge by cutting several pieces of stock using the guidelines in the Wedge detail, below, for size. Glue up sufficient stock to make the depth of the wedge equal to the width of the jaw liners. Rout the groove in the 90° corner of the wedge as shown, and fasten the dowel with glue and brads. Finally, give the wedge some gripping power by adding a piece of adhesive-backed 100-grit sandpaper to its longest face. ♦



Project Design: Charles I. Hedlund  
Illustrations: Roxanne LeMoine  
Photograph: King Au

# long-reach clamp extensions

Need added pressure? These provide it.

Clamping jobs like that shown below require clamping pressure farther in from the edge than sliding-head clamps provide. These hardworking extensions solve the problem. (We've used them on Jorgensen sliding-head-type steel bar clamps and Bessey sliding-arm bar clamps.).

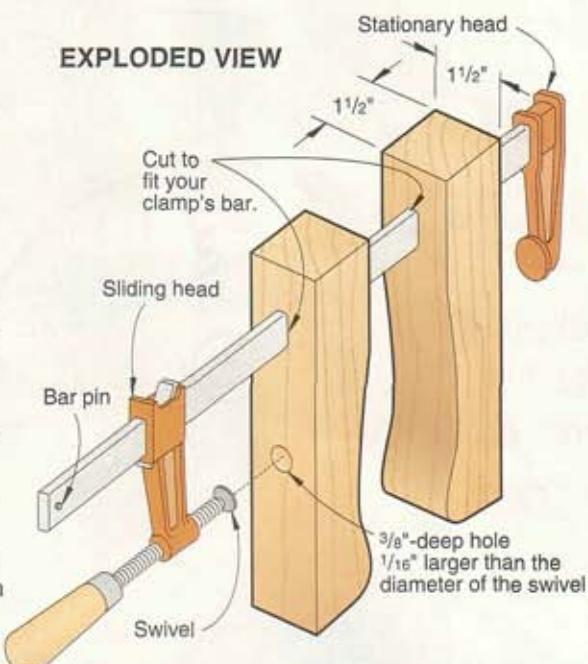
Simply cut a pair of the extensions to shape from  $1\frac{1}{2}$ "-square stock (we laminated two pieces of  $\frac{3}{4}$ " maple), using our full-size pattern. Pop the bar pin out of the end of your clamp's bar. Then, drill and cut a slot in each extension so it slides smoothly, but fits snugly on the bar.

Put the extensions on the bar in the configuration shown on the drawing at right. Mark the location of the swivel on its mating extension. Remove that extension from the bar, and drill a  $\frac{3}{8}$ "-deep hole  $\frac{1}{16}$ " larger than the diameter of the swivel-head clamp end where marked.

As shown in the photo at right, position the sliding head next to the extension when moving the two back and forth on the bar. If you leave a gap between them, they tend to bind and are harder to move in unison. Drilling the hole for the swivel in the extension allows you to slide the extension flush against the metal head.



EXPLODED VIEW



Slot cut to fit  
your clamp's bar

FULL-SIZE  
CLAMP EXTENDER  
PATTERN  
(2 needed)

$3\frac{1}{8}$ "-deep hole  
 $1\frac{1}{16}$ " larger than  
the diameter of the  
swivel



Project Design: Mike Sarnes, Fairview,  
Michigan; Charles I. Hedlund  
Illustrations: Roxanne LeMoine  
Photographs: Dean Tanner

# homemade tools

## heirloom depth gauge

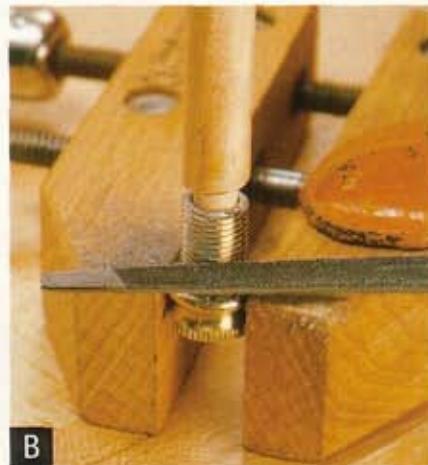
You're not likely to misplace this shop heirloom. Use it for measuring dadoes, mortises, and other recesses where precision is critical.

### Form the walnut body

- 1 Cut a piece of  $\frac{3}{4}$ "-thick walnut stock to  $1\frac{3}{4} \times 6"$  for the body.
- 2 Make a photocopy of the Full-Size Body Pattern. Using spray adhesive, adhere the paper pattern to the walnut. (You could transfer the pattern directly to the walnut with carbon paper.)
- 3 Mark a center point on the top edge of the walnut directly above and aligned with the  $\frac{3}{8}$ " hole centerpoint. (See Photo A for reference.)
- 4 Drill a  $\frac{3}{8}$ " hole  $\frac{5}{8}$ " deep into the face of the body at the center point.
- 5 Thread the  $\frac{3}{8}$ " cap onto the  $\frac{3}{8}$ " nipple as far as it will thread. (See the Buying Guide for our hardware source.) As shown in the Photo B, clamp the cap into a handscrew clamp, and file the exposed nipple threads. (We used a dowel to hold the nipple stationary when filing.) File the threads until the nipple slides easily into the hole in the walnut.
- 6 Hold the nipple (cap still threaded on) with a pair of pliers, and rotate the



A  
Center a  $\frac{5}{32}$ " bit over the walnut, and drill through the walnut and brass nipple.



B  
Secure the cap, and file nipple threads for easy insertion into the walnut body.

cap 2 turns counter-clockwise. Push the nipple and cap into the  $\frac{3}{8}$ " hole in the walnut. Drill a  $\frac{5}{32}$ " hole through the assembly, as shown in Photo B.

- 7 Remove the nipple and cap from the walnut body. Retain the paper pattern.

### Add the brass base

- 1 Crosscut a piece of  $\frac{1}{16} \times \frac{3}{4}$ " brass to 6" long.
- 2 Use double-faced tape to adhere brass to the bottom of the body. Using the screw-hole location lines on the pattern,

drill and countersink  $\frac{1}{16}$ " holes through the brass. Switch bits, and drill  $\frac{5}{32}$ " pilot holes  $\frac{1}{16}$ " deep into the walnut body. (We secured the walnut with a handscrew clamp when drilling the holes.)

### Final assembly

**1** Remove the brass strip and nipple assembly from the walnut. Bandsaw the walnut body to shape, and sand the cut edges smooth. Route a  $\frac{1}{4}$ " round-over along the top edges. To keep your fingers safely away from the router bit, hold the walnut body firmly in a handscrew clamp. You'll have to stop, reposition the clamp, and continue routing. Remove the paper pattern.

**2** Screw the brass strip to the bottom of the walnut. File and sand the edges of the brass strip even with the rounded-over edges of the walnut. Using the previously drilled  $\frac{5}{32}$ " hole in the walnut body as a guide, drill a  $\frac{5}{32}$ " hole through the brass for the rod.

**3** Sand the depth gauge smooth.

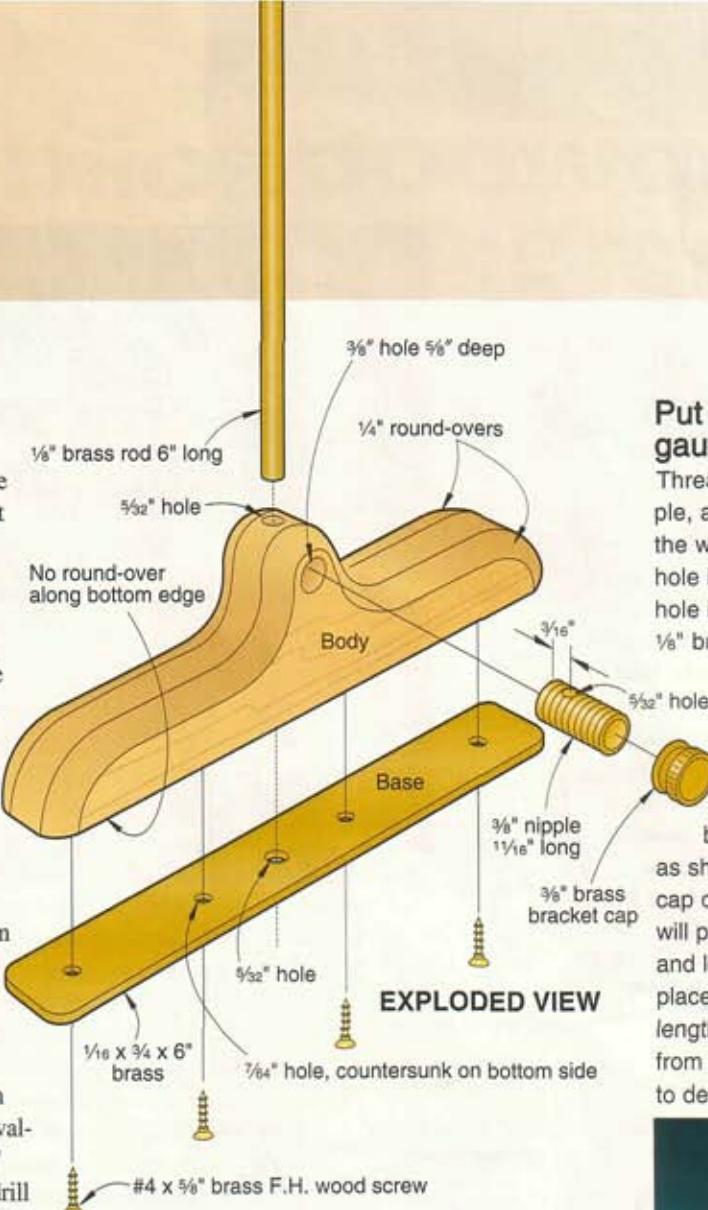
Mask the brass, and apply finish to the walnut. Cut a piece of  $\frac{1}{8}$ " brass rod to 6".

### Buying Guide

Depth gauge kit.  $\frac{3}{8}$ " brass cap,  $\frac{3}{8}$ " nipple  $1\frac{1}{16}$ " long,  $\frac{1}{16} \times \frac{3}{4} \times 6$ " brass strip,  $\frac{1}{8}$ " brass rod 6" long, #4x $\frac{3}{8}$ " brass flathead

wood screws (5). Kit no. DG \$7.95 ppd. Schlabach and Sons, 720 14th Street, Kalona, IA 52247. Call 800/346-9663. ♦

Project Design: James R. Downing  
Photographs: Hopkins Associates; Jim Kascoutas  
Illustrations: Kim Downing; Bill Zahn



EXPLODED VIEW

### Put the depth gauge to work

Thread the cap onto the nipple, and insert the nipple into the walnut. Align the  $\frac{5}{32}$ " hole in the nipple with the hole in the walnut. Insert the  $\frac{1}{8}$ " brass rod.

Position the depth gauge over the depression you wish to measure. Push the brass rod to the bottom of the depression, as shown below. Tighten the cap on the nipple. The cap will pull the nipple forward and lock the brass rod in place. Finally, measure the length of brass rod protruding from the bottom of the gauge to determine the depth.



*Note: If you do a lot of wood turning, you may want to make a larger version for checking the depth of bowls. To do so, increase the length of the walnut body, brass strip, and brass rod.*

### FULL-SIZE BODY PATTERN

Centerpoint for  $\frac{3}{8}$ " hole

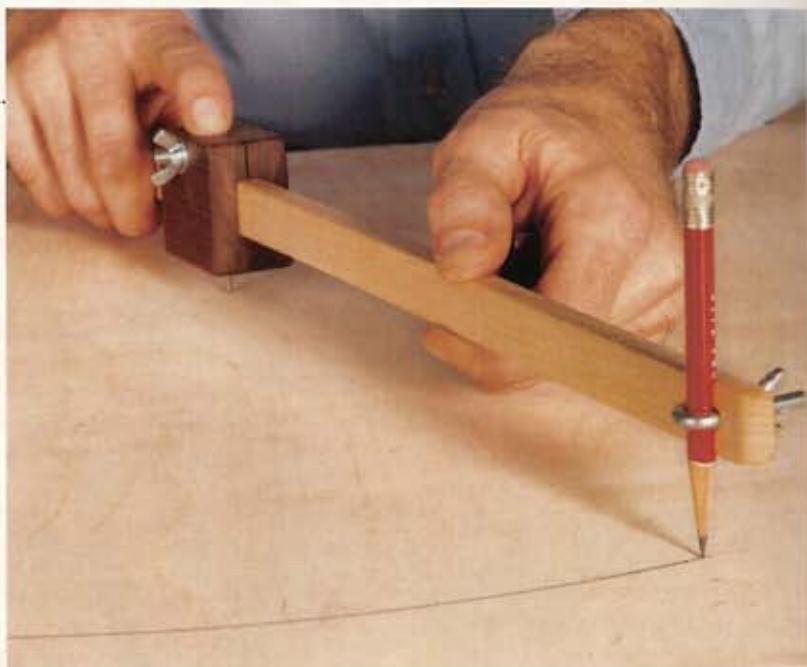
Screw hole locations

# scrapwood trammel

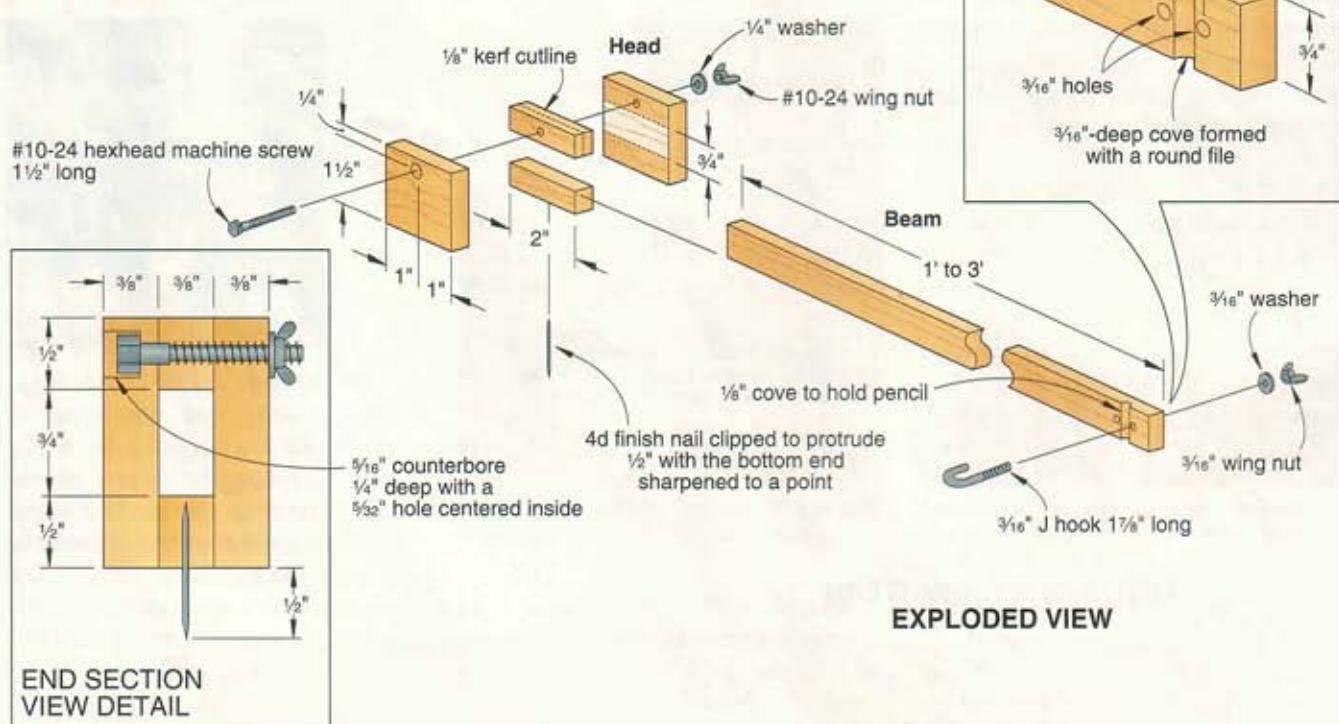
Scribe the perfect arc  
with our shop-built tool.

The wobbly old string-and-a-nail technique for marking arcs and circles often leads to errors. But with our shop-built trammel, you can scribe perfect arcs or circles of all sizes, quickly and accurately.

To use the trammel and create an arc, stick the clipped 4d nail in the head into the planned arc's centerpoint. Slide the pencil end of the beam out to the desired radius, and tighten the wing nut on the side of the head, locking the beam in place. Now, while holding down the head, swing the pencil end of the beam to scribe the arc. For an extra-large arc, make a longer beam. 



Photograph: Hetherington Photography  
Illustrations: Roxanne LeMoine



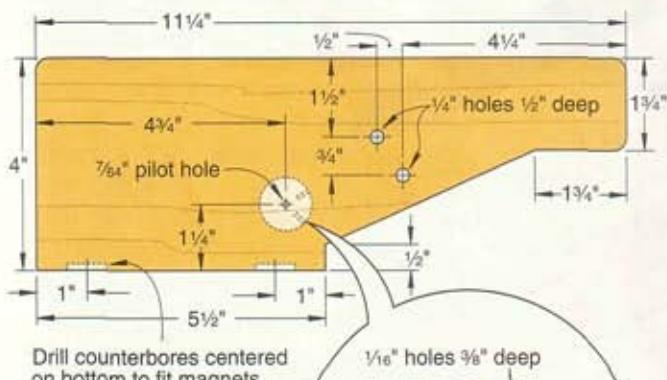
# economical dial-indicator

Align jointer knives accurately with a simple magnetic jig.

You don't need a fancy dial-indicator gauge to set the knives on your jointer; you simply want them set to the same height as the outfeed table. So, rather than buying an expensive gauge to do the job, WOOD® magazine reader Jim Murphy of Morgantown, West Virginia, designed the magnetic jig, shown at right, which helps align jointer knives precisely.

To make your own, start by shaping and machining the body of the jig from 1½" solid stock, as shown in the Parts View drawing. Counterbore two ½"-deep holes in the bottom, and epoxy a small round magnet in each hole. (We used a pair of ½×1" rare-earth magnets from Lee Valley, 800/871-8158.) Drill holes in a 1" dowel as shown in the Hub detail and assemble the jig, leaving the hub loose enough to turn without being sloppy. Cut and bend two pieces of copper-coated welding rod or heavy coat-hanger wire to the shapes shown, and grind the end of the upper rod farthest from the hub to a point. Insert the rods in the small holes in the hub.

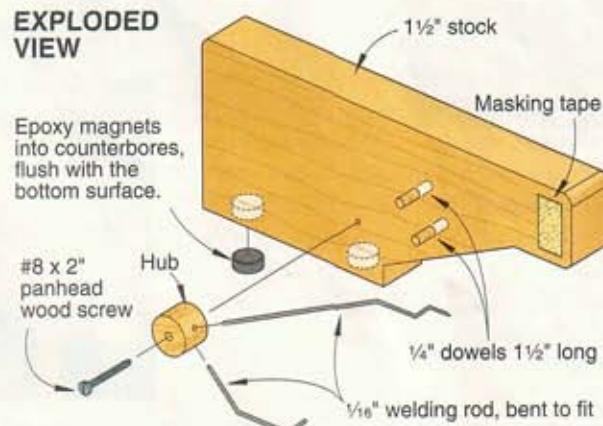
Before you use your gauge for the first time, calibrate it, as shown in the Calibrating the Jig drawing. Now rotate the cutterhead so one knife is at its highest point, and position the jig on the outfeed table with the lower rod resting on the knife. When the knives are level with the outfeed table, the pointer will reach—but not rise above—the zero point on the masking tape.



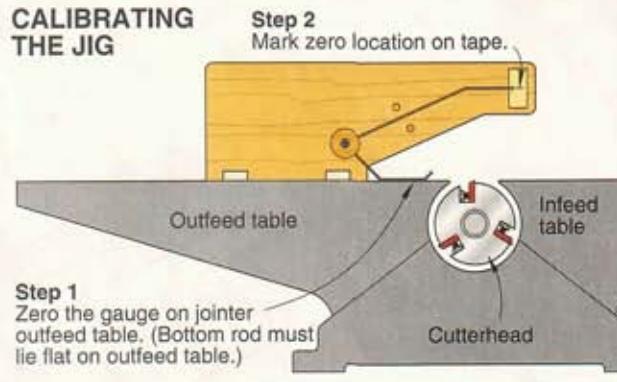
## PARTS VIEW



## EXPLODED VIEW



## CALIBRATING THE JIG



Illustrations: Kim Downing  
Photograph: Baldwin Photography

# hand-powered laminate jointer

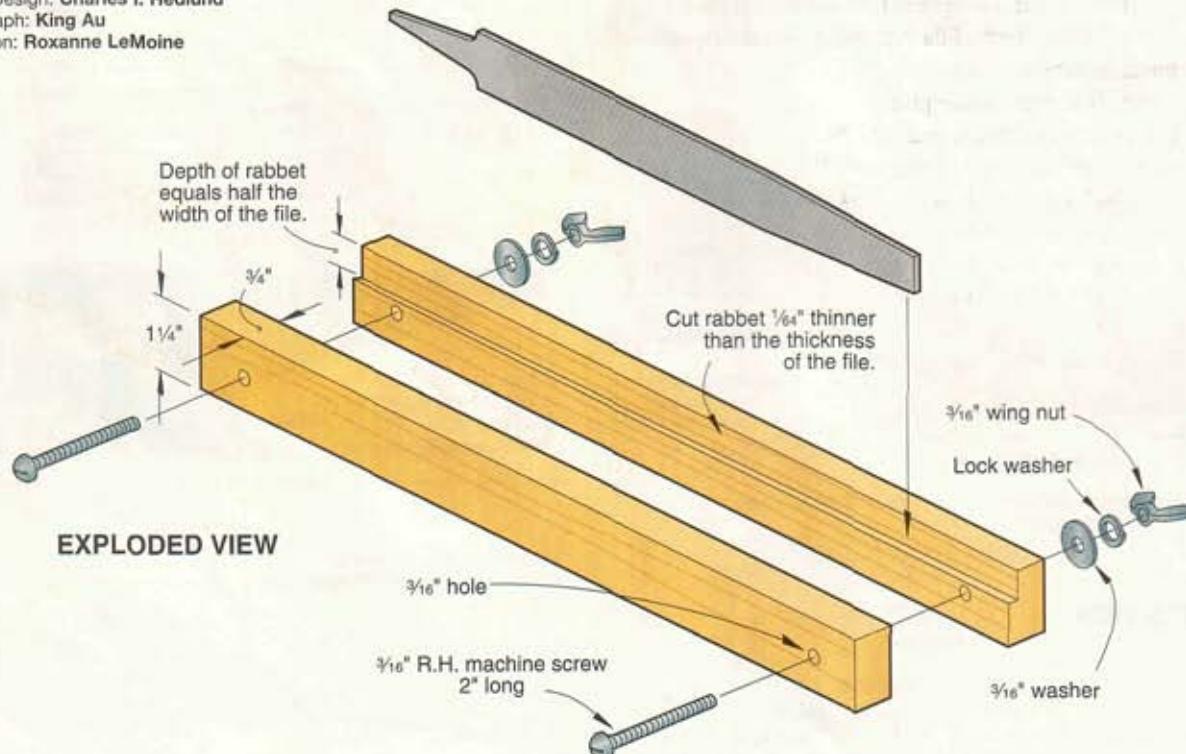
Make rough laminate edges clean as a whistle with this handy, easy-to-make woodshop tool.

Clamp a double-cut flat file into our laminate jointer, and you can clean and straighten rough laminate edges so they will meet neatly at a seam. You also can smooth and straighten the cut edges of sheet metal with this time-saving, simple-to-build device.

To start, size the length of the laminate jointer a couple inches longer than your file. Then, cut the rabbet in only one side of the holder. To ensure a tight fit, cut the rabbet about  $\frac{1}{64}$ " thinner than the thickness of the file. Drill the holes, assemble with the hardware shown, and put your jointer to work. ♣



Project Design: Charles I. Hedlund  
Photograph: King Au  
Illustration: Roxanne LeMoine

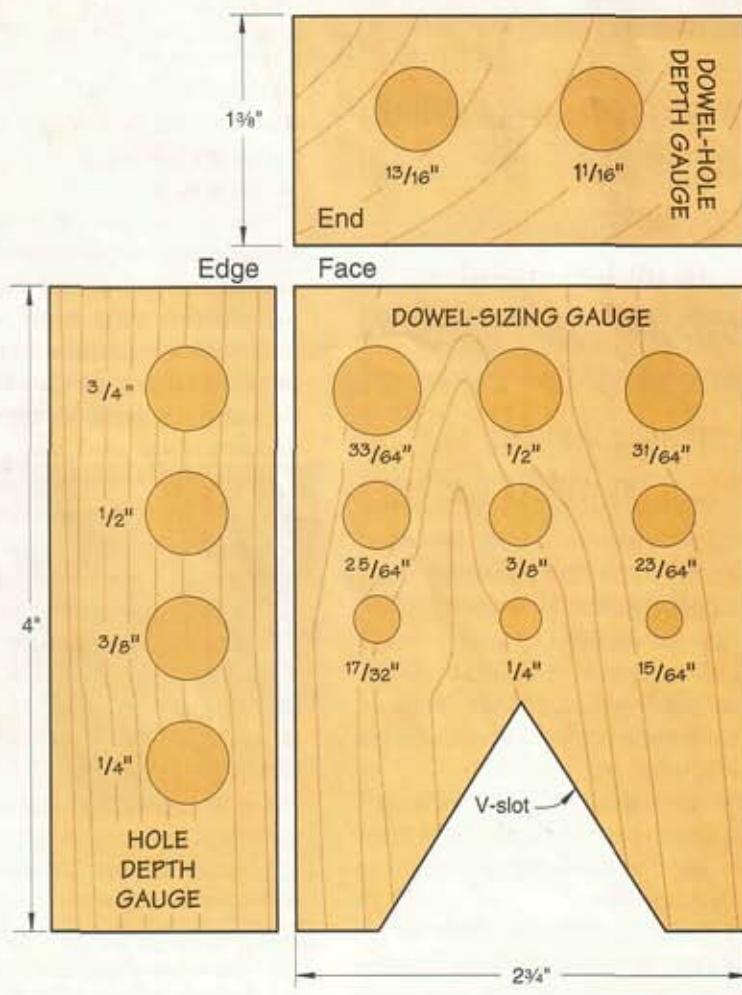
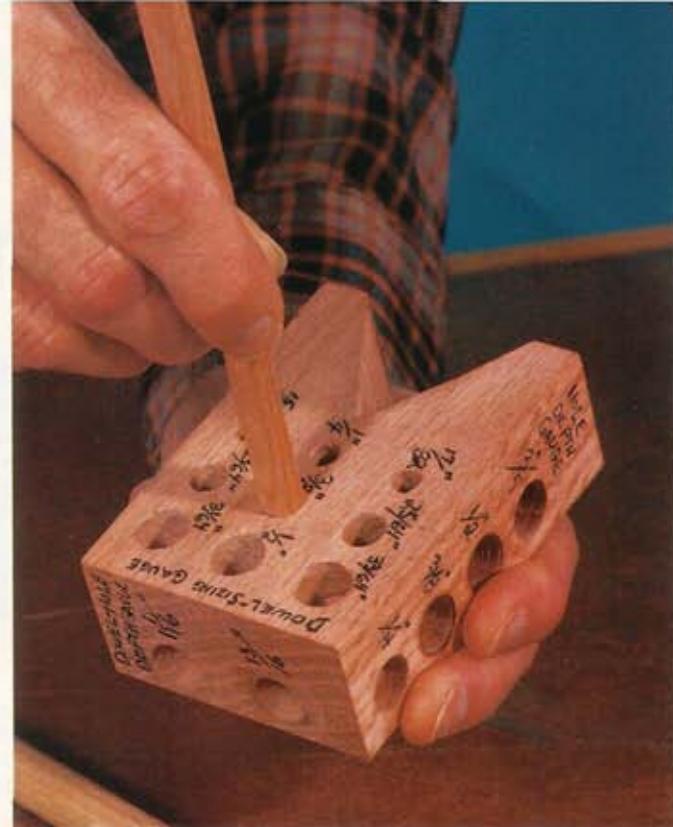


# handy 4-in-1 dowel gauge

Double check the sizes of your dowels before you assemble a project with this custom-made measuring device.

Doweling can turn dicey when the dowels don't quite measure up to their stated diameter—or the hole you drill is too shallow or too deep. The solution? Build our 4-in-1 dowel gauge. With it you can double-check these measurements before you assemble a project. To build the gauge, use a piece of kiln-dried hardwood. This will help minimize any humidity-related swelling and shrinking of the wood. Here are the four features this handy helper provides:

- 1 The *dowel-sizing gauge* on the face of the block offers three holes with standard dowel diameters plus holes that measure  $\frac{1}{64}$ " larger and smaller than the standard diameters. Check the fit of your dowels in these holes, and then you can select the appropriate drill bit if your dowel is just a hair too big or too little.
- 2 When you want to drill a hole to a precise depth, use the *hole-depth gauge*. Just insert your drill bit in the appropriate hole and mark the depth on the shank of the bit with a piece of masking tape.
- 3 The *dowel-hole depth gauge* gives you two holes that measure one-half the length of two standard dowel pin lengths— $1\frac{1}{2}$ " and 2"—plus  $\frac{1}{16}$ ". Use these holes to mark the depth on your drill bit. By drilling your dowel holes  $\frac{1}{16}$ " deeper, you give excess glue a place to escape, and your dowel pin won't protrude too far from its hole.
- 4 At the rear of the block, the *V-slot* helps keep your drill bit plumb. Just place the bit on the workpiece, push the slot up to the bit, and tilt the bit until it fits snugly in the corner of the slot.



Project Design: Jim Downing  
Photograph: Hetherington Photography  
Illustration: Roxanne LeMoine

# masterful marking gauge



Instead of fooling around with makeshift measuring and marking methods, count on this accurate, heirloom-quality gauge for layout help. Use it now, and eventually you can pass it on with pride.

## Construct the sliding body sections for the gauge

**1** Cut and plane stock to size. For each marking gauge, you'll need two  $\frac{1}{2} \times 2\frac{1}{8} \times 5\frac{1}{8}$ " pieces of walnut for the body and one  $\frac{1}{8} \times \frac{1}{4} \times 5\frac{1}{8}$ " piece of maple for the guide.

**2** Saw or rout a  $\frac{1}{8}$ " groove  $\frac{1}{8}$ " deep, where shown in the Exploded View drawing. The maple strip should fit snugly in the grooves.

**3** Rout a groove for the rule in the gauge body bottom, where shown in the drawing. To do this, first measure the

width and thickness of your 6" stainless steel rule. (See the Buying Guide for our source of a rule engraved with the *WOOD®* magazine logo.)

Then, set up your table-mounted router to cut the groove. Install a straight bit that matches the width of your rule, and position a fence to locate the groove where shown. (You could make the cut in multiple passes with a narrower bit, too.) Set the router's cutting depth to match the thickness of your steel rule.

Ideally, the rule's top face will be flush with the body surface. It's okay if the rule face lies a bit below the surface, but it must not stand above it.

**4** Drill holes in the rule groove for the three magnets that will hold the rule in place. (We used strong rare-earth magnets,  $\frac{1}{2}$ " in diameter, purchased from a crafts-supply store.) Drill the holes to a depth equal to the magnets' thickness, setting the top of each magnet flush with the bottom surface of the groove.

**5** Glue the three magnets into their holes. Use epoxy or cyanoacrylate adhesive, not woodworker's glue.

**6** Glue the maple guide into the slot in the body bottom. After the glue dries,

sand the sides of the guide to make it a sliding fit in the groove in the body top. The two body parts should slide face to face. If the guide holds them apart, sand its edge down a bit.

**7** Drill a  $\frac{1}{4}$ " hole through the body bottom where shown. Countersink the hole on the bottom surface.

**8** Form the slot in the body top for the clamp screw. To locate the slot accurately, slide both body parts together, flush at both ends. Place the body on your drill-press table, the body bottom facing up. Then, with a  $\frac{1}{4}$ " bit chucked in your



The body bottom serves as a template for locating the holes that mark the ends of the clamp-screw slot in the body top.

drill press, guide through the hole in the bottom to drill through the body top.

Next, slide the body bottom 4" along the body top, as shown in **Photo A**. Drill through the body top as you did before. Enlarge the holes through the top to  $\frac{5}{16}$ ". Connect the holes with pencil lines; then scrollsaw the slot. Sand or file the inside edge smooth, if necessary.

### Dress up the gauge with bright brass fittings

- 1** Cut four  $\frac{1}{16} \times \frac{1}{2} \times 2\frac{1}{8}$ " pieces of brass stock for the end plates.
- 2** Drill and countersink two  $\frac{5}{16}$ " holes in each piece,  $\frac{5}{8}$ " from each end. Center them on the width of the brass.
- 3** Drill screw holes for #6x $\frac{3}{4}$ " screws in the body top and bottom, using the brass pieces as templates. Drill a  $\frac{5}{32}$ " shank hole  $\frac{1}{4}$ " deep into the body; then drill to  $\frac{3}{4}$ " deep with a  $\frac{3}{32}$ " bit.

To drill the holes, clamp the brass pieces to the ends of the body parts. Use rubber clamp pads or put several layers of masking tape on the brass to protect it.

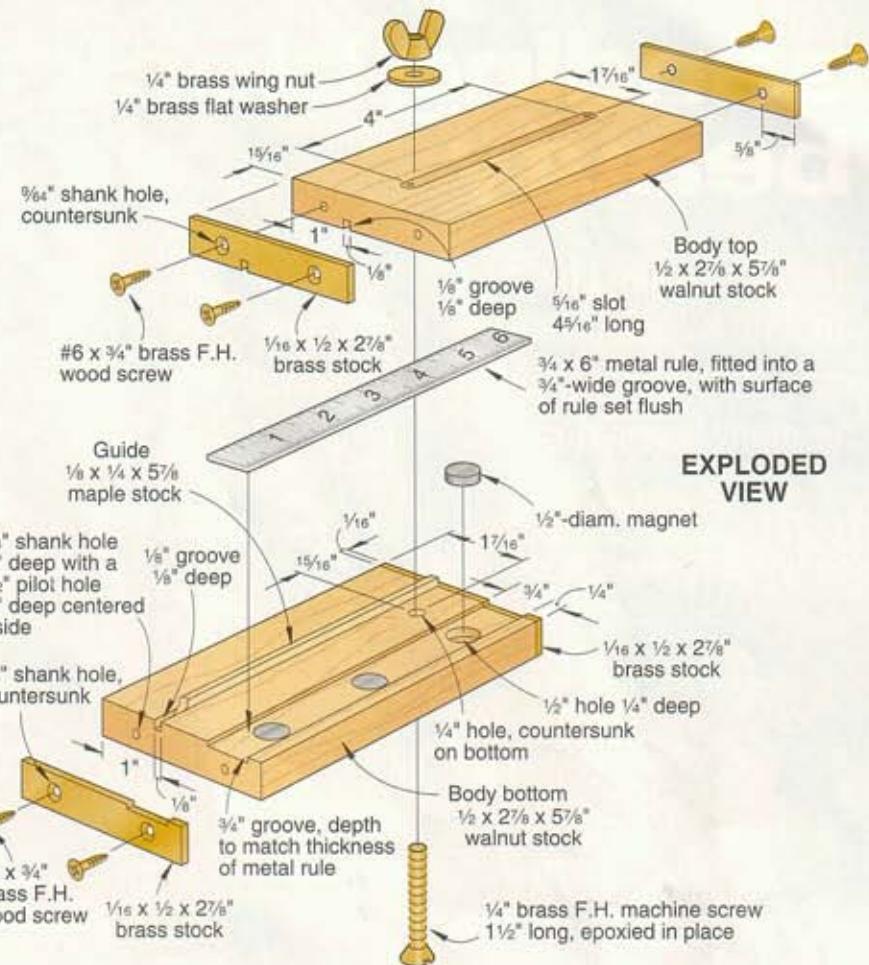
Then, center the screw holes in the shank holes through the brass. A Vix centering bit, shown beside the body bottom in **Photo B**, will help you center the holes accurately.

- 4** Attach the brass plates to the ends of the body halves with screws. For best appearance, align the screw-head slots. File the screw heads flush with the brass end pieces, if necessary.

**5** File the edges of the brass end pieces flush with the body parts, and file the rule groove in the brass pieces on the body bottom. (We used a flat file, as shown in **Photo B**.)

- 6** In the same way, file a slot for the maple guide in the brass piece on one end of the body top. To determine which end, place the body top on your bench, the guide groove facing up and lying to the right of the slot for the clamp screw. File the slot in the end that's facing you.

**7** Polish the brass to remove file marks and restore its luster. (We sanded with 320-, 600-, 1,800-, and 3,600-grit abrasives to remove the marks, then shined it up with metal polish.)



**EXPLODED VIEW**

- 8** Finish-sand the body top and bottom, taking care not to sand the maple guide excessively. Apply a clear finish. (We finished our gauge with Danish oil, then waxed and buffed it after the finish was dry.)

- 9** Lay the rule in its groove, and put the two body parts together. Insert a  $1/4 \times 1\frac{1}{2}$ " flathead brass machine screw from the bottom, and epoxy-glue the head into the countersink. Install a brass washer and wing nut.



Attach the brass ends to the body bottom before filing the notches for the steel rule. We used the countersink, shown in the foreground, on the brass ends. The centering bit, lying beside the body, automatically centers the pilot holes inside the countersunk holes.

### Buying Guide

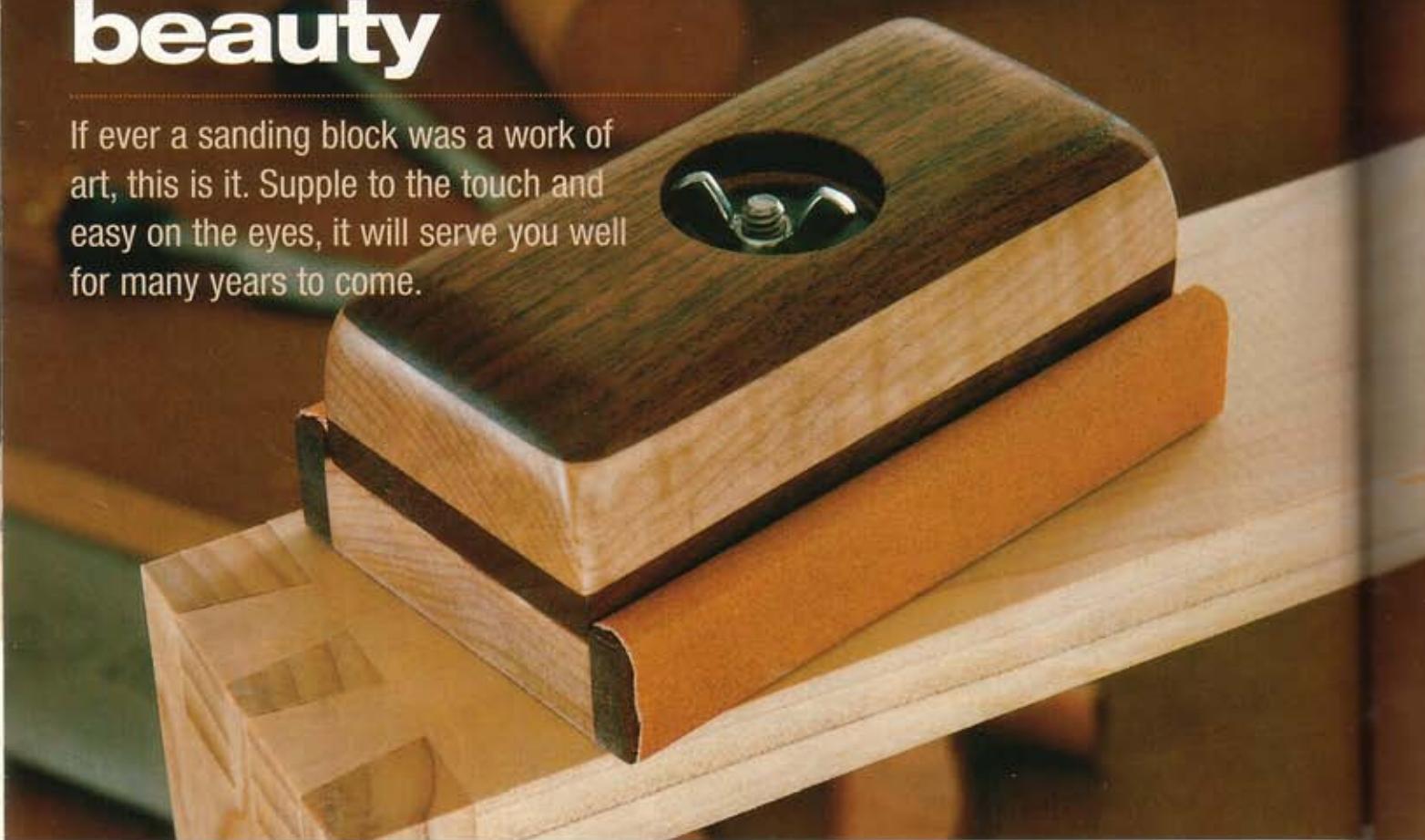
**Rule and brass.** Stainless steel 6" rule, brass stock, brass hardware, and magnets for one marking gauge, kit no. 300MG, \$21.95 ppd. in U.S. Schlabaugh and Sons Woodworking, 720 14th St., Kalona, IA 52247. Call 800/346-9663 to order.

**Countersink.** This 82° countersink makes clean cuts in metal or wood, with a  $\frac{1}{8}-\frac{11}{32}$ " cutting range and a  $\frac{1}{4}$ " shank. Item no. 400905, \$8.75. Address and telephone above. ♣

Project Design: James R. Downing  
Illustration: Roxanne LeMoine; Lorna Johnson  
Photographs: Hetherington Photography

# sanding block beauty

If ever a sanding block was a work of art, this is it. Supple to the touch and easy on the eyes, it will serve you well for many years to come.



This idea comes from *WOOD®* magazine reader M.C. "Morrie" Patten of Mesa, Arizona, who makes his laminations long enough to yield at least two sanding blocks at a time. That way, they're easier to machine, and he has several to present to his woodworking buddies. We were so impressed with Morrie's idea, we decided to make a couple of these beauties for our own shop, and share his idea with you.

## Making the sanding block bases

**1** Rip and crosscut a piece of  $\frac{3}{4}$ " maple to  $2\frac{1}{4} \times 10$ " long, enough for two bases (A). Now, joint, resaw, or hand-plane the maple to  $\frac{5}{8}$ " thickness.

**2** Rip two strips of walnut  $\frac{1}{4}$ " wide from the edge of a piece of  $\frac{3}{4}$ " stock. Crosscut each to 10" for the sides (B).

**3** Glue and clamp one walnut strip to each edge of the maple base, with the bottom edges flush. Scrape off any glue squeeze-out.

**4** Crosscut two  $4\frac{1}{2}$ "-long bases from the lamination.

## The palm grips come next

**1** Start by cutting one piece of  $\frac{3}{4}$ " maple (C) and one piece of  $\frac{3}{4}$ " walnut (D) to  $2\frac{1}{4} \times 10$ " long. Using a bandsaw or table-saw, resaw the walnut into two pieces just under  $\frac{3}{8}$ " thick each.

**2** Glue and clamp the maple between the two pieces of walnut, sandwich-fashion, making sure that all edges align exactly.

**3** Remove the clamps and scrape off any excess glue. Then, joint or plane the walnut top and bottom pieces to a finished thickness of  $\frac{1}{4}$ " each. Now, joint or

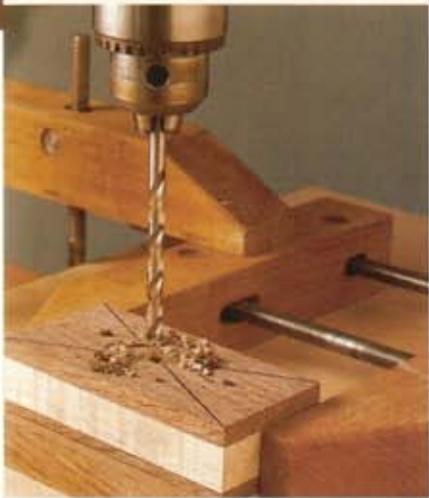
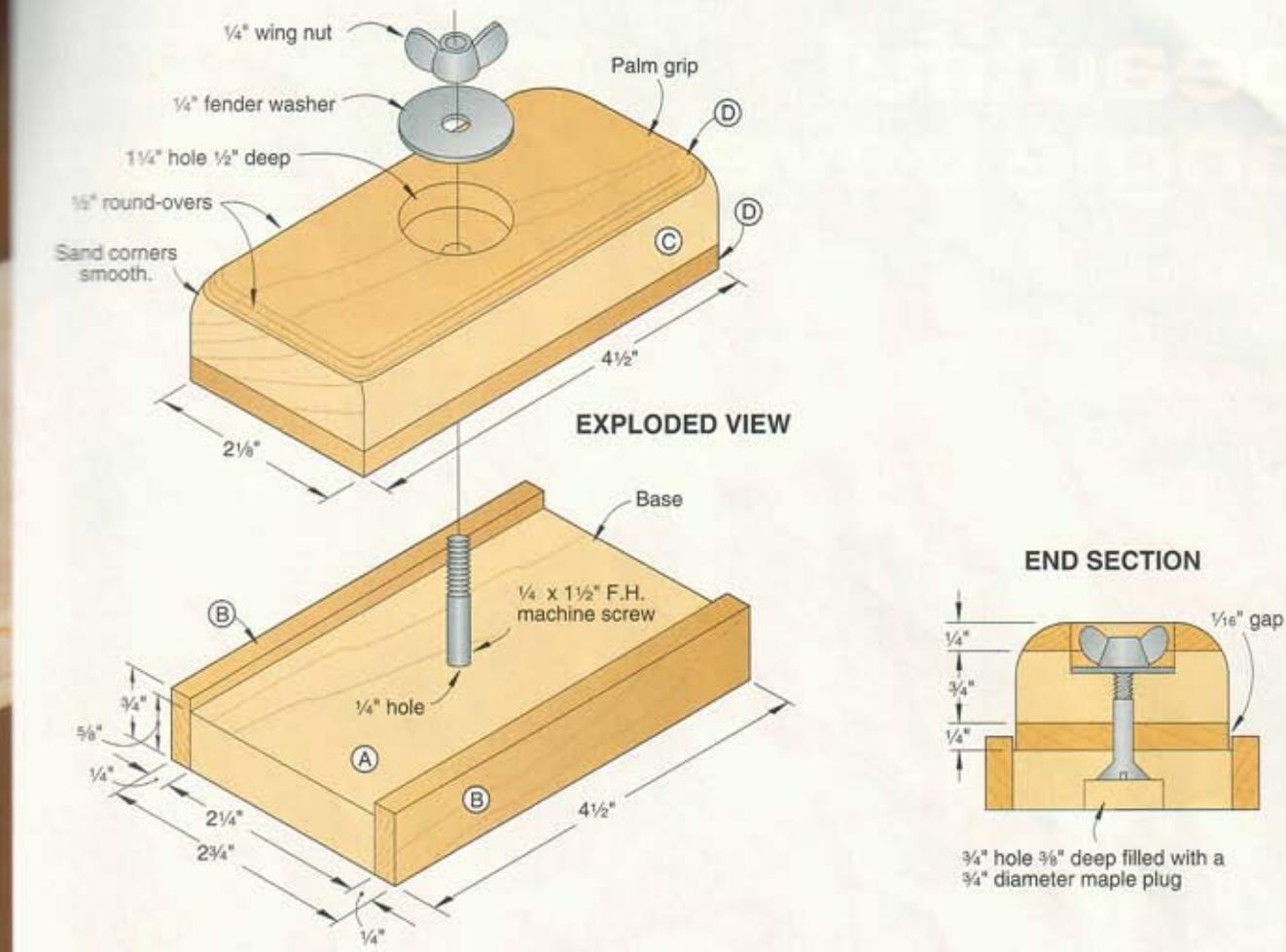
plane the edges until the palm grip fits snugly between the protruding walnut sides of the base. (You'll sand the palm grip to finished width later.)

