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Coffee Table with Storage

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Tricky Hinge Installation Solved

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- Motor: 2 HP, 120V, single-phase, 15A
- Max. cutting width: 12 1/2" • Max. cutting height: 4 1/2"
- Max. cutting depth: 1/2" • Feed rate: 26 FPM
- Number of knives: 2, reversible HSS
- Knife size: 12 1/2" x 1/2" x 1/8"
- Cutterhead speed: 8750 RPM
- Number of cuts per inch: 60
- Approx. shipping weight: 72 lbs.



G0790 ~~\$299.00~~ ONLY **\$285.00**

12" X 18" VARIABLE-SPEED WOOD LATHE

- Motor: 3/4 HP, 110V, single-phase, 5.3A
- Swing over bed: 12" • Swing over tool rest base: 9 1/2"
- Distance between centers: 16 1/2" • Tailstock travel: 3"
- Speed range: Variable, 650-3800 RPM
- Tool rest width: 5 1/4" • Spindle size: 1" x 8 TPI RH
- Spindle and tailstock taper: MT#2
- Includes live center, spur center, 3/4" faceplate, & knockout bar
- Overall dimensions: 38 3/4" long x 12" deep x 17" high
- Approx. shipping weight: 89 lbs.



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- Lower bag size (dia. x depth): 19 1/2" x 33"
- Lower bag capacity: 5.7 cubic feet
- Powder-coated finish
- Height with bags inflated: 94 1/2"
- Approximate shipping weight: 137 lbs.



G0786 ~~\$399.00~~ ONLY **\$375.00**

30TH ANNIVERSARY 14" DELUXE BANDSAW

- Motor: 1 HP, 110V/220V, single-phase, TEFC, 11A/5.5A
- Precision-ground cast iron table size: 14" sq.
- Table tilt: 45° R, 10° L
- Cutting capacity/throat: 13 1/2"
- Max. cutting height: 6"
- Blade size: 92 1/2"-93 1/2" L (1/8"-3/4" W)
- Blade speeds: 1800 & 3100 FPM
- Approx. shipping weight: 247 lbs.

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- Motor: 1 HP, 110V/220V, single-phase, TEFC, 11A/5.5A
- Precision-ground cast iron table size: 14" sq.
- Table tilt: 45° R, 15° L
- Cutting capacity/throat: 13 1/2"
- Max. cutting height: 6"
- Blade size: 92 1/2"-93 1/2" L (1/8"-3/4" W)
- Blade speeds: 1500 & 3200 FPM
- Approx. shipping weight: 196 lbs.



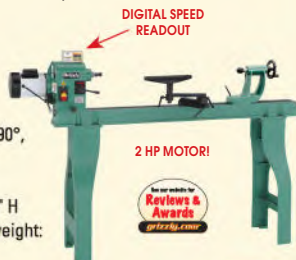
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WOOD LATHE WITH DIGITAL READOUT

- Motor: 2 HP, 110V, single-phase, 14A
- Swing over bed: 16" • Swing over tool rest: 13"
- Distance between centers: 46"
- 1" x 8 TPI RH headstock spindle
- MT#2 spindle & tailstock tapers
- Spindle bore: 3/8"
- Speeds: Variable 600-2400 RPM
- Indexed headstock rotation at 0°, 60°, 90°, 120°, and 180°
- Overall size: 72 1/2" L x 19" W x 48" H
- Approx. shipping weight: 354 lbs.



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10" HYBRID TABLE SAW

- Motor: 2 HP, 120V/240V, prewired 120V, single-phase, 60 Hz • Amps: 15A at 120V, 7.5A at 240V
- Precision-ground cast iron table w/ wings: 40 1/2" W x 27" D
- Table height: 35 1/2" • Footprint: 21" L x 19 1/2" W
- Arbor: 3/4" • Arbor speed: 3450 RPM



- Max. depth of cut: @ 90°-3 1/4", @ 45°-2 1/4"
- Rip cap.: 30" R, 15" L
- Overall size: 57 1/4" W x 35 3/8" H x 37 1/2" D
- Approx. shipping weight: 348 lbs.

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- Cutting capacity: 8" L, 26" R
- Max. depth of cut @ 90°: 3"
- Max. depth of cut @ 45°: 2 1/2"
- Table size (with 2 solid extension wings attached): 40" W x 27" D
- Base dimension: 20 1/2" x 20 1/2"
- Approx. shipping weight: 508 lbs.



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Gifts to build, gifts to build you

Once again, it's the time of year when we woodworkers take to the shop in earnest and start building gift projects that we'll give to those we love. You may be done already (some of our Facebook followers told us they were already working on Christmas gifts in September... *September!*). Or maybe you're the procrastinating type who thrills to filling the tree with gifts fragrant of fresh finish. (I am firmly in the latter camp.)

Either way, we've got you covered with great giftables. From the elegant wooden bracelets on *page 60*, to the picture frame on *page 72* that actually celebrates gapped miter joints, to the stunning coffee table on *page 26*, you're sure to find a project for someone on your gift list. And check out dozens more downloadable gift plans at woodstore.net/plans/gifts.

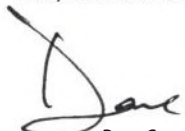
So, that helps with the gifts you're giving, but what about the gifts you're *getting*? How about the perfect gift to enhance the most important tool in the shop—your brain!

We've got just the ticket: Weekend With WOOD, May 19–22, 2016.

You'll spend three full days in our shops and classrooms learning new skills (and boning up on old ones) from the best woodworkers and woodworking teachers in the world. It's truly a gift that you'll use for the rest of your life.

Bring your spouse and learn side-by-side (we have classes for every skill level). Or we have a special tour package that will keep him or her entertained and educated while you're engaged in your favorite hobby. You'll find details on *page 25*, or at weekendwithwood.com. I look forward to meeting you face-to-face in Des Moines next May! 🌲

See you in the shop!


Dave Campbell
dave.campbell@meredith.com



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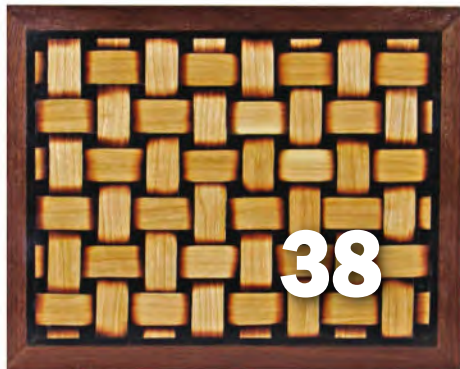
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Help from a miter master

I always enjoy the articles in *WOOD*®, but “Making the Perfect Frame” by Jim Heavey in issue 235 (October 2015) was especially timely. When the issue hit my mailbox, I was struggling to make a mitered frame to

fit a stained-glass panel. Jim’s tip about troubleshooting gaps with a business card turned out to be the solution I was looking for. My joints came out perfect.

—Gary Stoh, Beaumont, Calif.

Five words of woodworking wisdom

We asked our Facebook community what advice—using five words or less—they’d give a newbie woodworker. Here are some favorites:

Evan Mcbeth: *Make often, make mistakes, learn.*

Brett Howe: *Imperfection is character, embrace it.*

Chuck Hemesath: *Don’t buy cheap tools!*

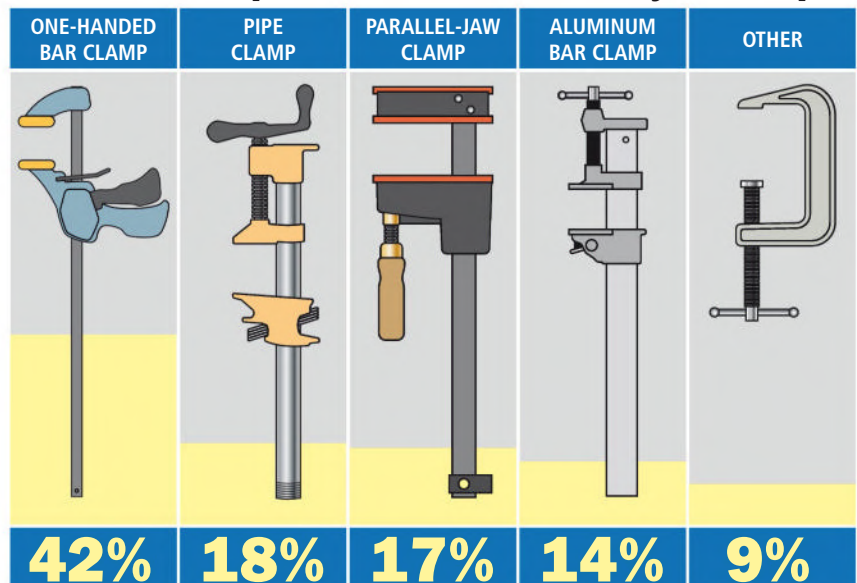
Scooby Carolan: *Spend on wood, not tools.*

Scott Glasgow: *Frustrated? Angry? Stop, relax, resume.*

Ed Dinges: *Plan out everything. Safety first.*

Jim Heavey: *Join a woodworking club.*

Which clamps see the most use in your shop?



Source: September 2015 WOODPulse survey

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WOOD magazine Dec/Jan 2015/2016

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YOUR PROJECTS



A retired physician who uses woodworking as a way to release stress, **Charlie Kung** of Amherst, New York, built this sculpted rocking chair for his grandson.

Send us a photo of your work

Want to see your work showcased in WOOD® magazine? Send a high-resolution digital photo of your completed project to woodmail@woodmagazine.com.



Ed Crowell of Mount Ulla, North Carolina, built this armoire using quartersawn white oak.



John K. of Leesburg, Alabama, built this footbridge based on plans from issue 133 (June 2001).



Eighteen-year-old **Alexander Diehm** from Lebanon, Pennsylvania, learned woodworking from his grandfather. He built this cedar-lined oak hope chest from issue 210 (March 2012) as a graduation gift to his sister.

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Make Money in Metal Art



"I designed and cut this bench from an actual butterfly photo. My machine paid for itself in 3 months making products like these."



-Ken Garcia, PlasmaCAM® machine owner

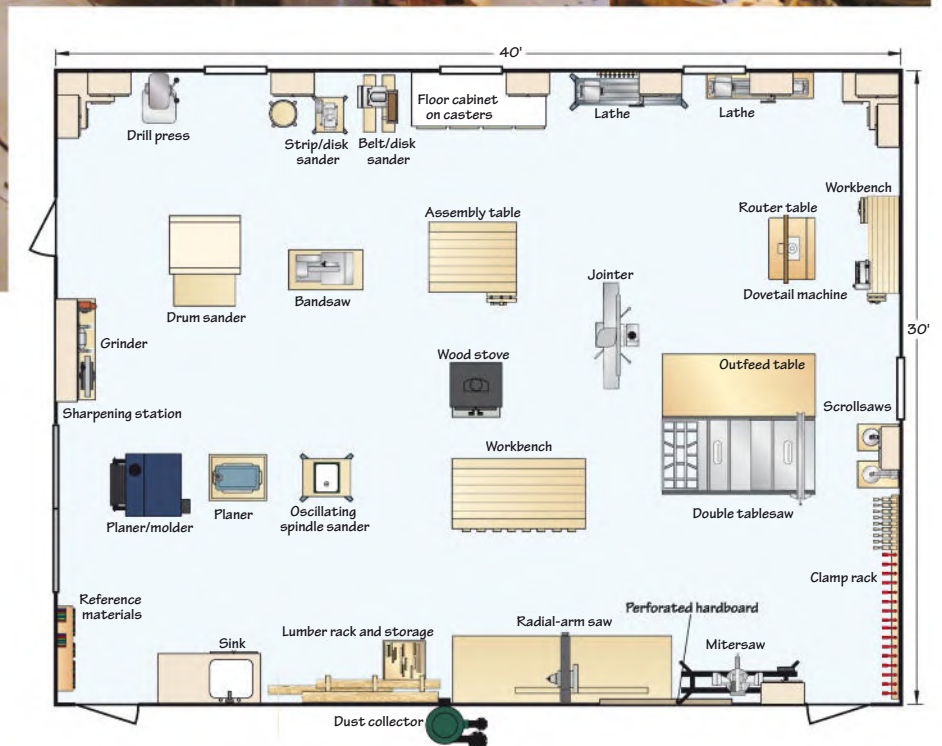
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YOUR SHOP



From the outside, you would never guess that such an unassuming beige building could house a workshop as impressive as Rick Spiker's. A retired civil engineer, Rick carefully arranged his shop for optimum workflow, dust collection, and space efficiency. One example: "I wanted two tablesaws in the shop—one set up with a combination blade, one with a dado set—and figured I could save space and increase the saw's crosscut and rip capacity by connecting the tables and using a single fence for both saws," Rick says. So he did.