**4** Crosscut the palm-grip lamination into two  $4\frac{1}{2}$ " lengths.

## Drilling the bolt and wing nut holes

**1** Mark diagonals on the top of each palm grip to locate its center, position the palm grip in the base with the ends flush. Clamp the palm grip and base to your drill-press table, and drill a  $\frac{1}{8}$ " guide hole through both pieces, as shown in the photo, right. (For this and the following steps, we machined both sanding block pieces at once.)

**2** Separate the two pieces, and, using a flat-bottomed bit, drill a  $1\frac{1}{4}$ " hole  $\frac{1}{2}$ " deep into the top of the palm grip, cen-



tered over the guide hole. (See drawings above for hole size details.) Then, drill and counterbore a  $\frac{3}{4}$ " hole  $\frac{3}{8}$ " deep centered over the guide hole on the bottom side of the base.

**3** Drill a  $\frac{1}{4}$ " hole through the base and a  $\frac{5}{16}$ " hole through the palm grip, centering both holes on the guide hole.

Countersink the  $\frac{1}{4}$ " hole on the bottom side of the base.

**4** Plane or sand  $\frac{1}{16}$ " off each side (not the ends) of the palm grip for a  $2\frac{1}{8}$ " finished width.

**5** Clamp the base, bottom up, in a woodworker's vise. Thread a  $\frac{1}{4}\times 1\frac{1}{2}$ " machine screw through the hole, and tighten the palm grip to the base with a wing nut. Epoxy the screw in the hole in the base. Cut a  $\frac{3}{4}$ " maple plug, and epoxy it over the head of the screw.

**6** Detach the base from the palm grip, and sand the plug flush with the base. Sand the base smooth.

**7** Fit your table-mounted router with a  $\frac{1}{2}$ " round-over bit, and rout the top edges of the palm grip. Finally, sand the palm grip to fit comfortably in your hand.

**8** You may want to cut and glue a piece of felt to the bottom of one or all of the sanding blocks for sanding pieces with slight contours. Trim the edges of the felt flush with the base.

## Final assembly

**1** Fit a fender washer in the hole in the palm grip. Then, apply the finish of your choice to the base and palm grip.

**2** To use, slip the palm grip over the bolt on the base, and just start the wing nut. Quarter a standard sheet of sandpaper, and tuck the sides under the palm grip. Now, tighten the wing nut to hold the sandpaper firmly in position. •

Photographs: Bob Calmer

Illustrations: Roxanne LeMoine

## materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Qty.
A* base	$\frac{5}{8}$ "	$2\frac{1}{8}$ "	$4\frac{1}{2}$ "	M	1
B* sides	$\frac{3}{4}$ "	$\frac{1}{4}$ "	$4\frac{1}{2}$ "	M	2
C* palm grip	$\frac{3}{4}$ "	$2\frac{1}{8}$ "	$4\frac{1}{2}$ "	M	1
D* palm grip	$\frac{1}{4}$ "	$2\frac{1}{8}$ "	$4\frac{1}{2}$ "	W	2

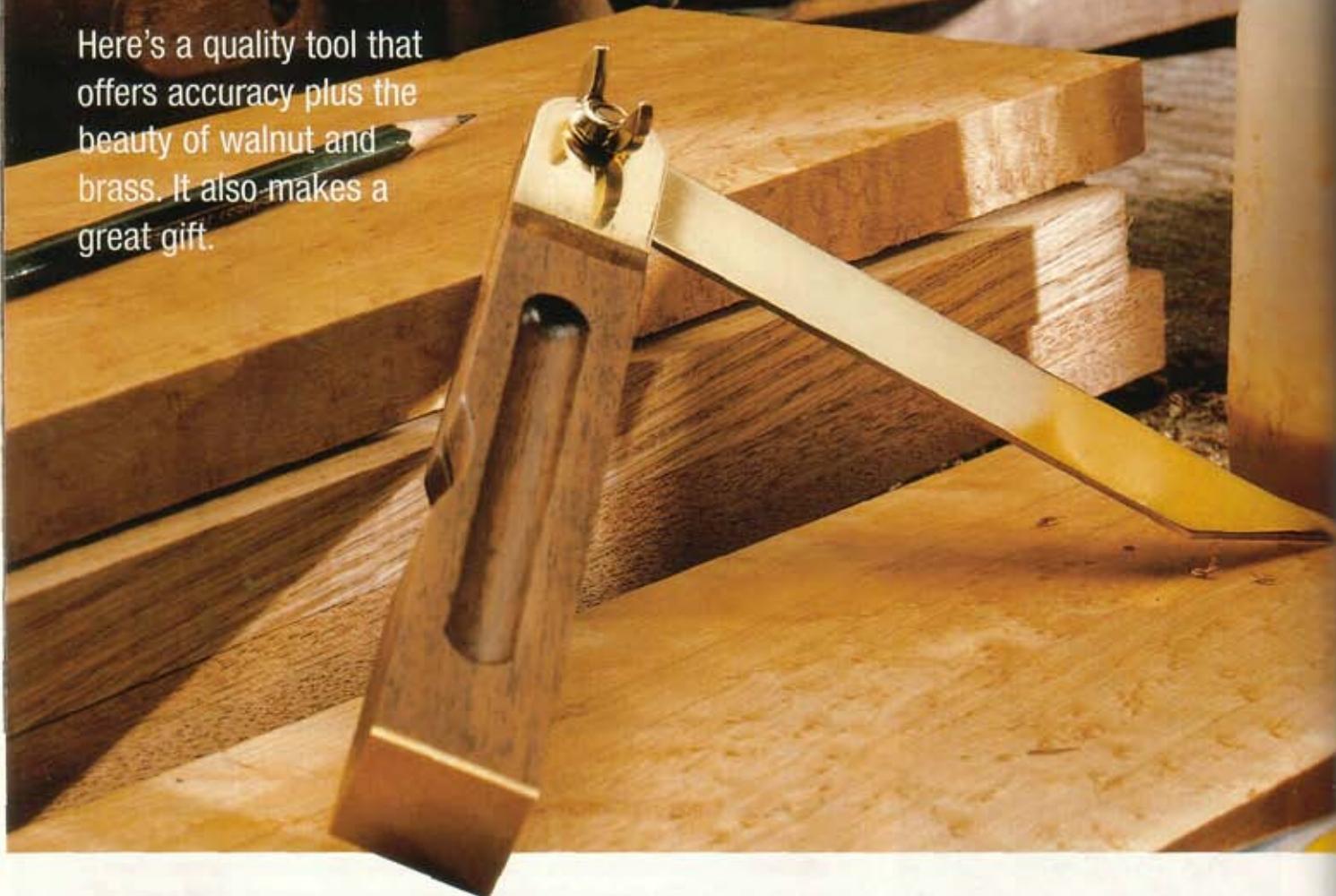
Materials Key: M-maple, W-walnut.

\*Parts marked with \* are cut larger initially, then trimmed to finished size. Please read instructions before cutting.

Supplies:  $\frac{1}{4}\times 1\frac{1}{2}$ " flathead machine screw with fender washer and wing nut, epoxy, felt (optional), finish.

# beautiful angle bevel

Here's a quality tool that offers accuracy plus the beauty of walnut and brass. It also makes a great gift.



## Machine the handle blank

*Note: You'll need  $\frac{3}{16}$ " walnut for this project. You can either resaw or plane thicker stock to size.*

- 1 Cut a piece of walnut to  $\frac{3}{16} \times 1 \times 18$ . (We planed  $\frac{3}{4}$ " stock to  $\frac{3}{16}$ " thick.)
- 2 Cut a  $1\frac{1}{8}$ " rabbet  $\frac{3}{16}$ " deep across both ends of the stock where, shown on Drawing 2.
- 3 Fit your table-mounted router with a  $\frac{3}{8}$ " core box bit and raise it  $\frac{1}{8}$ " above the surface of the table. Clamp a fence to your router table, and clamp a start-and stopblock to the fence, where shown on Drawing 4 on page 58.
- 4 With the rabbeted ends facing down, position one end of the handle blank

against the start-block, and lower the blank onto the spinning cove bit. Hold the blank firmly against the fence, and push the stock until the opposite end of the blank reaches the stopblock. Keep the same surface down, and turn the blank end for end; repeat the process to form the second cove on the other end where shown on Drawing 2.

- 5 Crosscut two  $7\frac{1}{4}$ "-long pieces from the 18" blank, where shown on Drawing 2.

## Add the brass, laminate the handle pieces

- 1 To form the brass side caps, start by scribing a  $\frac{1}{2}$ " radius on both ends of

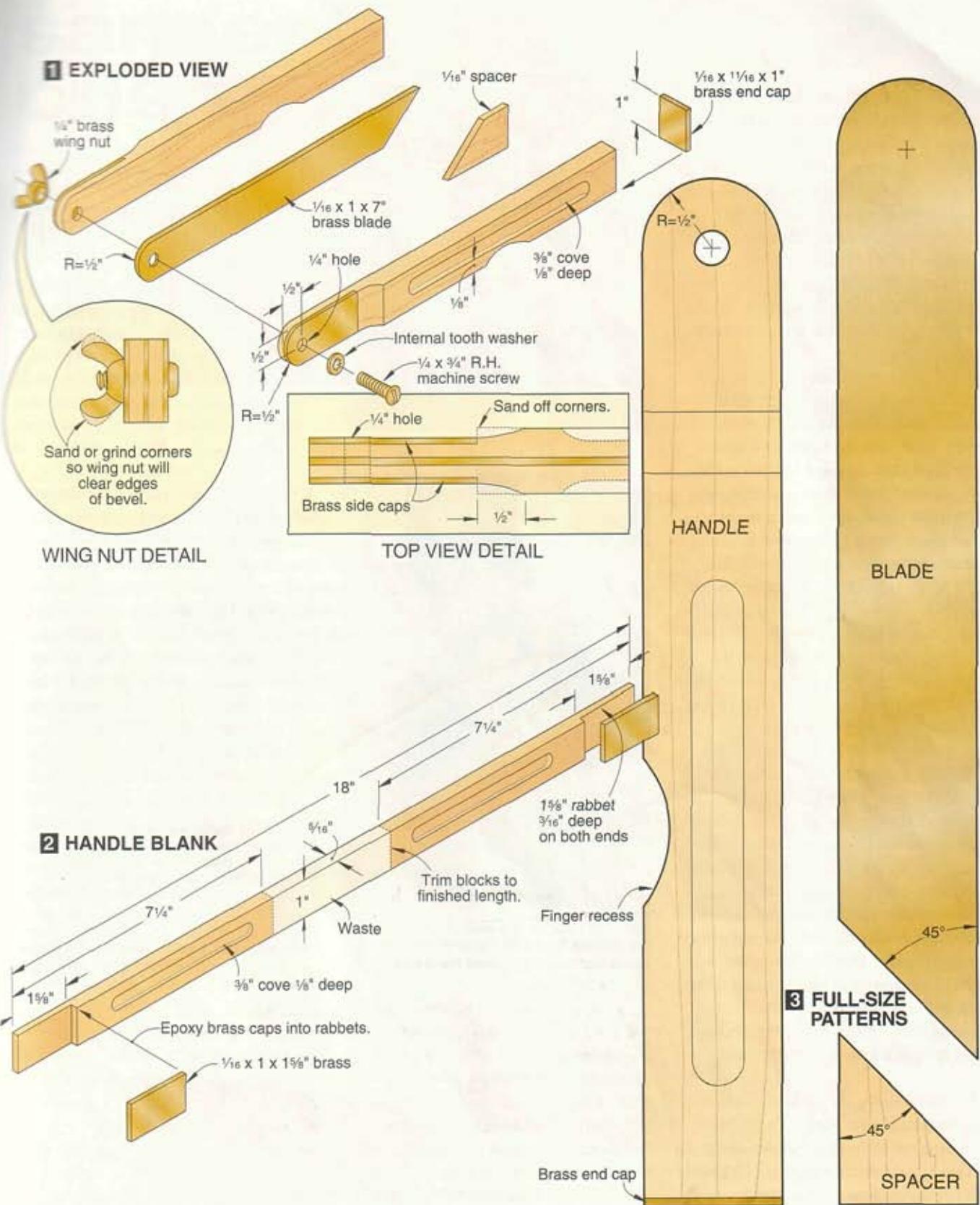
one of the 12" lengths of  $\frac{1}{16}$ "-thick brass. (See the Buying Guide at the end of the article for our source of  $\frac{1}{16}$ "-thick brass.) Cut the radii to shape. (We used a bandsaw fitted with a  $\frac{1}{4}$ " blade.) File the cut edges smooth.

- 2 Using a hacksaw or bandsaw, cross-cut each end of the brass strips to obtain the two  $1\frac{1}{8}$ "-long brass side caps. Next, cut a third piece to  $1\frac{1}{16} \times 1"$  for the end cap.

3 For better adhesion to the epoxy in the next step, use 60-grit sandpaper to rough up one surface of each brass piece.

- 4 Spread an even coat of epoxy on the sanded surfaces, and lightly clamp

*continued on page 58*



the brass side caps into the rabbets in the handle pieces where shown on **Drawing 2** on the previous page. (Note: Excessive clamping pressure will cause all or most of the epoxy to squeeze out, resulting in a weak bond between the walnut and brass.) After the epoxy has cured, cut and sand the walnut flush with the brass.

**5** Cut a  $\frac{1}{16}$ "-thick piece of walnut that's just a hair thicker than your brass and cut it to the shape shown on **Drawing 3** for the spacer piece.

**6** With the ends and edges flush, glue and clamp the spacer between the handle pieces; see **Drawing 1** for reference. Later, trim the handle end square.

**7** Epoxy the last piece of brass to the trimmed end of the laminated handle.

**8** Mark the finger recess on the handle, where shown on **Drawing 3**. Using a drum sander, sand the recess to shape.

**9** Mark the slight radius on the walnut next to the ends of the brass side caps, where shown on the Top View detail accompanying the **Drawing 1**.

Drum-sand to the line and even with the brass, being careful not to sand the brass, as shown in the photo at right.

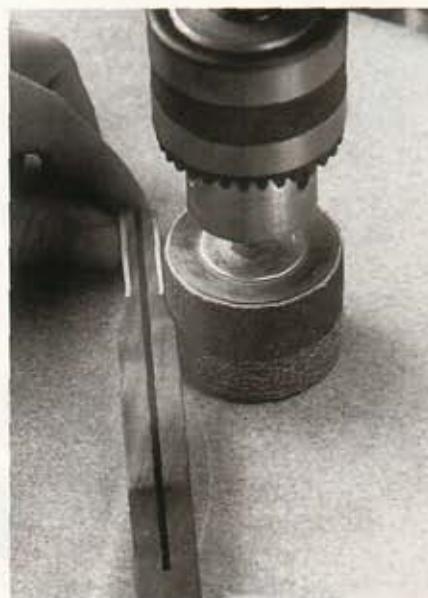
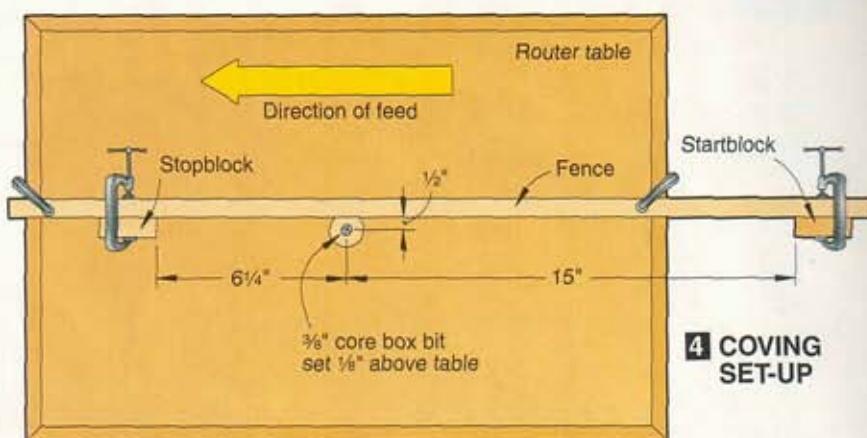
### Next, add the brass blade

**1** To form the blade (also called a tongue), miter-cut one end and radius the other end of a piece of  $\frac{1}{16} \times 1"$  brass to the shape shown on the Full-Size patterns.

**2** Slide the brass blade into the handle assembly with the rounded ends of the blade and handle flush. Tape the blade firmly in place. Punch a centerpoint on one of the brass side caps. Using a twist bit, drill a  $\frac{1}{4}$ " hole through the handleblade assembly. Remove the tape, and remove the blade from the handle.

### Assemble, add the finish

**1** Sand or file the wings of a  $\frac{1}{4}$ " brass wing nut to the shape shown on the Wing Nut detail accompanying **Drawing 1**. For accurate measuring later, the wings on the nut must not protrude beyond the edges of the handle assembly, where shown on the detail.



Mark the radii on the walnut portion of the handle, and then sand to the line being careful not to sand the brass.

**2** For a better finished appearance, sand or file the slotted head of a  $\frac{1}{4} \times \frac{3}{4}$ " roundhead brass machine screw to remove the slot.

**3** Insert the  $\frac{1}{4}$ " brass machine screw though an internal tooth washer and the handle assembly. Add the wing nut.

**4** Polish the brass with 400-grit sandpaper to remove any filing or sanding marks. Remove the blade from the walnut handle.

**5** Mask the brass, and add the finish to the handle. (We applied Watco Danish oil.) When the finish dries, remove the tape and add the blade.

### Buying Guide

**Bevel kit.** Two pieces of  $\frac{1}{16} \times 12"$  brass,  $\frac{1}{4} \times \frac{3}{4}$ " brass machine screw,  $\frac{1}{4}$ " internal tooth washer,  $\frac{1}{4}$ " brass wing nut. Kit no. AB, \$11.95 ppd. Schlaubaugh and Sons, 720 14th Street, Kalona, IA 52247. Call 800/346-9663. ♣

Produced by Marlen Kemmet  
Project Design: Jim Boelling  
Photographs: Hetherington Photography  
Illustrations: Kim Downing; Mike Henry

# sander for crisp edges

Keep edges sharp with this shop-made aid.

Sanding by hand often turns what should have been a crisp edge into one that's rounded and uneven. Reader Phil Otanicar of Evergreen, Colorado, says such roundovers are especially noticeable on the small projects he likes to make. Instead of spending money on a power edge sander, he designed a manual edge sander that clamps to his workbench.

The 12×18" platform supports the piece while you guide it against sandpaper attached to a fence. Three slots in the fence let you slide it up and down to expose fresh sandpaper as needed. Coarse paper is mounted on one side of the fence; the other side has finer paper. Sawdust falls into the space between the fence and platform.

Make the fence first, routing the slots as shown in the four steps of the drawing, right. Rout each slot in three passes—the first about  $\frac{1}{4}$ " deep, and each of the others about  $\frac{1}{4}$ " deeper than the one before. The fence should be symmetrical, so rout both end slots with the router fence and bit at the same setting. When you've finished the end slots, measure carefully, and reset the fence to rout the center slot. Once you've finished routing, lay out carriage-bolt holes in the platform using the slots as a guide. Apply a coat of gel varnish to protect the wood and reduce friction.

We bought  $2\frac{1}{2} \times 180"$  rolls of pressure-sensitive adhesive sandpaper, cut 18" lengths, and stuck them to both faces of the fence. These rolls are available in 80–320 grit from Supergrit. Call 800/822-4003 for a copy of their catalog. ♣

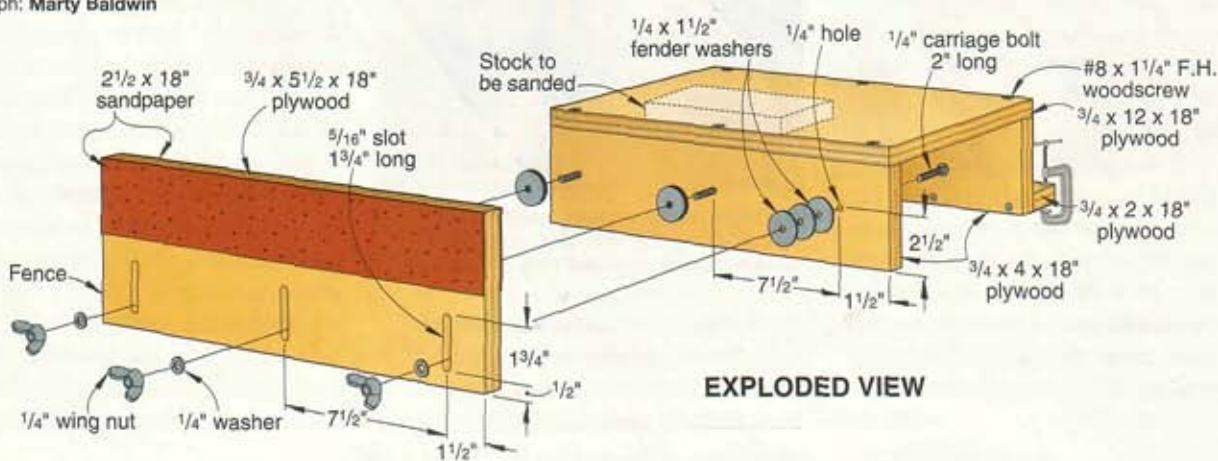
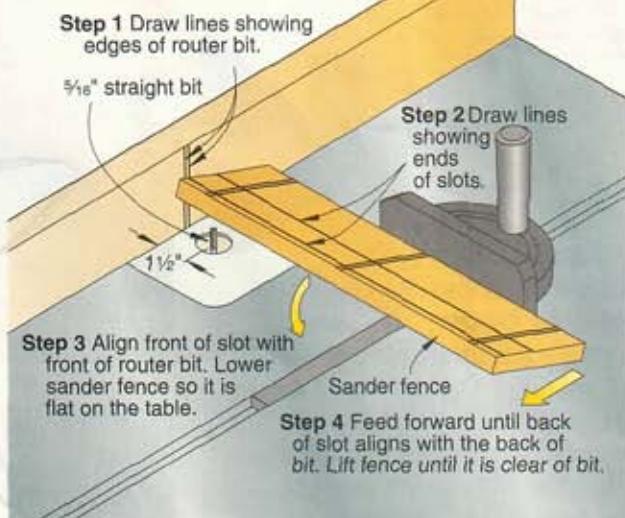
Written by Jeff Day

Illustrations: Roxanne LeMoine; Lorna Johnson

Photograph: Marty Baldwin



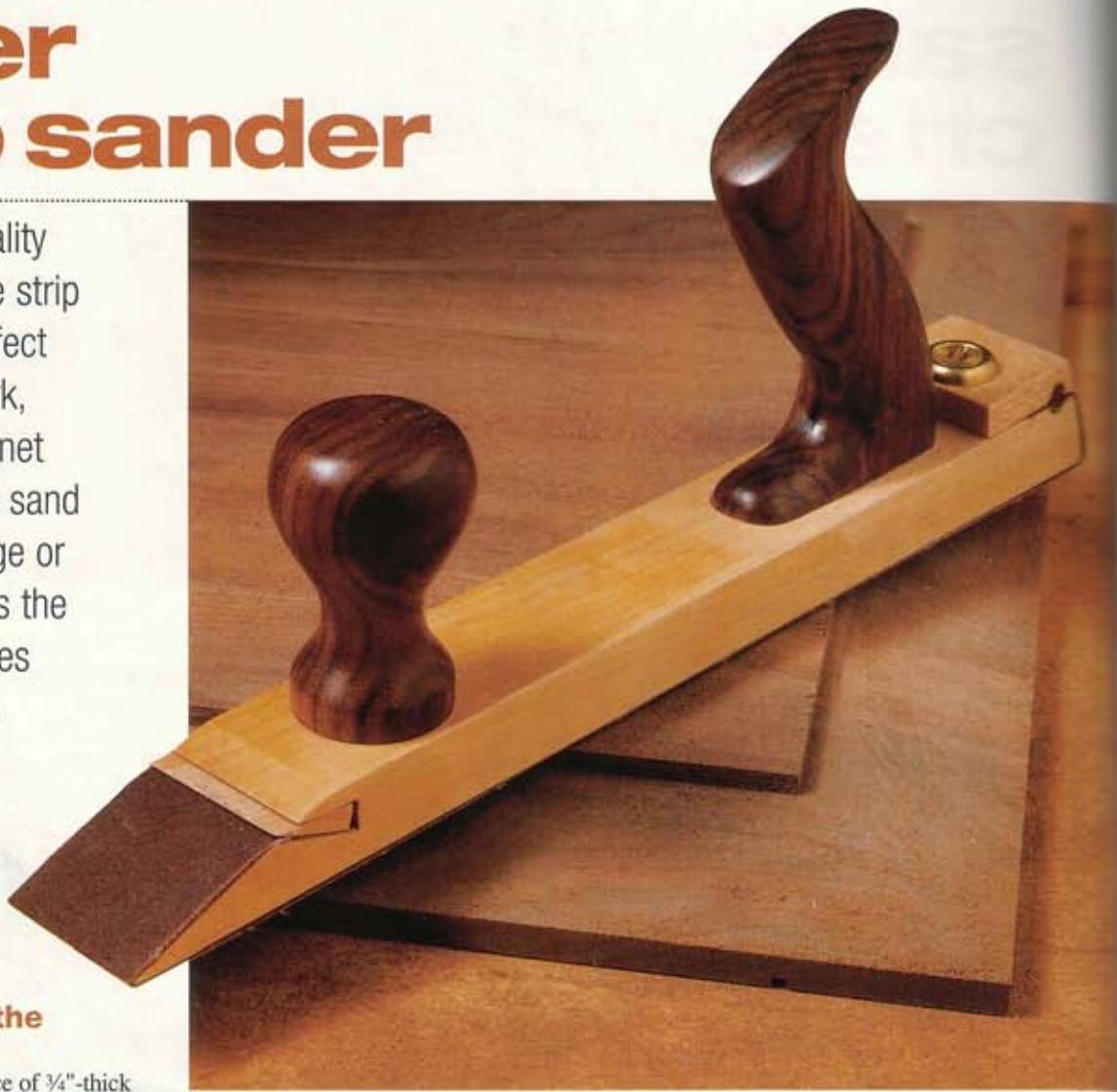
## ROUTING THE FENCE SLOTS



## EXPLODED VIEW

# super strip sander

This heirloom quality walnut and maple strip sander is the perfect tool for detail work, like cleaning cabinet joinery. It lets you sand right up to an edge or corner, and leaves the smoothest surfaces you can imagine.



## Let's start with the maple body

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

**2** Using the two dimensions listed in Step 1 on the Full-Size Pattern drawing opposite, mark an angled cutline on one edge of the maple body. Cut along the marked line. (We used our bandsaw fitted with a  $\frac{3}{8}$ " blade.)

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

**4** Mark a reference line along either side of the maple body  $\frac{3}{16}$ " from the top edge, where shown on Step 2. Position the maple wedge along this line, as shown in the **Photo A**, and trace its outline onto the side of the maple body. Cut the notch to shape and check the fit of the wedge in the slot; you want it to slide in easily.



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

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

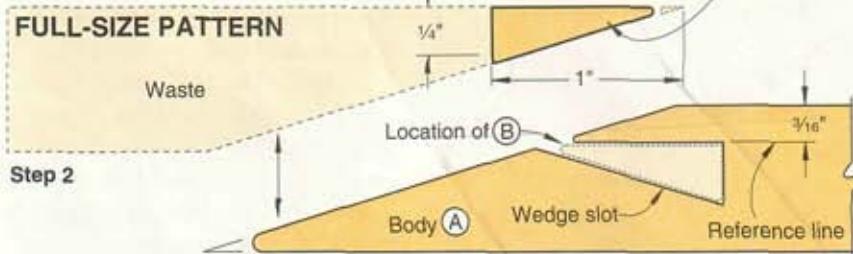
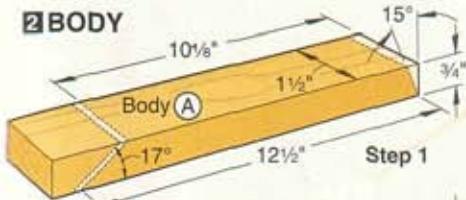
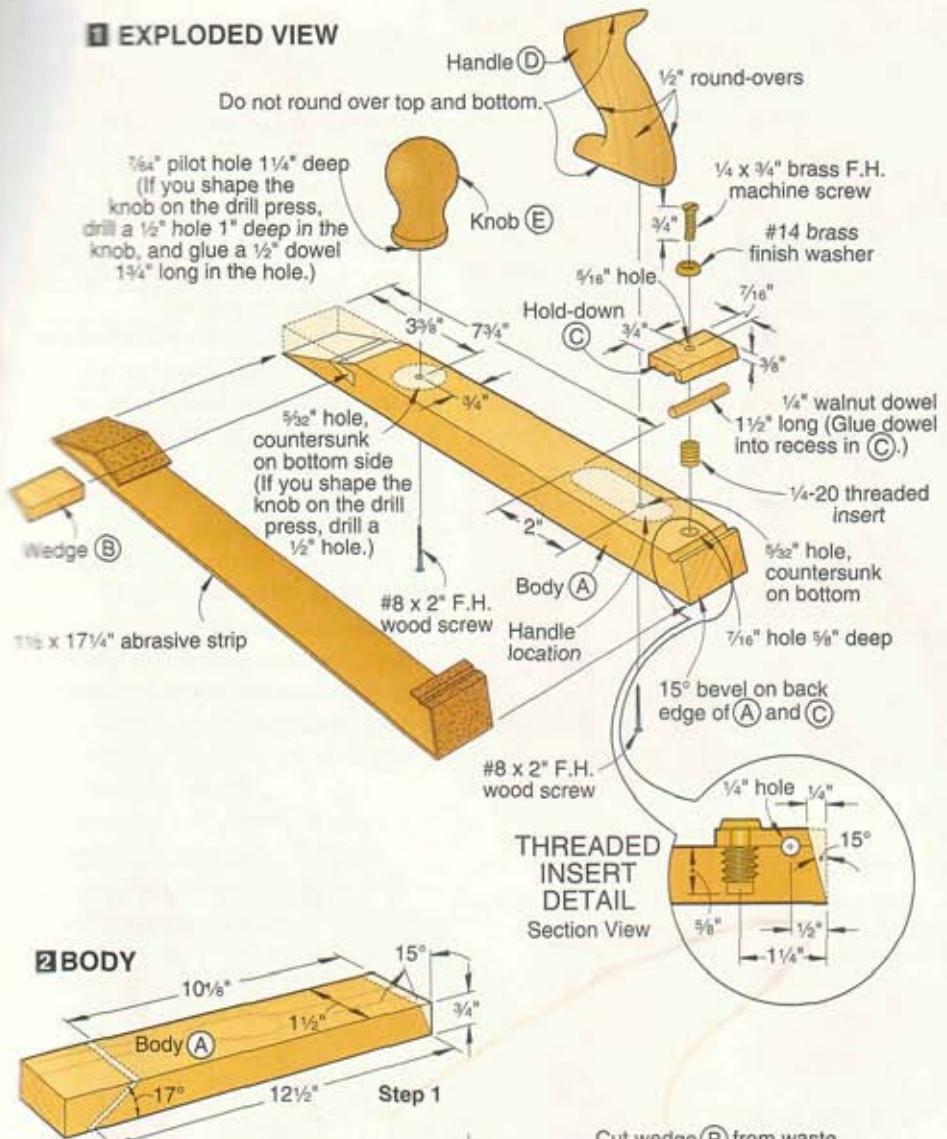
## Time for the hold-down

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

**2** Measure  $\frac{7}{16}$ " from the front end of the hold-down, and mark the hole centerpoint for the brass machine screw, where dimensioned on **Drawing 1**. Secure the hold-down in a small hand-screw clamp, and drill a  $\frac{1}{16}$ " hole through it where marked.

**3** Position the hold-down on the body, with the back and side edges flush. Trace the hole location onto the body, remove the hold-down, and drill a  $\frac{1}{16}$ "

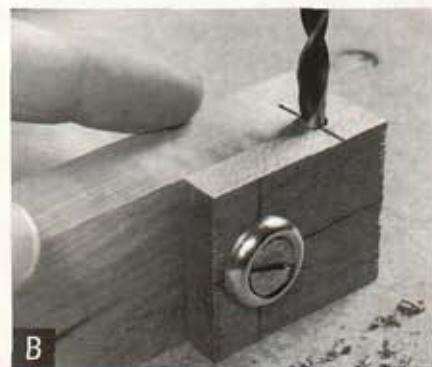
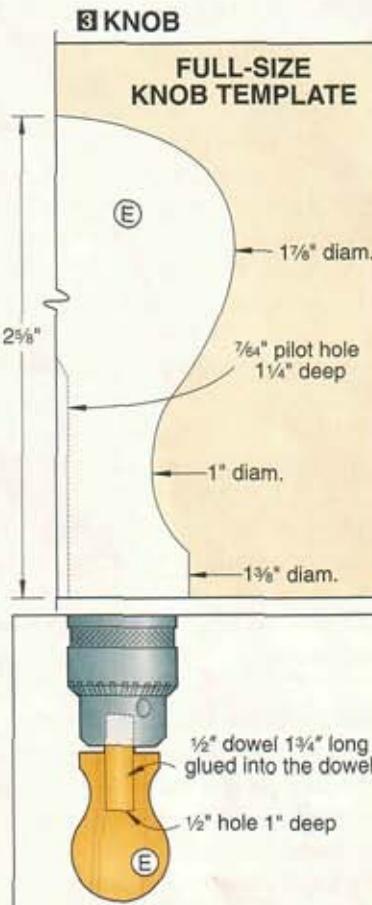
## ■ EXPLODED VIEW



hole 5/16" deep, centered over the drawn circle.

**4** Rub the threads of a 1/4-20 threaded insert against a piece of paraffin wax. (This makes driving the insert into the maple easier.) Using a large screwdriver, drive the insert into the 5/16" hole in the body. With a 1/4x3/4" machine screw and #14 finish washer, screw the hold-down to the body.

- 5** Mark the centerpoint for the 1/4" dowel on the joint line between the body and the hold-down. (See the Threaded Insert detail above for exact location.) As shown in Photo B, drill a 1/4" hole on the joint line where marked.
- 6** Mark the angled cutline along the back side edge of the body and hold-down (again, see the detail). Miter-cut the body and hold-down where marked.



- Remove the hold-down from the body.
- 7** From 1/4" walnut dowel stock, cut a piece 1 1/2" long. Glue and clamp the dowel into the groove drilled into the hold-down.

## Now, get a handle on this project

- Using carbon paper, transfer the handle pattern to  $1\frac{1}{16}$ " walnut, noting the direction of the grain on the full-size Handle Pattern drawing below right. If you don't have  $1\frac{1}{16}$ " walnut, laminate thinner stock to size.
- Bandsaw the handle to shape. With your table-mounted router, rout  $\frac{1}{2}$ " round-overs along the edges. DO NOT rout the top and bottom of the handle. (Stop routing just short of the top and bottom, then sand to the top and bottom edges to complete the round-overs.)
- To mount the handle, first refer to Drawing 1 for the position of the  $\frac{5}{32}$ " mounting hole, and mark its centerpoint. Next, drill and countersink the hole.
- Carefully position the handle on the body (see Drawing 1). Stick a nail up through the hole in the body to mark the centerpoint on the bottom of the handle. Drill a  $\frac{7}{16}$ " pilot hole  $1\frac{1}{4}$ " deep in the bottom of the handle. Sand until smooth and set aside.

## Turn the knob to shape

- To make the knob (E), begin with a 2" square piece of walnut 3" long. If you don't have stock this thick, laminate thinner stock.
- Using carbon paper, transfer the Knob Template Pattern (see Drawing 3) to poster board. Cut template to shape.
- Mount the walnut square between centers on the lathe. Turn the knob to shape, using the template. Finish-sand the knob before removing it from the lathe.
- NOTE:** If you don't have a lathe, you can drill a  $\frac{1}{2}$ " hole 1" deep, centered on the bottom of the knob blank. Glue a  $\frac{1}{2}$ " dowel  $1\frac{3}{4}$ " long in a hole. Using a rasp and the template, shape the knob on your drill press, as shown on Drawing 3. To mount the handle, drill a  $\frac{1}{2}$ " hole through the body at the same location where you'd drill the hole for the #8x2" wood screw.
- Referring to the Drawing 1 for positioning particulars, locate and then drill a  $\frac{5}{32}$ " shank hole through the body (A); countersink the hole on the bottom side.

5 Hold the knob in a handscrew clamp, and drill a  $\frac{7}{16}$ " pilot hole  $1\frac{1}{4}$ " deep into the center of it.

## Add the finish and the sanding strip

- Glue and screw the handle and knob to the body. Screw the hold-down in place. Add the finish.
- Cut a  $17\frac{1}{4}$ "-long piece from a  $1\frac{1}{2}$ "-wide abrasive roll. (See the Buying Guide for our source; you also could cut sanding belts to make the strip.) Follow the two-step Drawing 5 below right, to attach the abrasive strip to the body. ♦

Project Design: James R. Downing  
Photographs: Hopkins Associates  
Illustrations: Roxanne LeMoine

## materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Qty.
A* body	$\frac{3}{4}$ "	$1\frac{1}{2}$ "	$12\frac{5}{8}$ "	M	1
B* wedge	$\frac{1}{4}$ "	$1\frac{1}{2}$ "	$\frac{7}{8}$ "	M	1
C* hold down	$\frac{3}{8}$ "	$1\frac{1}{2}$ "	$1\frac{1}{2}$ "	M	1
D handle	$1\frac{1}{8}$ "	3"	$4\frac{1}{8}$ "	W	1
E* knob	$1\frac{1}{8}$ " diam.		$2\frac{1}{8}$ "	W	1

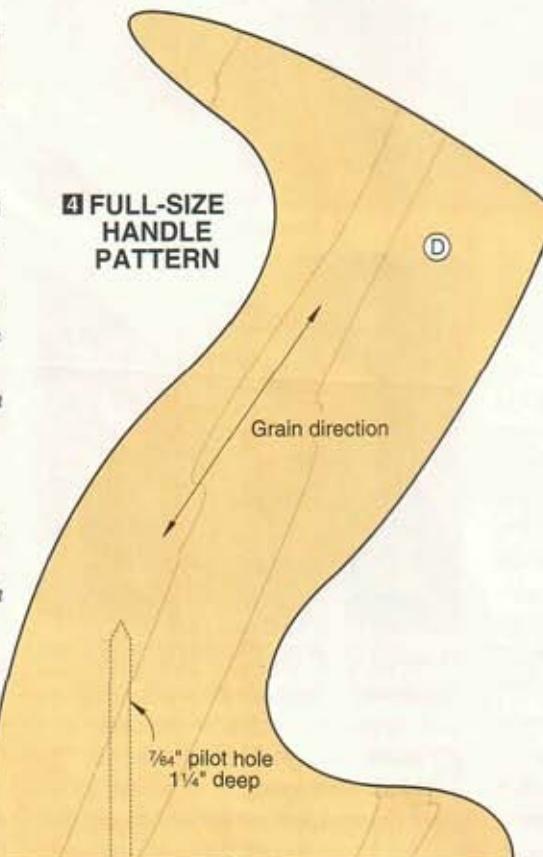
Materials Key: M=maple, W=walnut.

\*initially cut \* parts oversized. Trim them to finished size according to the how-to instructions.

Supplies: 1/20 threaded insert, paraffin wax,  $\frac{1}{4}\times\frac{3}{4}$ " brass flathead machine screw, #14 brass washer, two #8x2" flathead wood screws,  $\frac{1}{4}$ " walnut dowel, finish.

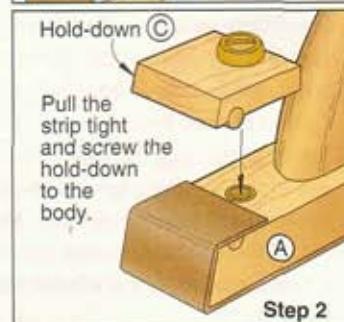
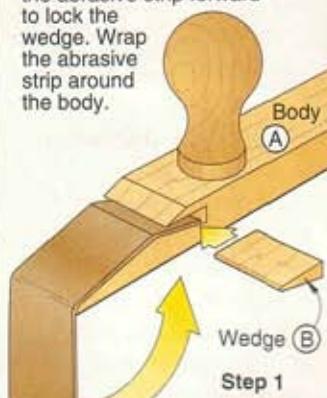
### Buying Guide

Cloth-backed abrasive shop roll.  $1\frac{1}{2}$ " wide by 25 yards long. Available in 60-, 80-, 100-, 120-, 150-, 180-, 240-, 320-, and 400-grit rolls. \$8.50 per roll plus \$5 shipping and handling for orders under \$50; \$6 for orders \$50-\$100; \$7 for orders over \$100. Industrial Abrasives, 643 N. 8th St., Reading, PA 16912. Phone 800/428-2222 (800/222-2292 in PA) to order.



## 5 ATTACHING THE ABRASIVE STRIP

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



# fine-finish scraper

Our comfortable, good-looking tool is easy to build, and its adjustable blade makes getting into tight corners a snap.



## How to begin this project

**1** Cut a  $\frac{1}{2}$ "-thick piece of walnut to  $2\frac{1}{2}$ " wide by 17" long for the handle parts (A, B). (We resawed a piece of  $\frac{3}{4}$ " walnut to  $\frac{1}{2}$ " thick; you also could plane or joint a thicker piece to  $\frac{1}{2}$ ".) Crosscut the 17" walnut strip in half.

**2** Cut or rout a  $\frac{1}{4}$ " groove  $\frac{1}{4}$ " deep down the center of part A, where shown on Drawing 1. (We used a dado blade on the tablesaw to cut the groove.)

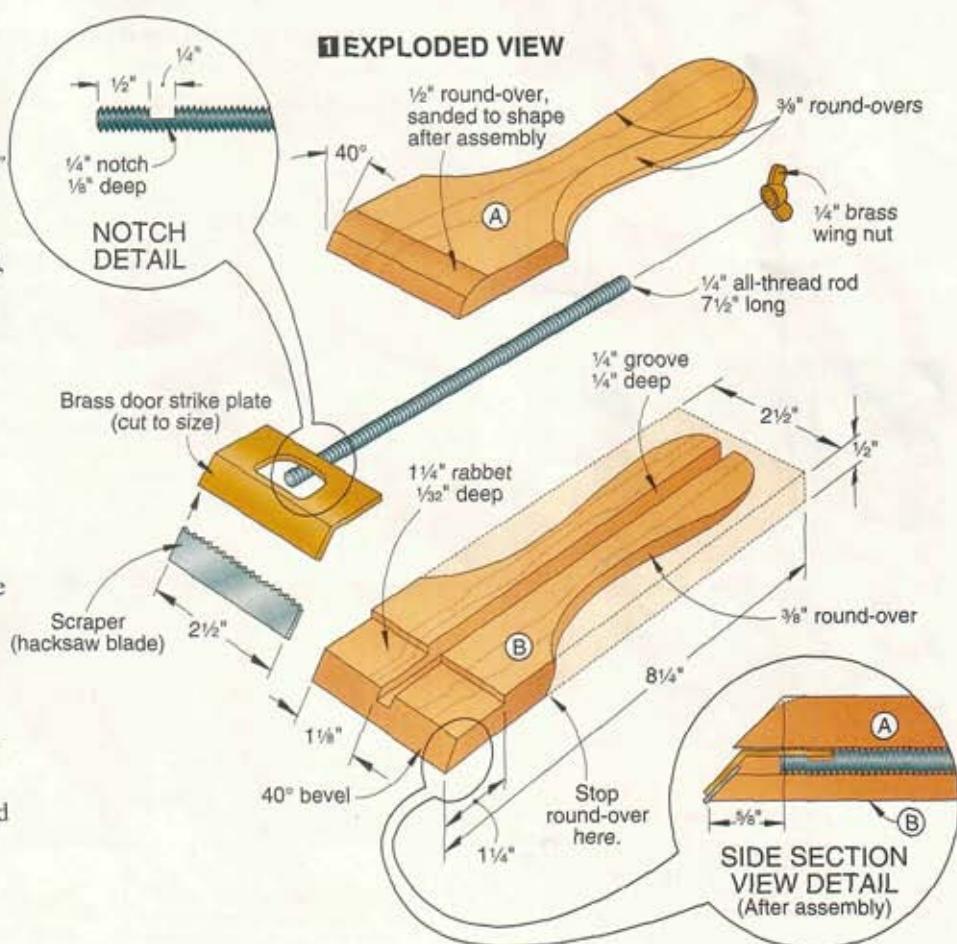
**3** Using a dado blade on either the tablesaw or radial-arm saw, cut a  $1\frac{1}{4}$ " rabbet  $\frac{3}{32}$ " deep across the grooved face of the handle bottom (A).

**4** Tilt your saw blade  $40^\circ$  from vertical, and bevel-cut the front end of each handle part.

**5** Glue and clamp the handle pieces together with the edges flush. Align the mitered ends, where shown on the Side Section View detail.

**6** Using carbon paper or a photocopy, transfer the handle pattern shown on page 64 on heavy paper or poster board. Cut the paper template to shape, and trace its outline onto the bottom face of the walnut handle lamination. Bandsaw the handle to shape. Drumsand the contours smooth to remove the saw marks.

**7** Chuck a  $\frac{3}{8}$ " round-over bit into your table-mounted router. Rout the handle, where shown on the Drawing 1. Sand a  $\frac{1}{2}$ " round-over on the front top end of the handle, where shown on the same drawing. Sand the handle smooth and apply the finish.



## fine-finish scraper

### Cut, shape, add hardware

**1** Apply masking tape to the polished side (the top face) of a solid-brass door strike. (We used a Schlage ANSI 10-025605 polished-brass strike; see the Buying Guide for

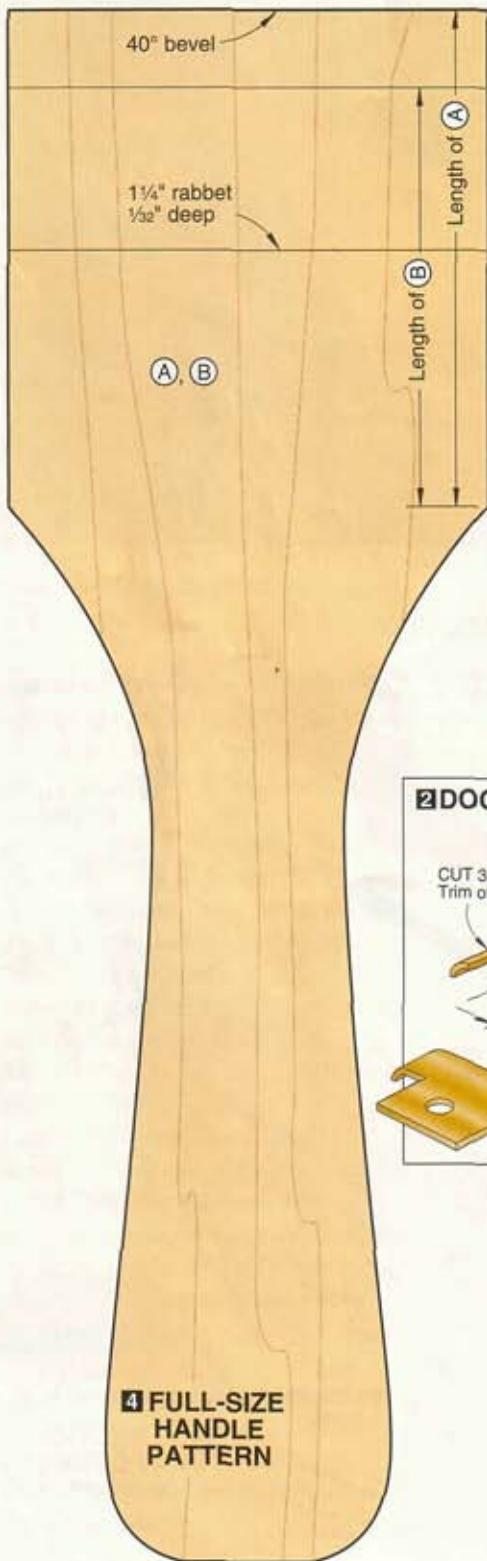
our hardware kit.) The tape is easy to mark cutlines on, and helps to prevent the polished brass from being marred when you are cutting.

**2** Mark a centerline across the strike, where shown on

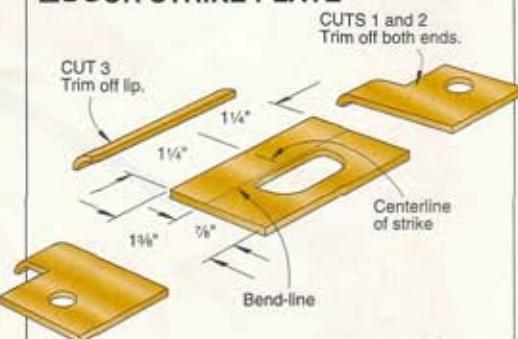
**Drawing 2.** Using the dimensions on the drawing, trim the strike ends and front lip. File the cut edges to remove burrs.

**3** Clamp  $\frac{7}{8}$ " of the strike in a vise and bend the exposed portion as shown on **Drawing 3 above**. Place the strike in the handle to check the angle; continue bending until the angle is the same as the front of the handle. (See the Side Section View detail accompanying **Drawing 1** for reference.)

**4** Cut a  $7\frac{1}{2}$ " length of  $\frac{1}{4}$ " all-thread rod. As shown in **Photo A**, use a #8 mill bastard file to cut a notch in the threaded rod. See the Notch detail for dimensions. (We wrapped masking tape around the rod to



### DOOR STRIKE PLATE



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

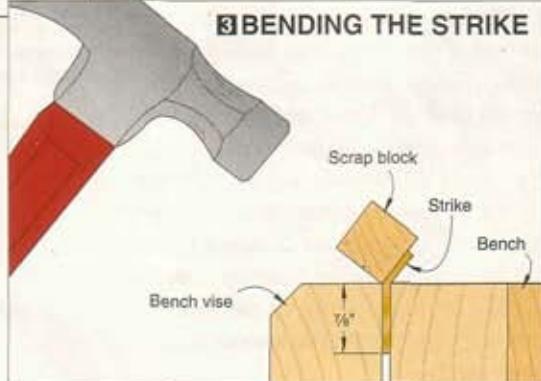


Scribe marks every  $2\frac{1}{2}$ " on the hacksaw blade. Then, shear scraper blades to length with a cold chisel.



Angle the scraper slightly less than 45°. Using straight strokes, file the blade with a mill bastard file.

### BENDING THE STRIKE



mark the notch location on the rod and to prevent possible marring of the rod threads in the vise.)

**5** To make the scraper blades, mark increments every  $2\frac{1}{2}$ " on a used or dull hacksaw blade. Clamp the blade in a vise. Using a cold chisel, shear off the blade segments where marked, as shown in Photo B. Hammer the corners of each blade flat—they tend to bend slightly when chiseling to length.

**6** Assemble the scraper and slip the scraper blade into position. Tighten the wing nut on the all-thread rod to hold

the scraper blade firmly in position. (We keep about  $\frac{1}{8}$ " of the blade exposed).

## Time to sharpen

To sharpen the scraper blade, angle the scraper, as shown in **Photo C**, and sharpen with a mill bastard file. As you move the file back and forth, keep the file in contact with the total length of the blade to avoid curving the blade. (We held our scraper slightly less than 45° when sharpening.) ♣

Buying Guide

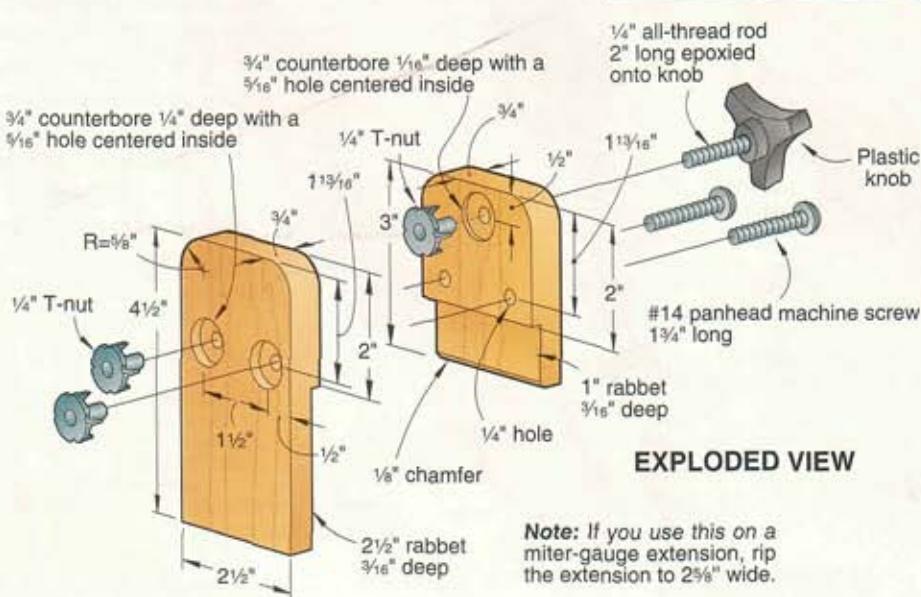
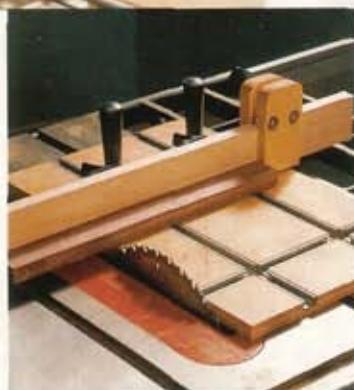
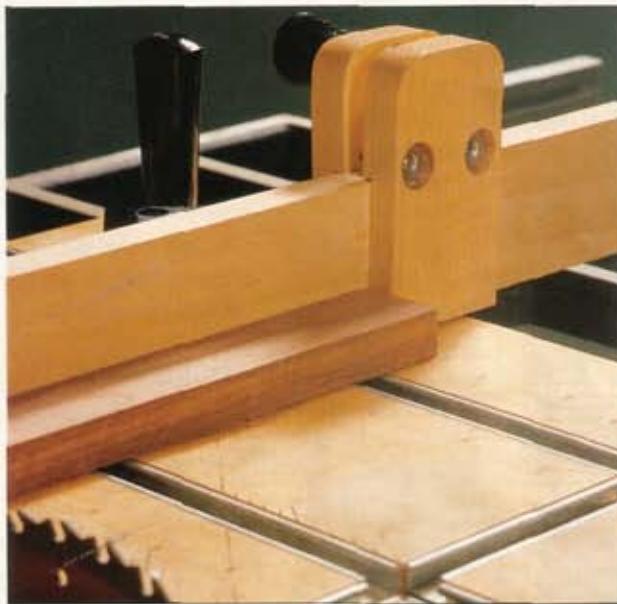
**Scraper hardware kit.** Brass strike plate,  $\frac{1}{4}$ " brass wing nut,  $\frac{1}{4}$ " all-thread rod  $7\frac{1}{2}$ " long. Kit no. SCR, \$8.95 ppd. Schlabaugh and Sons, 720 14th Street, Kalona, IA 52247. Call 800/346-9663.

**Photographs: Bob Calmer  
Illustrations: Roxanne LeMoine**

# **precision miter stop**

Make it in minutes, use it as a lifetime addition to your shop.

Use this handy stop on your own 2 1/2"-wide miter-gauge extension, or add it to your radial-arm saw fence. It fits on the fence, and allows you to cut piece after piece to the same length. 



## **EXPLODED VIEW**

**Note:** If you use this on a miter-gauge extension, rip the extension to  $2\frac{1}{8}$ " wide.

**Project Design: James R. Downing**  
**Photographs: Hetherington Photography**  
**Illustration: Roxanne LeMoine**

# stand-tall tablesaw fence

Here's a simple fixture that makes workpieces stand upright and ready for cutting.

Now you can stand workpieces, such as raised panels, upright and cut their edges on your tablesaw. Just use this auxiliary tablesaw fence designed by WOOD® magazine reader Joe Xaver of Auburn, Illinois. The jig bolts temporarily to your saw's existing fence to let you make these cuts safely and accurately, and folding supports make for flat storage.

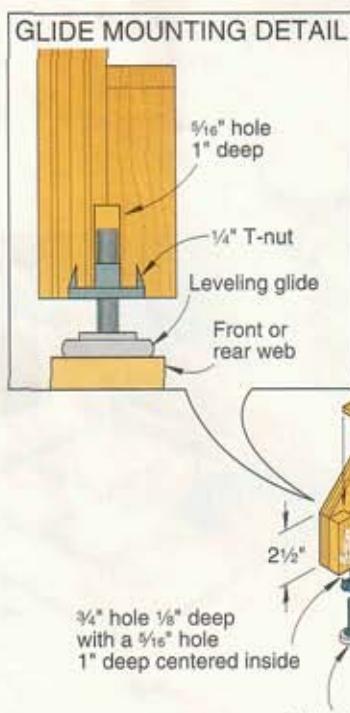
Before you begin, take a few measurements from your saw to ensure proper fit. First, examine your saw's existing fence to see if drilling it for the machine screws, where shown in the drawing below, will interfere with the fence's operation, and adjust the locations if necessary. For

webbed extension wings, measure between the centers of the webs at the front and rear of the extensions. Make the removable spreader this length, and add 1½" to find the length of the crossmember. (The dimensions shown are for a table that is 26½" between the centers of the front and rear webs.) For saws with solid extension wings, shorten the dimensions shown for those pieces by 4".

Armed with that information, build the auxiliary fence as shown in the drawing. Drill 5/16" holes in your fence to match the

location of the t-nuts, and bolt the tall fence to your saw's fence as shown in the photo above.

Before using the jig for the first time, adjust the nylon glides so the tall fence is perpendicular to your saw's table top. When you're done, unbolt the unit from your fence, pop out the removable spreader (attach it to the top edge of the crossmember for storage), fold up the legs, and hang the unit on a wall. ♦



## EXPLODED VIEW

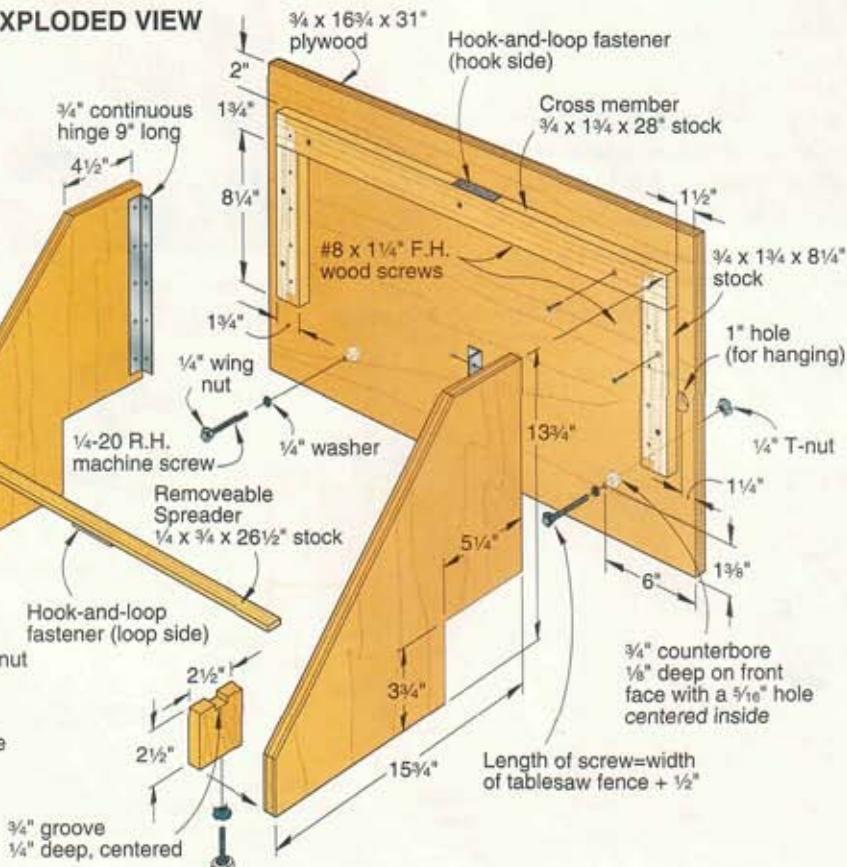


Illustration: Roxanne LeMoine  
Photograph: Hetherington Photography

# rotating finishing table

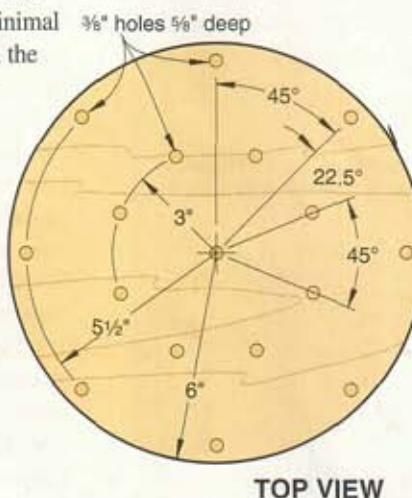
Avoid smudges and sticky fingers with a mini-lazy Susan that turns while you stay put and spray.

Unless you can walk completely around your workbench, you're limited to finishing only two, maybe three, sides of your projects without lifting them. With this versatile finishing turntable designed by WOOD® magazine reader Mike Sarnes, of Fairview, Michigan, you can apply finish to every surface without taking a step or lifting the project.

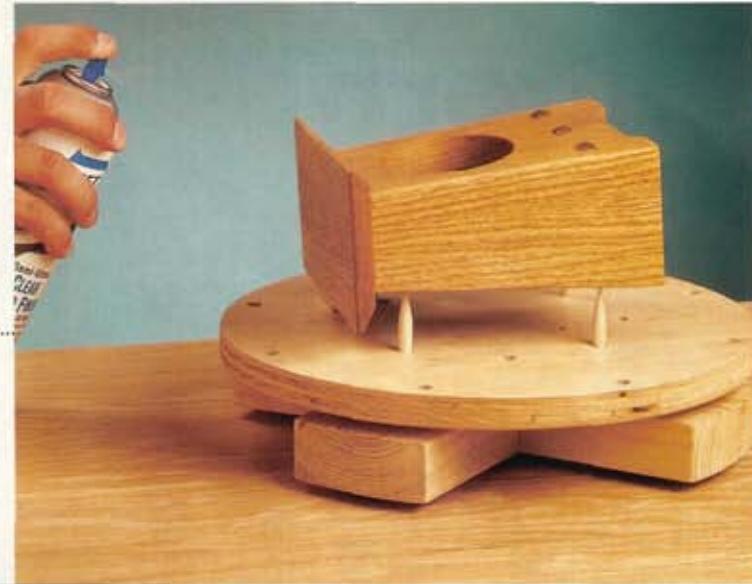
To use the table, space three or four sharpened dowels where they'll best support your workpiece. (You may need to sand the base of the dowels slightly to fit the holes.) Finish the back or bottom, then place the piece finished side down on the dowels—the points make minimal contact with the fresh finish. Finish the remaining surfaces by rotating the turntable while you spray. Hold smaller parts with clothespins glued to dowels as shown in the small photo, above right.

## Buying Guide

**6" lazy Susan.** Available from woodworking hardware catalogs, including Woodworker's Supply, 800/645-9292, and Woodcraft, 800/225-1153. 



TOP VIEW



EXPLODED VIEW

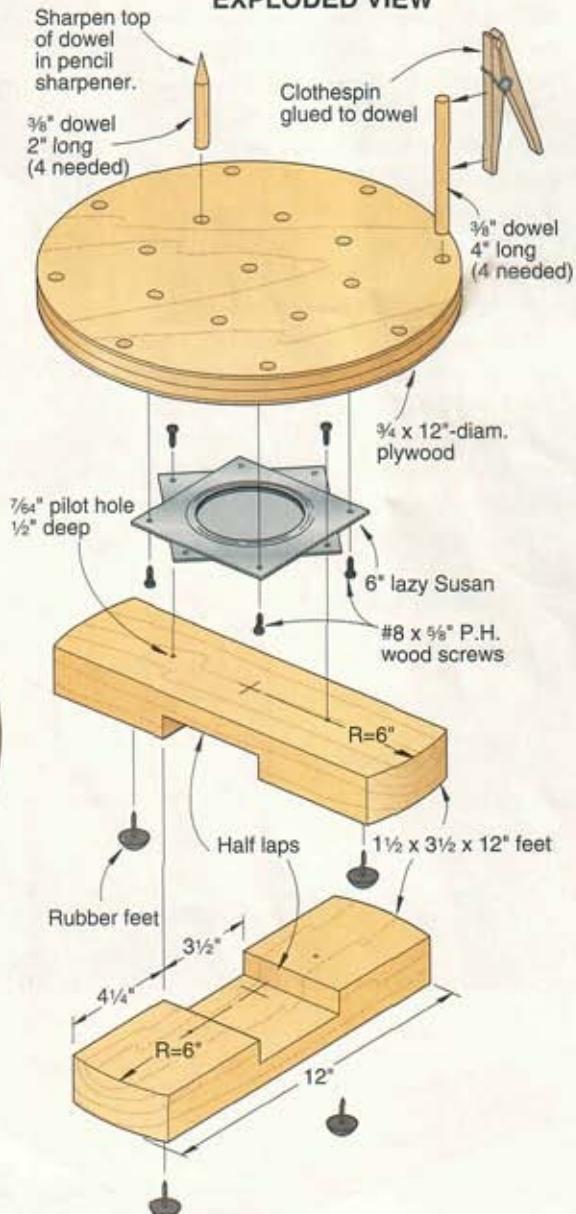


Illustration: Kim Downing  
Photographs: Baldwin Photography

# pattern sander

Let a template ensure safe, repeatable results.

When it came to shaping the flared-out bottoms of the legs for a nightstand, WOOD® magazine staffers had to do some brainstorming. For uniformity, the staff needed to guide a shaping tool along a template. But a flush-trimming bit chucked in the table-mounted router caused chipping where the leg curves and the wood grain intersected the routed face. There was also the problem of safely holding on to the narrow workpiece. The solution? A drill-press mounted jig that combines a "pilot-bearing" rub block with a sanding drum. Here's how you can make one yourself.

Cut the base from plywood or particleboard, and place it on your drill-press table, centered under the chuck. Mark the locations of your drill-press table slots, and drill counterbored holes for the mounting bolts. Drill holes for the dowel and the rub-block locking bolt. Glue the dowel in place. Measure the diameter of your sanding drum. (You can make a rub



block for each size of sanding drum you have, sizing them about  $\frac{1}{16}$ " larger than the drums.) Cut a piece of  $\frac{1}{4}$ " hardboard to this width, and bandsaw and sand the radius on one end. Rout or saw the slot,

and drill the centered hole to clear the end of the sanding drum's shaft.

To use your pattern sander, fasten the base to your drill-press table with the carriage bolts. Install the rub block, and chuck up your sanding drum. Swivel the drill-press table to align the rub block side-to-side with the sanding drum, then lock the table in place. Slide the rub block on the dowel and locking bolt to align it front-to-back. Tighten the locking bolt. Make your template pattern from  $\frac{1}{2}$ "-thick material. (We laminated two layers of  $\frac{1}{4}$ " hardboard.) Bandsaw your workpiece to rough shape, and adhere your template pattern to it with double-faced tape. Move the workpiece against the spinning sanding drum until the pattern contacts the rub block. ♣

## EXPLODED VIEW

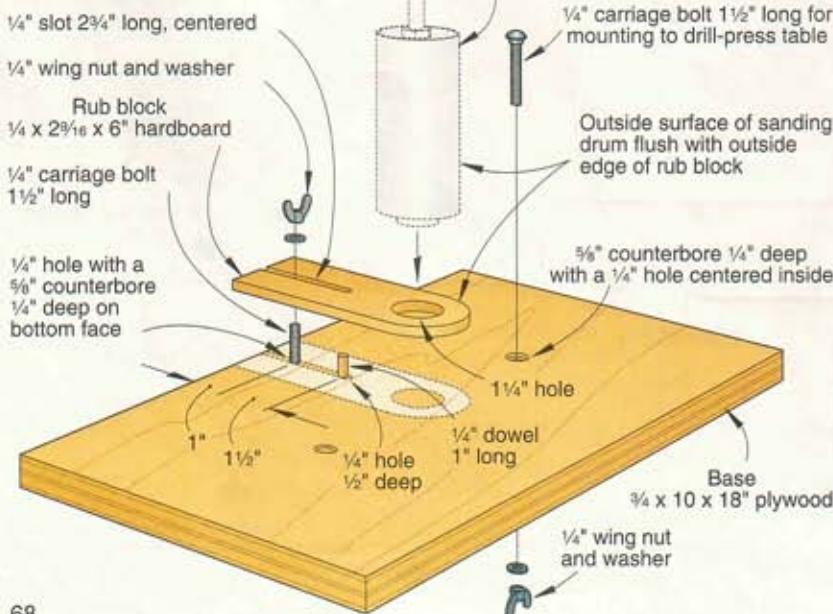


Illustration: Roxanne LeMoine; Lorna Johnson  
Photograph: Marty Baldwin

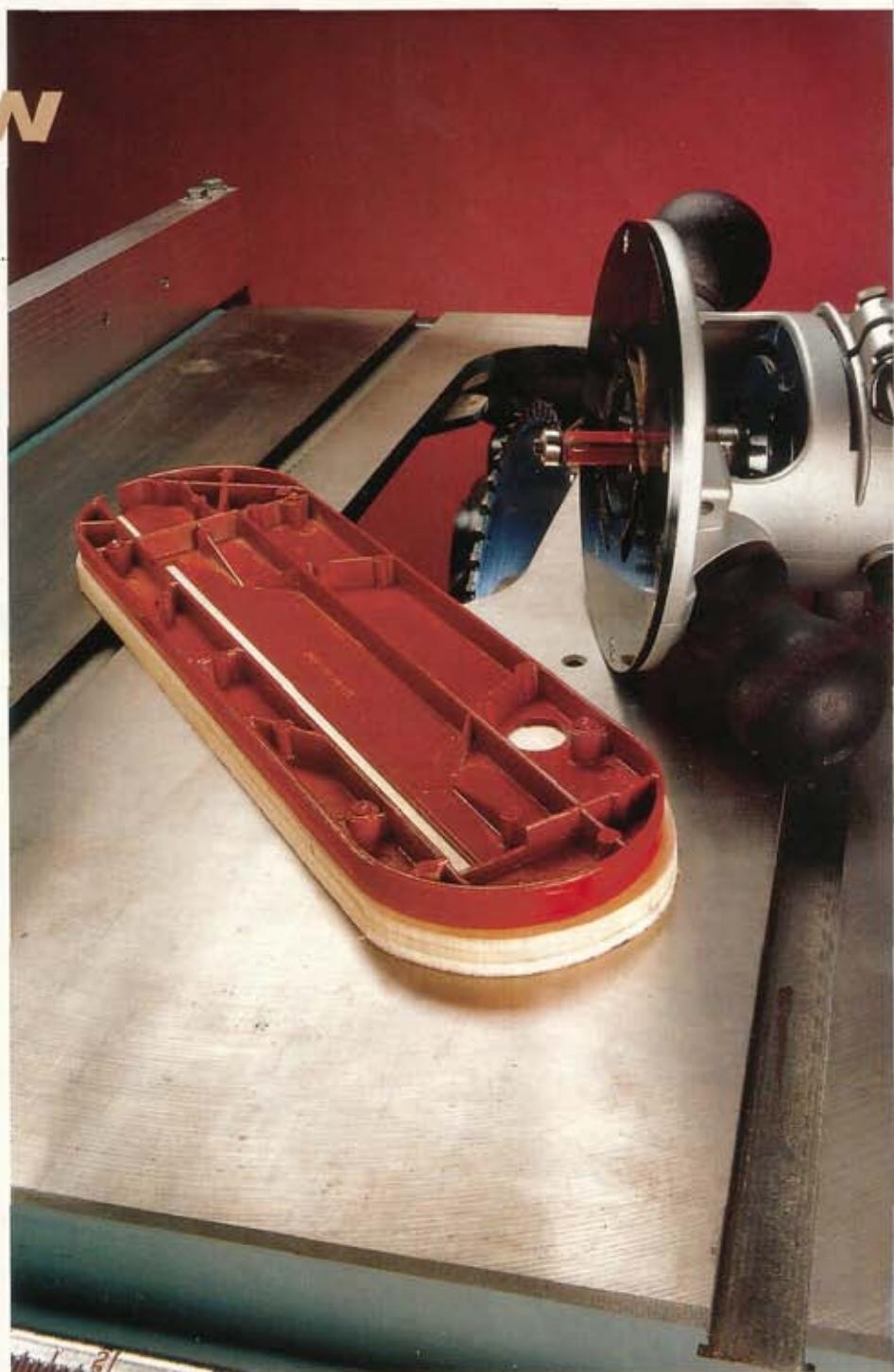
# make terrific tablesaw inserts

Table inserts are a snap to make with a trimming bit.

No matter how finely sharpened a saw-blade, dado set, or molding knives may be, grain tearout can occur when the workpiece is not completely supported by the table insert. To alleviate that problem, we followed the advice of WOOD® magazine reader Michael Cosgrove, of Goose Creek, South Carolina, and created zero-clearance inserts for all our different blades using a router and plywood scraps.

To make inserts, use double-faced tape to adhere your metal tablesaw insert to a plywood blank the same exact thickness as the metal insert. Then, cut the plywood blank slightly over-sized with a bandsaw, being extremely careful not to cut into the metal insert. Next, fit your router with a laminate flush-trimming bit. Adjust the setting so the bit's bearing rides along the edge of the metal insert and the cutter contacts only the wood. Rout the plywood to the exact shape as the metal insert. Keep several blanks on hand for a variety of tasks and blades.

*Note: If you can't make a blank that is the same thickness as the tablesaw's original insert, make one that is slightly too thin. Then apply dabs of hot-melt glue to the tablesaw's insert-support surfaces before putting the blank in place and setting it flush with the tabletop.* ♣



**Photo shows the insert blank after being bandsawn to rough shape, but prior to being routed to exact shape.**

# quick, simple ripping blocks

This pair of handheld blocks will provide an added measure of safety and even increase your productivity.

Cutting wedges and ripping thin strips rank among the more dangerous tasks you can perform on a tablesaw. Our two ripping blocks add a measure of safety to these operations, plus you only position the fence once to make multiple pieces.

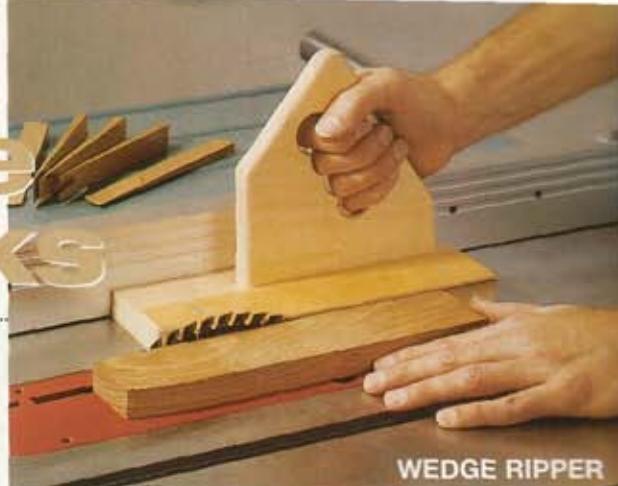
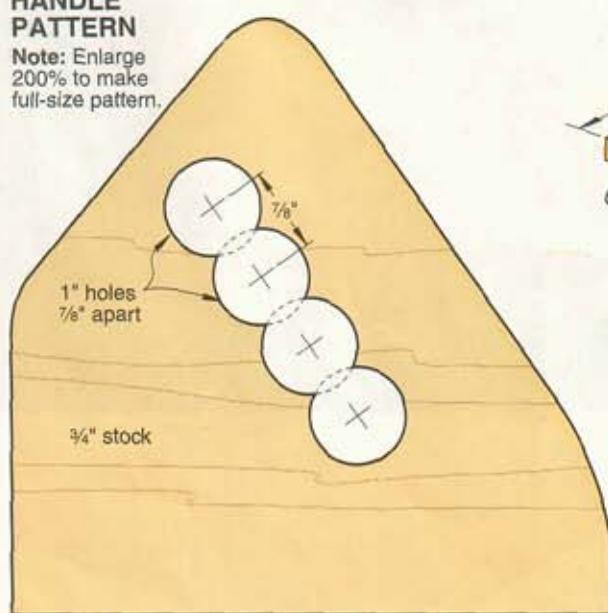
You can build these from any flat pieces of scrapwood. Just follow the guidelines given in the drawing *below right*. To make the handle, cut out and enlarge the pattern provided *below*. And don't neglect to add the keepers on the blade side of the handle of each block. These prevent the cut pieces from kicking back.

To use either block, set the distance from the fence to the inside edge of the blade equal to the width of the rear of the block. Place the workpiece in the notch in the block, and push it and the block together past the blade. With the fence in the same position, repeat the cutting operations for any number of identical wedges or thin strips. ♦

Photographs: Hetherington Photography  
Illustrations: Roxanne LeMoine

## HANDLE PATTERN

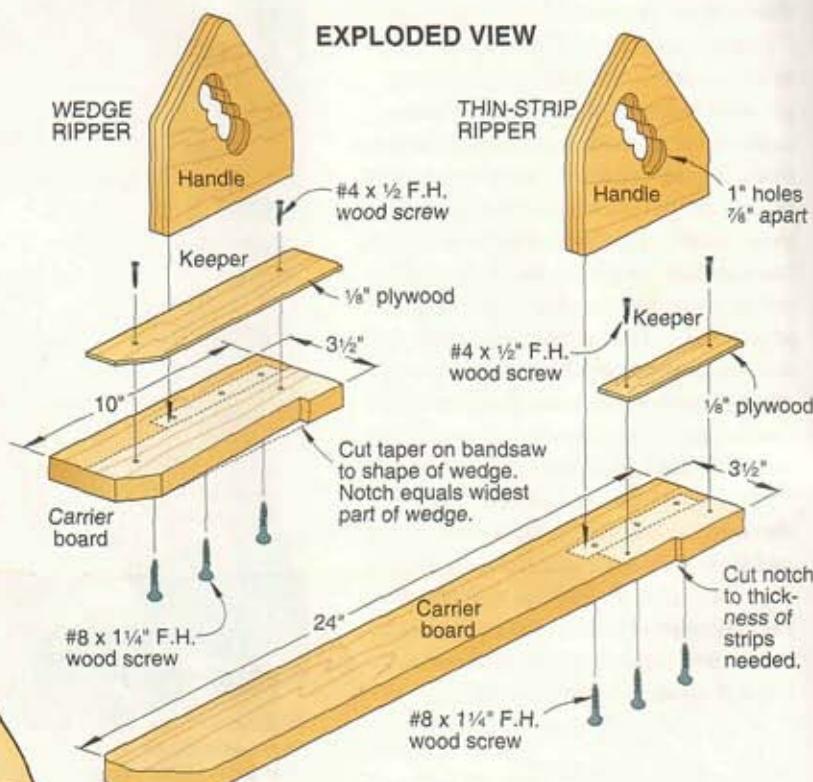
Note: Enlarge 200% to make full-size pattern.



WEDGE RIPPER



THIN-STRIP RIPPER



# sure-grip jointer pushstick

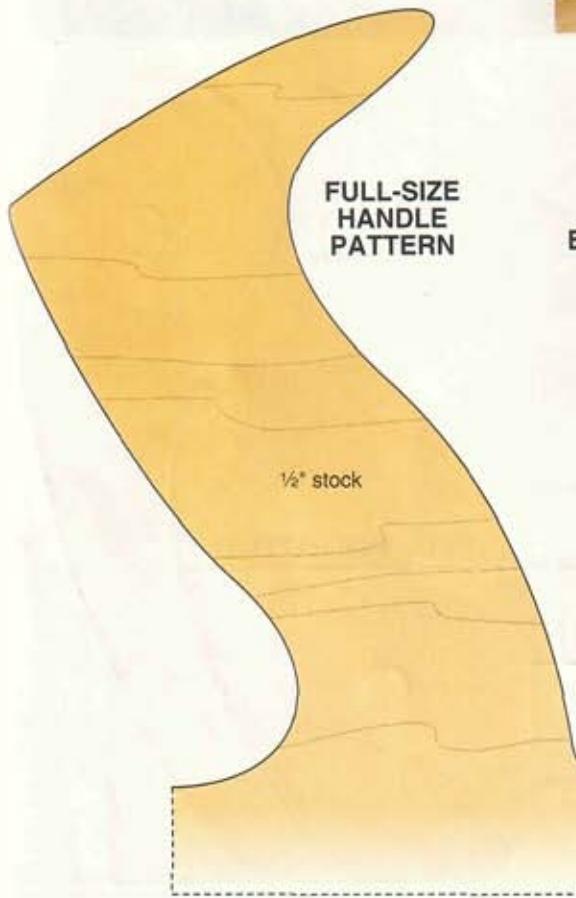
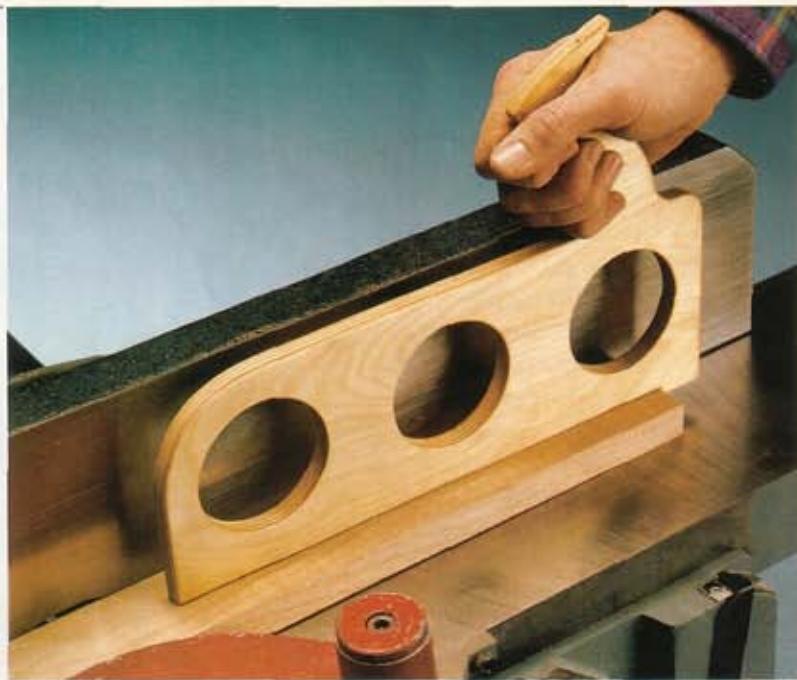
Keep your hands safely above the fence with our simple, extra-tall shop aid.

The next time you're jointing wood, keep your hand safely above the fence and out of harm's way while applying even "down" pressure with this extra-tall pushstick. A notched bottom edge provides a needed grip for pushing the wood smoothly and effectively over your tool's knives. Copy the pattern for the handle, *below*, and follow the dimensions on the drawing, *below right*, to construct the one-piece pushstick. ♣

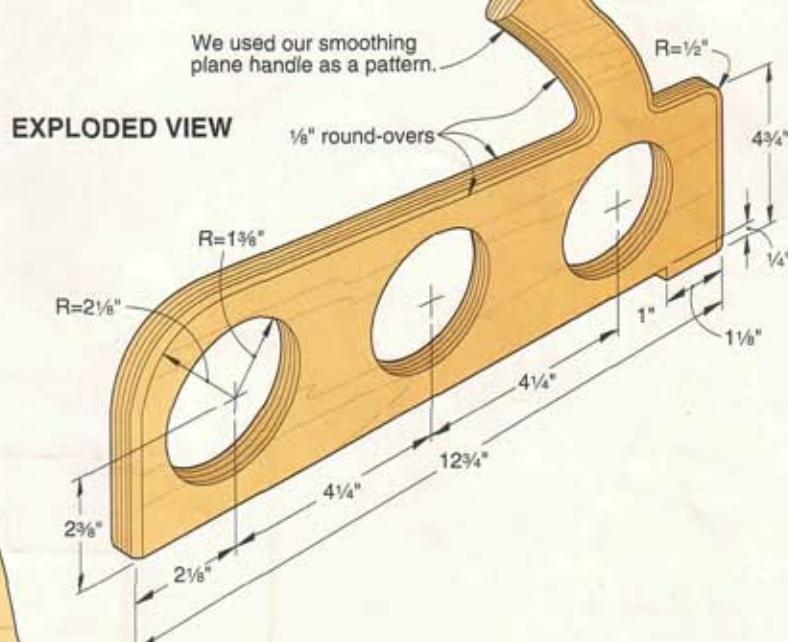
Project Design: James R. Downing

Illustration: Kim Downing

Photograph: Wm. Hopkins



FULL-SIZE  
HANDLE  
PATTERN



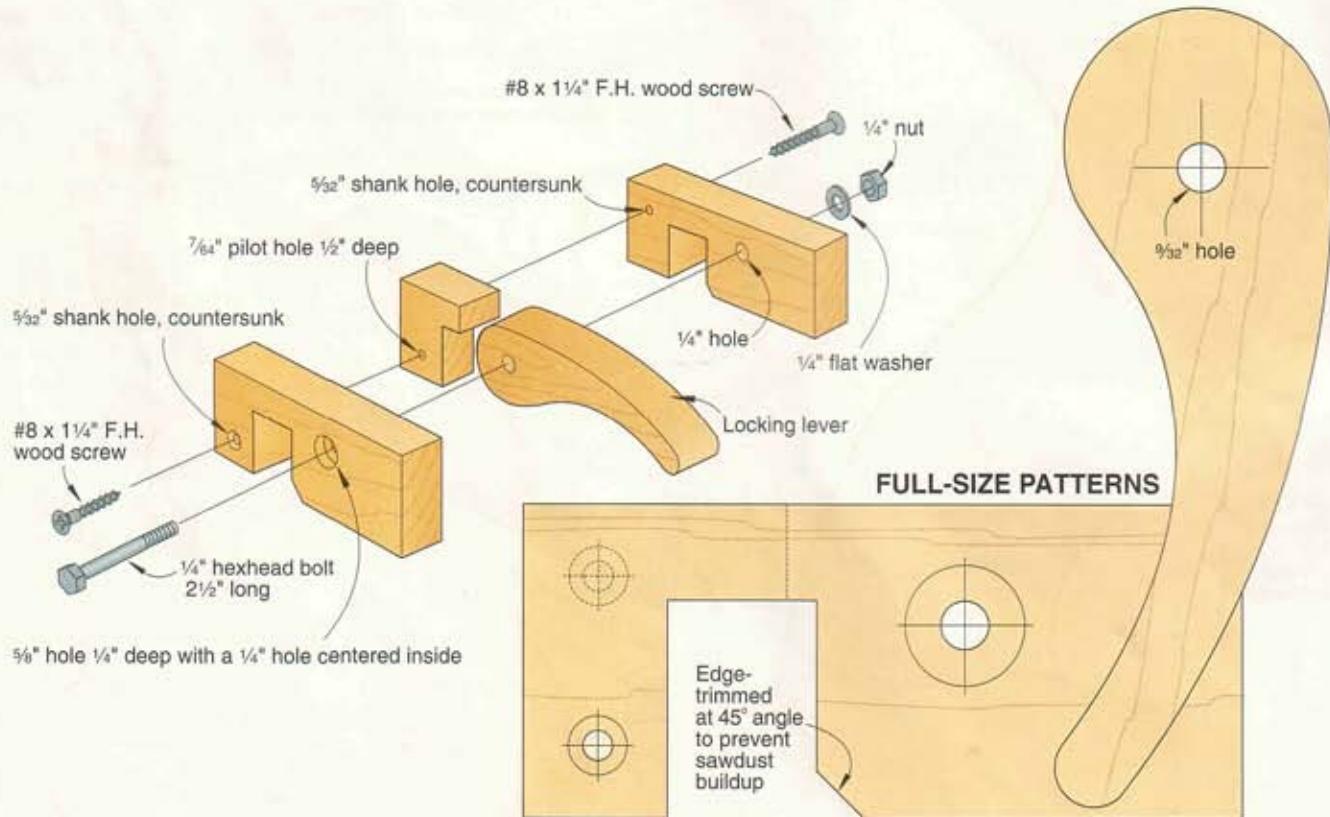
# cam-action fence stop

Make sure your multiple cuts are precise with this easy-to-make device.

This handy helper takes the guesswork out of setting up for precise multiple cuts on your radial-arm saw. Frazier Moore of Warner Robins, Georgia, designed it to lock on a  $\frac{3}{4}$ "-thick fence. You also could clamp it onto the auxiliary wooden fence on your tablesaw miter gauge. For aligned bolt and screw holes, clamp pieces together when drilling.