Rick's shop features a resilient metal-sheeting exterior, and double doors that provide easy access for large materials and tools.

Each workstation and stationary tool ties into the 3" PVC dust-collection ductwork. Rick placed the 2hp dust collector in the adjoining garage area to cut down on noise.

To save on material costs for his projects, Rick harvests lumber from the land surrounding his shop, rough-saws it, and air-dries it. "That just adds to the satisfaction of my woodworking," he says. 🌱

Show us your shop

Send high-resolution digital photos of your shop to woodmail@woodmagazine.com and we may showcase it in the magazine!



Rick mounted French cleats along each wall to make the installation of storage racks and cabinetry simple and very adjustable.

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Q Optimize bowl mounts to fit your four-jaw chuck

As a new woodturner, I'm looking for the best way to mount bowl blanks in my four-jaw chuck. I like the idea of using a recess rather than a tenon in the bowl bottom because the recess eliminates turning away a tenon as the last step to complete the bowl. But my chuck has dovetailed jaws, and I'm struggling with cutting perfectly matching dovetailed recesses with my bowl gouge. Can you help?

—Steve Jacobs, Sacramento, Calif.

A The good news, Steve, is this angle doesn't have to match precisely. The most critical aspects of mounting a blank in a chuck are making sure the wood rests firmly against the *face* of the jaws rather than the *base*, and that the inside corner of the shoulder has a clean, crisp transition [**"Good Fit,"** below]. A slightly rounded corner [**"Poor Fit"**] negates some of the chuck's grip.

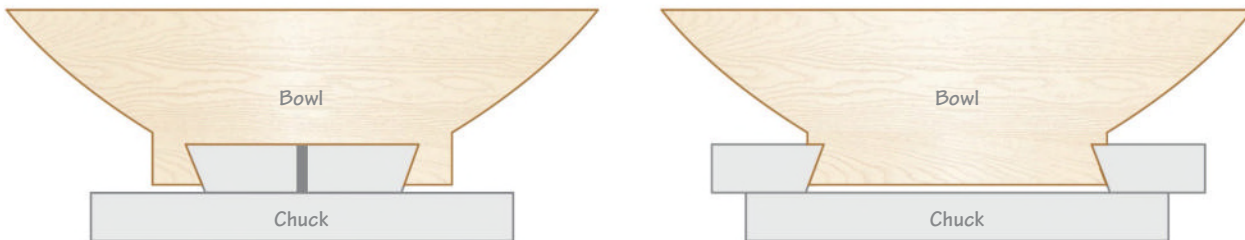
Whether making a tenon or recessed socket, begin by cutting it with a shoulder at a right angle to the blank's flat bottom. Then, use a skew chisel or dovetail scraper, shown at *right*, to back-cut at an angle similar to that of your jaws. If you don't already own a dovetail scraper—they sell for \$25–\$50 each—you can modify an old scraper to the desired shape at your grinder.

Still can't get the hang of cutting dovetailed tenons or sockets? Then leave them with right-angle shoulders [**"Acceptable Fit"**]. But when turning the project to shape, take lighter cuts than you would when gripping the blank with a dovetailed tenon or socket to help the jaws maintain a strong grip. 🌲

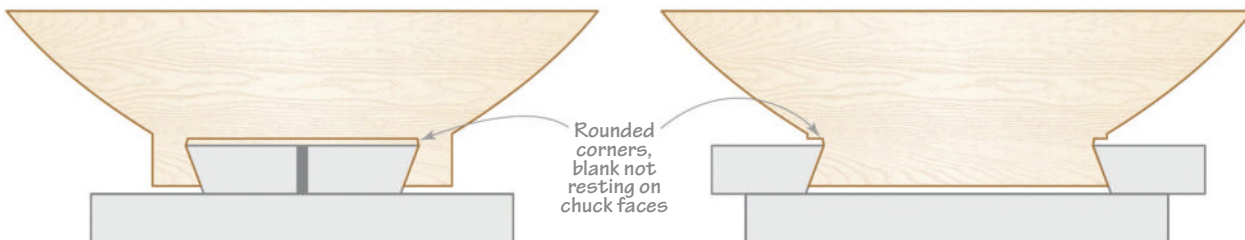


Dovetail scraper

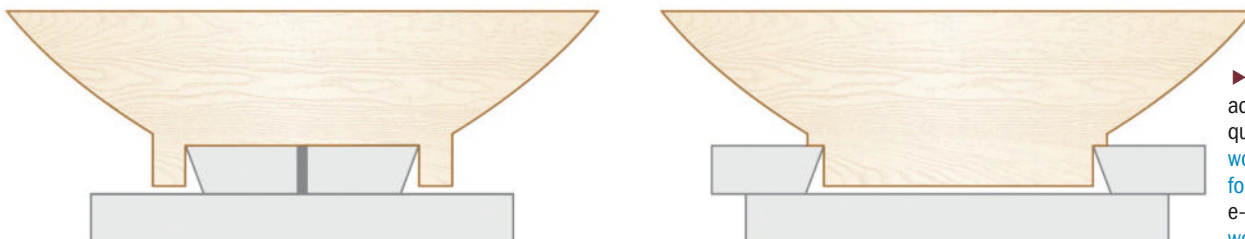
Good Fit



Poor Fit



Acceptable Fit



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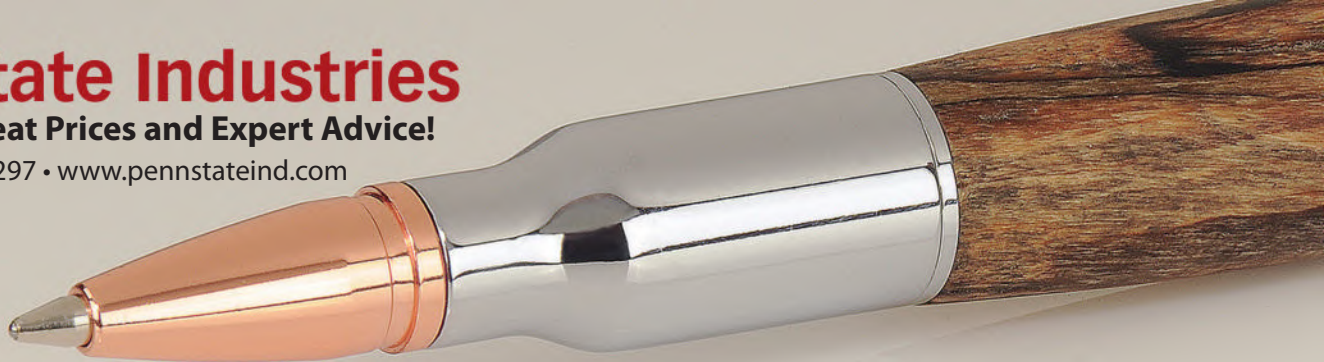
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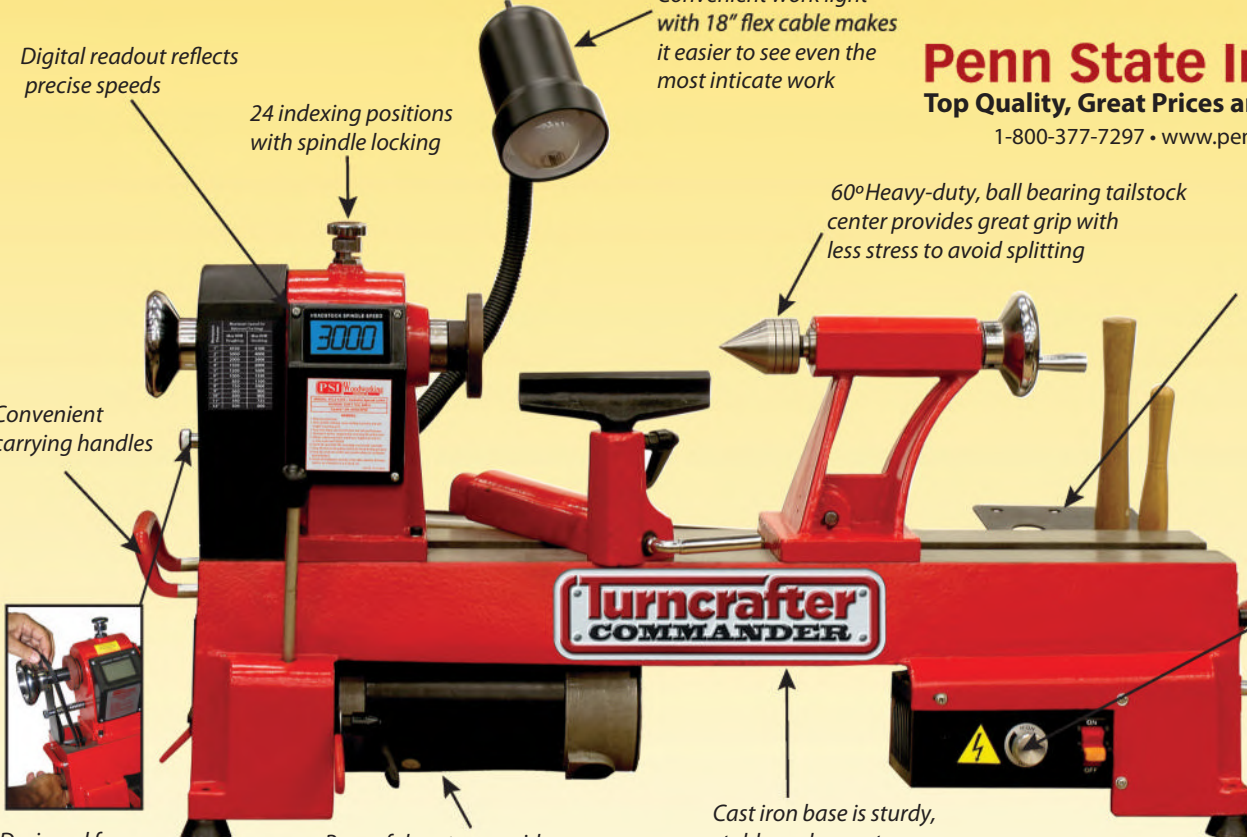


Antique Brass



Antique Pewter

	Item #	1-4	5-24	25-49	50+
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Antique Pewter	#PKCP8DHAP	\$16.95	\$15.95	\$14.95	\$13.95