*Note: All stock is  $\frac{3}{4}$ " thick.*

Photograph: Bob Calmer  
Illustrations: Kim Downing

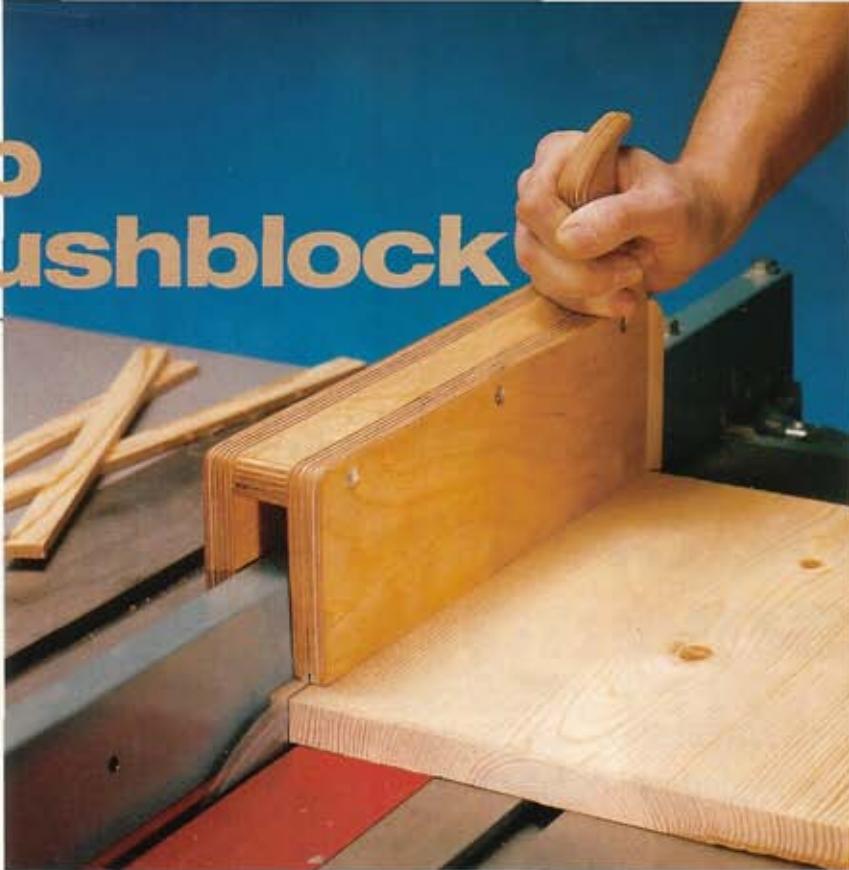


# thin-strip rippin' pushblock

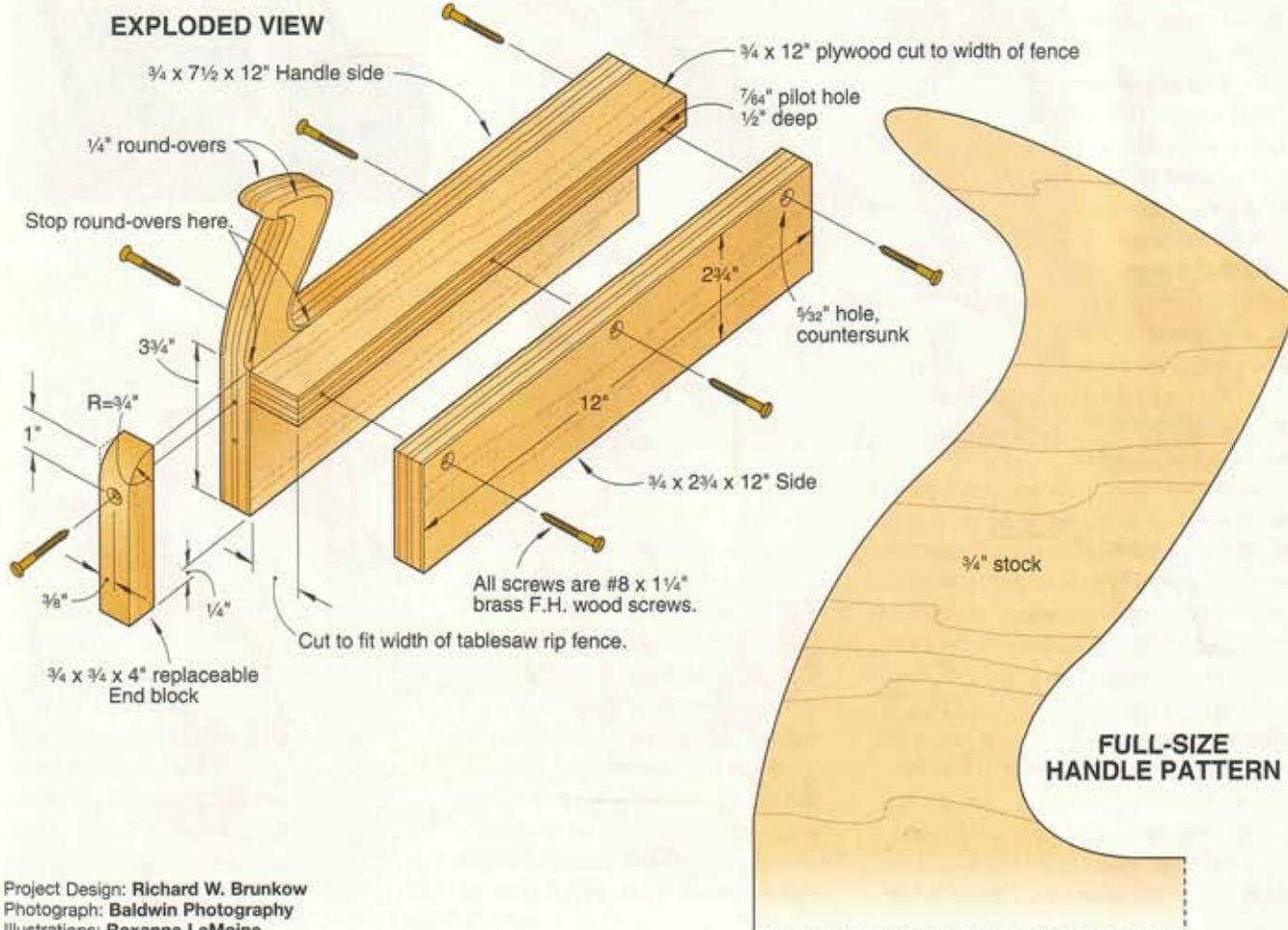
Our handy support helps cut down ripping risks.

Safely rip thin strips between your table-saw blade and rip fence with this fence-supported pushblock. The replaceable end block allows you to push the thin piece being cut completely through the cutting area, eliminating the chance of kickback.

Copy the Full-Size Handle pattern, *below right*, to mark the outline for the pushblock handle. We've located the handle up and out of the way so your fingers remain safely away from the blade during the cutting operation. ♦



## EXPLODED VIEW



Project Design: Richard W. Brunkow  
Photograph: Baldwin Photography  
Illustrations: Roxanne LeMoine

# supports & stands

## back-to-basics sawhorses

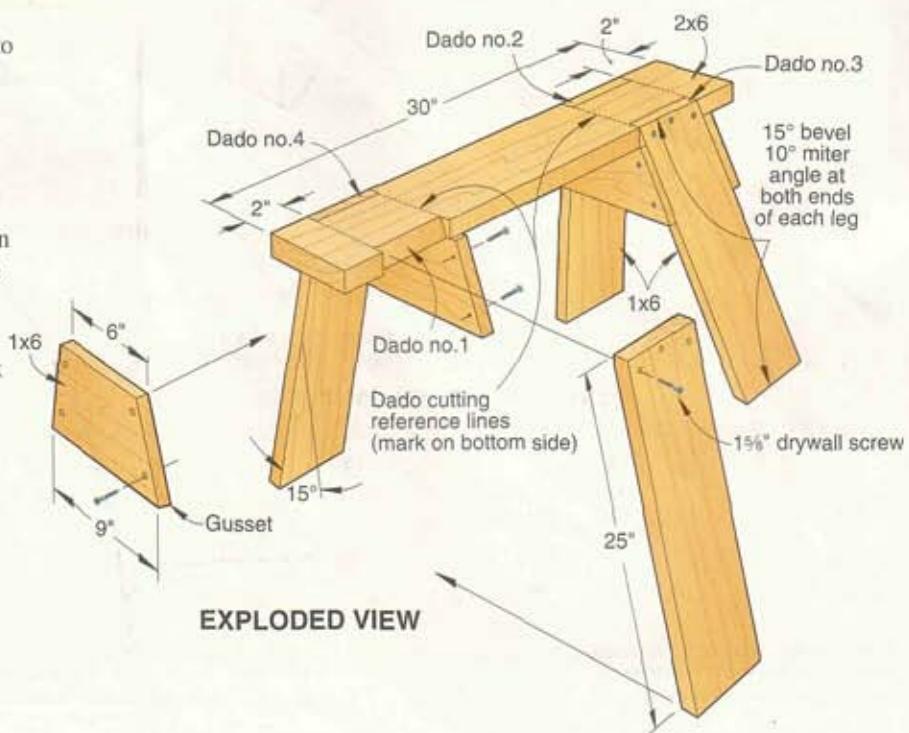
These great shop assistants come in the four-legged variety, and there's never a problem with upkeep.

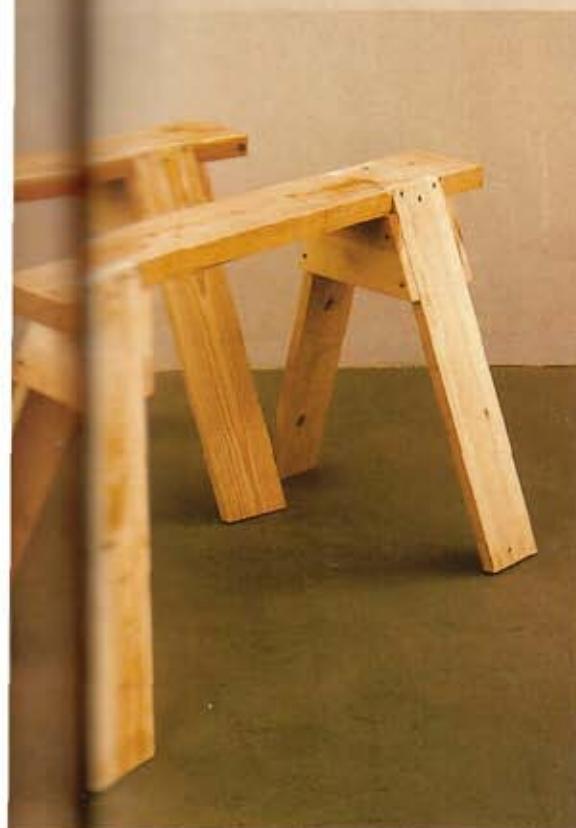
Our simple, sturdy sawhorses are only 2' tall, but you can build a pair any size you want and get the help you need.

Here's how: To build a 30"-long  $\times$  24"-high sawhorse, begin by crosscutting a 30" top beam and four 30" legs. (We used a scrap construction-grade 2x6 for the top and 1x6s for the legs.)

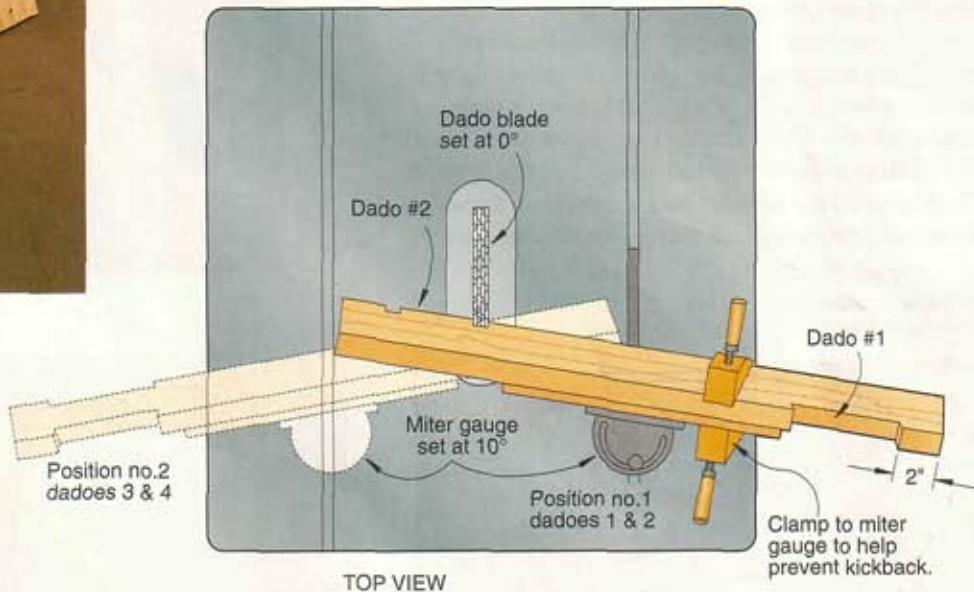
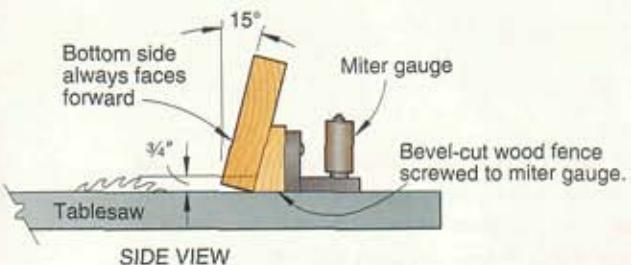
Tilt the tablesaw blade to 15° and bevel one edge of a 12"-long scrap 2x3. Screw it to the miter gauge as shown in the Side View. Remove the saw blade and insert a dado blade. Set the blade at 0° (parallel with the miter gauge grooves), and raise it  $\frac{3}{4}$ " above the surface of the table.

To cut the dadoes in the top beam, position the miter gauge in the slot to the right of the blade and set the miter gauge 10° right of center, as shown in the Compound Angle Dado Cutting drawing. Before cutting, mark reference lines for the location of the four dadoes on the *bottom* side of the 2x6, then mark Xs on waste stock with a pencil to make sure you cut on the correct side of the lines. With the 2x6 positioned against the beveled fence, cut dado no. 1, then flip the 2x6 end for end and cut dado no. 2. Now, move the miter gauge to the left side of the blade and set the miter gauge to 10° left of





## COMPOUND ANGLE DADO CUTTING



center, and cut dadoes nos. 3 and 4 as you did 1 and 2.

Remove the scrap 2x3 from the miter gauge, and replace the dado blade with a regular  $\frac{1}{8}$ " blade. Set the blade at  $15^\circ$  left of center, and with the miter gauge  $10^\circ$  right of center and on the left-hand side of the blade, cut one end of each leg. (If your saw blade tilts right from center, you will need to change the miter gauge setting to  $10^\circ$  left of center and make the first cut with the miter gauge on the right-hand

side of the blade.) Keep the settings the same, and move the miter gauge to the opposite side of the blade; cut the remaining ends to a finished length of 25".

Attach the legs to the top, using  $1\frac{1}{8}$ " drywall screws. (We used three screws for each leg.) Do not use glue on the assembly, because you may need to replace a part if it gets cut accidentally.

To make the four gussets, return the blade to  $0^\circ$  and set the miter gauge at  $15^\circ$ . Crosscut the gussets to the dimensions

shown in the Exploded View drawing, and attach them with  $1\frac{1}{8}$ " drywall screws. If you want a smoother finish, lightly belt-sand all the joinery flush.

Photograph: Bob Calmer

Illustrations: Roxanne LeMoine; Bill Zau

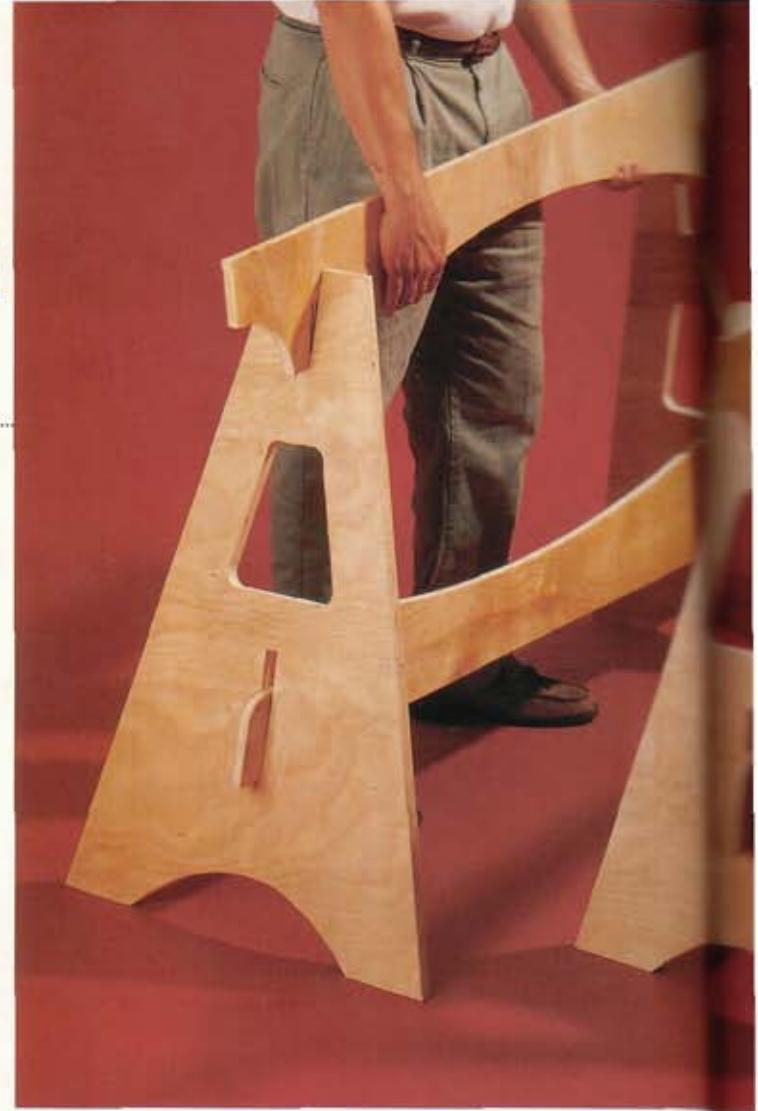
# knockdown sawhorses

After a hard day's work, these sturdy horses stow away in minimal space while waiting for their next task.

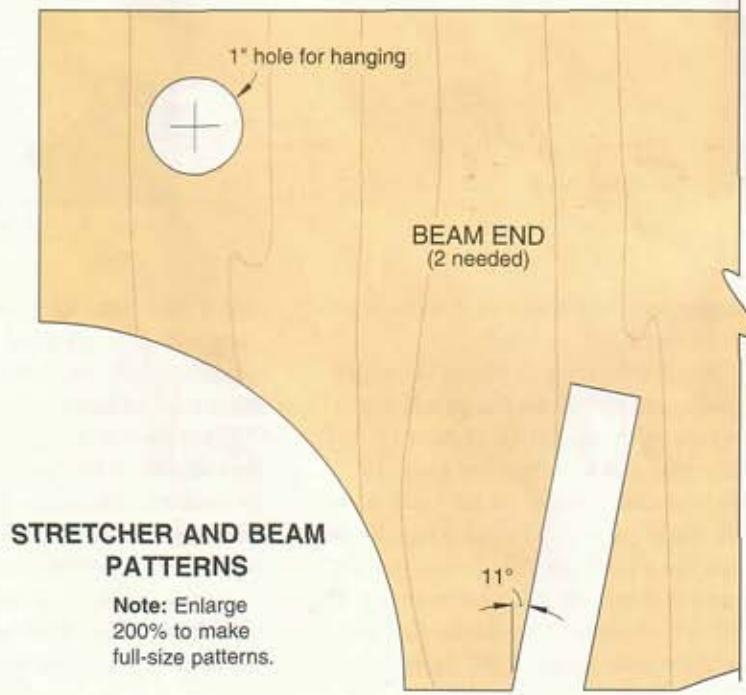
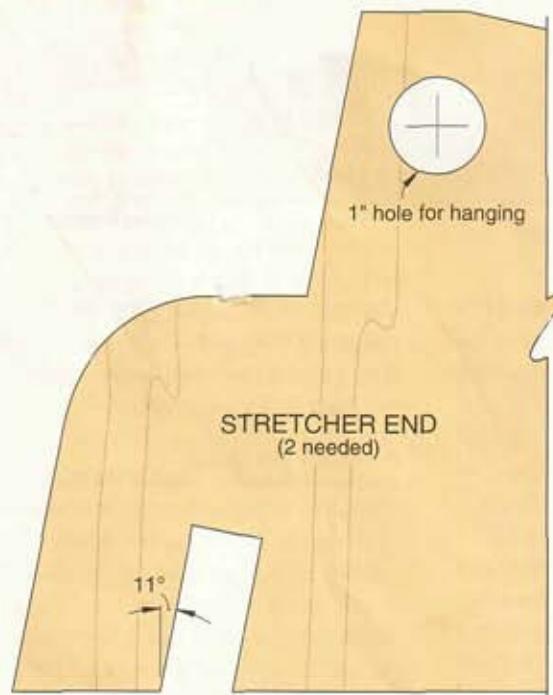
A pair of sawhorses come in mighty handy when you cut sheet goods or need to set up a temporary work area. But where do you corral them when you're not using them? Build these sturdy horses, designed by *WOOD®* magazine reader Wade Olson, of Colfax, Wash., and when you are done using them, you simply break them down and hang them flat against the wall.

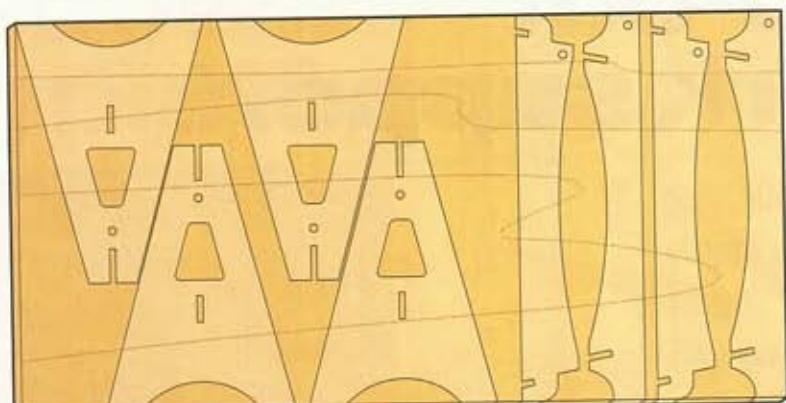
With no hardware to fuss with, you can assemble and disassemble the pieces in just seconds. Because they're made completely of wood, you'll never have to worry about catching a saw blade on a metal bracket or fastener.

One full sheet of  $\frac{1}{4}$ " plywood yields a pair of sawhorses. The beam ends and stretcher ends are shown in the inset photo right. To make them, enlarge the patterns below. ♦



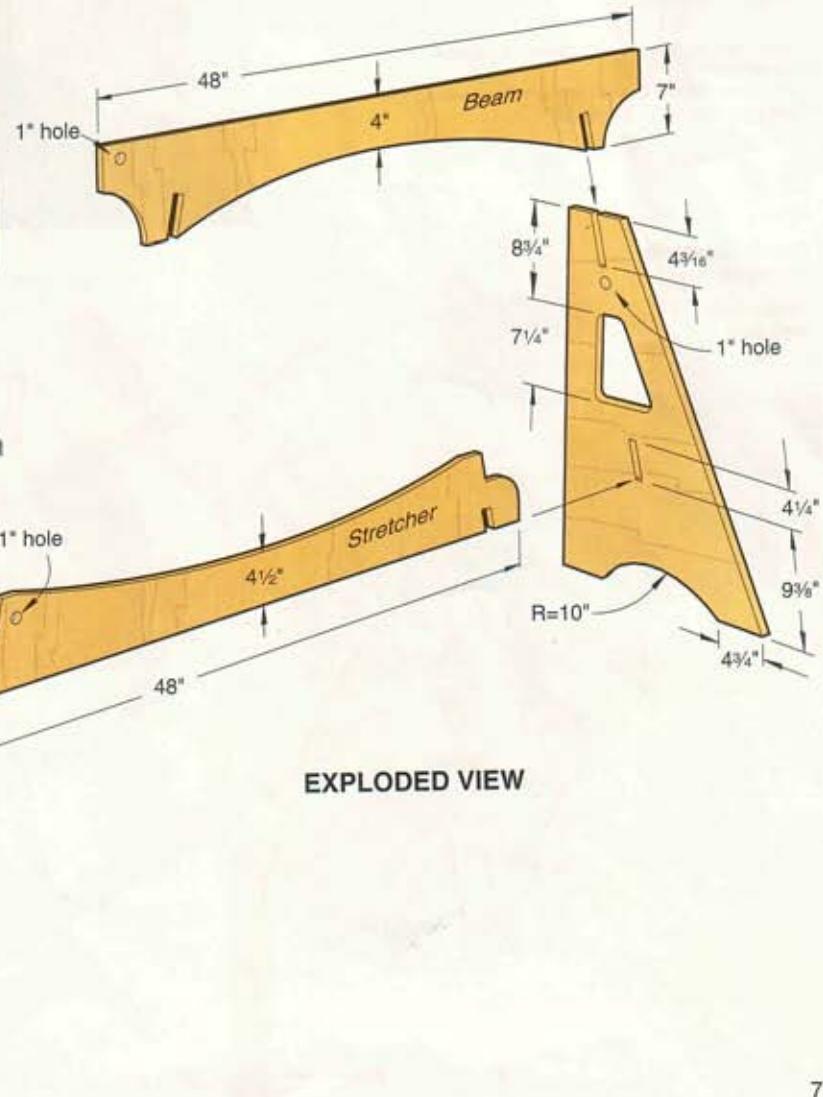
Photographs: Baldwin Photography  
Illustrations: Roxanne LeMoine





CUTTING DIAGRAM (For 2 sawhorses)

3/4 x 48 x 96" Plywood



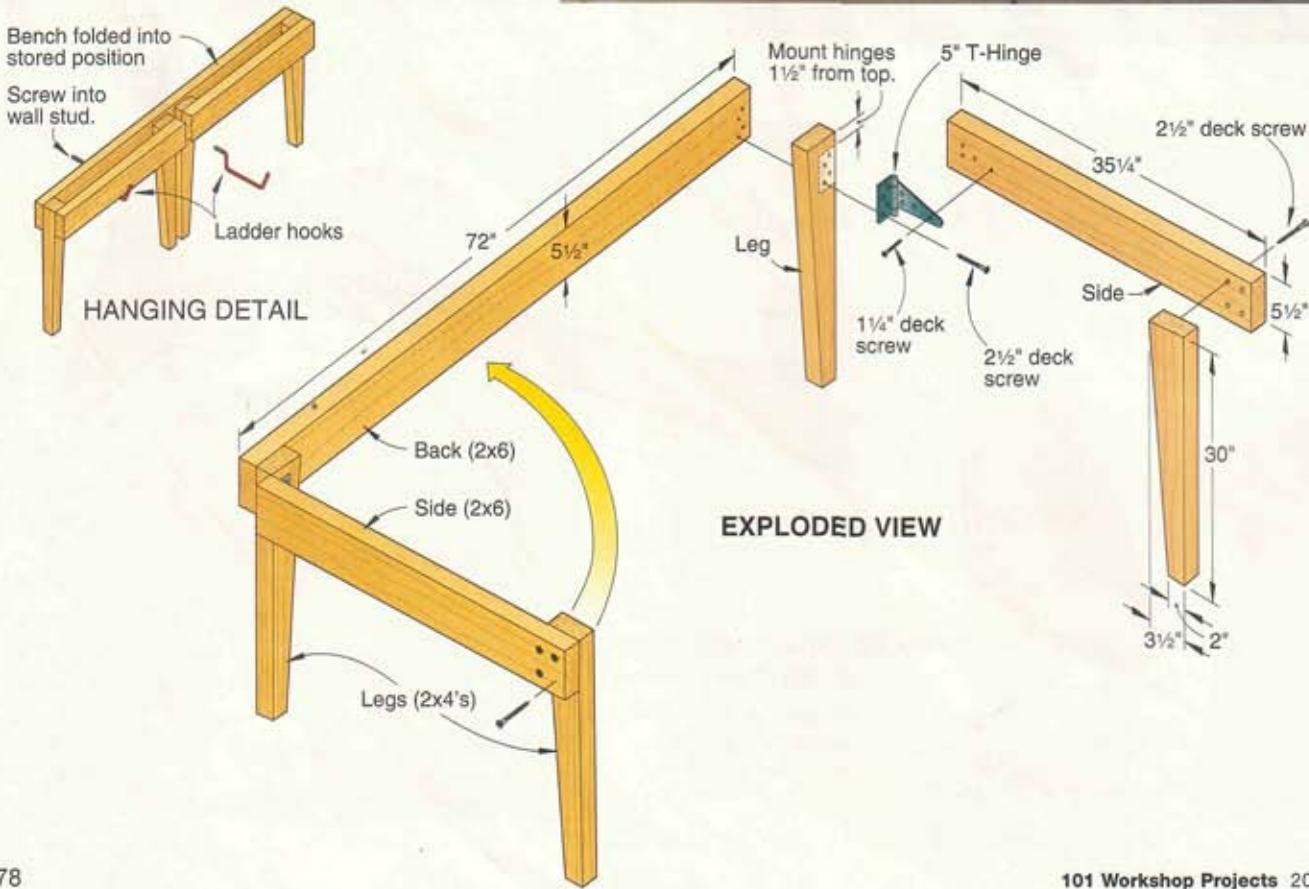
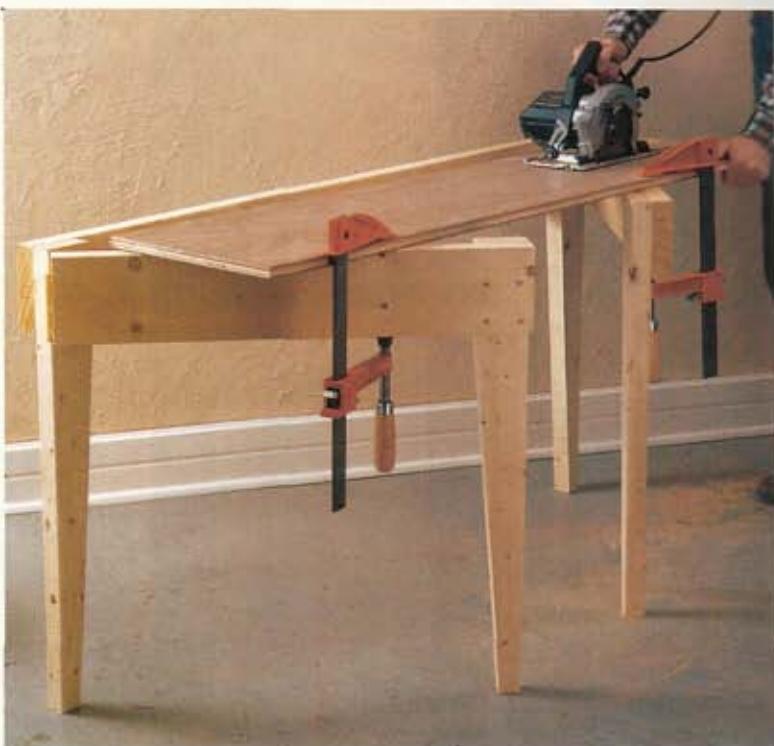
EXPLODED VIEW

# fold-out work support

Maximize your shop space with a sturdy support unit that folds up and stows away neatly.

Short on work space? Try this compact project. Spread the legs for a stable support when cutting bulky pieces of sheet goods. Or, position a piece of plywood on its top, and use it as a temporary worktable as needed. Then, when you're done, just fold it up and hang the support on two ladder hooks.

Project Design: Marvin Hoppenworth, Cedar Rapids, Iowa  
Illustrations: Jamie Downing; Lorna Johnson  
Photograph: John Hetherington



# knock-down cutting platform

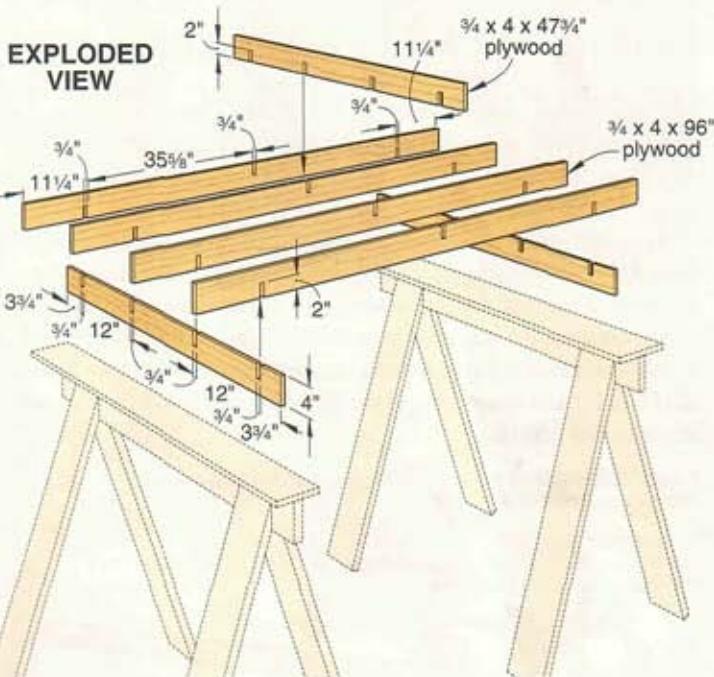
When you're done working, our platform can hide in plain sight in your rafters.

Sheet goods often present a real challenge when it comes to cutting them down into project-sized pieces. Even if you have the room in your shop to maneuver a full sheet of plywood, singlehandedly balancing it on your tablesaw while cutting it can prove to be impossible.

After struggling with 2x4s and sawhorses, reader Richard Brunkow of Milligan, Nebraska, determined that it wasn't the sawhorses, but the shifting, sagging 2x4s that were the problem. So he came up with the idea for a knock-down platform that sets up quickly and easily.

Simply rip six 4x96" strips from a sheet of  $\frac{3}{4}$ " plywood, then cut three 47 $\frac{3}{4}$ "-long pieces from two of the strips. Cut the notches where shown in the drawing.

To use the platform, position your sawhorses so they support the two short end rails. Then drop the center rail in from the top. Adjust your saw to cut about  $\frac{1}{8}$ " deeper than the thickness of the sheet being cut. When taken apart for storage, the pieces of the platform make a stack less than 5 $\frac{1}{4}$ " thick that can easily be stored in the rafters of your shop or garage.



Photograph: Marty Baldwin  
Illustration: Roxanne LeMoine

# roll-around plywood cart

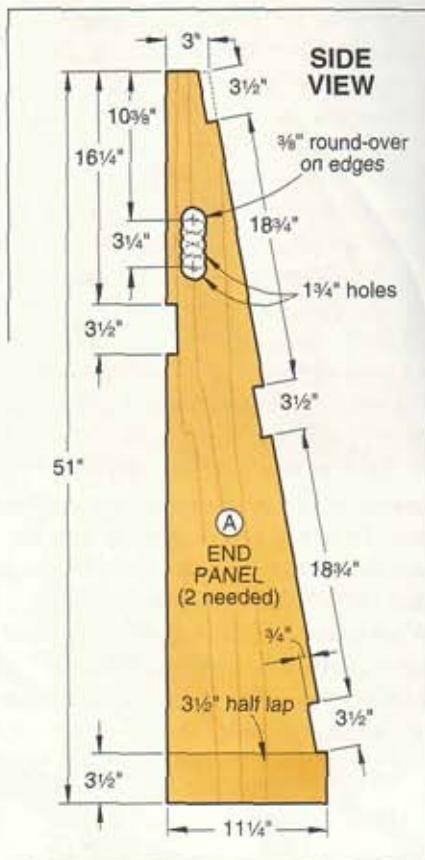
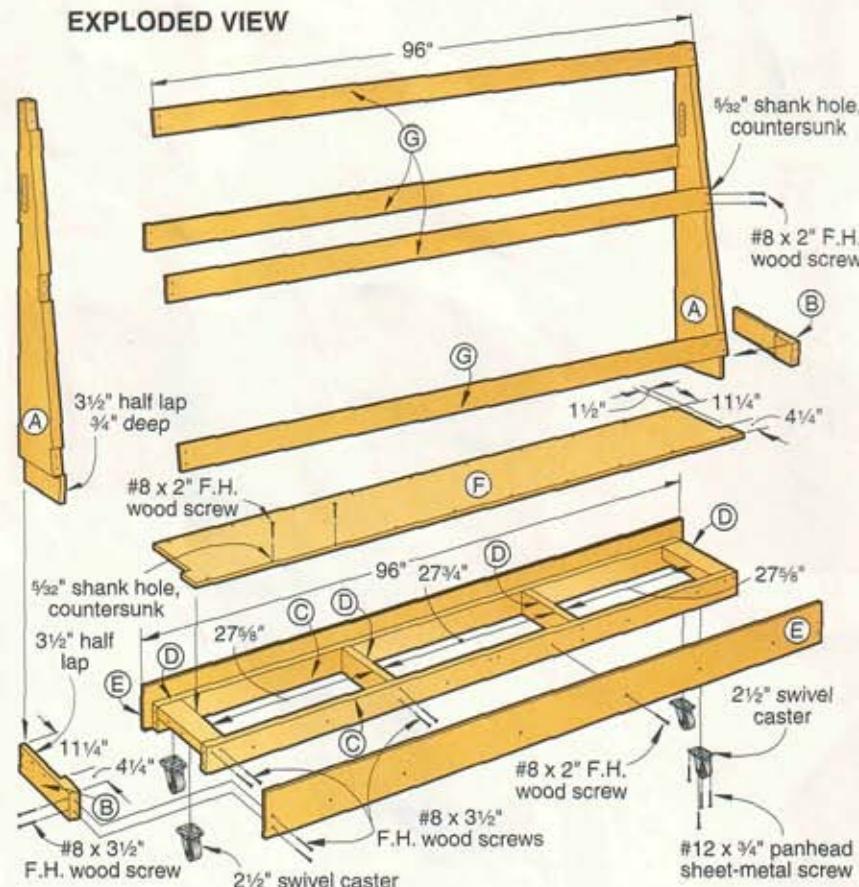
Let the wheels do the work with our simple but effective plywood totting runabout.

Carrying plywood any distance can quickly turn into a wrestling match, but you'll win hands down when you use this mobile storage rack. And building it won't bust your budget either. All you need is plywood, dimensional lumber, casters, and wood screws.

Swiveling casters allow you to turn the cart in any direction and back it up to a wall for space-saving storage. Full 4×8' sheets fit on the front of the rack. Inside the slats, you can store cut-off pieces.

The construction sequence is as follows: Cut out the two end panels (A) and attach them to the end supports (B). Assemble the base (C, D, E, F,) and attach the end panels to that. Complete the rack by attaching the rails (G).

**Project Design:** James R. Downing **Photograph:** Bill Hopkins, Jr.  
**Illustrations:** Roxanne LeMoine



## materials list

Part	FINISHED SIZE				
	T	W	L	Mult	Qty
A end panels	1 1/2"	11 1/4"	51"	2x12	2
B end supports	1 1/2"	3 1/2"	15 1/2"	2x4	2
C base sides	1 1/2"	3 1/2"	93"	2x4	2
D base supports	1 1/2"	3 1/2"	12 1/2"	2x4	4
E base faces	3/4"	5 1/2"	96"	1x6	2
F base top	3/4"	15 1/2"	96"	P	1
G rails	3/4"	3 1/2"	96"	1x4	4

Material Key: P-plywood

Supplies: #8x2" and #8x3 1/2" flathead wood screws, 2 1/2" swivel casters, #12x3/4" panhead sheet-metal screws.

# sheet goods mover/lifter

Move large pieces easily and without an assistant.

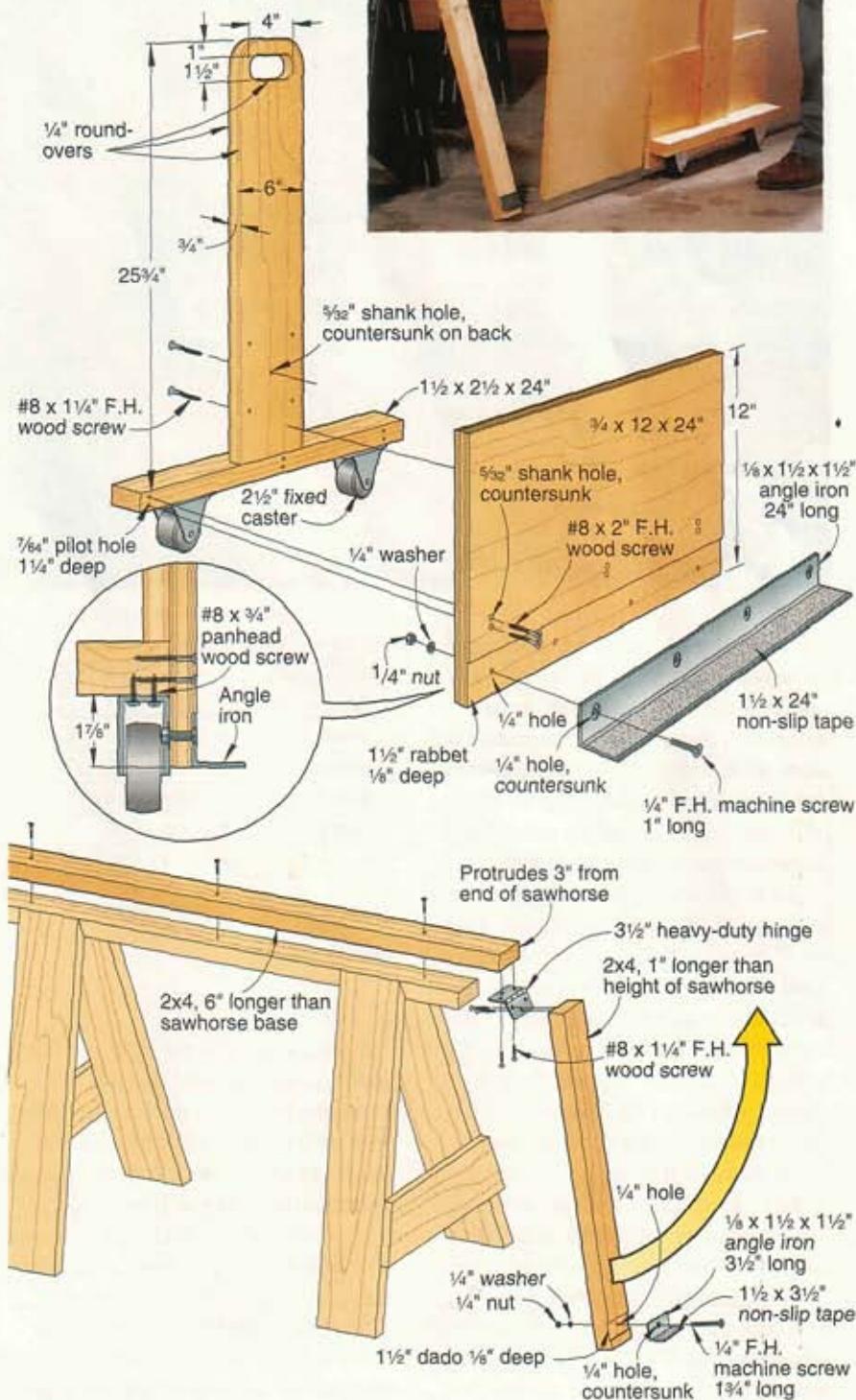
Few shop chores rival the awkwardness of moving large sheet goods by yourself. And it's nigh on impossible to get them up on sawhorses without help (or the horses skittering across the floor). You'll never again have to cajole reluctant family members into helping if you use this system.

Build the dolly from  $\frac{3}{4}$ " plywood or medium-density fiberboard (MDF), and solid stock, as shown in the drawings at right. Carefully position the casters so they run parallel to one another—otherwise, the dolly can shimmy like a bad shopping cart.

Each lifter consists of a pair of hinged  $2 \times 4$ s. One attaches temporarily to the top of your sawhorse; the other guides the stock from vertical to horizontal.

To work the system, slide the angle iron of the dolly under the edge of the sheet you want to move. (It works best if you store your sheet goods standing on their long edge, raised up on  $2 \times$  stickers.) Grab the top of the sheet and tip it toward you. This lifts the material off the stickers and shifts its weight to the dolly. Wheel the sheet to your work area, steering it by tilting and pivoting the dolly on one caster.

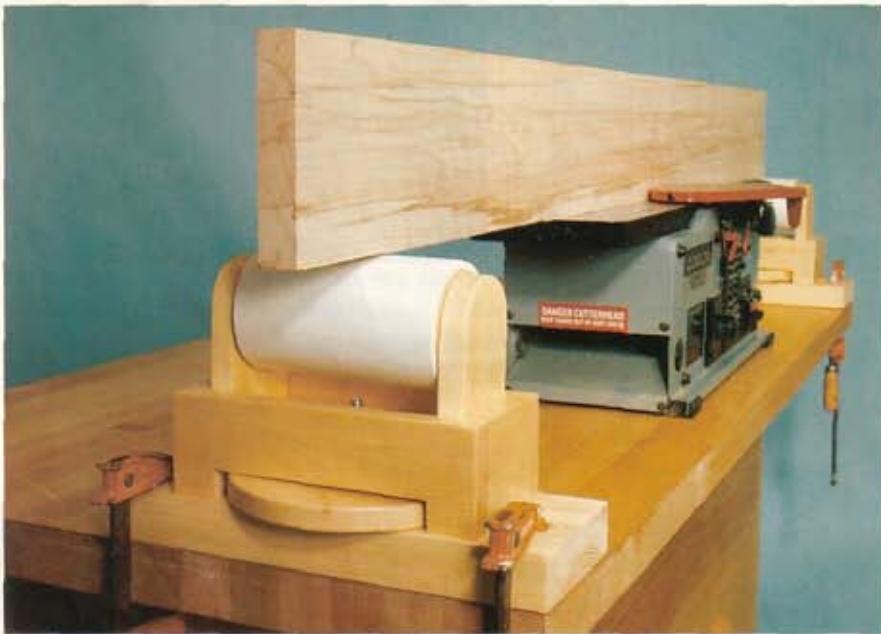
To lay the sheet on sawhorses, roll it into position over the angle iron of the lifters, and tip the sheet toward the sawhorses to free the dolly. (The sheet should be resting only on the lifters.) Pull the dolly away and set it aside. Raise the material by tilting the top toward the sawhorses—the lifters will drop to the floor once the weight of the sheet transfers to the horses. ♦



Illustrations: Roxanne LeMoine  
Photograph: Marty Baldwin

# benchtop work support

Take the hassle out of handling long stock.



If you work with benchtop tools, you know how tricky it can be trying to support long pieces of stock. This project will end all those hassles. It supports your workpieces with precision because you can micro-adjust the height of the PVC roller through a 1" range by turning the height-adjustment disc (F).

To start, cut and epoxy the wheels (A) to the inside of the PVC roller, and insert the 1" dowel in the hole in the wheels. Sand the holes, if necessary, so that the dowel rotates without binding. Glue and screw together the roller carriage (B, C) with the PVC roller in place. Then dry-clamp the base (D, E). The roller carriage (B, C) should fit snugly, but not bind inside the base. If it binds, sand the edges of the roller carriage. If it fits too loosely, make paper-thin cuts off the end grain of parts D or E, whichever needs reducing.

Now, glue and screw the base together. Fasten the carriage bolt to the height-adjustment disc (F) with a lock nut and washer, and then thread the carriage bolt

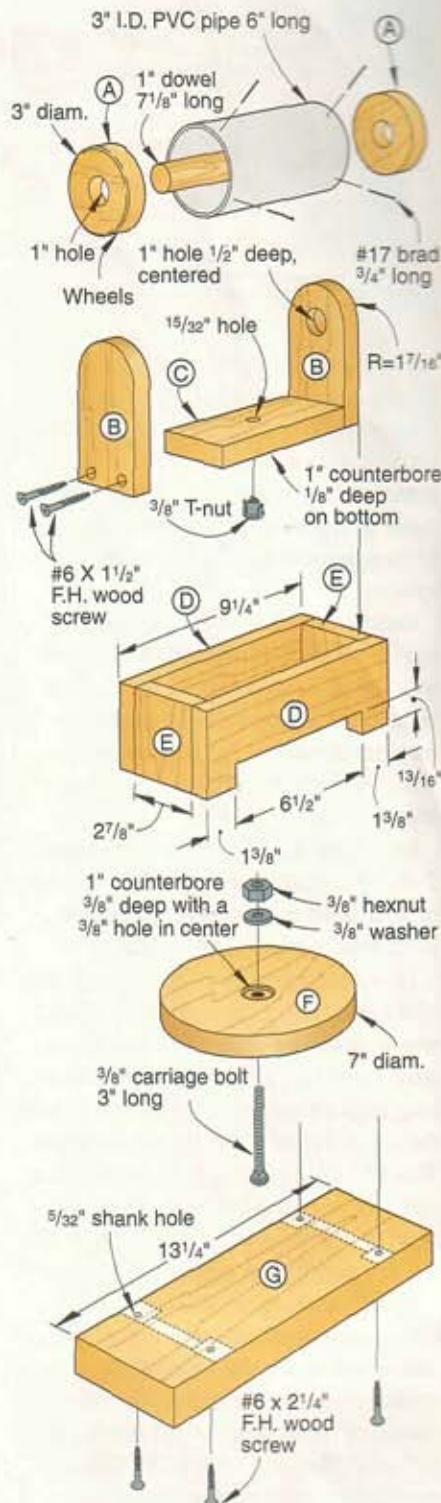
## materials list

Part	FINISHED SIZE				
	T	W	L	Mdl.	DW
A wheels	3/4"	3" diam.	P	2	
B carriage	3/4"	2 1/8"	5"	P	2
C carriage	3/4"	2 1/8"	6 1/4"	P	1
D base sides	3/4"	3"	9 1/4"	P	2
E base ends	3/4"	2 1/8"	3"	P	2
F disc	3/4"	7" diam.	P	1	
G subbase	1 1/2"	4 7/8"	13 3/4"	P	1

Materials Key: P=pine.

through the T-nut in the roller carriage. Insert the carriage into the base, and screw the base to the subbase (G). You may need to make the subbase out of thicker or thinner stock depending on the height of the tools you'll be using.