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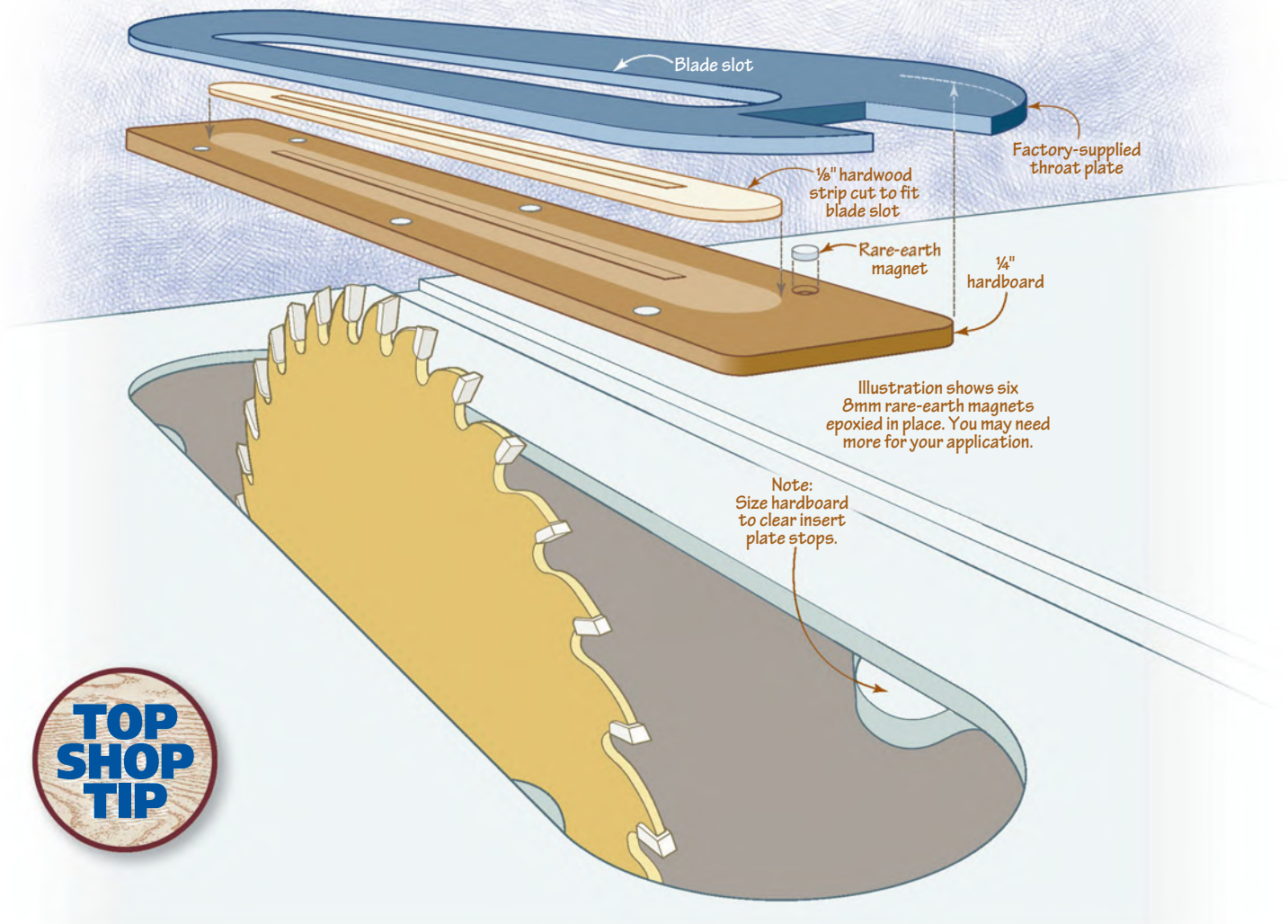
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UPS Shipping Cost	\$50	\$58	\$60	\$55	\$65	\$65
Item #	TCLC10VS	TCLC10VS-B	TCLC10VS-A	TCLC12VS	TCLC12VS-B	TCLC12VS-A
Lathe	✓	✓	✓	✓	✓	✓
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Slimline Pencil Kits		5 (24 kt Gold)	20 (Variety)		5 (24kt Gold)	20 (variety)
Pen Mandrel		✓	✓		✓	✓
Mandrel Wrench			✓			✓
3pc Carbon Steel Chisels		✓			✓	
Mini Pen Blank Mix		✓ (Makes 10 kits)	✓ (Makes 40 kits)		✓ (Makes 10 kits)	✓ (Makes 40 kits)
Mid Cure Epoxy Glue		✓	✓		✓	✓
7mm Barrel Trimmer		✓	✓		✓	✓
Tube Insertion Tool			✓			✓
Shellawax Creame		✓ (30ML)	✓ (250ML)		✓ (30ML)	✓ (250ML)
Pen Assembly Press			✓			✓
Pen Making DVD		✓	✓		✓	✓

SHOP TIPS

WORK FASTER, SMARTER, SAFER



Zero-clearance solution for thin throat plates

The steel throat plate on my tablesaw is thin—so thin that wooden zero-clearance inserts sag and affect the accuracy of my cuts. After noodling on the problem for awhile, I finally realized I didn't need to fill the entire throat opening, just the blade slot.

To do that, I first made a 1/4" hardboard backer about the same size as the factory-supplied throat plate, but narrower to avoid the plate stops. After counterboring a handful of rare-earth magnets into the

top face of the backer board, I stuck it to the bottom of the steel plate. Next, I shaped a strip of 1/8" hardwood to fit the blade opening, making sure it rested flush with the steel-plate surface, and glued it to the backer board through the blade slot, as shown.

When I need to remove the zero-clearance insert for bevel cuts, I simply lift out the plate, pop the backer off the bottom, and drop the plate back in. Reinstalling it is just as easy.

—Bill Wells, Olympia, Wash.

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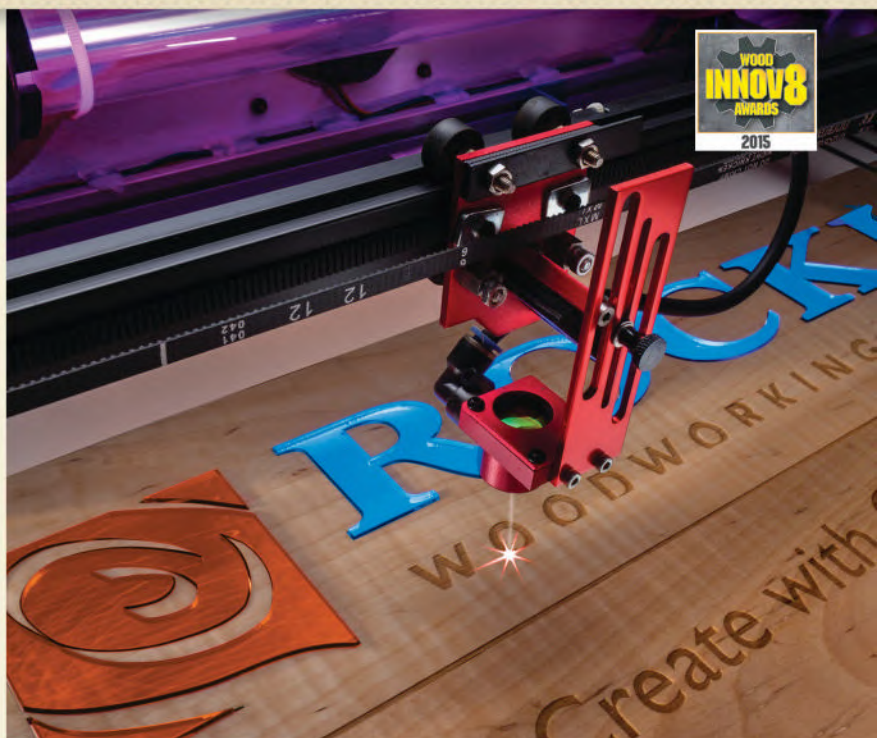
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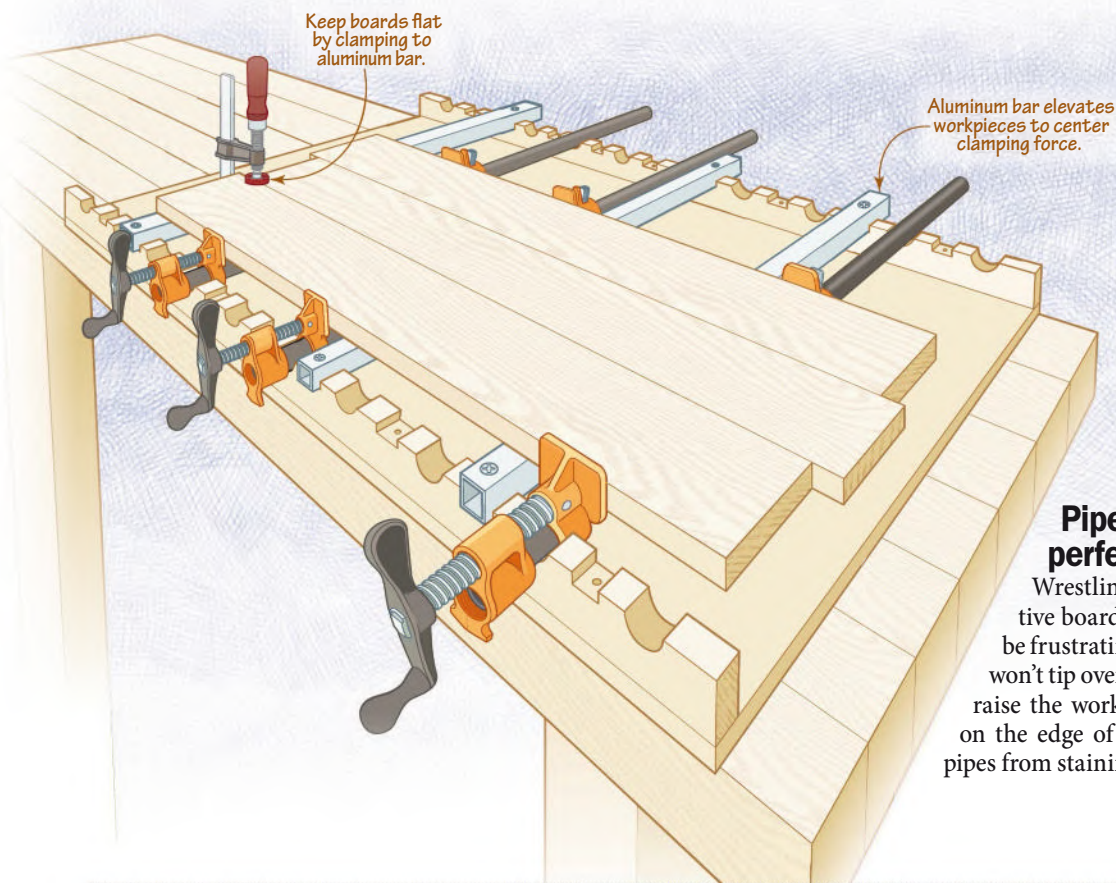
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SHOP TIPS



Pipe-clamp cradle promises perfect panels

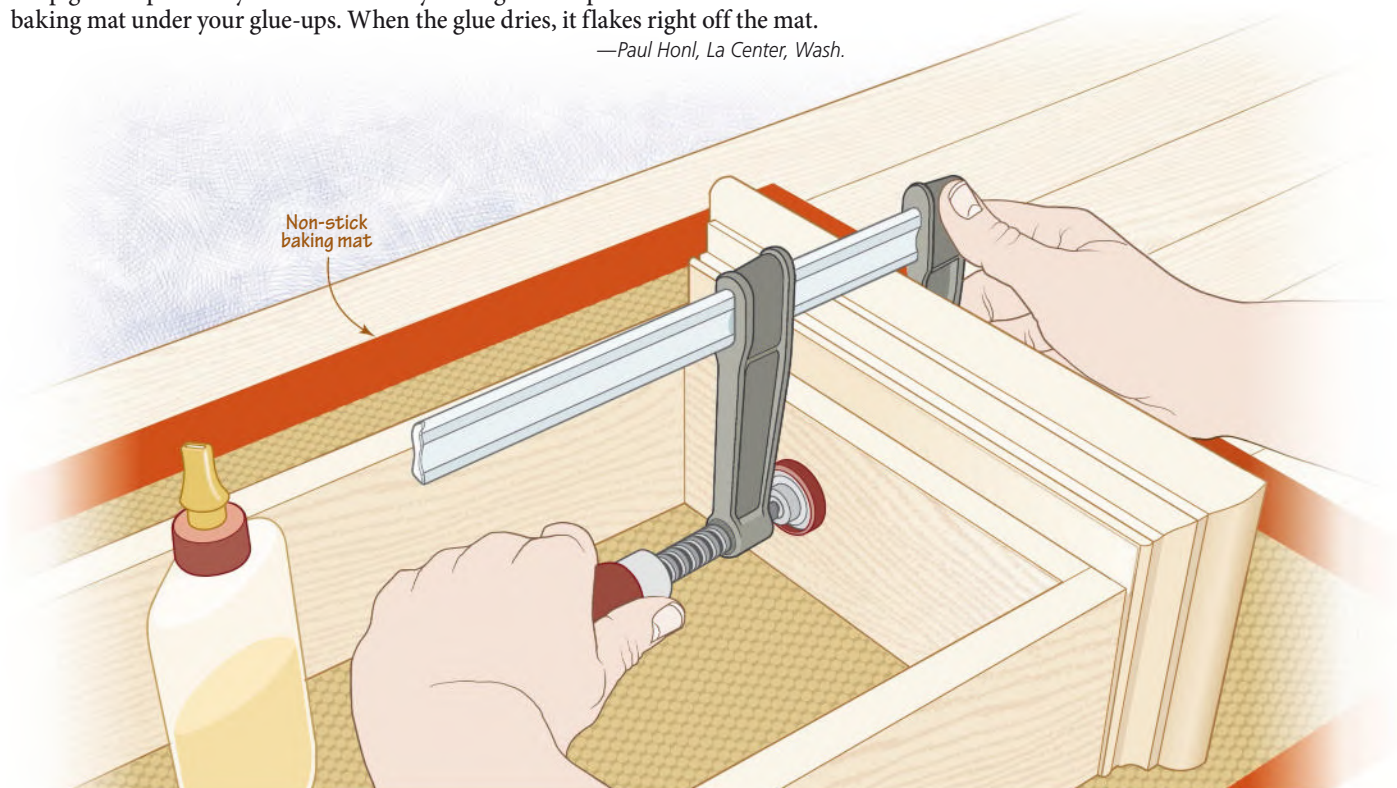
Wrestling tippy pipe clamps and uncooperative boards to create a perfectly flat panel can be frustrating. This jig holds pipe clamps so they won't tip over, and the pieces of aluminum tubing raise the workpieces to center clamping pressure on the edge of the panel and prevent the clamps' pipes from staining the wood.