To get the roller dead level with your tool tabletop, position both on your bench the appropriate distance apart for the workpiece. Clamp the support to your benchtop, and lay a straightedge across the tabletop and roller. Turn the height-

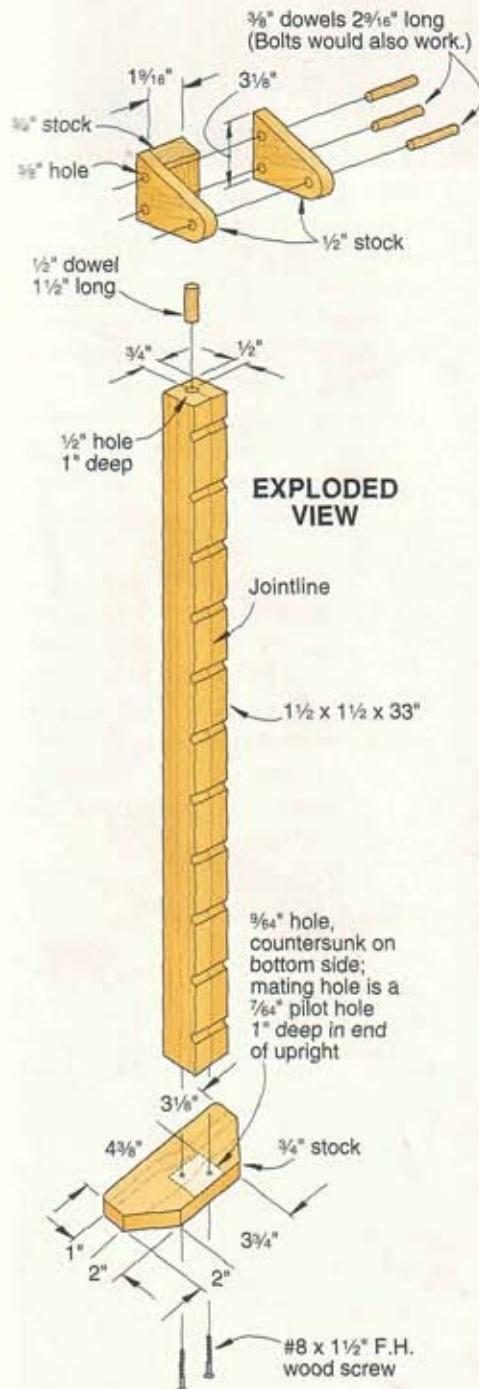


adjustment disc until you can't see any light underneath the straightedge on the tool tabletop. ♣

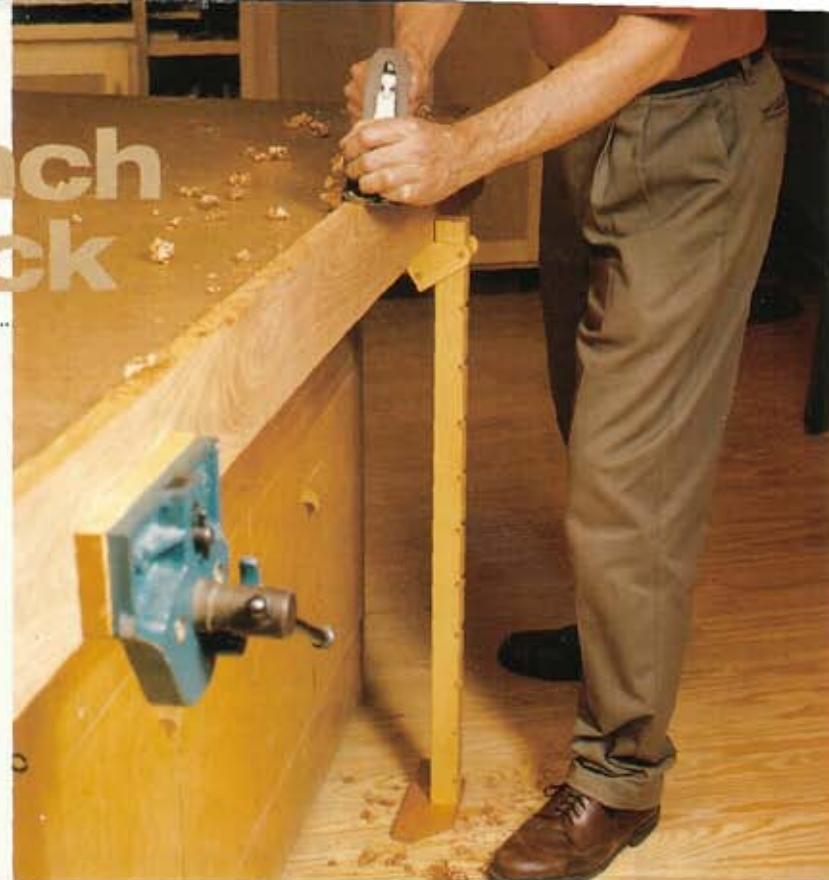
Project Design: Gary Elderton  
Photograph: Hetherington Photography  
Illustration: Roxanne LeMoine

# workbench board jack

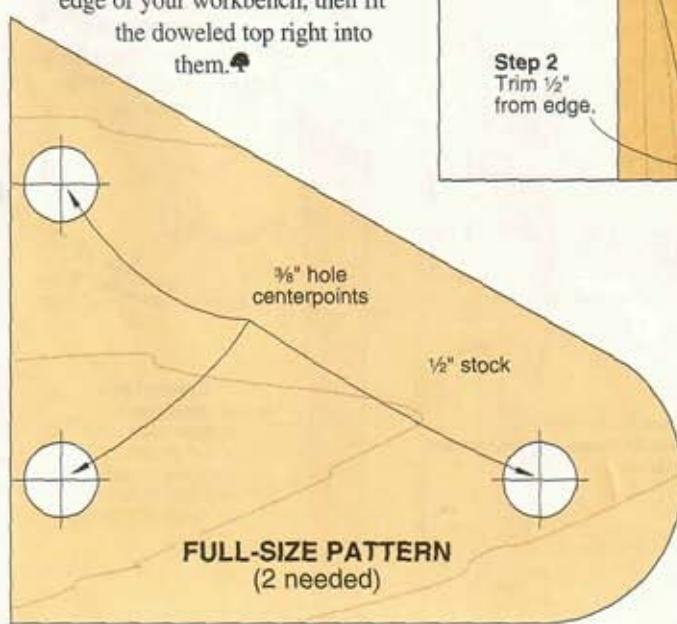
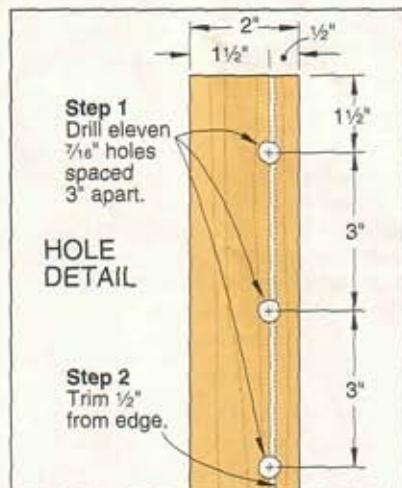
Our adjustable support gives you a stable, helping hand.



**EXPLODED VIEW**



Hold stock safely at bench side with our quick-and-easy adjustable support. With this jack, you can avoid flimsy clamping setups or having to call a helper every time you need to work the edge of a long piece of stock. It also allows you to quickly elevate stock to a comfortable working height. For stability, drill holes into the bottom outside edge of your workbench, then fit the doweled top right into them.



# super-sturdy scroll saw stand

Give your scrollsaw the kind of stand it deserves, and elevate your level of efficiency.

Elevate your benchtop scrollsaw to new heights with this sturdy shop-made stand. It provides solid support directly beneath the saw to help minimize vibration.

We recommend that you elevate the scrollsaw table to a comfortable height, typically at elbow level. So, you may have to adjust the height of the uprights (C) slightly. We dry-clamped our pieces together before drilling the mounting holes to verify a comfortable working height.

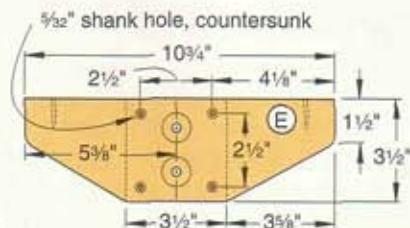
For additional strength, drill the mounting holes, and drive the lag screws through the uprights (C) and feet (D) and into the  $\frac{3}{4}$ " dowels in the mating pieces. ♣

## materials list

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A top	$\frac{3}{4}$ "	12"	24"	PL	1
B cross members	$1\frac{1}{2}$ "	$3\frac{1}{2}$ "	18"	C	2
C uprights	$1\frac{1}{2}$ "	$3\frac{1}{2}$ "	$31\frac{1}{2}$ "	C	2
D feet	$1\frac{1}{2}$ "	$3\frac{1}{2}$ "	18"	C	2
E support	$1\frac{1}{2}$ "	$3\frac{1}{2}$ "	$10\frac{1}{4}$ "	C	1

Materials Key: PL-plywood, C-choice of fir or pine 2x4 stock (handpicked from defect-free pieces).

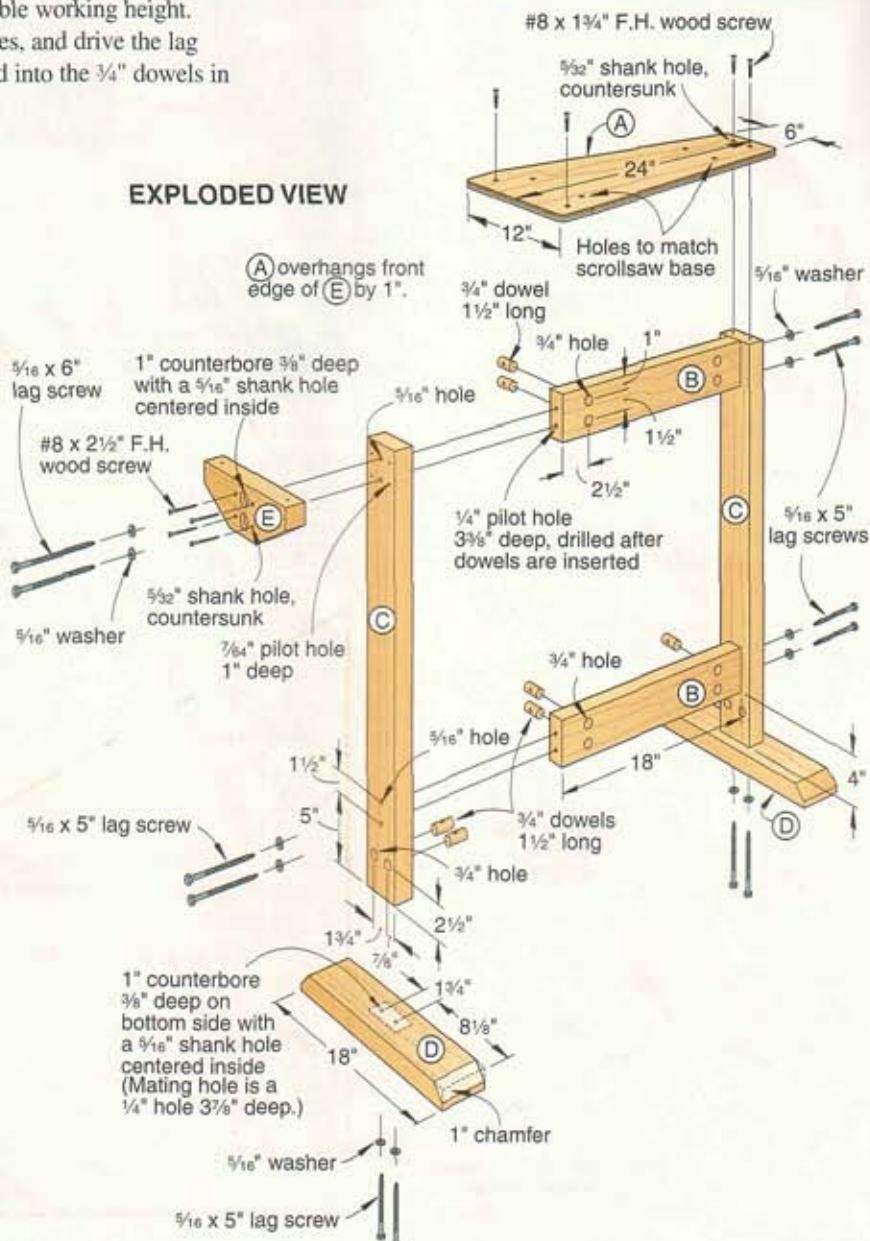
Supplies:  $\frac{1}{4}$  x 5" lag screws (10),  $\frac{1}{4}$  x 6" lag screws (2),  $\frac{1}{4}$  x 5" flat washers (12), #8 x 1 $\frac{1}{4}$ " flathead wood screws, #8 x 2 $\frac{1}{2}$ " flathead wood screws,  $\frac{3}{4}$ " dowel stock, clear finish.



SUPPORT

Project Design: James R. Downing  
Illustrations: Roxanne LeMoine; Lorna Johnson  
Photograph: Dean Tanner

## EXPLODED VIEW



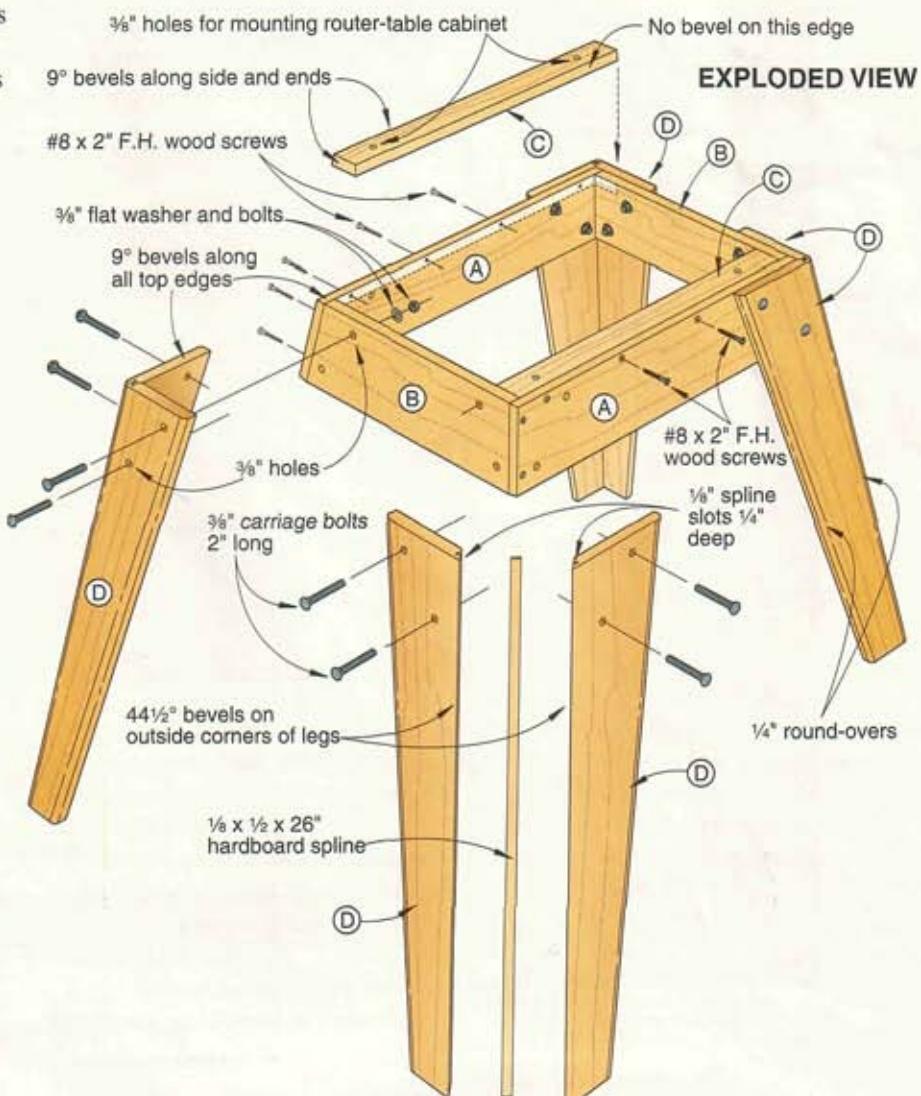
# leg stand for stationary tools

Put your machines at arm's length and on a firm foundation by building our sturdy, permanent base for shop equipment.

A leg stand, with its tapered and slightly splayed legs, makes a sturdy, yet good-looking base for any machine. Use the dimensions in the Materials List to make one as shown at right, or alter the lengths of the parts and custom-make one to fit a specific machine in your shop. To size the parts for any machine, follow these guidelines: 1) Subtract  $1\frac{1}{8}$ " from the length of the machine for the length of the side rails (A). 2) Subtract  $3\frac{1}{4}$ " from the width of the machine for the length of the end rails (B). 3) Subtract 3" from the length of the side rails (A) for the length of the cleats (C). 4) Multiply your desired height by 1.074 for the length of the blanks for the leg halves (D). Screw a piece of plywood to the cleats and bolt your machine to it. Here's how to put your leg stand together.

After cutting the rails (A, B) to the dimensions shown on the Parts View drawing, screw them

*Continued on page 86*



## leg stand for stationary tools



**Clamping the legs (D) to the frame (A/B/C) holds them at the proper angle while you finish clamping their length.**

together to form a rectangular frame. Fit the cleats (C) into the rail frame and screw them in place. Set the frame aside.

Cut blanks for the leg halves (D) to size, and before forming the legs, drill the holes where shown. Remember to make mirrored pairs. Bevel-rip the mating edges. Then, with the saw blade tilted at the same angle, cut the spline slots in the bevels. Next, make the angled and beveled cuts at the top and bottom of each leg half. Do not cut the leg tapers until the halves have been glued together. ■

### materials list

Part	FINISHED SIZE				
	T	W	L	Matl.	Qty.
A side rails	$\frac{3}{4}''$	$5''$	$25\frac{1}{4}''$	M	2
B end rails	$\frac{3}{4}''$	$5''$	$20''$	M	2
C cleats	$\frac{3}{4}''$	$1\frac{1}{2}''$	$22\frac{1}{4}''$	M	2
D leg halves	$\frac{3}{4}''$	$6\frac{1}{2}''$	$27\frac{1}{4}''$	M	8

Material Key: M=maple.

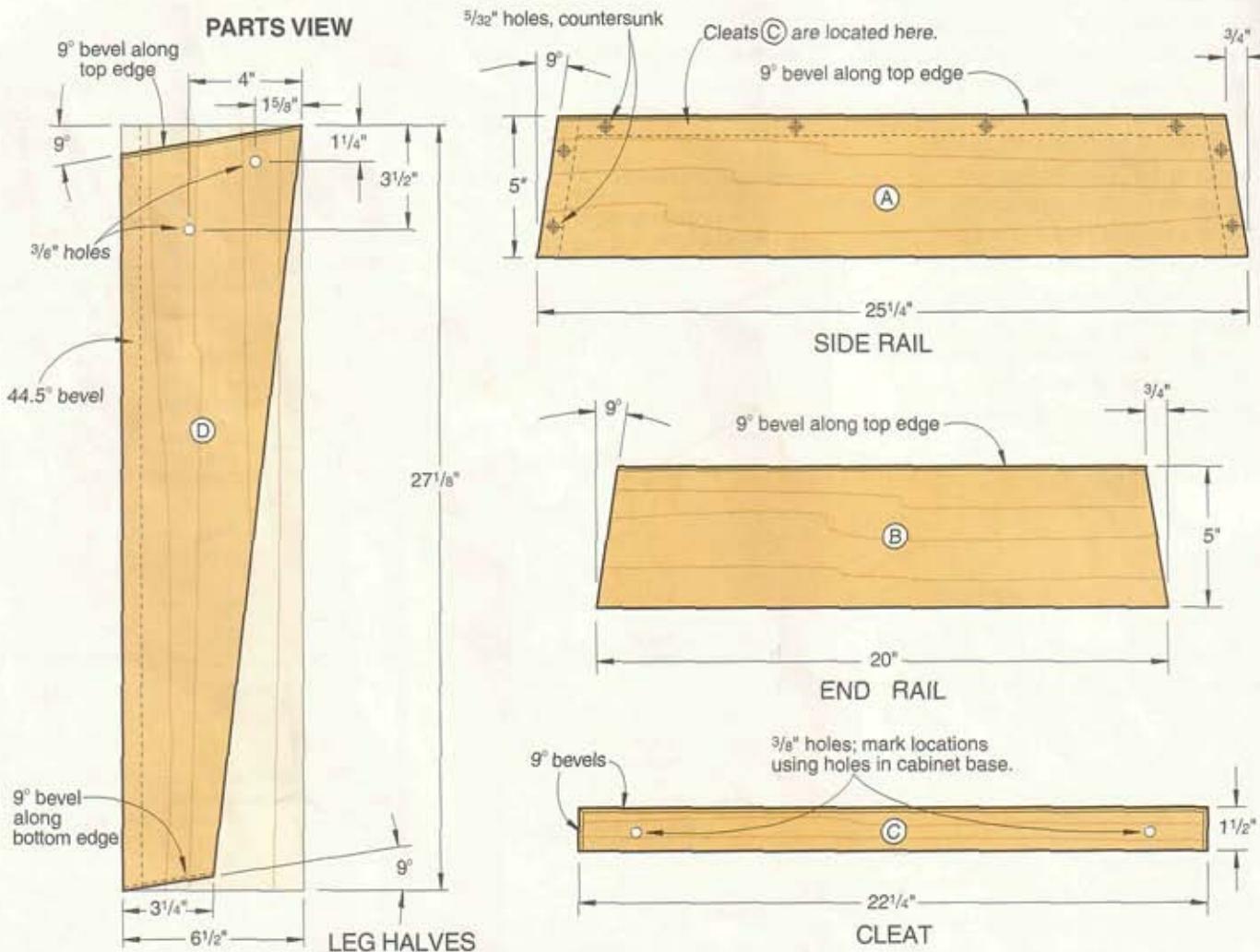
Supplies:  $\frac{1}{8}''$  tempered hardboard,  $\frac{3}{8}''$  carriage bolts 2" long(16), flat washers and nuts, #8x2" flathead wood screws (16), finish.

Written by Jan Hale Svec with Erv Roberts

Project Design: James R. Downing

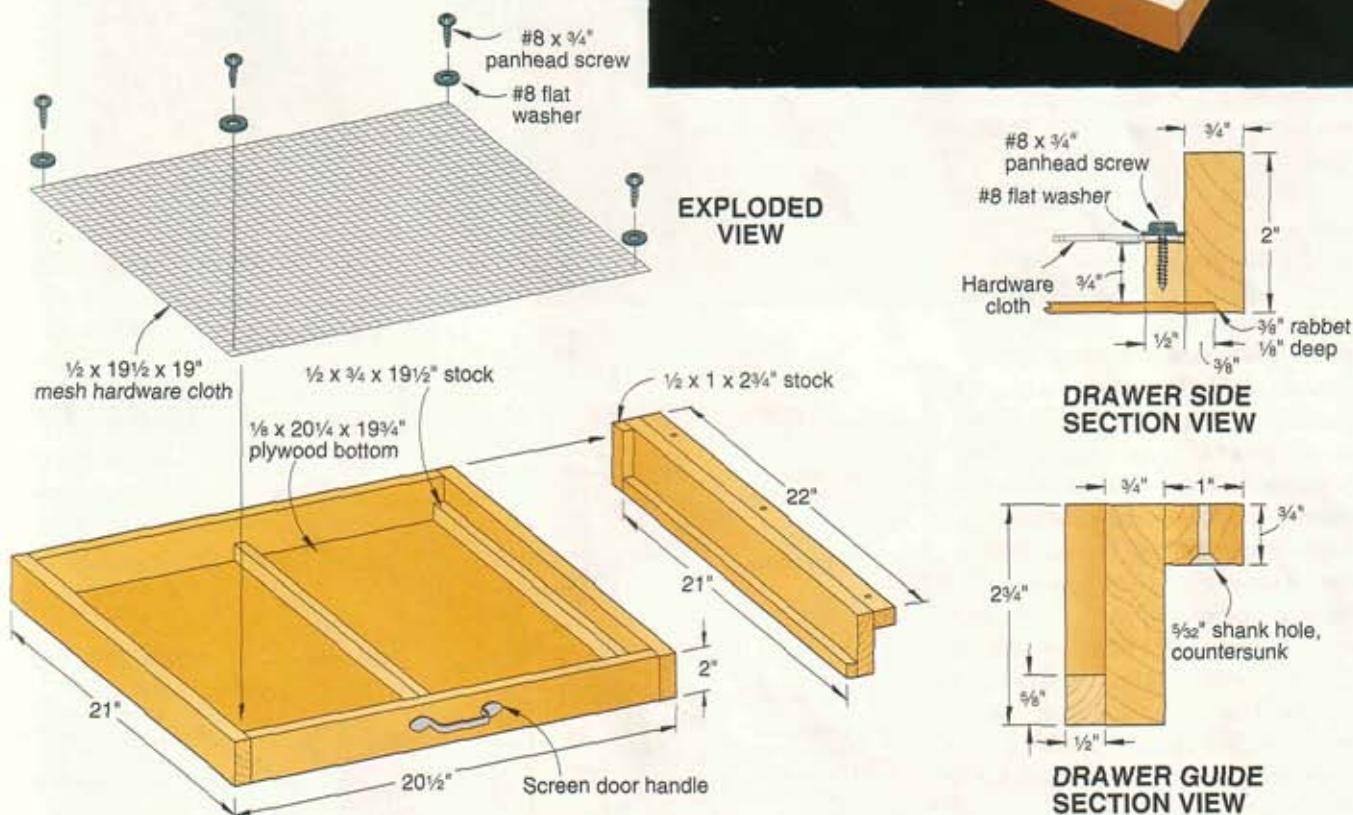
Illustrations: Kim Downing; Lorna Johnson

Photographs: Marty Baldwin



# self-contained spray adhesive drawer

Keep the mess confined with a handy drawer that pulls out to support patterns and catch overspray.



Spray adhesives work wonderfully for adhering scrollsaw patterns to a workpiece. But the inevitable glue overspray can leave a real mess on your benchtop. And if you spread out newspapers, you quickly find that the patterns stick to the newspaper as well as they do to your workpiece. This handy adhesive drawer makes the job slick, not sticky.

The hardware cloth, available from

most home and garden centers, allows the glue overspray to pass harmlessly through to the drawer bottom. And your patterns won't stick to this mesh.

Build the drawer and guides as shown in the drawings. Attach the guides to the underside of your benchtop with #8x2" flathead wood screws.

If you have an apron beneath the top of your bench, you'll need to lower the

drawer. Add the height of the apron to the height of the drawer guides. To keep the drawer from tipping as it opens, attach an additional  $1/2 \times 5/8"$  hardwood runner to each drawer guide  $2\frac{3}{4}$ " from the bottom of the guide. ♣

Project Design: Rick Hutcheson  
Illustrations: Roxanne LeMoine  
Photograph: Marty Baldwin

# rotary tool mini router table

Custom designed for small pieces, this little table keeps hands free and the work steady.

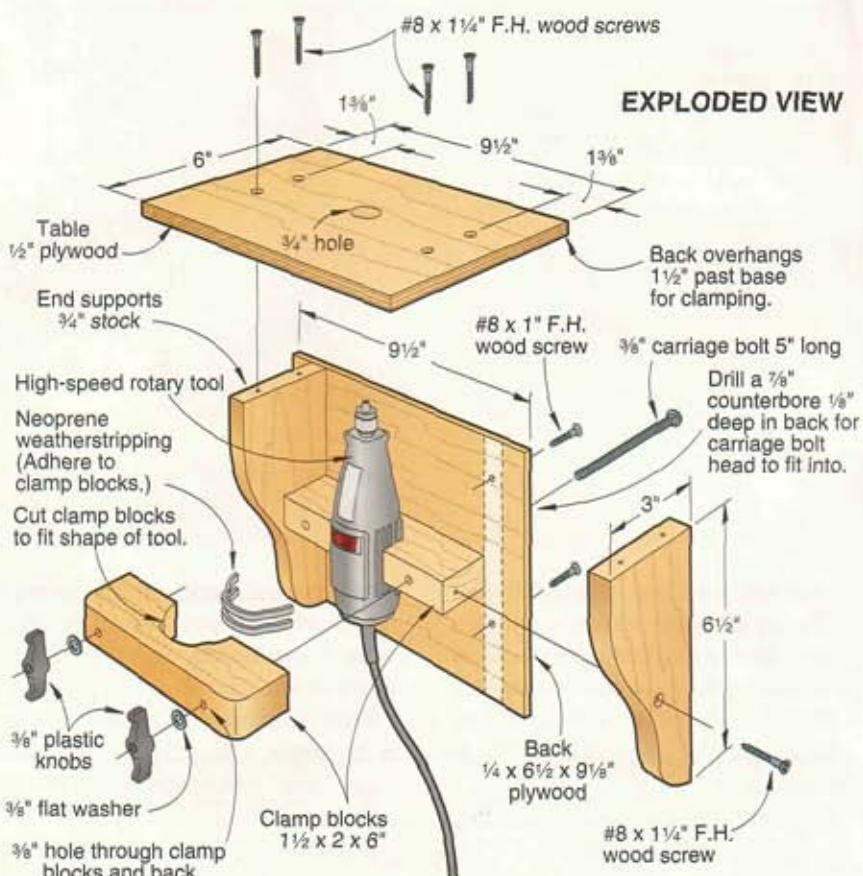
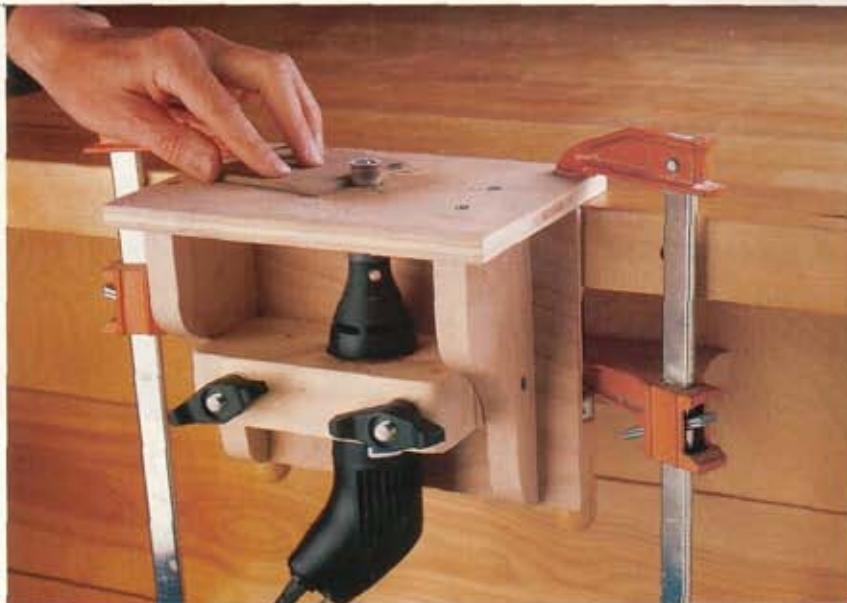
Small pieces often require precise routing that just isn't safe on a full-size router table. And, trying to shape the workpiece in one hand with a rotary tool held in the other isn't any better. To solve the problem, WOOD® magazine reader Chuck Middleton, of Sulphur, Louisiana, built this scaled-down table to house his high-speed rotary tool.

To make your custom holder, start by cutting clamp blocks to fit the body of your rotary tool. Line the inside curved surface of the blocks with weatherstripping or some type of foam. The foam allows you to secure the rotary tool between the blocks without cracking the tool housing when tightening the blocks around the tool. Cut the table, end supports, and back to the sizes shown on the drawing at right. Assemble the table. Secure your rotary tool in place, being careful not to overtighten the knobs. Mark the hole location needed for your largest rotary bit, remove the table, and drill the hole. Screw the table back in place.

Clamp the mini-table to your workbench, as shown in the photo, or slide one of the protruding ends of the back into a flush-mounted bench vise.

For really small pieces, Chuck prefers to hold the workpiece with a miniature clamp, or even secure the workpiece to the end of another piece of wood with double-faced tape or hot-melt glue. This keeps his fingers safely away from the spinning bit. ♦

Illustration: Kim Downing  
Photograph: Hetherington Photography



# palm sander holder

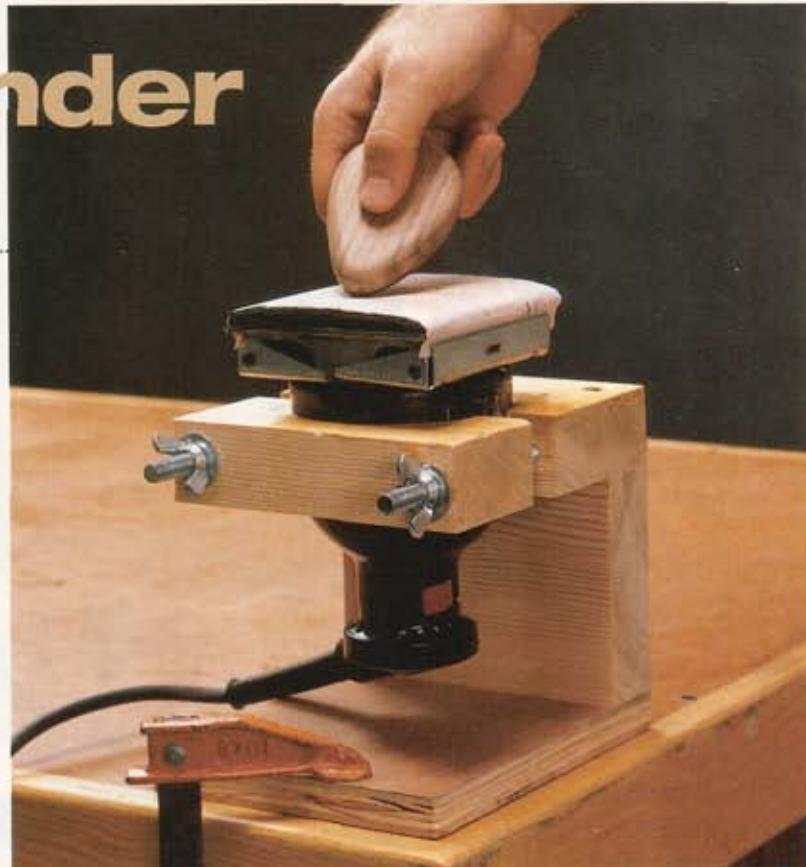
Spare your hands and your nerves by securing your palm sander in our sturdy table-mounted holder.

Trying to hold a palm sander in one hand and a small project in the other can make you feel a bit like a juggler. Our holder clamps firmly to your workbench, allowing you to see your sanding progress while leaving both hands free to control the workpiece. For a proper fit, carefully measure the shape of your sander's motor housing to determine the opening size.

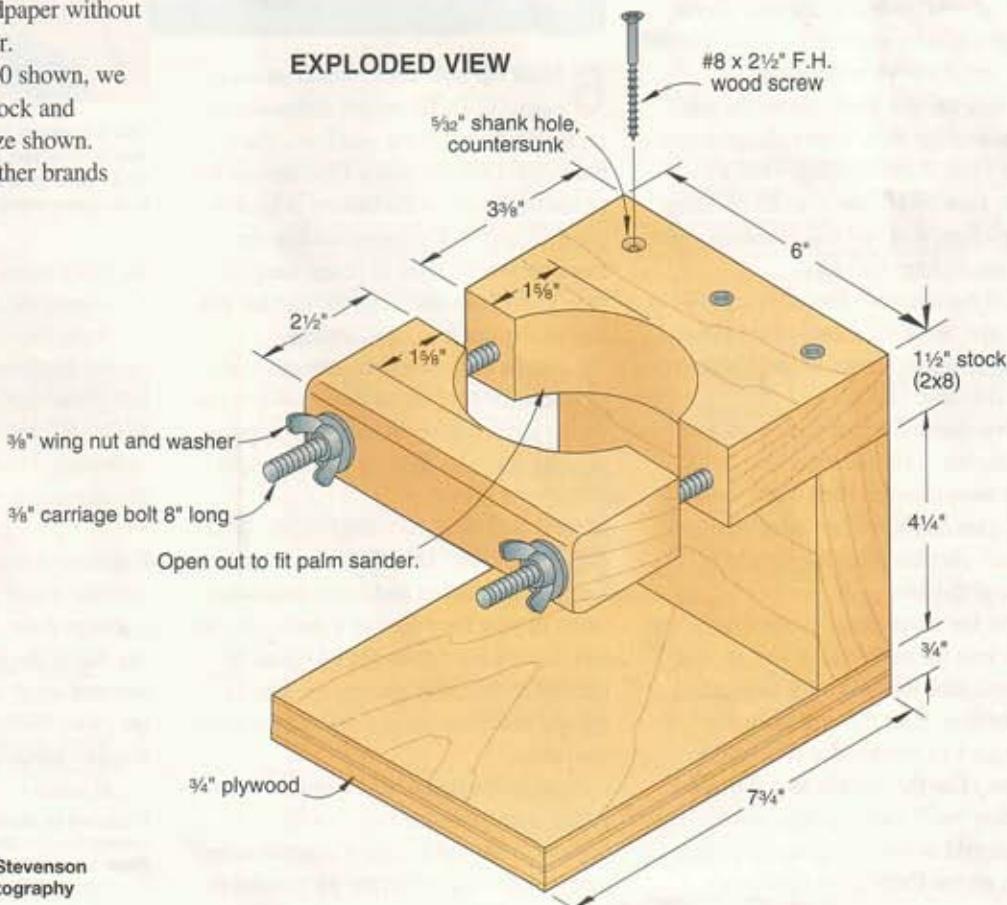
To make changing sandpaper a breeze, leave enough clearance between the palm-sander pad and the top of the holder to allow you to change sandpaper without having to remove the sander.

To fit the Porter Cable 330 shown, we cut a 4" hole in a 6×6 $\frac{1}{8}$ " block and trimmed the block to the size shown.

Hole sizes will vary for other brands and models of sanders. 



#### **EXPLODED VIEW**



**Project Design: Russell Smith  
Illustration: Kim Downing; Jim Stevenson  
Photograph: Hetherington Photography**

# shop-smart jigs

## high & mighty tablesaw jig

Grab some extra support when you machine the edges of wide and tall workpieces.

### First, let's build the jig

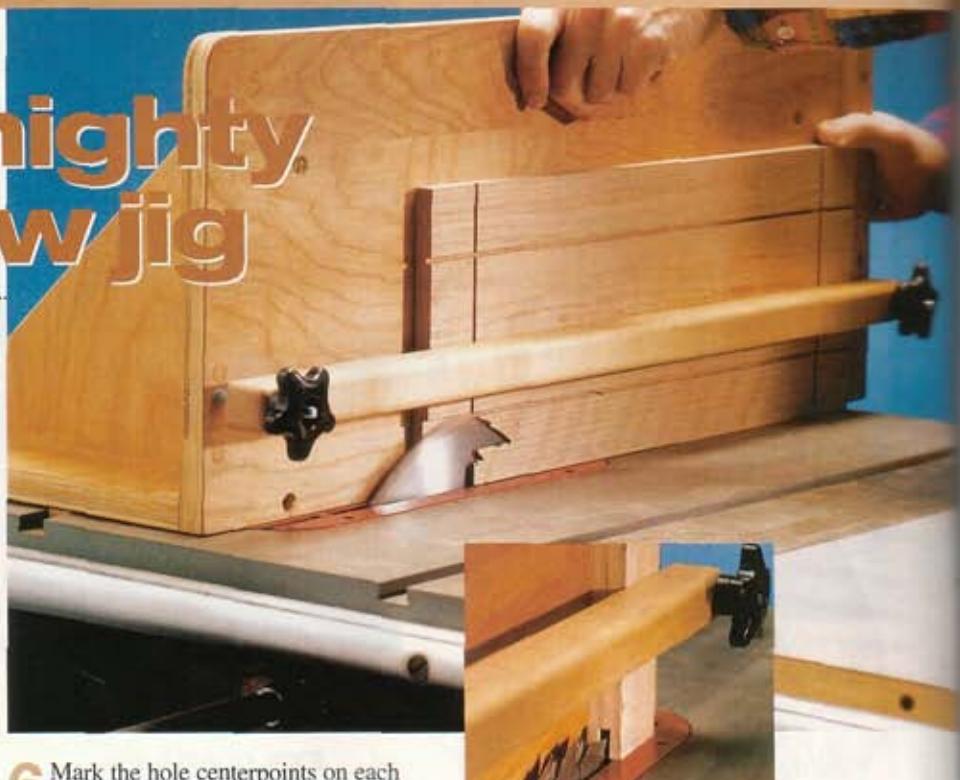
**1** Cut the base and upright (A) to the size listed in the Materials List. (We cut ours from  $\frac{3}{4}$ " birch plywood.) Cut and sand a  $\frac{3}{4}$ " radius on two corners of each piece, where shown on the Exploded View and Parts View drawings.

**2** Mark the slot locations on the top face of the base, where dimensioned on the Parts View drawing. Drill a  $\frac{5}{16}$ " hole at each end of the marked opening. Using a jigsaw or scrollsaw, cut between the holes to form the slots.

**3** Cut the square-cornered braces (B) to shape. Rout  $\frac{1}{4}$ " round-overs along one edge, where shown on the Exploded View drawing.

**4** Dry-clamp the four pieces (A, B) together. Drill the mounting holes, where shown on the Parts View drawing. Then, glue and screw the assembly together, checking that the upright is square to the base.

**5** Cut the miter-gauge guide strip (C) to fit into the miter-gauge slot in your tablesaw. The size will vary, depending on your saw. (Our dimensions in the Materials List worked for a 10" Delta Unisaw.) Cut the upright stop (D) and clamping bar (E) to size. Belt-sand a taper on each end of the clamping bar, where shown on the Parts View drawing.



**6** Mark the hole centerpoints on each piece (C, D, E), where dimensioned on the Exploded View and Parts View drawings. Drill the holes. Countersink the mounting holes on the bottom side of the guide strip (C). It's important that the machine screws used to fasten the guide strip to the base don't rub against the bottom of the slot in your saw table.

**7** Attach the guide strip, upright stop, and clamping bar to the jig. When fastening the clamping bar, be sure to position the curved edge next to the upright.

### Here's how to square the jig to your blade

To prevent burning and rough cuts when bevel ripping the edges of a panel, the outside face of the jig upright (A) must be parallel to the miter-gauge slot. The jig upright must also sit at a right angle to the saw table.

To align the jig parallel with the miter-gauge slots, position the jig on the saw table with the guide strip (C) in the miter-gauge slot. Then, align the jig parallel to



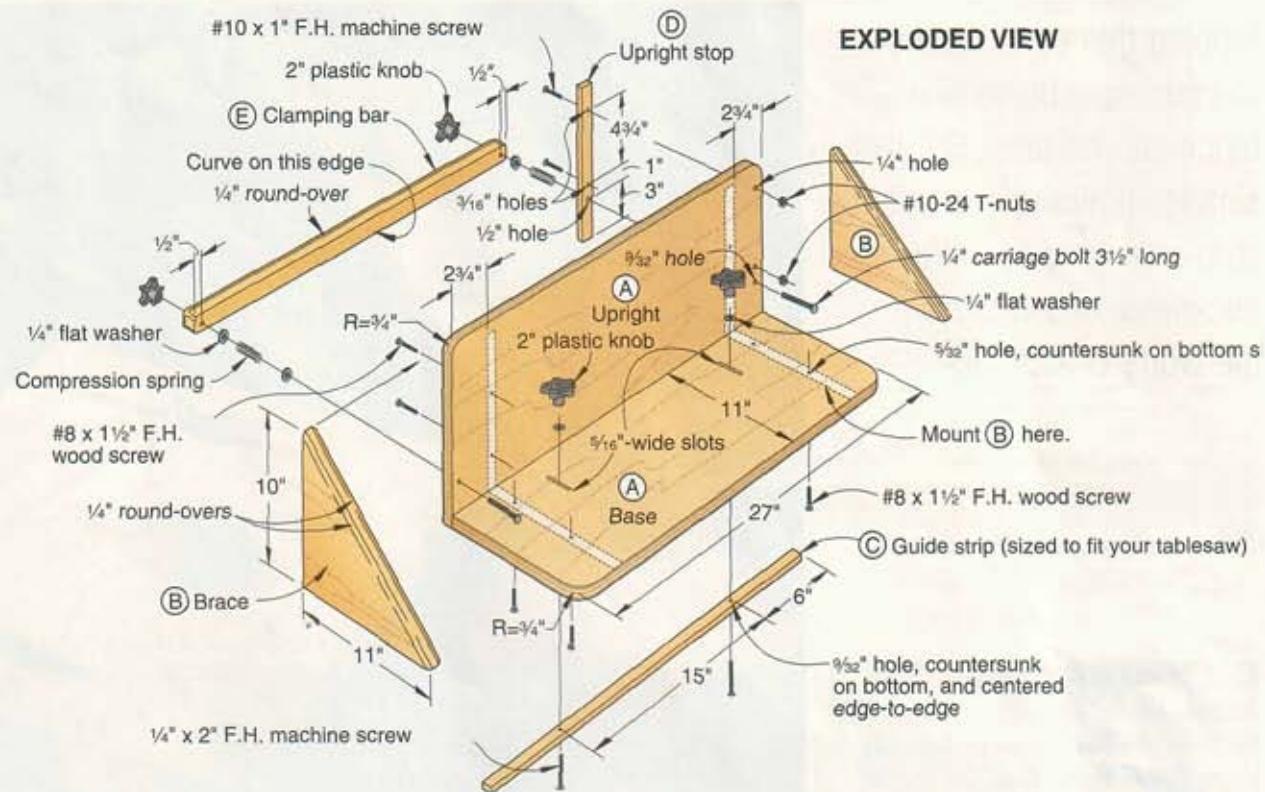
Our plywood jig excels at providing firm support when cutting raised panels, stile ends (see photo inset above), tenons, and open mortises as well.

the other miter-gauge slot. Do this by measuring the distance from both ends of the jig to the slot. Then, tighten the knobs on the machine screws that go through the guide strip and slots in the base. Measure carefully to verify and realign as necessary. Finally, test-cut scrap to verify the alignment. ♣

**Caution:** Before turning on the saw, be sure the top of the blade lies below the carriage bolts used to secure the clamping bar to the upright (A). Finally, rip a piece of scrap stock to verify alignment. If the piece burns or blinds, recheck your measurements and adjust accordingly.