—Leland Quinn, Levant, Maine

Toss the cookies, use baking mat for glue-ups instead

Keep glue drips off of your workbench by sliding an inexpensive non-stick silicone baking mat under your glue-ups. When the glue dries, it flakes right off the mat.

—Paul Honl, La Center, Wash.



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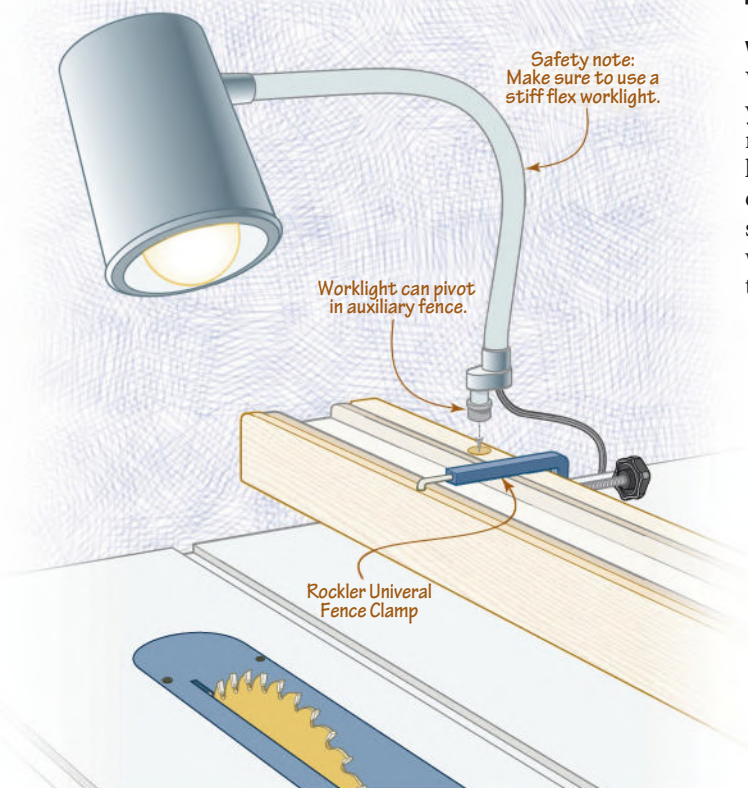
SHOP TIPS

This auxiliary fence add-on puts light where you need it

When it comes to using a tablesaw, having plenty of light to see what you're doing is essential. Although adding a worklight to most tools requires little effort, the tablesaw is a bit more of a challenge—the light can't be in the way of the cutting operation, meaning it usually ends up too far away from the blade to be of any benefit. A simple solution: Add a hole in the edge of an auxiliary rip fence and insert a worklight with a post mount on its base. The worklight stays out of the way, but shines directly on the blade.

—Gerald Wolf, Fridley, Minn.

Rockler Universal Fence Clamp (no. 31373, \$14.99, rockler.com, 800-279-4441)



✓ To do this month:



1. Drain condensate water from your air compressor tank.
2. Corral loose plans in a three-ring binder.
3. Check the alignment of your planer infeed and outfeed extension tables and adjust if needed.
4. Make a fresh batch of push sticks and throw out those that are heavily kerfed.
5. Flatten your sharpening stones.

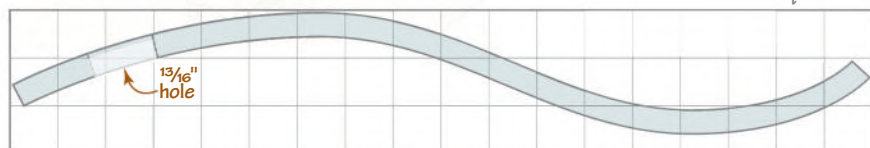
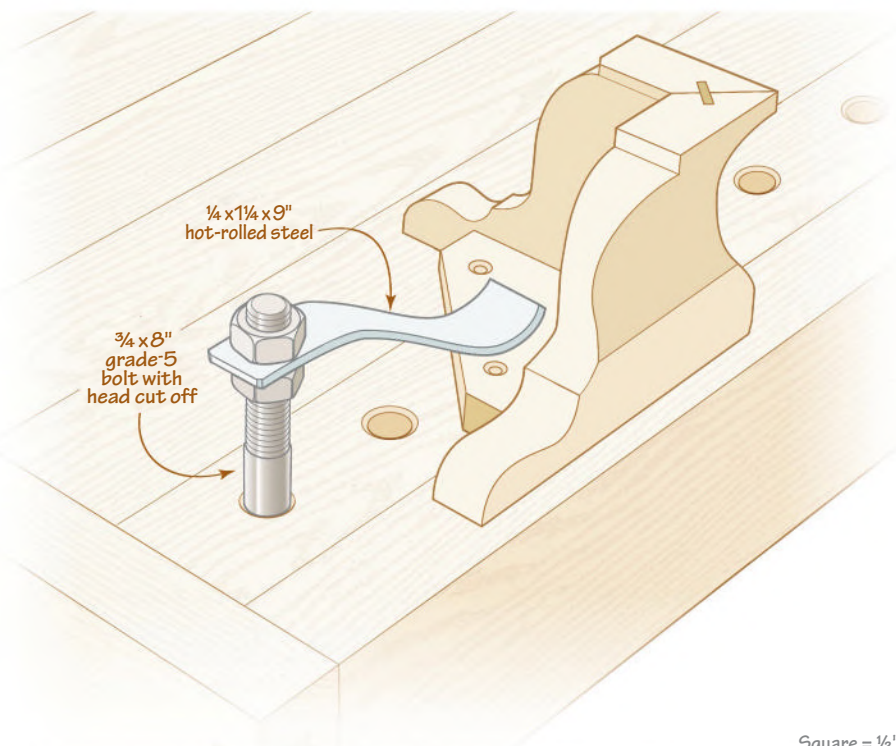
For help completing these tasks, visit:
woodmagazine.com/novemberchecklist