Produced by Marlen Kemmet  
Project Design: James R. Downing  
Photographs: Wm. Hopkins  
Illustrations: Kim Downing; Roxanne LeMoine

## Exploded View



## Materials List

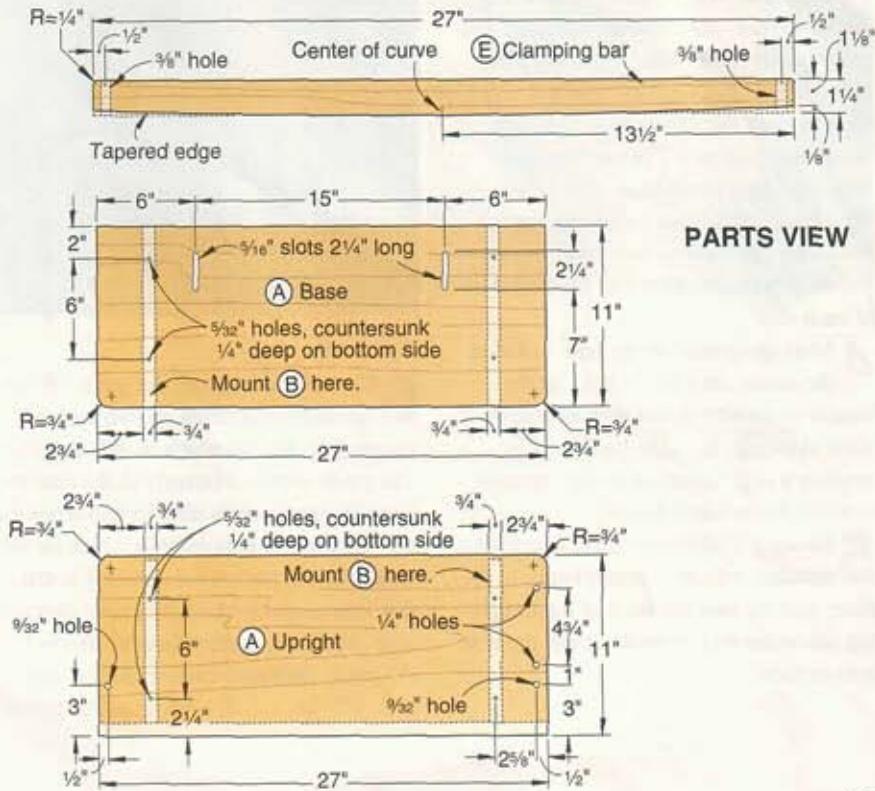
Part	FINISHED SIZE				Matl.	Qty.
	T	W	L			
A base & upright	3/4"	11"	27"	BP	2	
B braces	3/4"	10"	11"	BP	2	
C guide strip	3/8"	3/4"	27"	B	1	
D upright stop	1/2"	1"	10"	B	1	
E clamping bar	1 1/8"	1 1/4"	27"	B	1	

Materials Key: BP—birch plywood, B—birch.

### Buying Guide

**Hardware.** 2" plastic knobs (4), #10-24 T-nuts (2), 3 1/2" x 1 1/2" compression springs (2), 1/4" x 2" flathead machine screws (2), #10 x 1" flathead machine screws (2), 1/4" carriage bolts 3 1/2" long (2), 1/4" flat washers (6), #8 x 1 1/2" flathead wood screws (8). Stock no. TJ-101, \$15.75 ppd. Puckett Electric Tools, 841 11th St. Des Moines, IA 50309, or call 800/346-9663.

## Parts View

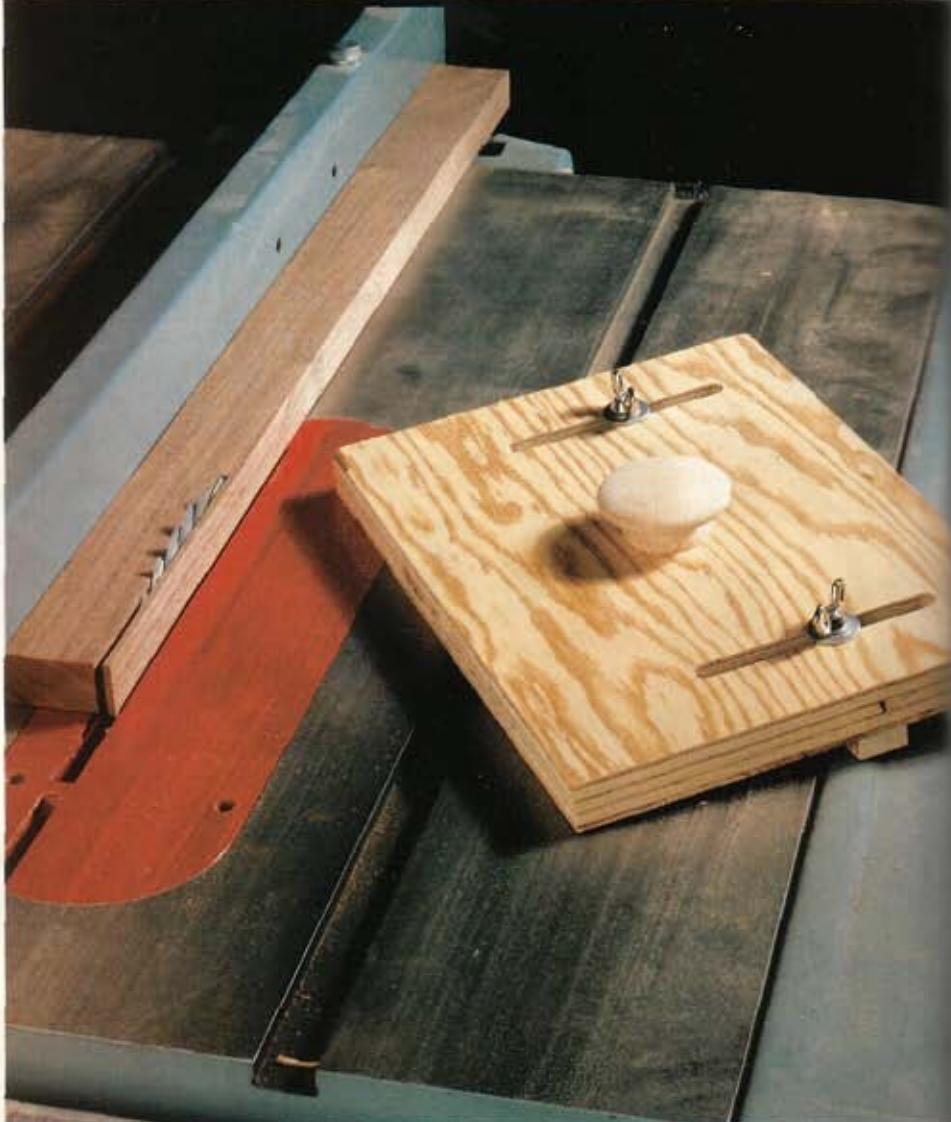


# safe & simple thin-strip ripper

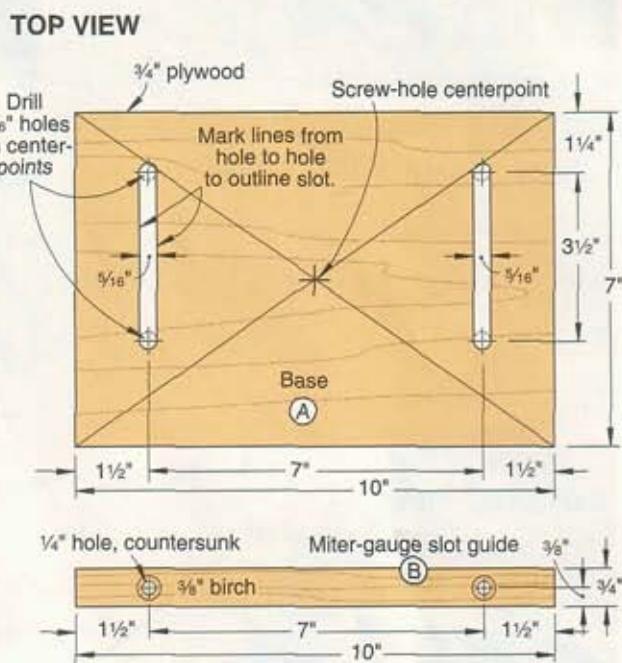
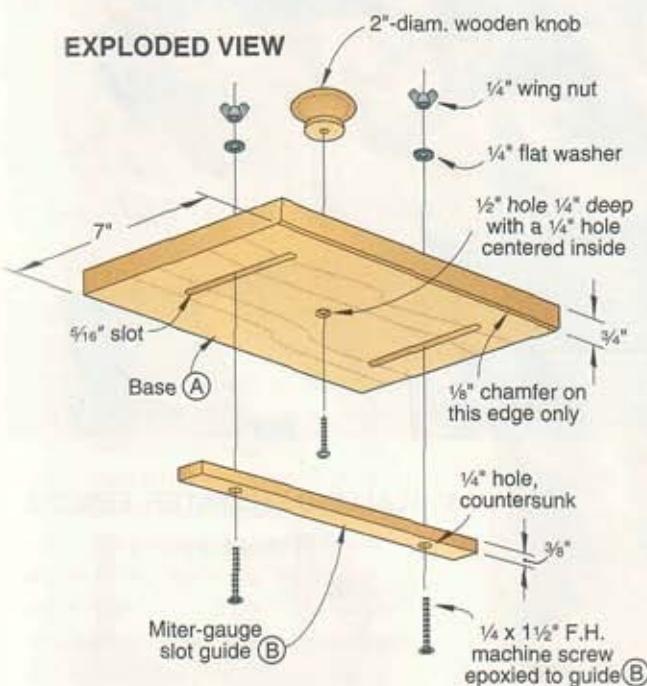
Ripping thin strips between the tablesaw blade and fence can be risky. But this simple jig allows you to cut strip after strip to uniform thickness, and without the worry of kickback.

## Cut the parts and assemble the jig

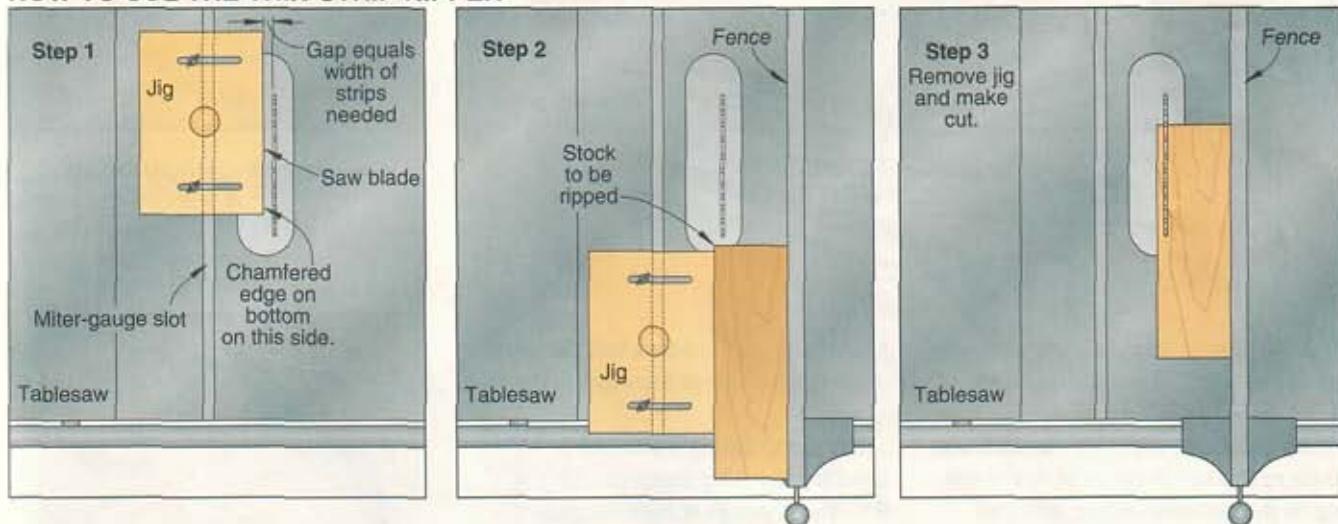
- 1 From  $\frac{3}{4}$ " plywood, cut the base (A) to 7" wide by 10" long.
- 2 Referring to the Top View drawing of the base for location, mark the four centerpoints for the  $\frac{3}{16}$ " holes. Drill the holes where marked. Now, use a straightedge to mark lines from hole to hole to lay out the pair of  $\frac{3}{16}$ "-wide slots  $3\frac{1}{2}$ " long on the plywood base.
- 3 Using a scrollsaw or jigsaw, cut along the marked lines to form the  $\frac{3}{16}$ "-wide slots. Sand or file the cut edges of each slot.
- 4 Mark diagonals on the base to locate the center, and drill a hole for the handle to the size stated on the Exploded View drawing. Sand the base smooth, sanding a slight chamfer along one edge to allow for sawdust buildup.
- 5 Fasten a 2"-diameter knob (we used a standard wooden cabinet knob) to the base, making sure the head of the mounting screw doesn't protrude below the bottom surface.



- 6 Cut the miter-gauge slot guide (B) to the width and depth of your miter-gauge slot, and crosscut it to 10" long. The guide should fit snugly in the slot; a loose fit can result in uneven thin strips later. Our guide measured  $\frac{3}{8}$ " thick by  $\frac{3}{4}$ " wide. For the guide to slide easily in the slot, you may need to lightly sand one edge. Mark the centerpoints for the two  $\frac{1}{4}$ " holes. Drill and countersink the holes.
- 7 Check that the screw heads don't protrude. Then, epoxy a  $\frac{1}{4} \times 1\frac{1}{2}$ " flat-head machine screw in each countersunk hole. Wipe off excess epoxy.
- 8 Fasten the guide to the base with  $\frac{1}{4}$ " washers and wing nuts.



### HOW TO USE THE THIN-STRIP RIPPER



Loosen the wing nuts, and position the inside chamfered edge of the base parallel to the saw blade, leaving a gap between the blade and the base equal to the width of the strips desired. Now tighten the wing nuts. See **Step 1** of the drawing above for reference. Place the stock to be ripped next to the jig. Then, move the rip fence against the stock, where shown in **Step 2** of the drawing.

Remove the jig, start the saw, and cut a thin strip, where shown above. Use a pushstick to keep your fingers safely away from the blade. Position the jig in the miter-gauge slot. Repeat **Steps 2** and **3** of the drawing to cut the next thin strip. Keep repeating the process until you feel uncomfortable with the distance between the blade and the fence. (We stopped at about 3/4".)

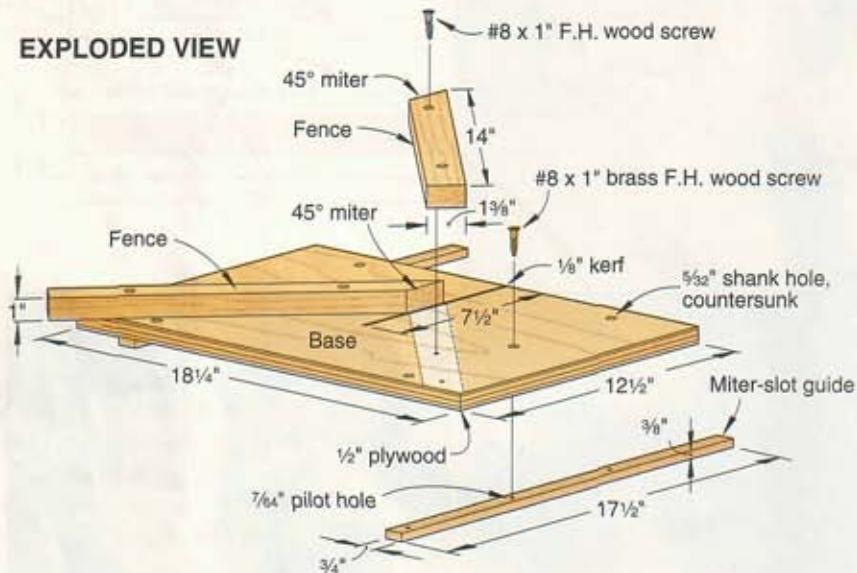
Project Design: James R. Downing  
Photograph: Hetherington Photography  
Illustrations: Kim Downing; Bill Zahn

# tablesaw miter jig

Are you ready for on-the-money miters? Here's the solution.



## EXPLODED VIEW

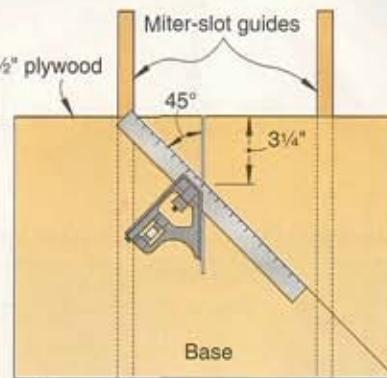


To build this jig, first place one miter-slot guide into each slot on your saw table. Align the  $\frac{1}{2}$ " plywood base on top of the guides so its long edges are perpendicular to the miter slots. With the plywood resting on the tablesaw surface, drill  $\frac{5}{32}$ " shank holes through the plywood and into the guides just far enough to mark their position. Remove the plywood and guides, and drill  $\frac{7}{64}$ " pilot holes through the guides. Reposition these pieces on the tablesaw, and attach the guides with countersunk  $\#8 \times 1"$  brass wood screws. Drive the screws about halfway through the guides, and lift the assembly off the table. Drive the screws completely, and sand off their protruding tips. Again, place the jig onto the tablesaw surface,

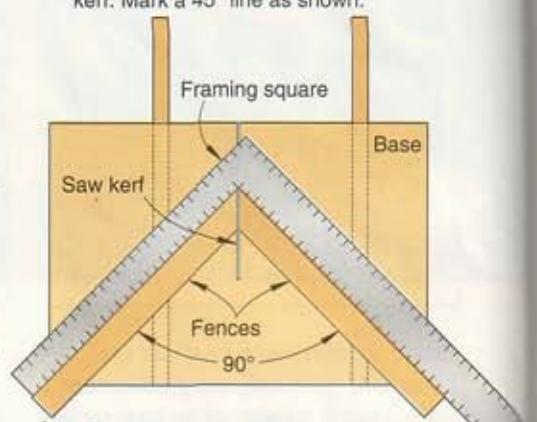
turn on the saw, and cut a kerf that goes about halfway across the width of the plywood.

The key to this jig's accuracy is installing the miter fences precisely at  $90^\circ$ . The drawings at right take you through the first two alignment steps. Use this process to temporarily attach each fence with two  $\#8 \times 1"$  screws. Test the fences for accuracy by cutting four sample pieces, each about 1" wide and 4" long. Hold them together with a rubber band and check for any gaps at the miters. Adjust the position of the fences as necessary by tapping them with a hammer. Once you're satisfied that the fences are in exactly the right position, attach each of them with two  $\#8 \times 1"$  screws. Finally,

## INSTALLING THE MITER FENCES



**Step 1**  
Align combination square with saw kerf. Mark a  $45^\circ$  line as shown.



**Step 2**  
Attach the right-hand fence along the line drawn in Step 1. Place a framing square against the right-hand fence to locate the left-hand fence.

it's a good idea to attach adhesive-backed, 100-grit sandpaper to the fence faces where shown in the photo above. This will help hold your workpieces steady against the fences during cuts.

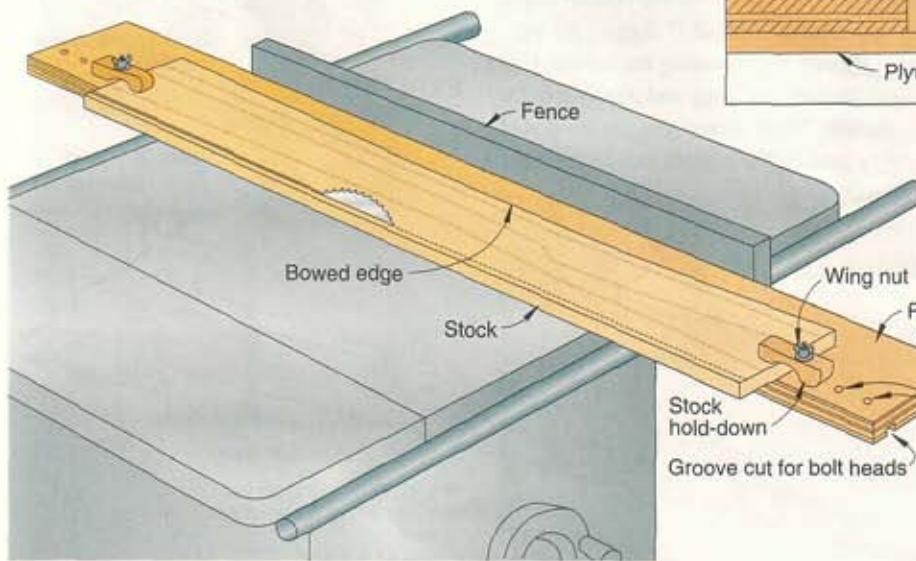
# straight edge cutting jig

Here's a reliable way to rip straight edges onto ragged-edge boards.

Attempting to rip a straight edge along a board with irregular edges can be dangerous or downright impossible. One solution is to tack a straight board to the irregular board with finishing nails. But unfortunately, this method leaves small nail marks in the top surface of the workpiece.

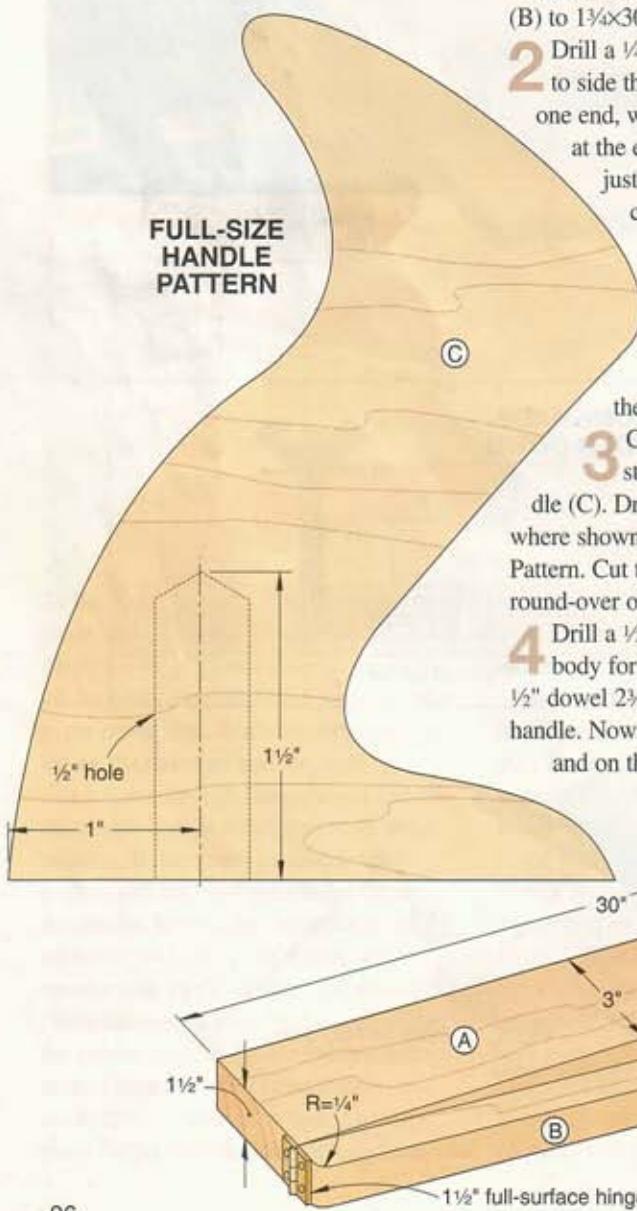
So try this method: Construct a carrier board from  $\frac{3}{4}$ " plywood to a width and length to accommodate most of your boards (14"  $\times$  7' works fine in most cases). As shown at right, you can quickly clamp the workpiece to this carrier board, then rip one edge. Remove the workpiece from the carrier board, place the jig aside, and position the just-ripped edge along the fence to straighten the other edge. ♦

Project Design: Thomas Bruzan, Des Plaines, Ill.  
Illustrations: Lorna Johnson



# true-cut taper jig

Ripping table legs or other project pieces at an angle can be frustrating, even dangerous. This jig lets you set the precise angle to cut leg after leg safely.



## Building the jig

- 1 Using 1 1/2" -thick maple stock, cut the jig body (A) to 3x30" and the jig arm (B) to 1 3/4x30".
- 2 Drill a 1/4" hole centered from side to side through the jig arm, 1 3/4" from one end, where shown *below*. Starting at the end opposite the hole you just drilled, rip the jig arm on center, stopping 2" from the hole. (The hole simply prevents sawdust buildup.) Use a bandsaw or hand-saw to cut to the hole, to form the notch, shown on the drawing.
- 3 Cut a piece of 1" walnut stock to 3 1/4x4 1/2" for the handle (C). Drill a 1/2" hole 1 1/2" deep in it, where shown in the Full-Size Handle Pattern. Cut the handle to shape. Sand a round-over on all but the bottom edges.
- 4 Drill a 1/2" hole 1" deep in the jig body for mounting the handle. Cut a 1/2" dowel 2 3/8" long and glue it into the handle. Now, spread glue on the dowel and on the bottom side of the handle,

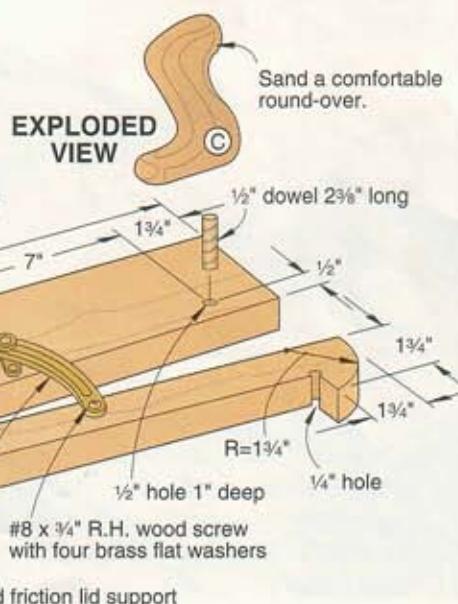


and glue the handle to the jig body. Sand the jig body, arm, and handle smooth, and apply the finish.

## Add the brass hardware

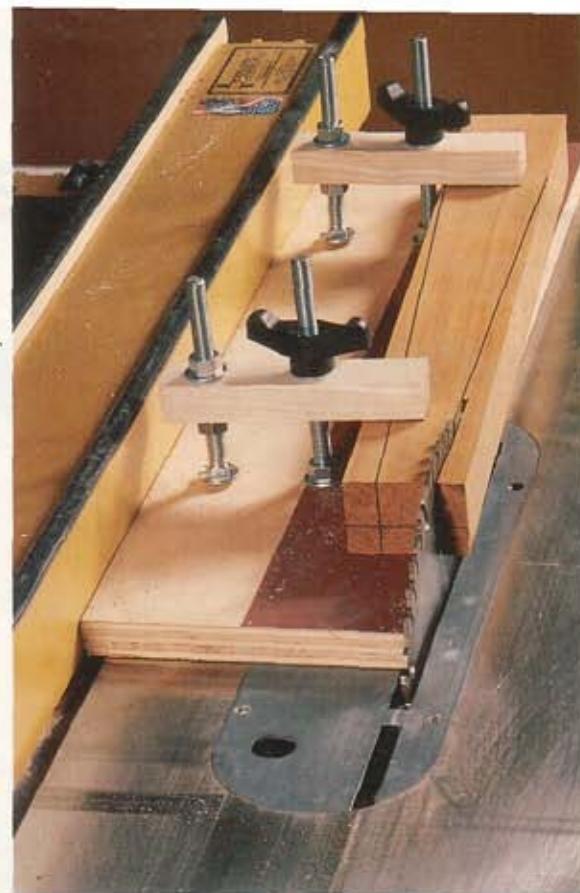
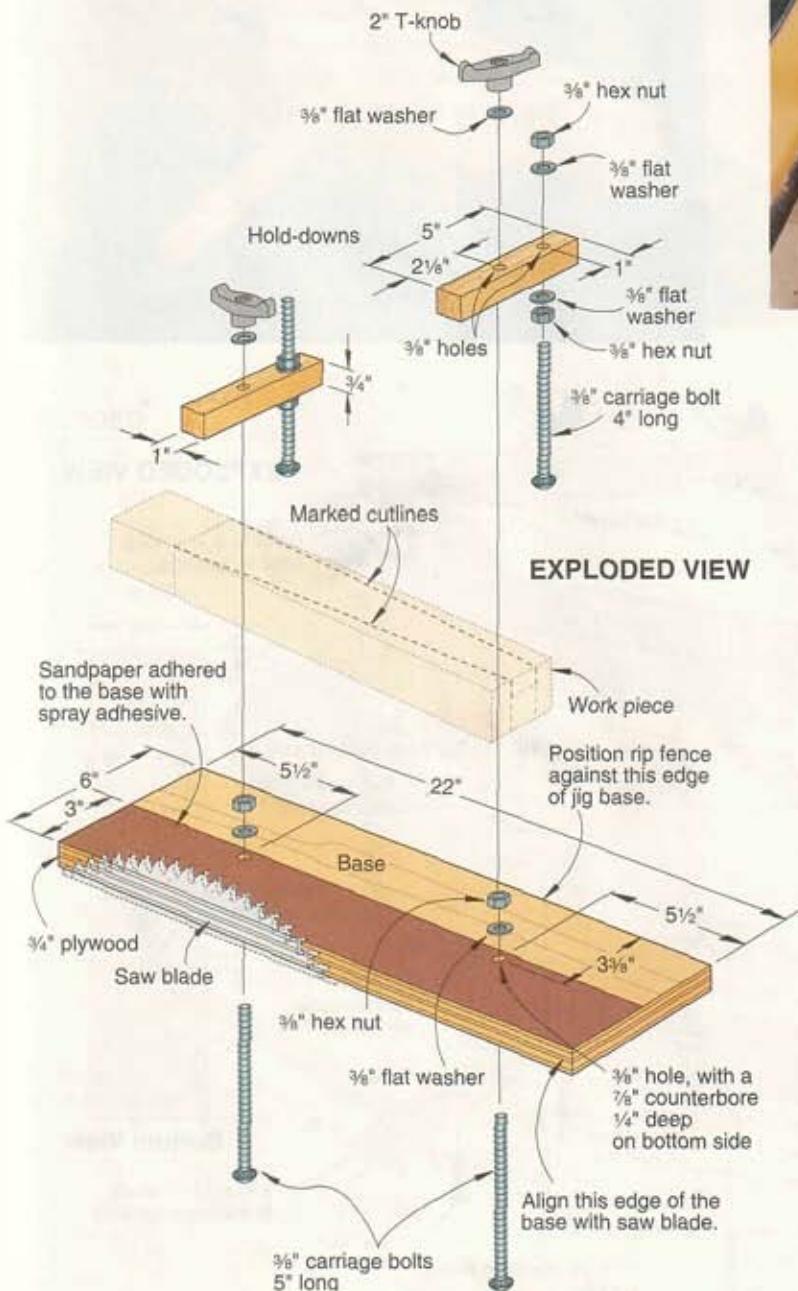
- 1 Clamp the jig arm to the jig body so that the front ends are flush. Position the hinge, mark the screw hole locations, drill pilot holes, and fasten the hinge to the jig arm and body.
- 2 Mark the screw hole locations, drill pilot holes, and attach the lid support to the jig arm and the body. ♦

Project Design: Jim Boelling  
Photograph: Bob Calmer  
Illustrations: Kim Downing



# sliding-base taper jig

Here's something that's even easier to use than the preceding project. And once you start cutting, this jig prevents any chance of the workpiece lifting up.



Taper jigs don't get much more basic than this hold-down taper jig. Build the plywood base and hardwood hold-downs, as shown on the drawing at left. Then, mark the angled cutline(s) on your workpiece. Position the rip fence so the inside edge of the jig base is against the fence and the outside edge of the base is flush with the table-saw blade. Align the marked cutline on the workpiece with the outside edge of the jig next to the blade. Tighten the workpiece in place, and make the cut, as shown in the photo above.

To simplify matters, we've added a Buying Guide for the hardware used on the jig. ♣

## Buying Guide

**Hardware kit.** 2" T-knobs (2),  $\frac{3}{8}$ " carriage bolts 5" long with mating nuts and washers (2), and a  $3 \times 22$ " strip of sandpaper. Kit no. TAP-J, \$10.95 ppd. Schlabach and Sons, 720 14th Street, Kalona, IA 52247, or call 800/346-9663 to order.

Project Design: Jan Svec  
Photograph: Hetherington Photography  
Illustration: Roxanne LeMoine

# **adjustable bandsaw resawing guide**

This resawing guide lets you correct for blade drift, and you can build it from parts you probably have lying around your shop.

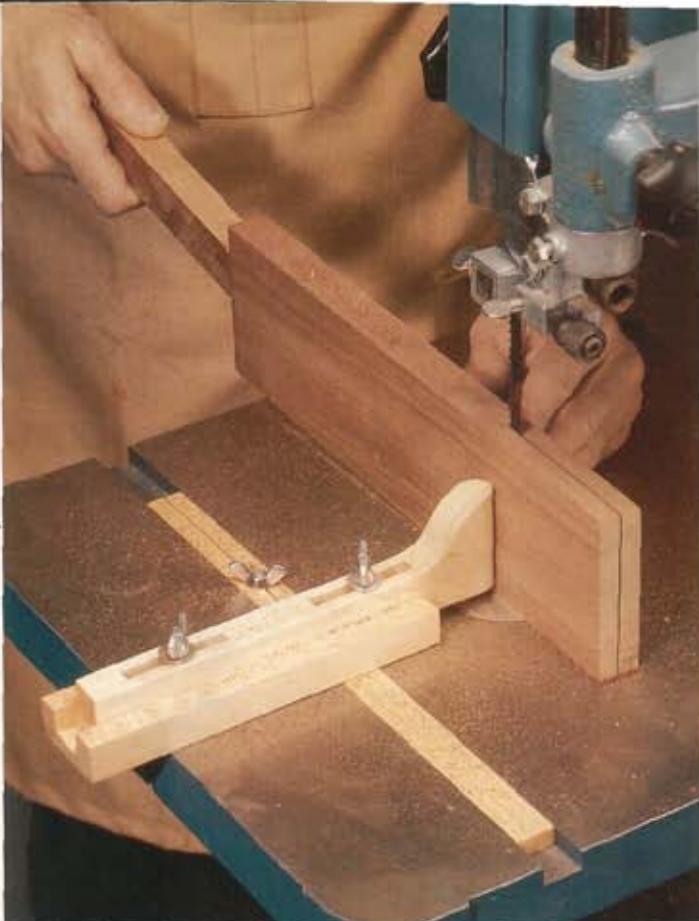
After struggling with his bandsaw fence, blocks, clamps, and a resaw guide, *WOOD®* magazine reader John Hodges of Kaufman, Texas, decided to design his own bandsaw resawing guide. You can build one just like it by gathering up some scrap stock and following the illustrations at right.

To use this guide, first mark a line along the top edge of the piece to be resawn. Adjust the center portion of the jig (A) until the bandsaw blade aligns with the marked line on the wood.

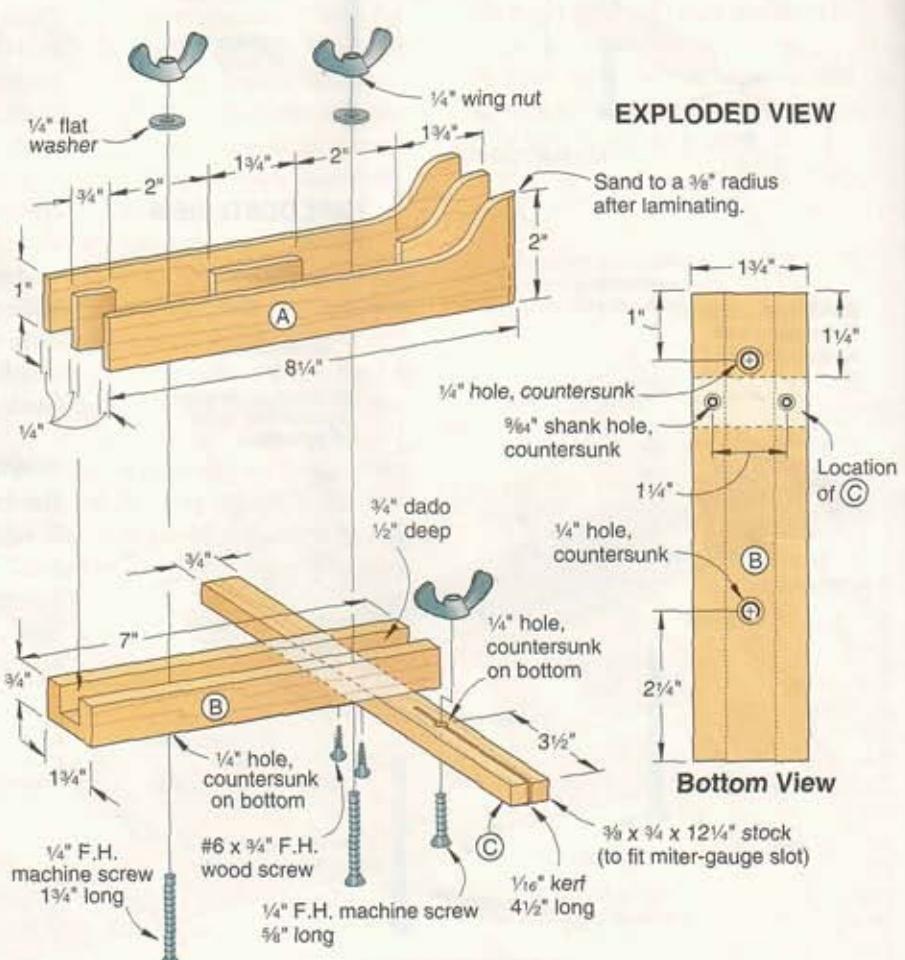
Tighten the wing nuts that hold A securely to B. Tighten the wing nut in part C to secure it in the miter-gauge slot.

Because few bandsaw blades track perfectly straight (making a fence almost useless for resawing), the curved end of part A allows you to steer the board into the bandsaw blade, and make adjustments to follow your marked line. We recommend using a  $\frac{1}{2}$ "- to  $\frac{3}{4}$ "-wide skip-tooth or hook-tooth blade for cleaner cuts. And, always use a pushstick for safety when resawing on a bandsaw.

Written by Tom Jackson  
Illustrations: Kim Downing  
Photograph: Hetherington Photography



## **EXPLODED VIEW**



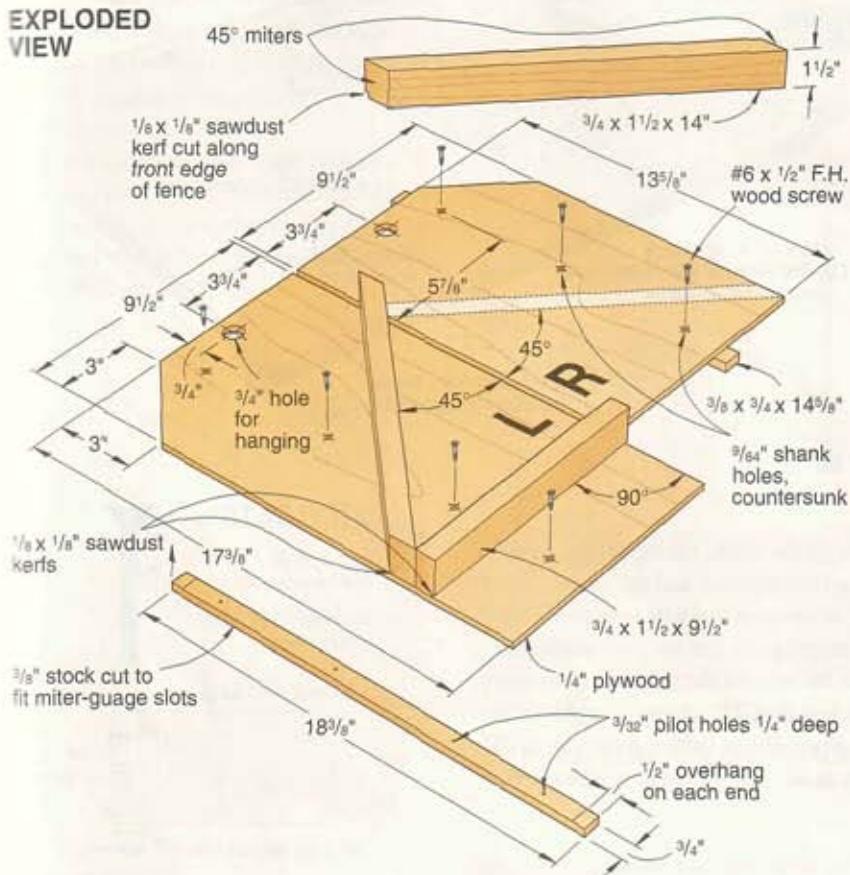
# angled tablesaw miter jigs

Use either of these simple jigs, and make cutting accurate 45° miters easier than ever before.

Cutting square and accurate 45° miters just got a whole lot easier with these angled tablesaw miter jigs. The jig marked R on the drawing below fits on the right-hand side of the blade, as shown in **Photo A**. The jig marked L, shown in **Photo B**, right bottom, fits into the miter-gauge slot on the left-hand side of the blade.

Use either jig for miter-cutting 45° angles. Or, turn the jig marked L end for end, and use the fence to support pieces when crosscutting them at 90°, as shown in **Photo B**. Carefully position and glue the  $\frac{3}{4} \times 1\frac{1}{2}$ " guides in place; ultimately, the angles cut are only as accurate as the positioning of the guides.

## EXPLODED VIEW



*Note: Our jigs were designed to fit a 10" contractors saw. Adjust as necessary to fit your tablesaw. For ease in construction, attach the three fences to one piece of  $\frac{1}{4}$ " stock, and then cut the  $\frac{1}{4}$ " stock in half, where shown on the drawing.*

# versatile panel-cutting sled

Split a hair and make it square with our wide-body tablesaw accessory.

When you use our panel-cutting sled, you'll never wonder if the corner you just cut is square. For hair-splitting accuracy, the beefy fence is fixed at 90° to the blade and shows exactly where your saw blade will cut. Additionally, the fence-leading design holds wider workpieces more solidly and keeps your work closer than fence-trailing jigs.

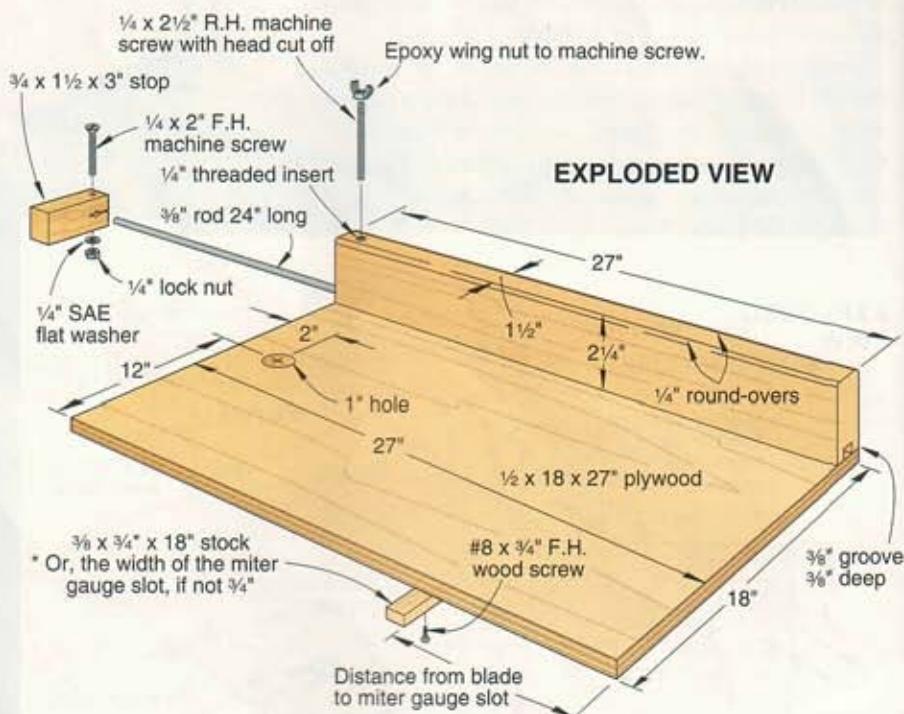
Build the jig according to the drawing at right. We made ours from birch-veneer plywood with a solid poplar fence, but you could use any  $\frac{1}{2}$ " plywood or medium-density fiberboard and a straight scrap of 2x4. Cut both pieces  $\frac{1}{8}$ " longer than shown; you'll trim them to their exact length after you build the jig.

**Note:** A well-tuned tablesaw is essential to complete the job. The saw blade must be perfectly parallel to the miter slot.

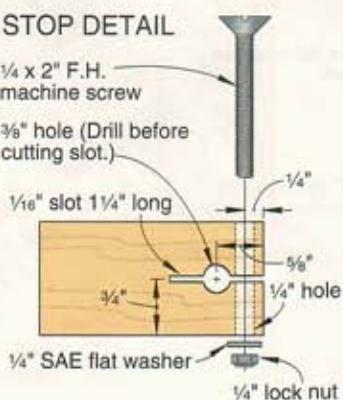
Before attaching the miter-slot bar, ensure the corner formed by the fence and the right edge of the sled is square. Make a mark 3" from the corner along one edge, and 4" along the perpendicular edge. Measure diagonally between the two marks. If the diagonal measures exactly 5", your corner is square. If it's more than 5", the angle is greater than 90°; less than 5", and it's less than 90°.

Next, measure the distance between your tablesaw's blade and miter slot and add  $\frac{1}{8}$ ". Using that measurement and a combination square, scribe a line on the bottom of the sled, measuring from the saw blade edge. Attach the miter-slot bar along the scribed line.

With the sled's guide bar in your tablesaw's miter-gauge slot, crank the saw blade up to full height. Run the sled



## STOP DETAIL



through the blade, slicing off the extra  $\frac{1}{8}$ " from both the base and the fence.

You can now cut with confidence by aligning the cut line on your workpiece with the edge of the fence. For repetitive cuts less than 27", clamp a stopblock to the fence. When cutting pieces up to 48", lock in the sled's built-in stopblock. ♦

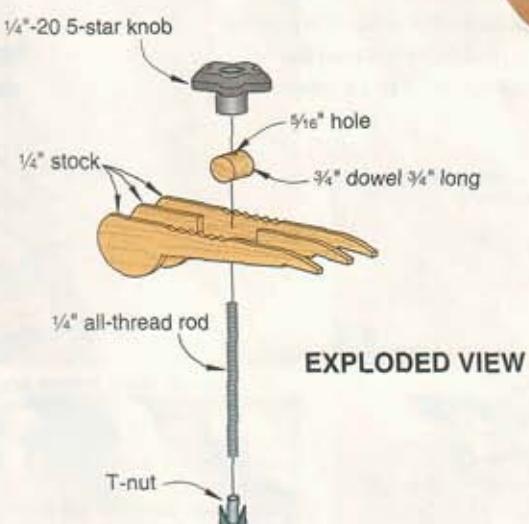
Project design: Charles I. Hedlund  
Photograph: Baldwin Photography  
Illustrations: Roxanne LeMoine

# helpful hold-downs

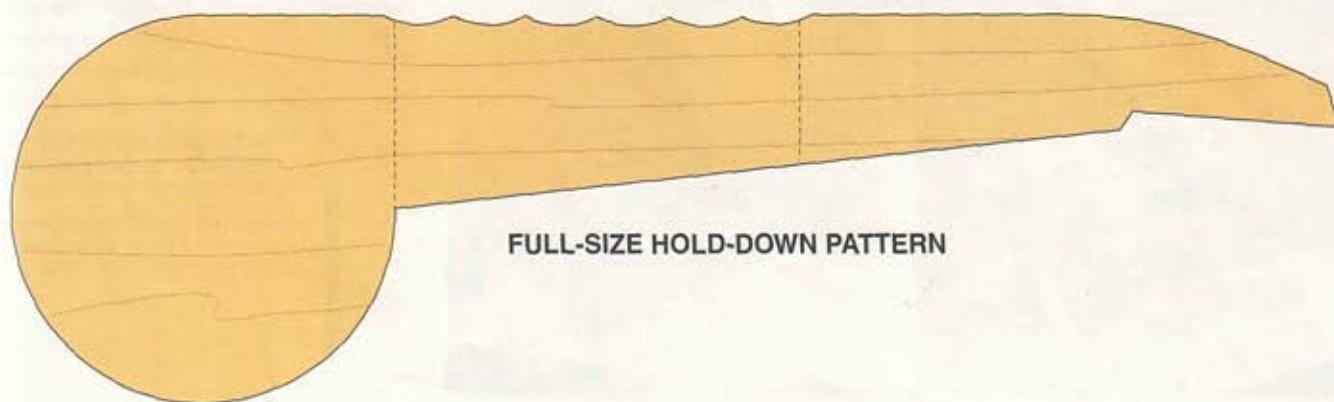
Keep your fingers safe and your workpiece steady with a few pieces of wood and the turn of a T-nut.

For drilling jobs, it's essential that you hold the workpiece securely to the table and against a fence before engaging the bit. With smaller workpieces you may not have clamps with the necessary jaw depth, and, as shown in the example above, you don't want to get your fingers close to knuckle-busting circle cutters. Hold-downs are the answer, and here's a version that will only set you back the cost of the knobs and all-thread rod. (Many woodworking catalogs carry such knobs.) Use the full-size pattern below and the drawing at right to make a hold-down.

We drilled three holes into each side of our drill-press table for accommodating workpieces of various sizes. Each hole is outfitted with a T-nut for accepting the  $\frac{1}{4}$ " all-thread rod. (Many woodworking catalogs carry such knobs.) Use the full-size pattern below and the drawing at right to make a hold-down.



EXPLODED VIEW



FULL-SIZE HOLD-DOWN PATTERN

# ball-drilling jig

Our simple design goes to the very center of a common drilling problem.

Drilling perfectly centered holes in hardwood balls can be tough. While you can hold a ball securely in a wood handscrew, centering it under the bit on your drill press is difficult.

Solve this problem with this quick-to-build jig. To make it easy to clamp the jig to your drill press, make the length of the base the same as the width of your drill-press table.

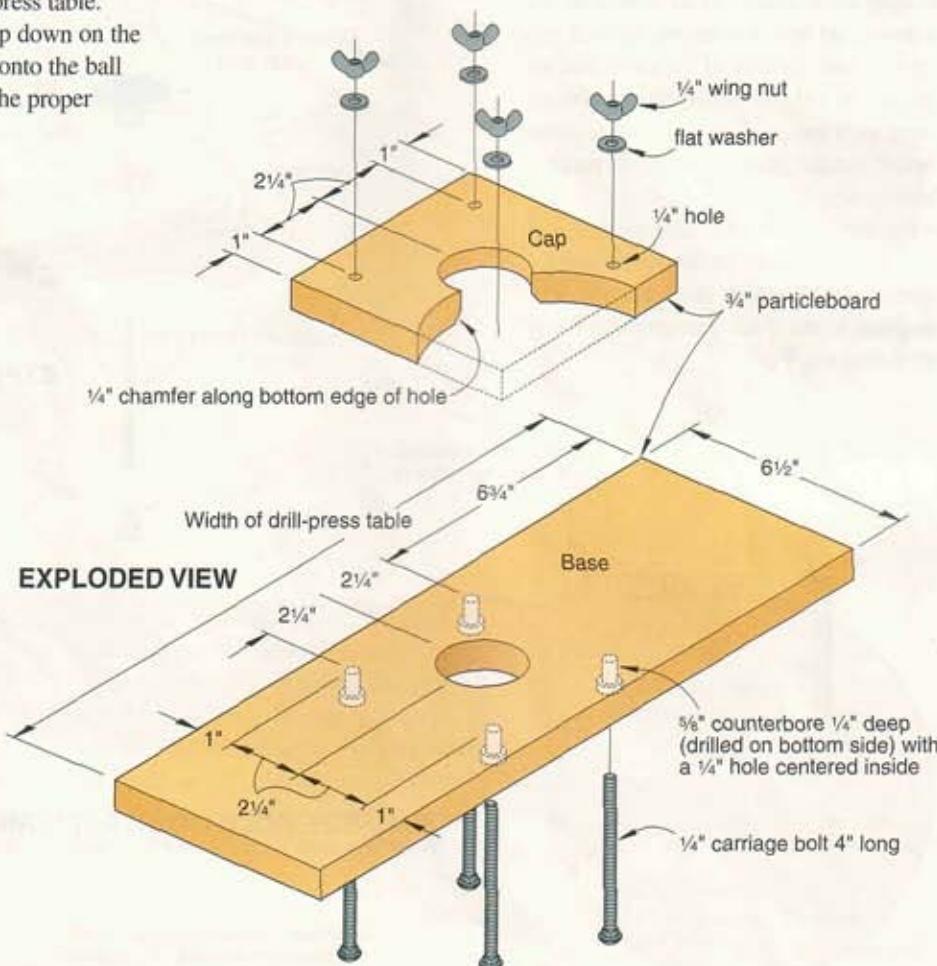
Drill the counterbored holes for the carriage bolts and the large holes in the base and cap. (See the Jig Hole Guide below.) Insert the bolts and center the base by lowering the bit back into the hole, and holding it there while you clamp the base to your drill-press table.

Place the ball over the hole, slide the cap down on the protruding carriage bolts, and tighten it onto the ball with washers and wing nuts. Chuck in the proper bit and drill away.

Illustration: Kim Downing; Lorna Johnson  
Photograph: Baldwin Photography



JIG HOLE GUIDE	
Ball diam.	Hole diam.
3/4"	1/2"
1"	3/4"
1 1/4", 1 1/2"	1"
1 3/4", 2"	1 1/2"
2 1/4", 2 1/2"	1 3/4"
2 3/4", 3"	2"



# step-and-repeat jig

Spacers help you locate hole positions for fast, accurate production drilling.

Having worked for more than forty years as a printer, WOOD® magazine reader Bill Lacey is familiar with the process called "step and repeat." In printing, small images, such as business cards, are reproduced in rows and columns to fill a full sheet of paper.

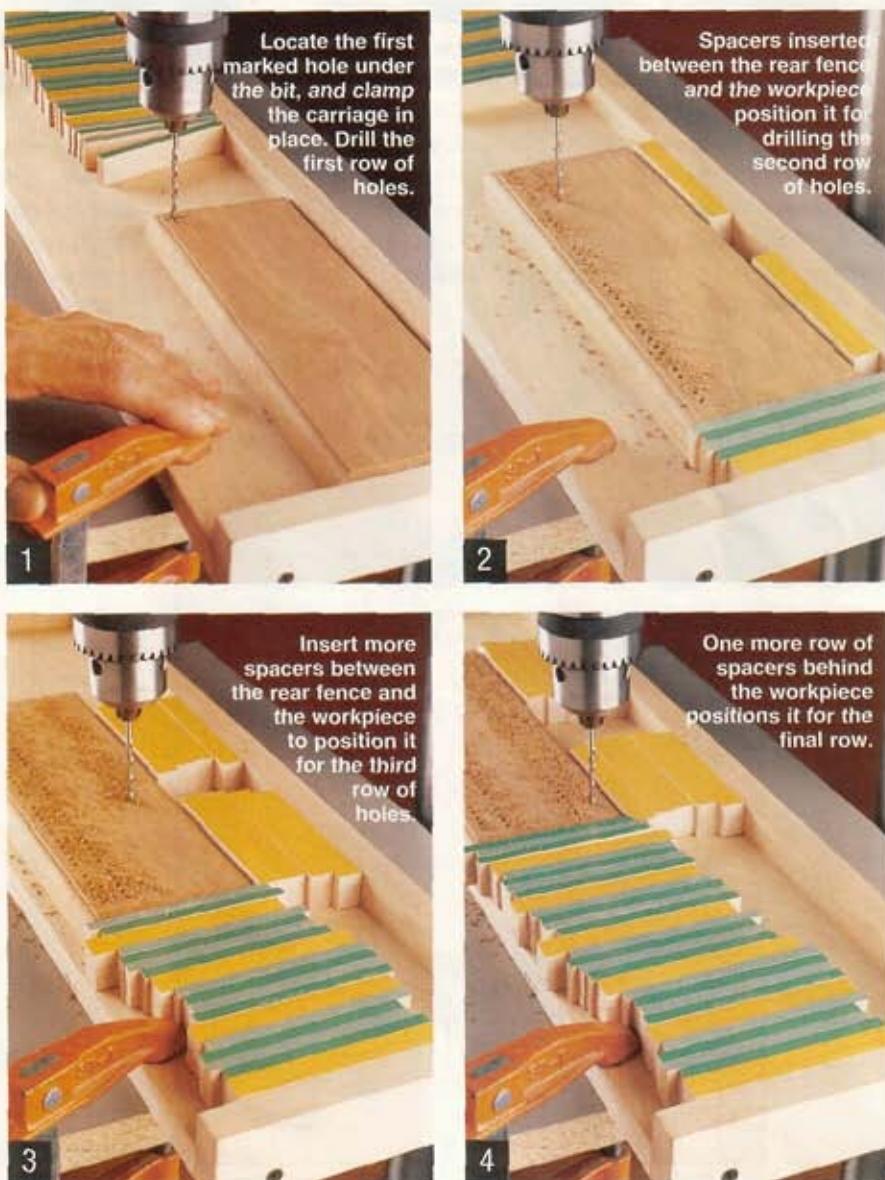
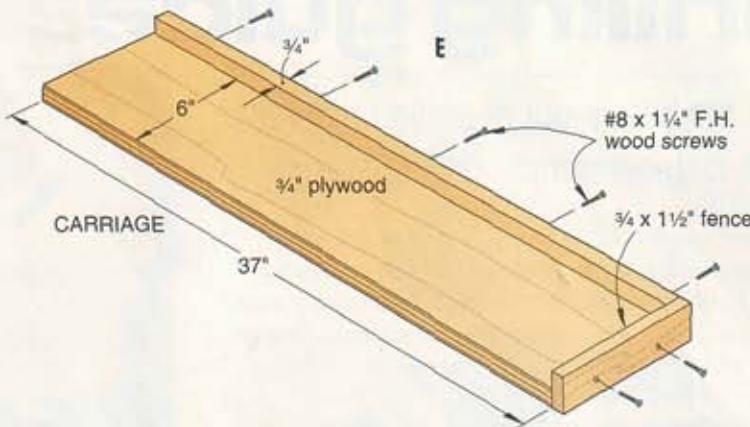
Because he builds toys in small batches and needs to quickly and accurately repeat drilling operations, Bill adapted this idea to his woodworking.

The jig has two components: the carriage, equipped with rear and end fences, and the spacers, which allow you to position your workpiece. The sequence of photos shows how to use the jig.

Build the carriage as shown in the drawing. The size of the carriage can vary according to the size of pieces you are drilling and the maximum reach of your drill press. You can cut spacers to standard widths ahead of time, or custom-make spacers for each different job. Bill took the first approach, cutting spacers in widths from  $\frac{1}{8}$ " to 1" in  $\frac{1}{16}$ " increments, and from 1" to 6" in 1" increments. Cut all the spacers of the same width at the same time to ensure uniformity.

The photographs demonstrate using the jig to drill holes in a cribbage board. We positioned the workpiece by inserting spacers between the fences and the piece to progressively move it away from the end fence and out from the rear fence. The green spacers move the piece in  $\frac{1}{8}$ " increments; the yellow spacers in  $\frac{1}{2}$ " increments.

Photographs: Baldwin Photography  
Illustration: Roxanne LeMoine



# pocket-hole drilling guide

Take the hassle out of angled mounting holes with our simple drilling accessory.

Equipped with this handy shop aid, you can drill quick, accurate pocket holes for fastening face frames to cabinets, aprons to tabletops, and other similar tasks requiring angled mounting holes. To build the drill guide shown at right, just follow the instructions on the drawings below.

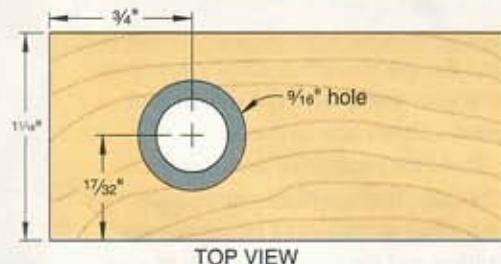
## Cut a block and apply the patterns

- 1 From  $1\frac{1}{16}$ " stock, cut a block to  $2\frac{3}{8} \times 3\frac{1}{2}$ ". Adhere the Full-Size Patterns to it. Locate and bore a  $\frac{9}{16}$ " hole, using a spade bit in the drill press. Bandsaw the guide to shape.
- 2 Clamp a 3" length of  $\frac{1}{4}$ " iron pipe ( $\frac{9}{16}$ " O.D.) into a machinist's vice. Using a  $\frac{3}{8}$ " twist drill, slowly ream out the inside of the pipe to  $\frac{3}{8}$ ". Epoxy the pipe into the  $\frac{9}{16}$ " hole, flush with the top of the block. After epoxy sets up, hacksaw the pipe off at an angle to match the block. Use a stationary sander to sand the pipe flush. Break sharp edges of steel with a file and emery cloth.

Project Design: James R. Downing

Illustrations: Kim Downing

Photograph: Wm. Hopkins

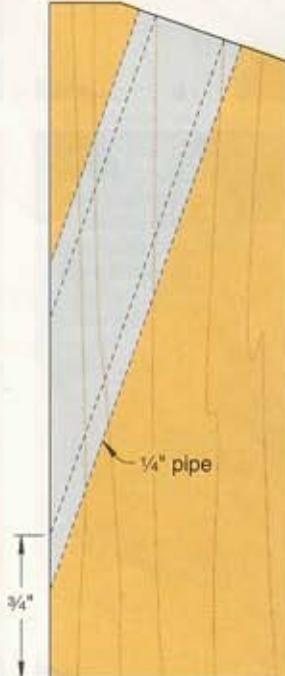


TOP VIEW

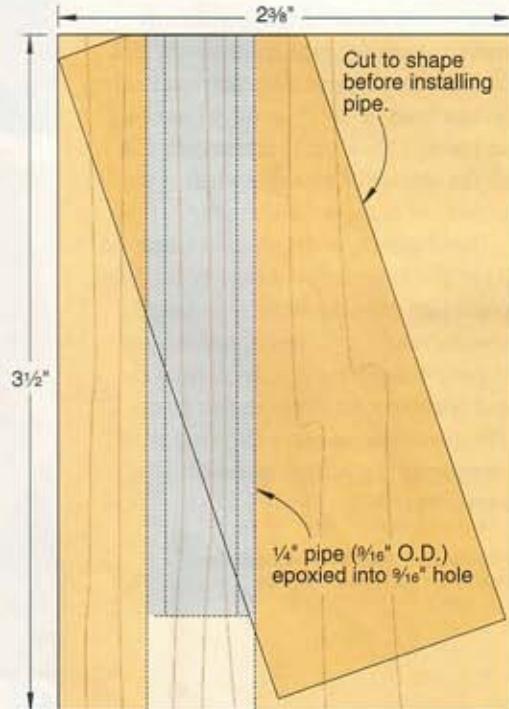
## FULL-SIZE PATTERNS



END VIEW



FINISHED GUIDE



SIDE VIEW

# drill-press jig for dowels

When boring holes in dowels, the dowels can roll around freely. Here are two ways to hold them still.

Drilling holes into the sides and ends of dowels can challenge even the best woodworkers. The problem: trying to hold round stock in position. Try these simple jigs to hold the dowels rock-steady.

Both jigs rely on a V-groove that you cut into a piece of  $\frac{1}{4} \times 3 \times 20$ " scrapwood. To cut the V, tilt the blade of your tablesaw to  $30^\circ$  from vertical, and set the cutting depth to  $\frac{3}{8}$ ", as shown in Cutting the V-Groove detail drawing. Adjust the fence to place the top of the cut on the centerline of the board. Make one pass over the saw blade, turn the board around, and run it through again, creating a  $60^\circ$  V-groove.

Crosscut a  $4\frac{1}{4}$ " piece off one end. The longer piece holds your dowels flat on the table, as shown in the photo at right top. The shorter piece forms the basis for the second jig, which holds dowels vertically for drilling into their ends.

To complete the vertical jig, cut a  $1\frac{1}{2} \times 3 \times 3$ " block, clamp it to the back of the  $4\frac{1}{4}$ " piece and check to make sure that the V-groove is perpendicular to the base. Then glue and screw the two pieces together, as shown in the Exploded View drawing. Use the vertical jig, as shown in the photo right. ♦

Photographs: Hetherington Photography  
Illustrations: Roxanne LeMoine

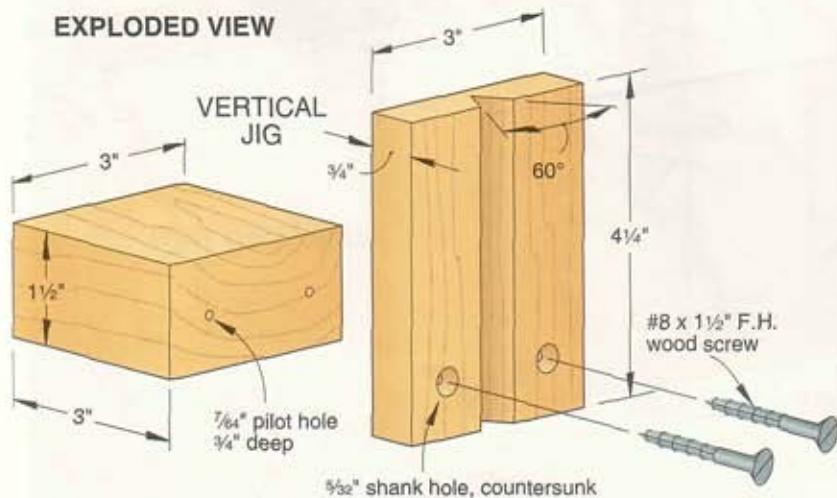


Clamped to the drill-press table, this grooved piece of scrap-wood holds dowels steady for horizontal drilling.

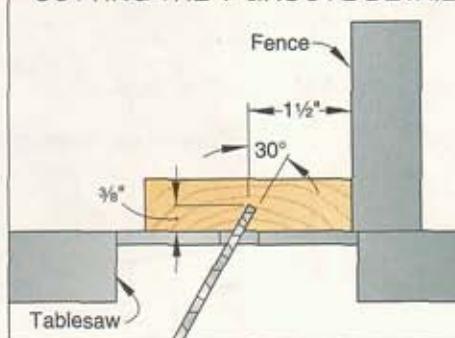


Screw the shorter V-groove block to an upright to drill straight down into the end of the dowel.

## EXPLODED VIEW



## CUTTING THE V-GROOVE DETAIL

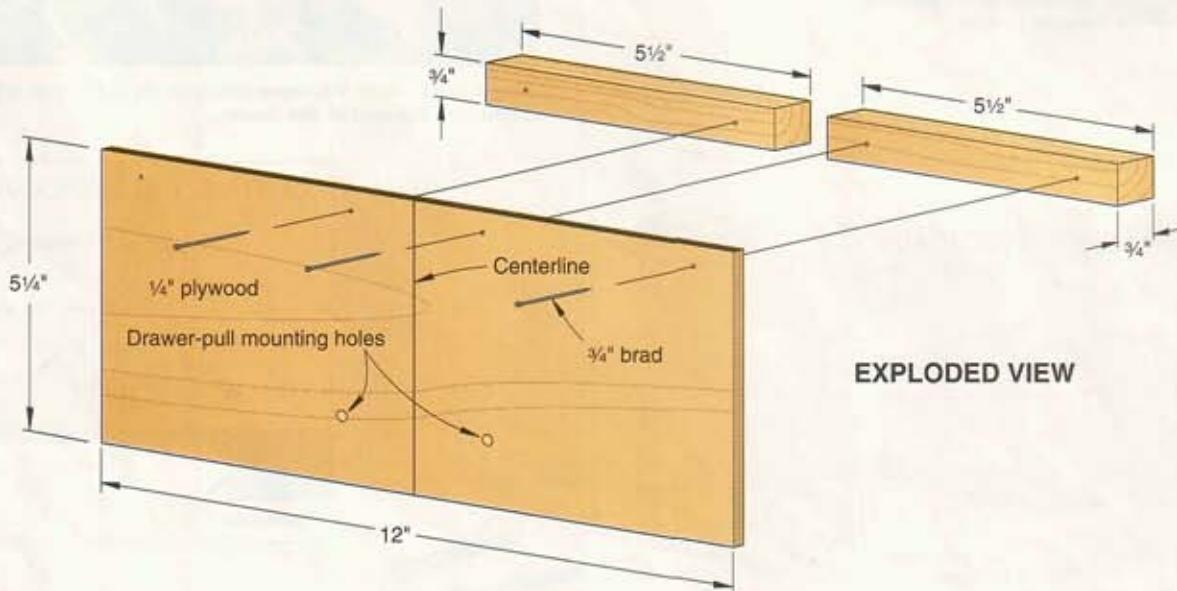


# drawer-pull mounting jig

Mounting drawer pulls has never been easier than with this handy shop helper.

Mount drawer pulls in a jiffy by taking a few minutes to build this jig. With it, you can shave lots of time off the task of drilling drawer-pull mounting holes.

To use it, first cut a  $\frac{1}{4}$ " scrap piece to  $5\frac{1}{4} \times 12"$ . Then, mark a vertical centerline on the jig. Mark and drill centered holes for the pulls on both sides of the vertical line. For most drawers you will want to locate the holes in the jig so the pulls are centered on the height of the drawer fronts. Then, mark the center of each drawer front on its top edge, align the jig's vertical centerline with it, and drill the holes, as shown in the photo. 



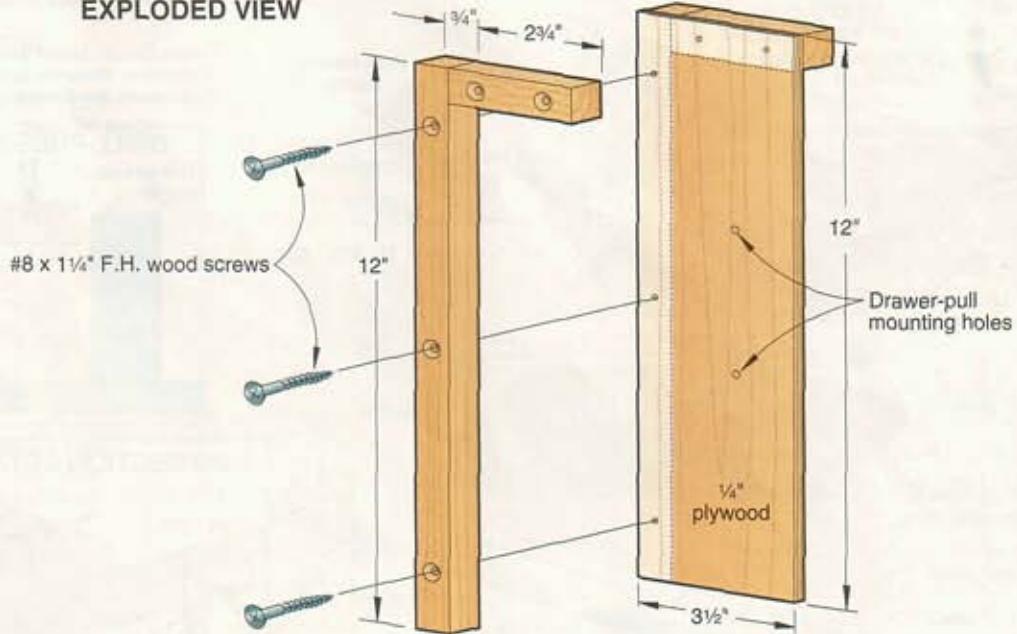
# door handle locator

Line up and drill your door handle locations with this simple, can't-fail jig.

Here's an efficient way to install door handles. This jig works much like the drawer-pull jig on the *previous page*. But, as you can see in the drawing, it has solid-wood cleats on both sides so that you can locate handles on either the left or right side of adjoining doors. After drilling holes for one handle, just flip the jig over and drill from its other side for handles located on opposite door sides. ♦



EXPLODED VIEW

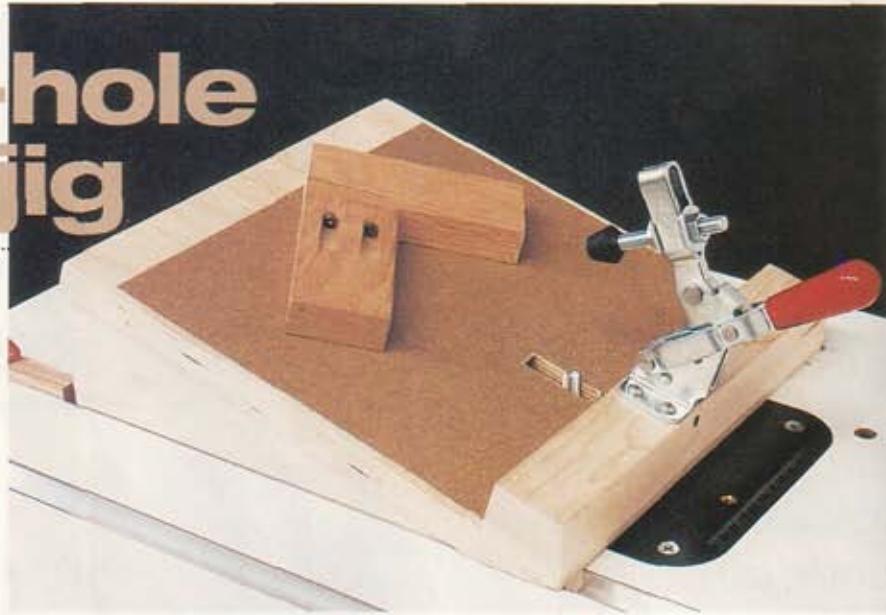


# pocket-hole routing jig

A no-nonsense project that's easy to use.

Given how specialized the tools are for pocket-hole joinery, some woodworkers have balked at using the technique for projects. Nowadays, the dedicated jigs for drilling pocket holes are very affordable, but reader David Brunson of Loudon, Tennessee, came up with a router table jig for the same purpose. We tweaked his idea to get the design shown.

The jig is simply a plywood platform supported on wedge-shaped runners cut at a 15° angle. One runner has a bottom cleat that rides in the miter gauge slot of the router table and is controlled by a stopblock. This keeps the jig tracking in a straight line when routing, letting you



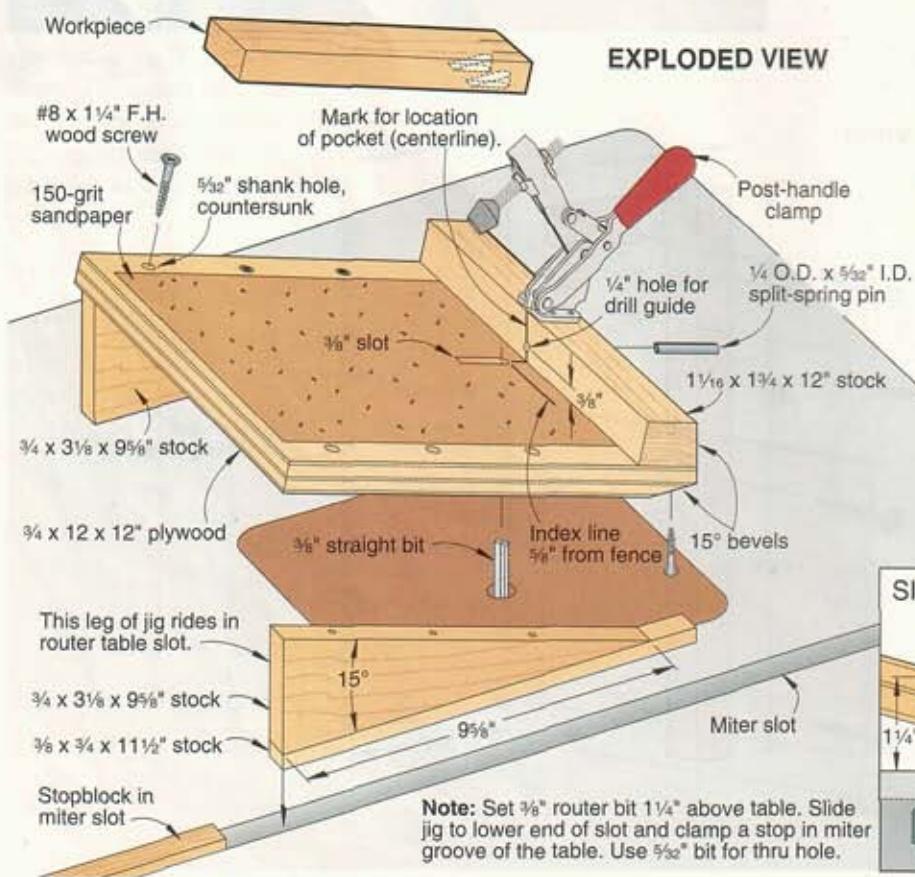
make functional pockets. The hollow split-spring pin allows you to drill the centered pilot holes for screws.

On the jig's lower end, a wood fence acts as both a rest to locate the workpiece and a guide for drilling. Sandpaper and a toggle clamp grip the workpiece.

The pocket itself is cut with a  $\frac{3}{8}$ "

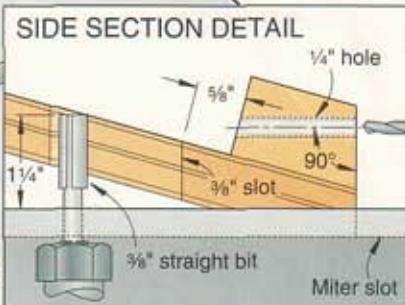
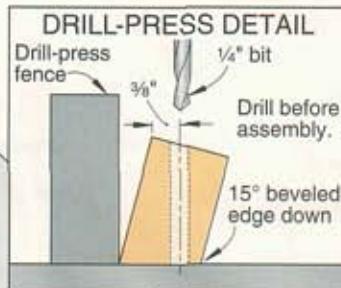
straight router bit. Simply raise the bit to  $1\frac{1}{4}$ " above the table surface, and slowly feed the jig, high end first, toward the cutter. It will plow into the underside of the platform and then emerge through the top. When the leading edge of the bit meets the index line marked  $\frac{3}{8}$ " from the fence, shut off the router. Then clamp a stopblock in the miter gauge slot.

Before unclamping the workpiece, drill a  $\frac{5}{32}$ " hole through the metal guide (the  $\frac{1}{4}$ -O.D. split-spring pin) in the fence, and into the workpiece. ♣



Note: Set  $\frac{3}{8}$ " router bit  $1\frac{1}{4}$ " above table. Slide jig to lower end of slot and clamp a stop in miter groove of the table. Use  $\frac{5}{32}$ " bit for thru hole.

Project Design: David Brunson; Jan Svec  
Illustrations: Roxanne LeMoine  
Photograph: Jim Downing



# fail-safe router jig

A specialist at through or stopped dadoes and grooves.

There are only a few things that can go wrong when you're routing dadoes for shelves. Unfortunately, most of them ruin the job, so one of our contributing craftsmen, Erv Roberts, designed a router jig that's easy to align and cuts the exact thickness of the shelf. Best of all, the router can wander away from the fence while you're working—without ruining the job.

The secret is a flush-trimming pattern bit with a bearing above the cutters. As you guide the bit along a fence, the cut is directly below the bearing—one edge of the cut automatically falls exactly along the front of the fence. Erv's jig uses a router bit narrower than the dado you



need, but has two fences. If your router wanders away from one, the other keeps you from routing outside your layout lines. Begin by laying out both sides of the dado. Clamp the jig's fixed fence over one of the layout lines, then slip a scrap

of shelf stock between the fixed and movable fences. Turn the wing nuts to snug the movable fence against the stock, and clamp it in place. Remove the scrap. To make the cut, guide the bearing along one fence, then the other, clockwise. To make a stopped dado, use the optional T-shaped stops.

Most of the jig screws together. Make the movable fence from two pieces, as shown in the detail. Slip the bolts through the holes in the narrow piece, then glue the two pieces together. To form the shouldered keyhole slot in the fixed fence, drill the  $\frac{3}{4}$ " end holes, then rout the  $\frac{9}{32}$ " slot with a  $\frac{1}{4}$ " bit chucked in your table-mounted router. Now, centering a  $\frac{3}{4}$ " bit on the end holes, rout a  $\frac{3}{16}$ "-deep shoulder in the fence's bottom face. The end holes let you add and remove the stops without taking off the wing nuts.

Do you need to rout a dovetail or keyhole slot? Simply install a guide bushing in your router subbase, and adjust the movable fence to the bushing's diameter.

## Buying Guide

Connector bolts (3" length no. 06K90, \$4.50/10 pack) and cross dowel (no. 06K70, \$2.99/10 pack) are available from Woodcraft. Call 800/225-1153. Pattern bits are available from Eagle America in various sizes. Call the company at 800/872-2511 for a catalog.

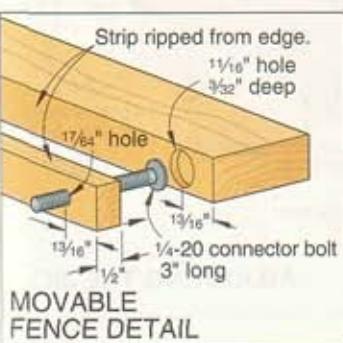
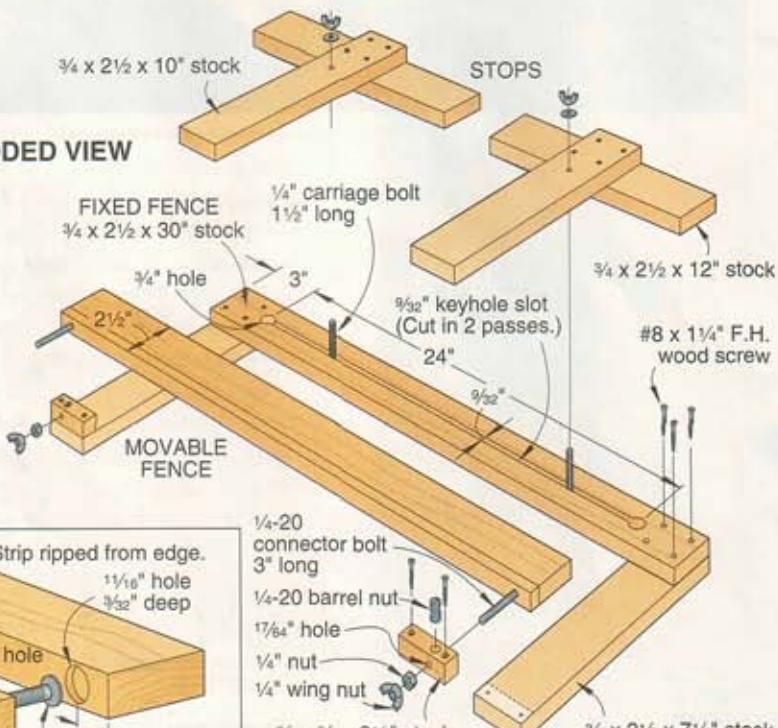
Written by Jeff Day

Project Design: Erv Roberts

Illustrations: Roxanne LeMoine; Lorna Johnson

Photograph: Marty Baldwin

## EXPLODED VIEW



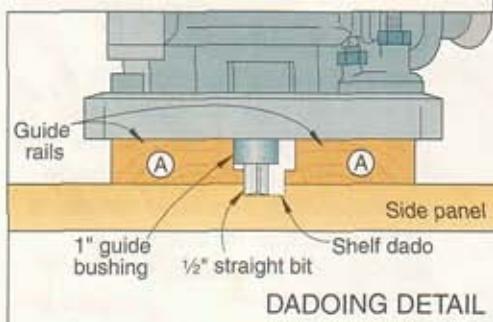
MOVABLE FENCE DETAIL

# exact-width dado jig

Make your shelves a perfect match with a basic shop aid.

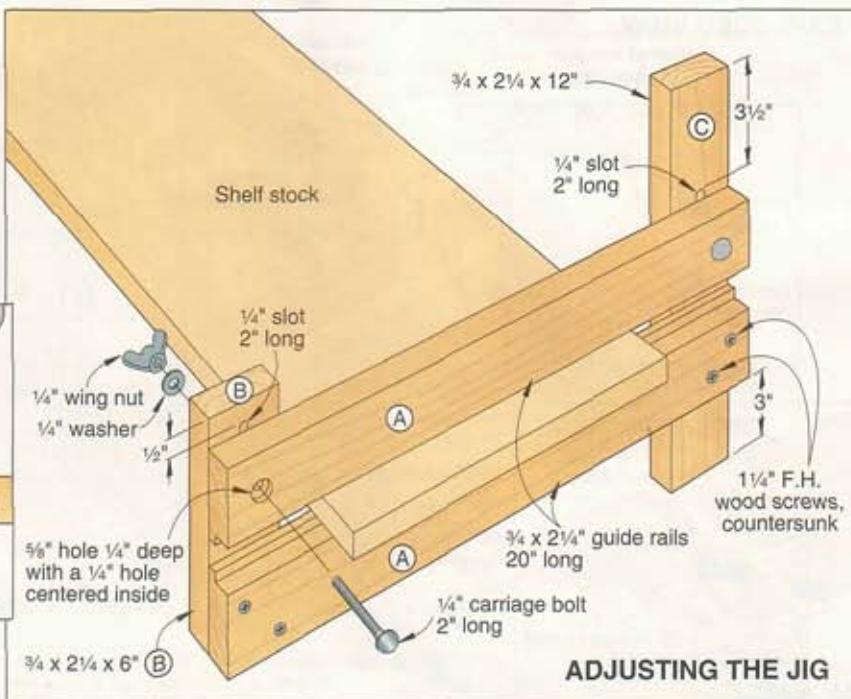
Here's a jig for routing bookcase or cabinet-side dadoes that exactly match the thickness of your shelf stock. Better yet, no special bits are needed. Just use an ordinary straight bit and a guide bushing. (We used a 1" guide bushing and a  $\frac{1}{2}$ " straight bit.) To start, cut a  $\frac{3}{8}$ " rabbet  $\frac{3}{8}$ " deep along the inside edge of both guide rails (A). Then complete the jig, as shown in the Adjusting the Jig drawing. To customize the rails for a different bushing and bit, install them in your router and trim the protruding lip of the rabbet in the guide rails, where shown in the Dadoing detail below. The remaining lip will now match your bushing/bit combo.

To adjust the jig for the exact width of your shelf stock, slip the jig over the shelf stock, where shown in the Adjusting the Jig drawing. Pull the guide rails (A) tightly against the stock, and tighten the wing nuts. Slip the jig off the stock, and clamp the jig onto the piece being dadoed, centering the opening between the rails (A) over the marked dado on the side panel. Adjust the depth of cut with your router sitting on top of the rails. Start the router and make one pass with the guide bushing riding against one of the rabbeted rails. Finally, make a second pass riding the bushing against the opposite rabbeted rail. ♣



DADOING DETAIL

Project Design: Wayne Kovi, Wallingford, Conn.  
Illustrations: Roxanne LeMoine; Lorna Johnson  
Photograph: Hetherington Photography



ADJUSTING THE JIG

# sliding top for router tables

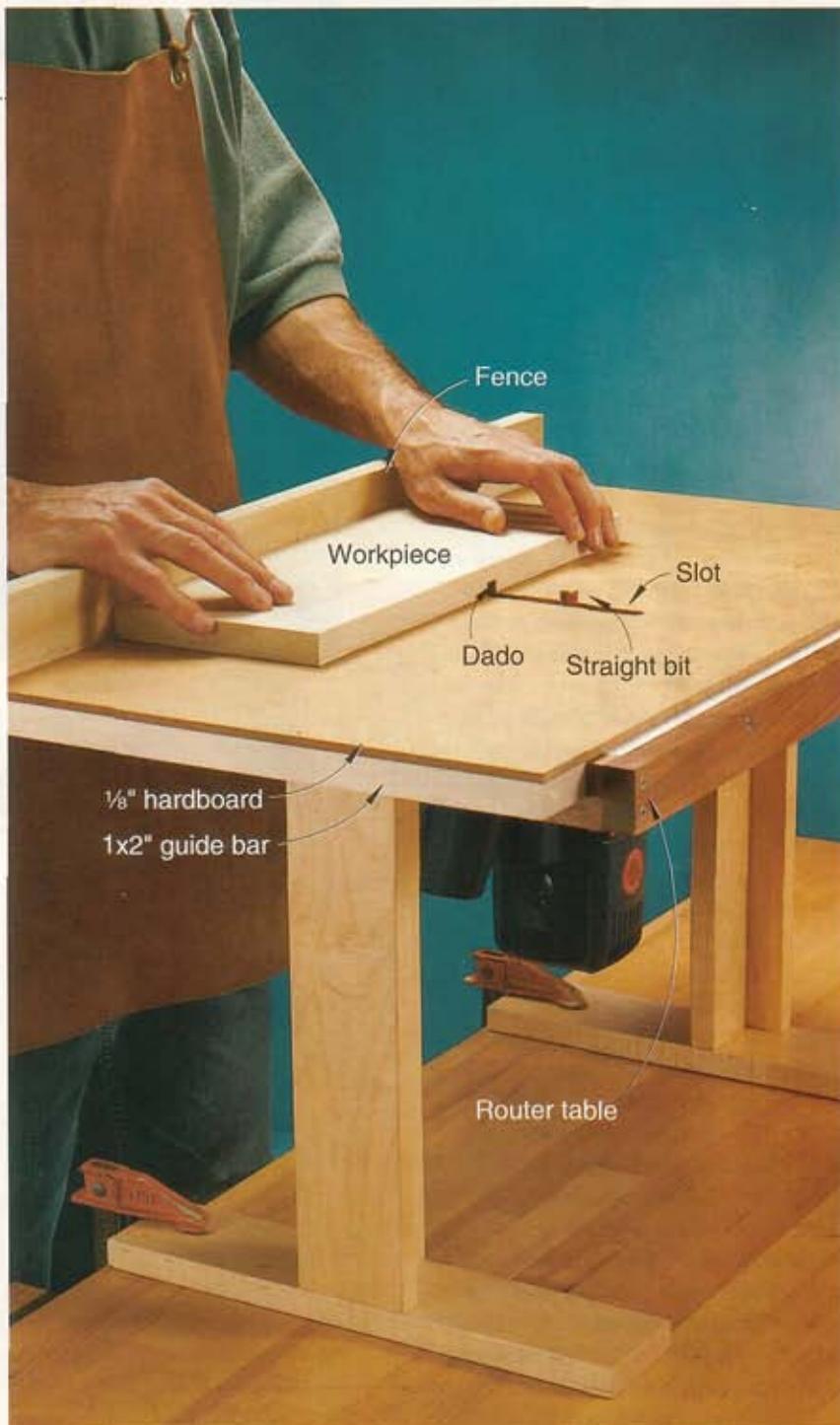
Our sliding tabletop lets you guide your stock straight over a router bit.

Routing dadoes—grooves across the grain—poses several challenges, especially on narrow stock. Securing the workpiece, spacing the dadoes, and guiding the router straight over the stock become even more difficult on small workpieces.

This sliding top for your router table, from *WOOD®* magazine reader C.E. Rannefeld, of Decatur, Ala., makes dado-routing easy. Start with a piece of  $\frac{1}{8}$ "-thick tempered hardboard as wide as the front-to-back dimension of your router table and about 4" longer than the end-to-end distance. Attach a 1x2" guide bar across each end on the underside of the hardboard, locating them so the hardboard slides without excessive side play.

Chuck the straight bit for dadoing into the router. Raise the bit the distance above the hardboard equal to the depth you want the dado to be. Push the hardboard sliding tabletop into the bit, and cut a slot about halfway across the hardboard. Notch a 1x2" fence to clear the bit, and mount it at the back of the sliding top.

To rout dadoes, hold the workpiece firmly against the fence and slowly slide the tabletop across the bit. Add a stop-block for repetitive cuts. 



# radius sanding jig

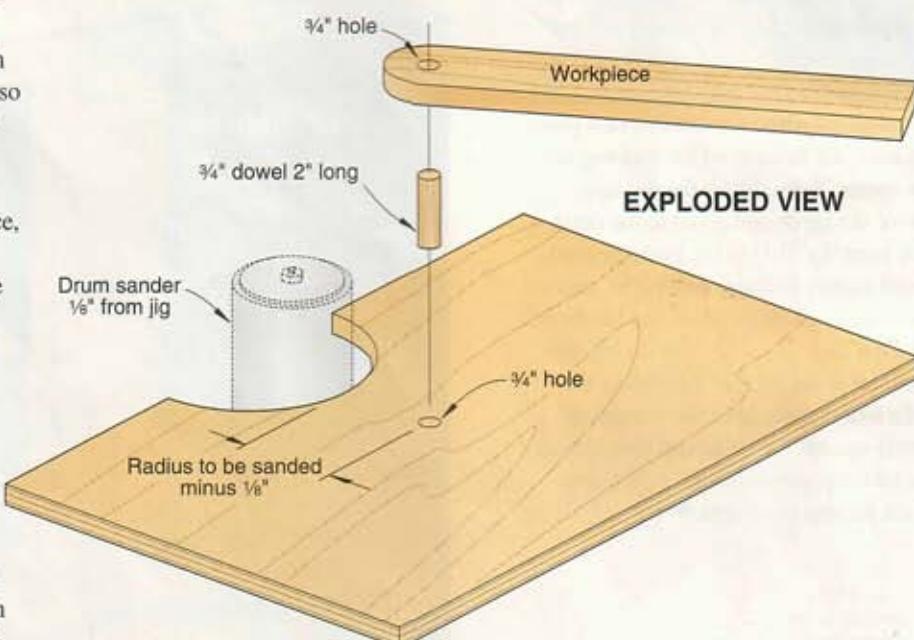
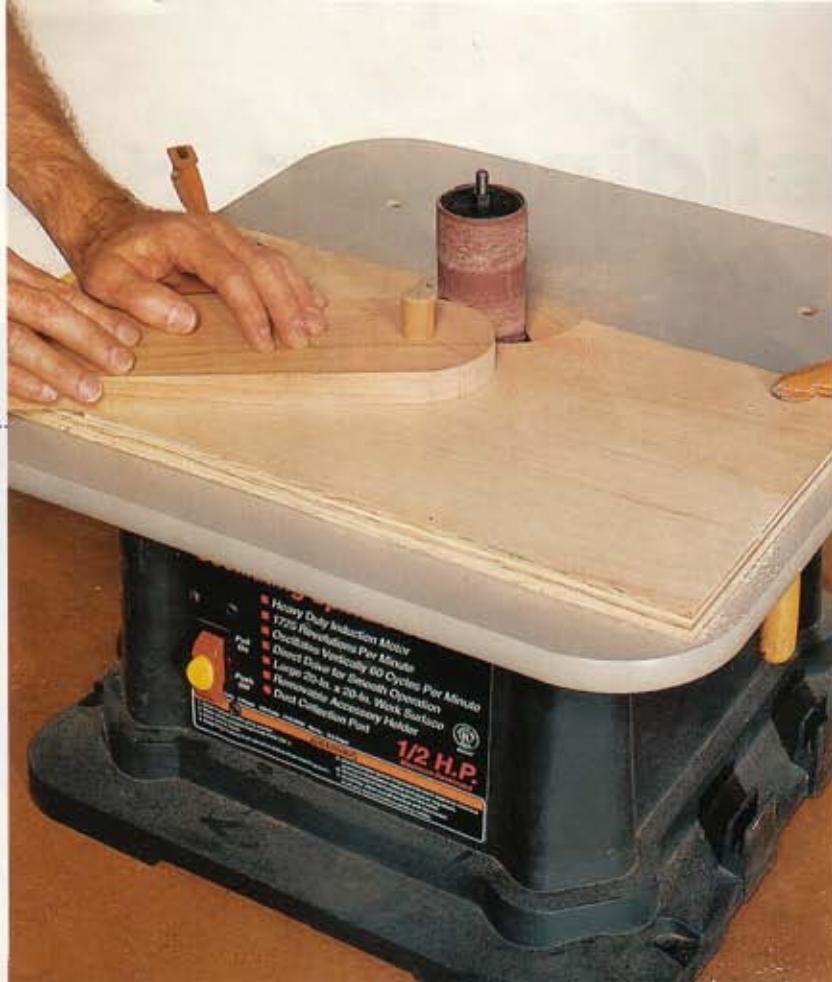
Use it with your sander to get the perfect results you want in seconds.

Sanding an even radius on workpieces can be tricky, especially if you're doing it freehand. But you can take the guesswork out of this process in a hurry with this quick-fix jig. To use the jig, you'll need an oscillating spindle sander or a drum sander attached to a drill press.

On the edge of a piece of  $\frac{3}{4}$ " plywood, cut out a half circle that will accommodate your largest sanding drum, as shown, at right. From the edge of this half circle, measure to a point  $\frac{1}{8}$ " short of the radius to be sanded, and bore a  $\frac{3}{4}$ " hole where shown. Now, glue a  $\frac{3}{4}$ " dowel in the hole. The accuracy of the jig depends on the dowel standing  $90^\circ$  to the plywood, so leave the dowel long enough to check it with a square. After the glue dries, you can cut the dowel to a shorter length.

Next, mark the radius on the workpiece, and cut the curve just outside the line. Bore a  $\frac{3}{4}$ " hole at the center point of the radius and slip the workpiece over the dowel. Adjust the plywood so the sanding drum just touches the long edge of the workpiece. When the jig is positioned correctly, clamp it to the sander table, turn the sander on, and rotate the workpiece into the drum to sand a perfect radius.

If you don't want to bore a hole completely through your workpiece, you can bore the hole halfway through the stock, and cut the dowel just short of this depth. For smaller workpieces, you'll want to use a dowel with a smaller diameter. ♣



Project Design: Jan Svec  
Photograph: King Au  
Illustration: Roxanne LeMoine

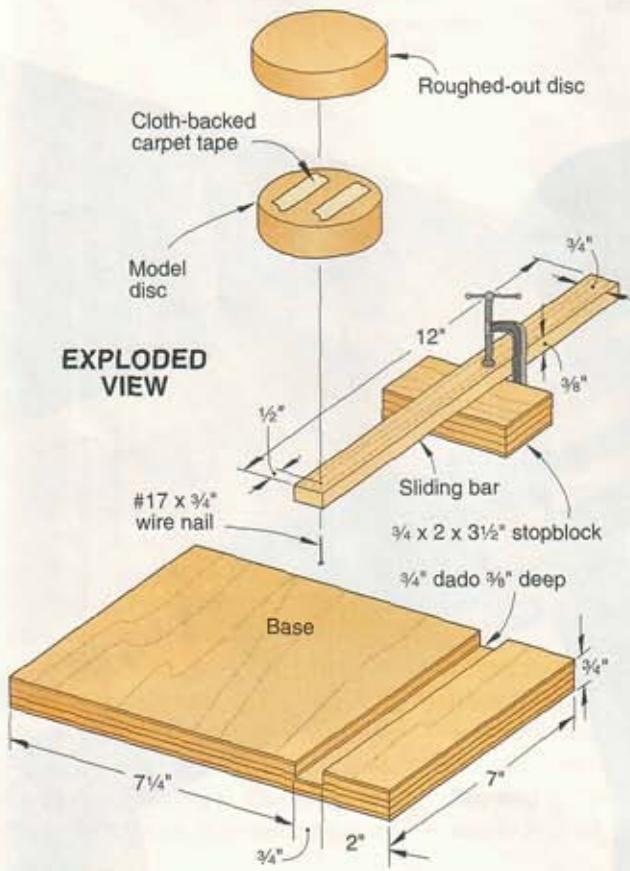
# hole-in-none circle jig

Make perfect circles without center holes with our simple shop aid.

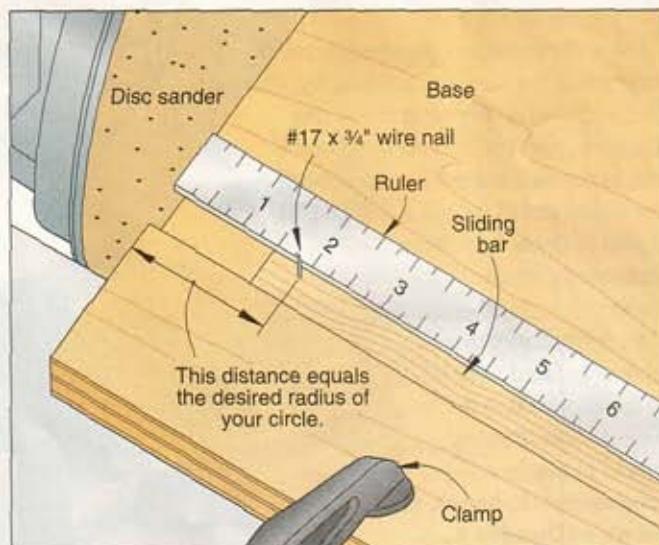
Making perfectly round wood discs in a world of straight, flat saw blades isn't as difficult as it sounds. Holesaws and circle cutters excel at cutting discs with center holes. And that's great if you're making wheels for toys. But, what if you want perfect circles without center holes, say for making a set of drink coasters? *WOOD®* magazine Projects Editor Jan Svec came up with the jig shown at *right* that does just that.

Start by clamping the base to your disc-sander table. Position the sliding bar so that the distance from the nail to the sanding disc equals the radius of the circle you want to make (see the drawing, *below right*). Lock this measurement in by clamping a stopblock on the underside of the slide bar, as shown *below*.

On a piece of scrapwood, lay out a circle  $\frac{1}{4}$ " larger in diameter than the disc you want. (Use a compass for the layout—you'll want a center mark on this piece.) Rough-cut this circle on your bandsaw. With a clipped-off #17x $\frac{3}{4}$ " wire nail, drill a hole in the center of the disc and slip the disc over the nail on the sliding



[www.woodonline.com](http://www.woodonline.com)



bar. Sand this scrapwood disc to the size of your finished disc by rotating and feeding it into the sanding disc until the stopblock contacts the jig's base.

Using this scrapwood disc as a model, lay out a slightly oversize circle on your workpiece, and rough-cut it. Now attach your workpiece to the top of the model disc using cloth-backed, double-face carpet tape. Sand this piece the same way you sanded the model disc. You can reuse the model disc to make as many discs as you like. ♦

Project Design: Jan Svec  
Photograph: Marty Baldwin  
Illustrations: Roxanne LeMoine

# fail-safe hinge jig

Transfer hinge locations from door to carcase with accuracy.

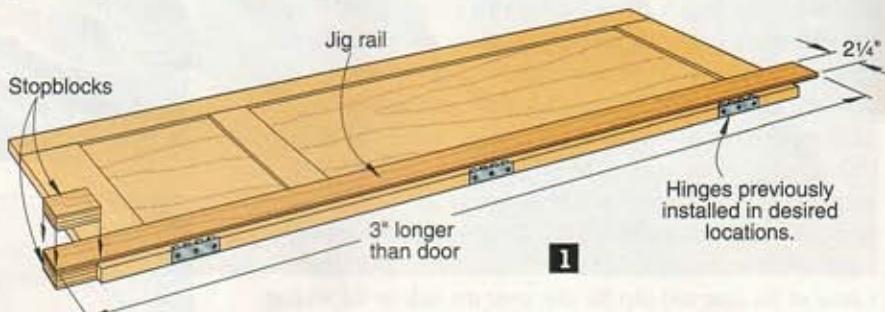
Mounting hinges on an inset cabinet door is a straightforward process. You lay the door on your workbench, locate the hinges where you want them, and screw them in place. If they need to be mortised, you mark the outline of the hinge leaf with a knife or chisel. But how do you accurately transfer the hinge locations to the carcase or to another door? *WOOD®* magazine's Master Craftsman Chuck Hedlund faced this situation not once, but four times when making a set of built-in bookcases. To solve the problem, he devised a single-use jig like the one shown here.

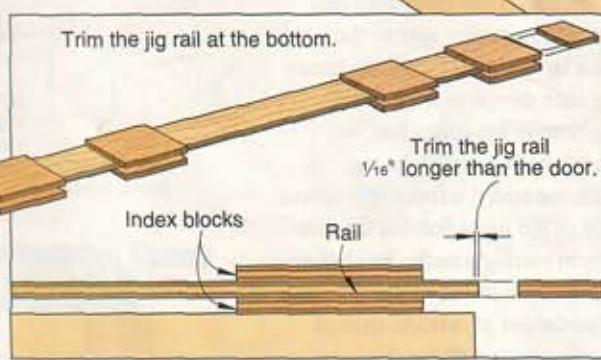
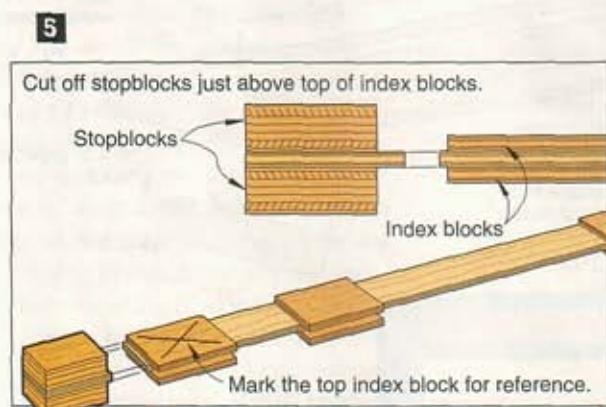
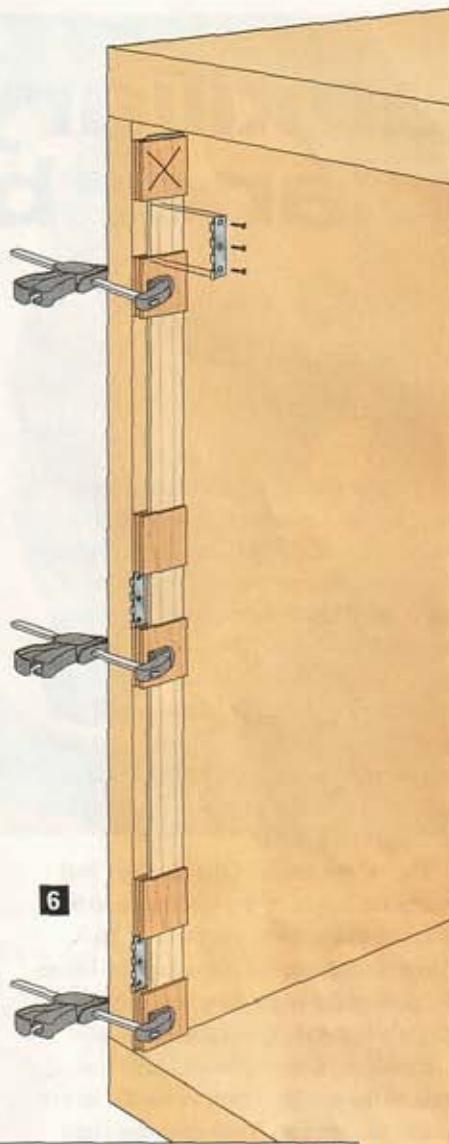
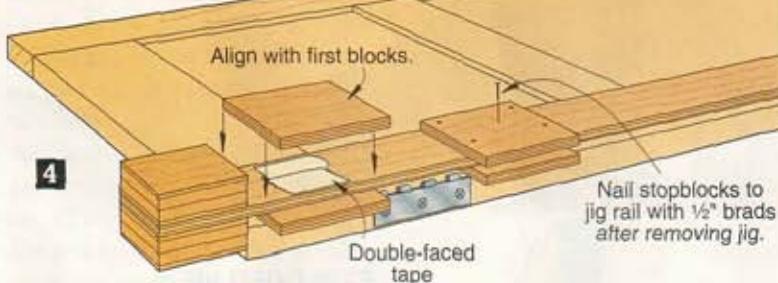
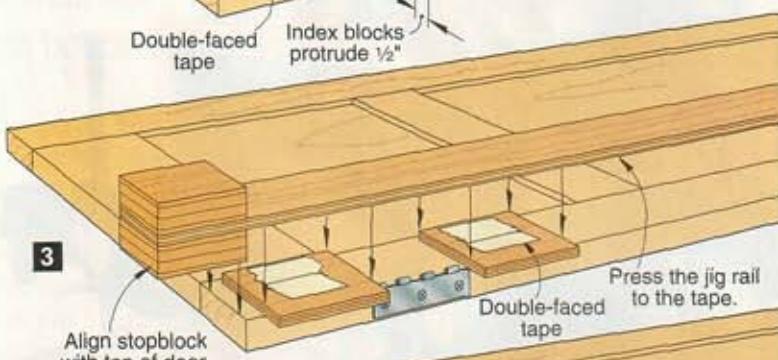
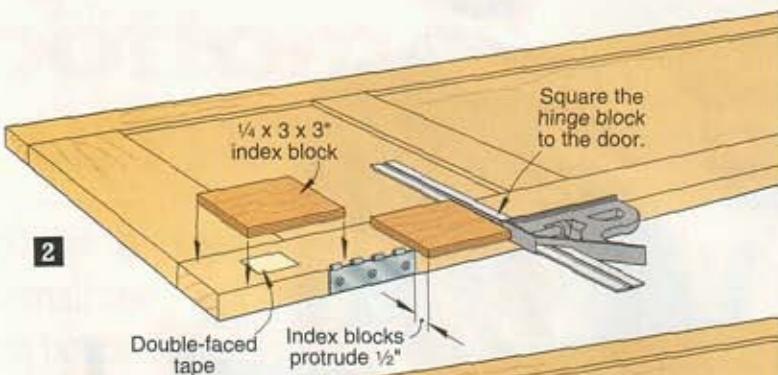
Cut a  $2\frac{1}{4}$ "-wide,  $\frac{1}{4}$ " plywood jig rail 3" longer than the door you are hanging, and two  $\frac{3}{4} \times 2\frac{1}{4} \times 2\frac{1}{4}$ " plywood stopblocks. Then, cut four  $\frac{1}{4} \times 3 \times 3$ " plywood index blocks for each hinge. Glue and clamp the stopblocks to the rail at one end, as shown in **Drawing 1**. Now, temporarily remove the rail.

Stick small pieces of double-faced tape to the door next to the hinges. Adhere index blocks to the door, snug against the hinges, as shown on **Drawing 2**.

Stick a large piece of double-faced tape to each installed index block. Now, hook one of the rail's stopblocks on the door's top edge, and press the rail onto the index blocks, as shown on **Drawing 3**. Keep the rail's back edge and the index blocks' back edges flush.

To make the jig usable on both right- and left-handed doors, align a second set of index blocks with the first, sandwiching the rail between them, as shown on **Drawing 4**. Carefully remove the rail and attached blocks from the door. Drive  $\frac{1}{2}$ " wire brads from both sides to lock the squares in place.





Hooking one stopblock on each door's top edge, use the jig to locate the hinges on the rest of the doors. Drill the hinge screw pilot holes.

Once again, hook the jig's stopblock on a door's top edge. Mark and trim the rail to extend  $\frac{1}{16}$ " beyond the door's bottom, as shown on **Drawing 5**. This extra  $\frac{1}{16}$ " is the gap between the door and the carcass.

Mark the jig's top end. Remove the stopblocks by cutting the rail just above the top index blocks, as shown.

Now the jig is ready to position the hinges in the carcass. Simply place the jig against the inside of the cabinet with the rail's marked end up, as shown on **Drawing 6**. Clamp or use double-faced tape to hold the jig in place. The index

blocks bracket the hinges, just as they did on the doors. Finally, position the hinges between the index blocks, and drill the screw pilot holes. ♣

Illustrations: Erich Lage; Lorna Johnson  
Photograph: Marty Baldwin

# dust catchers

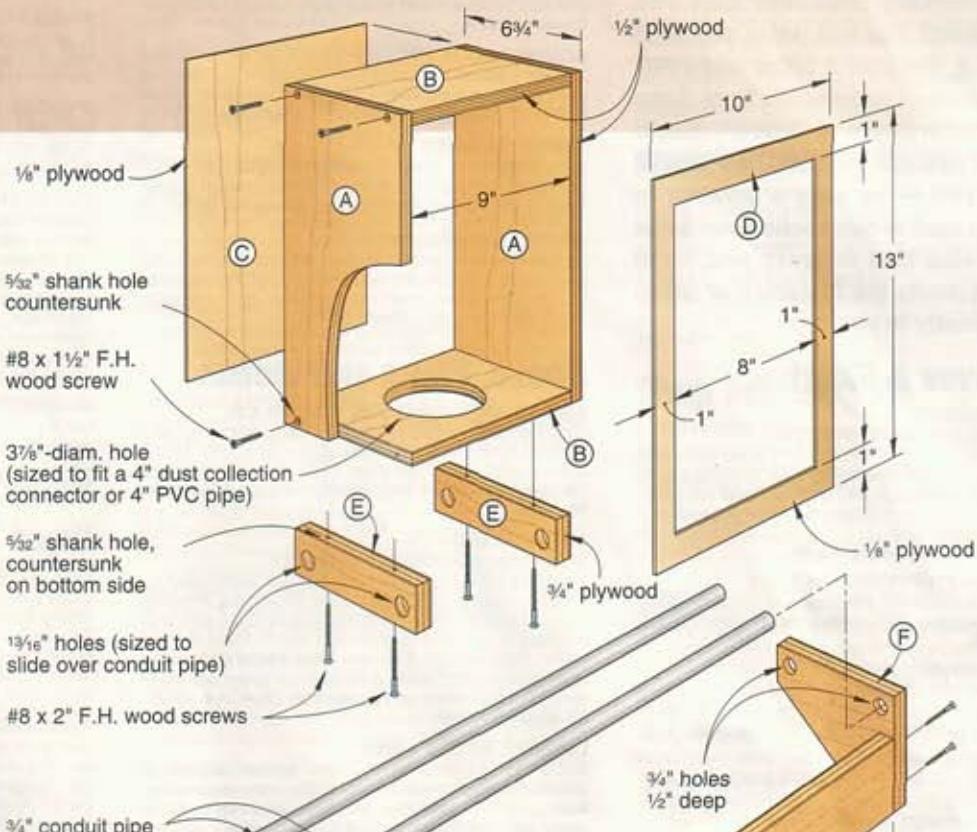
## 2 easy upgrades to help you conquer dust

Clear the air in your workshop with these hardworking add-ons for existing dust-control systems.

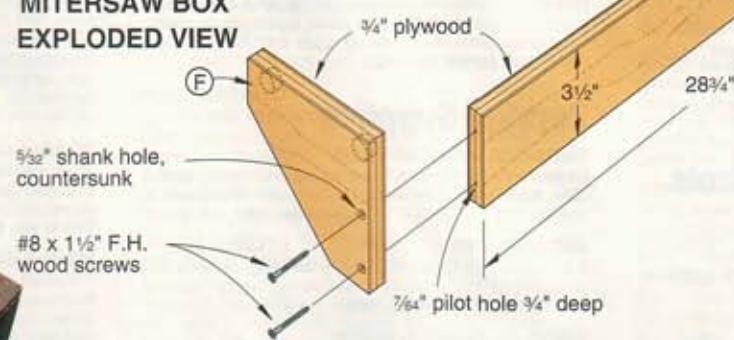
The less dust floating around in your workshop, the better. Not only does your shop stay cleaner, but, more importantly, your lungs will stay healthier.

With that in mind, we developed two dust-collection fixtures to add to the ones we've published over the years. Here are some great designs for dust-catchers for a power miter saw and a contractor's tablesaw, two notoriously messy machines.





**MITERSAW BOX  
EXPLODED VIEW**



The miter saw fixture accepts a 4" hose from a standard dust collector, while the tablesaw addition directs sawdust into a bag that hangs beneath it. In the process, we used a method that will come in handy whenever you're designing your own shop fixtures. We cut our prototypes out of inexpensive cardboard.

### Tame your miter saw

Dust-collection bags come as standard equipment on many miter saws, but a lot of the sawdust never finds its way

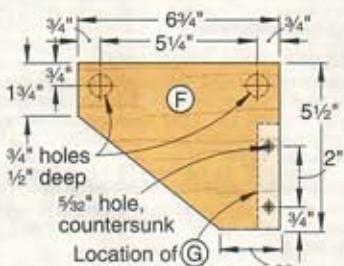
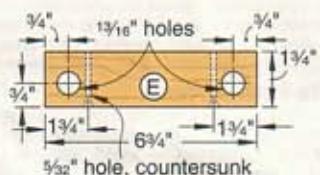
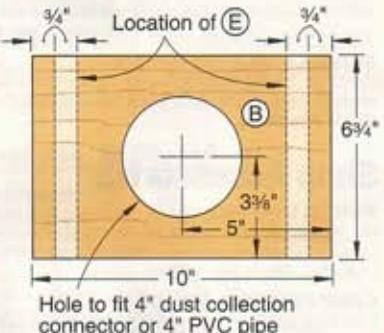
inside. You need a big opening and lots of air flow to corral the cloud that these machines churn up.

Our solution was to fashion a movable hood that accepts the hose from the dust collector. Set the saw to cut at any angle, then slide the hood into the ideal position for sucking up the dust. We built the hood and brackets with Baltic birch plywood, and used aluminum electrical conduit for the rails. See the drawings above and on page 122 for the building details. Our

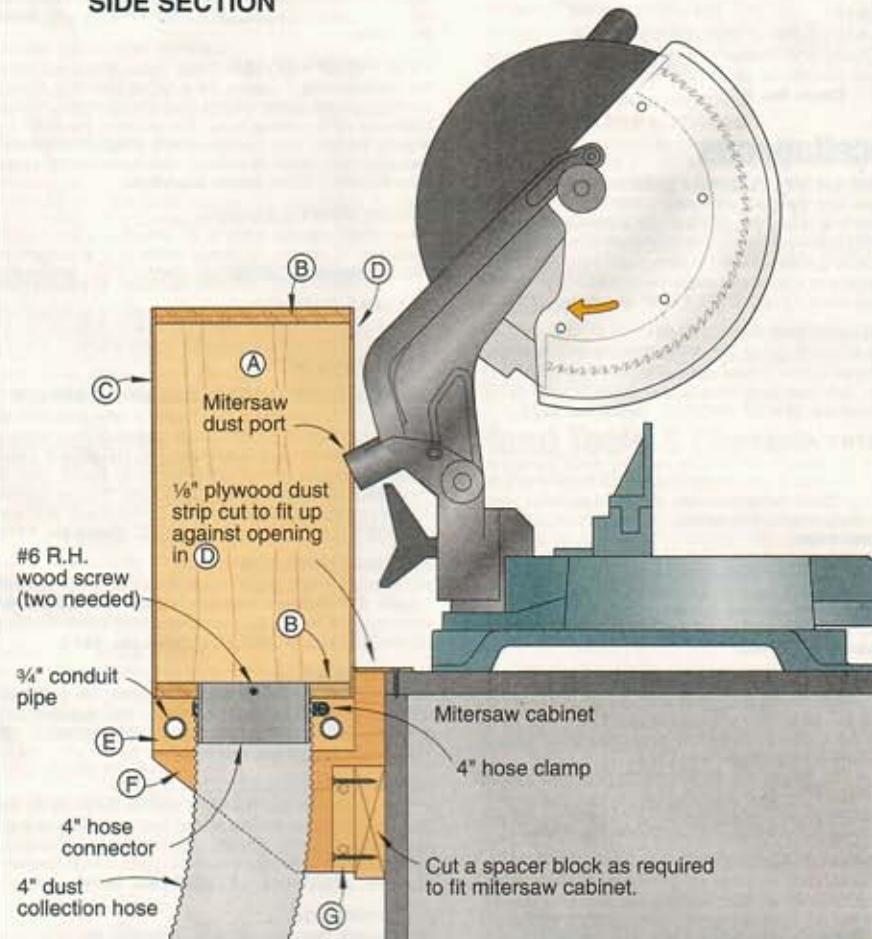
*continued on page 122*

## dust-collection

### MITERSAW BOX PARTS VIEW



### MITERSAW BOX SIDE SECTION



hood is designed to fit the commercial work cart that holds our miter saw.

We went through a couple of very different designs before settling on this option. We saved a lot of time by making our prototypes from corrugated cardboard, cut from a box.

### Seal up your tablesaw

Contractor's saws cost less than the cabinet style, but they spew all of the sawdust right into your workshop. Here's a simple way to set up a line of defense. Most con-

tractor models are enclosed on three sides, but open on the back, where the motor hangs, and underneath. We used  $\frac{1}{8}$ " Baltic birch plywood to make a two-piece cover for the back.

Measure the outside dimensions of the opening, then measure to find where you need to leave gaps for the belt and the motor mount. Again, use cardboard to arrive at the right shapes. Cut rectangular pieces to cover the various areas, as shown in Photo A, opposite page, then tape those pieces together until you have the final shape. Use that as a pattern to cut the actual cover from plywood.

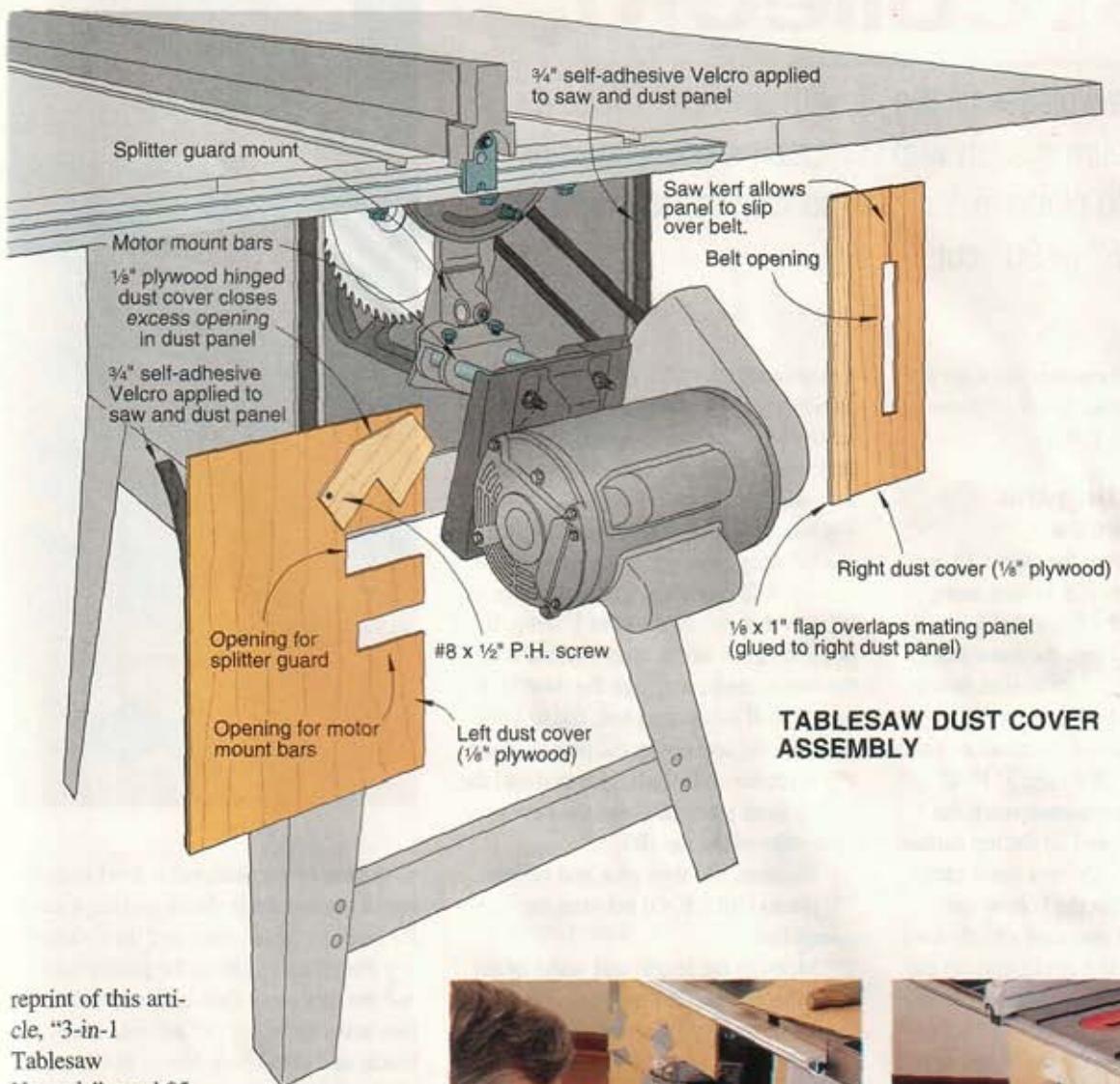
As shown in Photo B, one piece fits around the drive belt and another slides over to meet it. The kerf above the belt

opening allows you to flex the thin plywood for installation. The lip glued onto the mating piece covers any gap.

Self-adhesive Velcro strips, available at most fabric stores, serve to hold the dust cover to the saw. Cut them to size, and apply them where shown.

You'll have to remove the cover to swing the saw blade to any angle other than  $90^\circ$ . The alternative would be to cut a pathway for the motor mount to follow, which would open up an escape route for the sawdust.

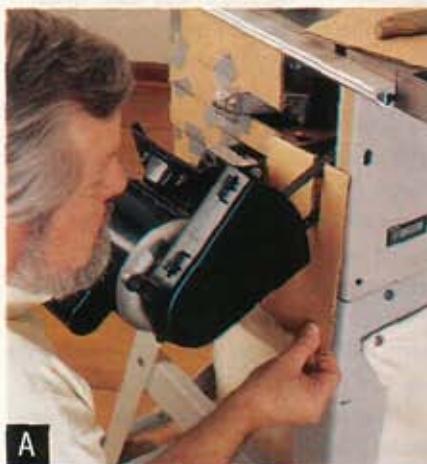
With all four sides sealed, you're ready to put a bag on the bottom. Check WOOD® magazine issue 106 to find plans for a contractor's saw base cabinet, complete with a trash bag holder. (For a



**TABLESAW DUST COVER ASSEMBLY**

reprint of this article, "3-in-1 Tablesaw Upgrade", send \$5, to WOOD Article Reprint Service, P.O. Box 349, Kalona, IA 52247, with check or money order made out to WOOD magazine.) Or, you can buy a bag that snaps onto most contractor's saws, as shown in Photo B, after you've drilled the necessary holes. Order part number 140298 for \$42.49, including postage, by calling Woodcraft at 800/225-1153 or log on to [www.woodcraft.com](http://www.woodcraft.com).

Written by Jim Pollock with James R. Downing  
Photographs: Marty Baldwin  
Illustrations: Kim Downing; Lorna Johnson



A

All you need is a straightedge and a utility knife to make cardboard mock-ups for shop fixtures. Assemble the pieces with masking tape for a trial fitting.

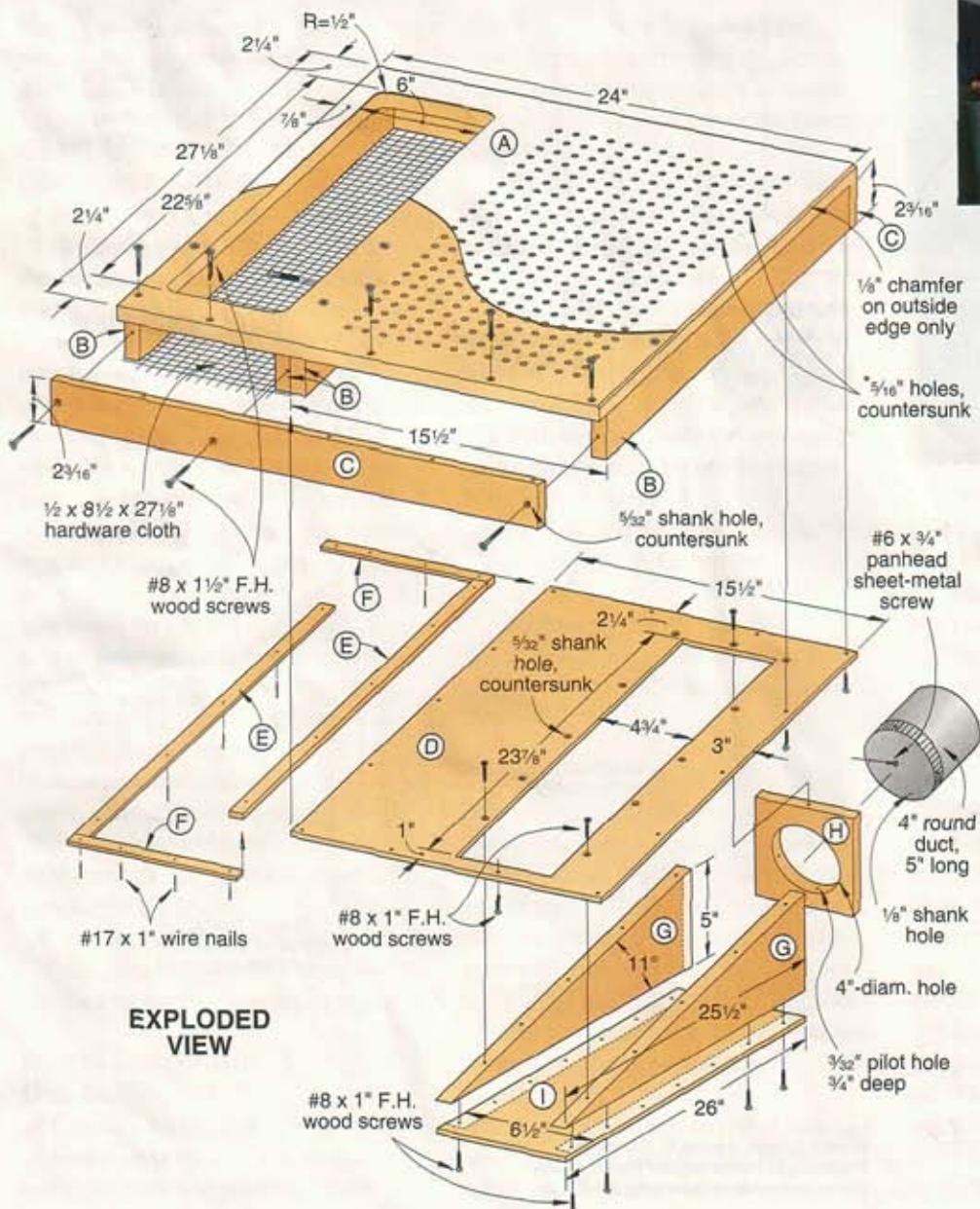


B

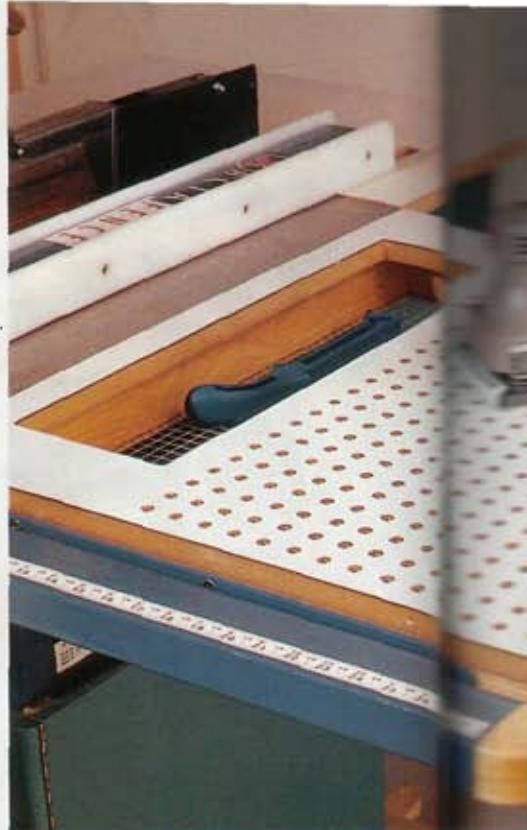
Shape the cover to fit tightly around the parts of your tablesaw. You'll still kick up sawdust above the saw, but a lot of the dust will fall right in the bag.

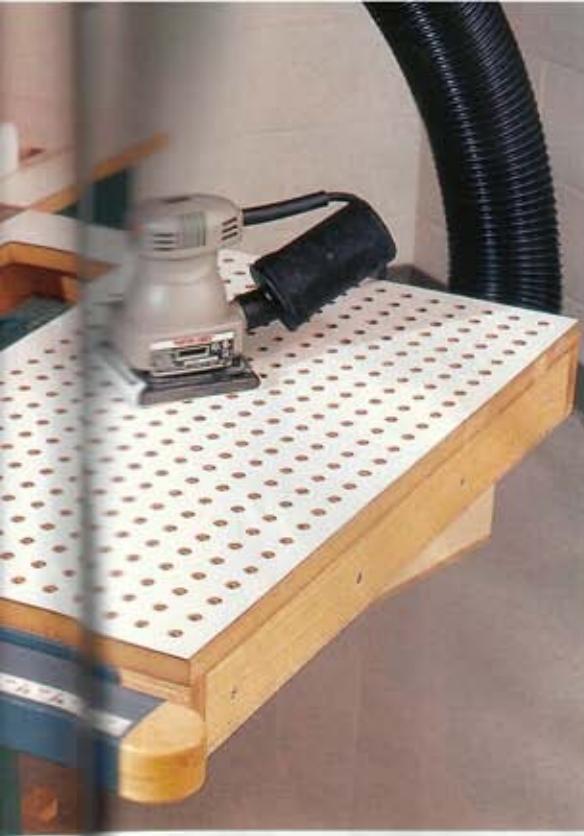
# tablesaw sanding table

This fixture does triple duty, functioning as a sanding station, table extension, and storage well for saw accessories. A built-in dust chute also links the table to a shop vacuum or dust collector.



**Note:** We designed this sanding table to fit a 10" Jet Contractor's Saw. You'll probably have to alter the table's size to fit your particular saw. Dust catchers, such as ours, aren't meant to replace dust-collection devices you're already using. This one is a site-specific accessory that helps you manage the fine dust that results from using a handheld pad sander. Note also, the handy built-in tool tray for storing sanding blocks, pushsticks, and other workshop items.





# saw-top dust collector

Catch the dust before it falls, and create a cleaner and safer shop environment.

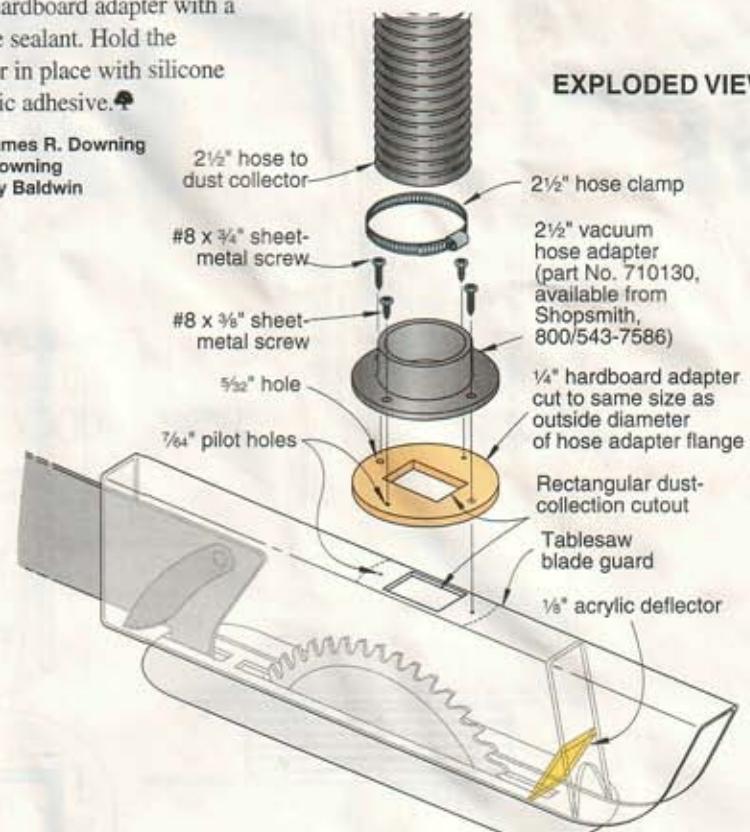
Two of our favorite topics in the *WOOD®* magazine shop are dust collection and safety, and this practical apparatus combines both. It works so well you'll never want to remove the blade guard again.

Dust and chips thrown forward from the saw blade bounce off the acrylic deflector and get pulled into the flexible-vacuum hose. Hang the hose directly above the blade and connect it to your shop vacuum or dust-collection system.

Seal the joint between the blade guard and the hardboard adapter with a bead of silicone sealant. Hold the acrylic deflector in place with silicone sealant or acrylic adhesive. ♦



## EXPLODED VIEW



Build the table shown in the Exploded View at left to fit your particular saw. We used a piece of perforated hardboard to mark the numerous hole locations. Drill the holes and then countersink them slightly. Use ducting out the back of the unit to fit your dust-collection system or shop vacuum. ♦

**Project Design:** James R. Downing  
**Illustration:** Lorna Johnson  
**Photograph:** Hetherington Photography

## materials list

Sanding Table	T	W	L	Matl.	Qty.
A tabletop	3/4"	24"	27 1/8"	MF	1
B spacers	3/4"	2 3/8"	25 1/8"	H	4
C end caps	3/4"	2 3/8"	24"	H	2
D bottom	1/4"	15 1/8"	27 1/8"	HB	1
E screen molding	3/16"	3/4"	25 1/8"	H	2
F screen molding	3/16"	3/4"	8 1/2"	H	2
Dust Chute					
G sides	3/4"	5"	25 1/2"	H	2
H end cap	3/4"	5"	5"	H	1
I bottom	1/4"	6 1/2"	26"	HB	1

**Materials Key:** MF—medium density fiberboard, H—hardwood (maple or birch), HB—hardboard.

**Supplies:** #8x1" flathead wood screws, #8x1 1/2" flathead wood screws, 1/4" hardware cloth, plastic laminate, #6x3/4" panhead sheet-metal screws, 4" round duct 5" long, #17x1" wire nails.