Lock your work down with shop-made hold-fasts

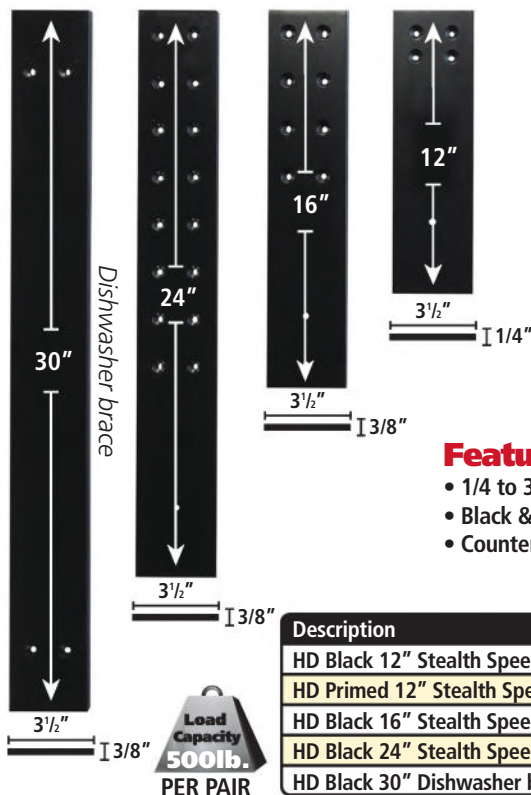
Nothing beats a hold-fast for keeping your workpiece anchored to your bench when an ordinary clamp just can't reach.

To make your own, first cut the head off a $\frac{3}{4} \times 8$ " grade-5 bolt using a hacksaw. Bend $\frac{1}{4}$ "-thick hot-rolled steel barstock to match the pattern shown left. Drill a $\frac{13}{16}$ " hole in one end of the barstock and slide it onto the bolt, locking it in place with the nuts. Make half a dozen; you'll be surprised just how handy they are.

—Ray Elashewich, Winchester, Va.



continued on page 22



SpeedBrace STEALTH HD

The Stealth Speedbrace supports your countertop and bar overhangs with no visible kicker or expensive corbels. A pair of HD braces will support 500 pounds of weight and a pair of Stealth (below) braces will support 300 pounds! Sold individually.

Features...

- 1/4 to 3/8" steel
- Black & primed (12" only)
- Countersunk screw holes

Great for...

- Countertops & bars
- Dishwasher installation
- Extra Bracing

Patent Pending

Description	Part Number	Price
HD Black 12" Stealth Speedbrace	SB-12 HD STEALTH BL	\$12.00
HD Primed 12" Stealth Speedbrace	SB-12 HD STEALTH PRIMED	\$12.00
HD Black 16" Stealth Speedbrace	SB-16 HD STEALTH BL	\$24.00
HD Black 24" Stealth Speedbrace	SB-24 HD STEALTH BL	\$32.00
HD Black 30" Dishwasher brace	SB-30 HD STEALTH BL	\$45.00

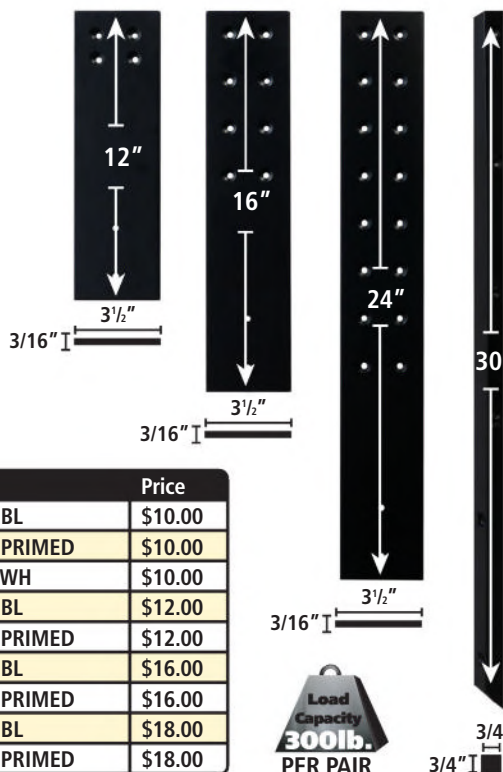
SpeedBrace STEALTH

Features...

- 3/16" to 3/4" steel
- Black, white (12" only) & primed finish
- Countersunk screw holes

Great for...

- Countertops
- Bars
- Extra Bracing



Description	Part Number	Price
12" Black Stealth Speedbrace	SB-12 STEALTH BL	\$10.00
12" Primed Stealth Speedbrace	SB-12 STEALTH PRIMED	\$10.00
12" White Stealth Speedbrace	SB-12 STEALTH WH	\$10.00
16" Black Stealth Speedbrace	SB-16 STEALTH BL	\$12.00
16" Primed Stealth Speedbrace	SB-16 STEALTH PRIMED	\$12.00
24" Black Stealth Speedbrace	SB-24 STEALTH BL	\$16.00
24" Primed Stealth Speedbrace	SB-24 STEALTH PRIMED	\$16.00
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Patent Pending



Look Ma, no corbels!



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Soft start allows close control during hand-held use, with even greater control available by fitting the multi-function fence, which is ideal for circle cutting. Variable speed ensures the router will handle a wide variety of bits for exact shaping of material.

For table mounting, quick-fit pins are located in the base, allowing rapid fitment to a mounting plate, so the **MOF001** is completely compatible with a wide range of router tables.



MOF 001

triton
Precision Power Tools

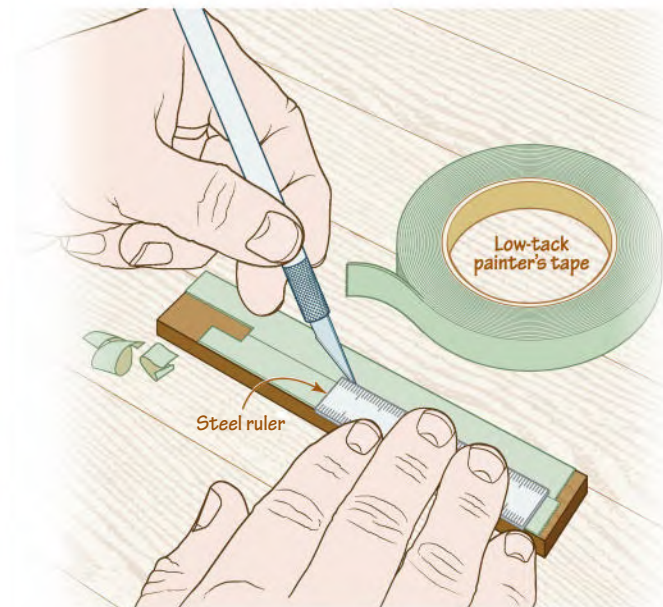
tritontools.com

SHOP TIPS

Reverse your outline when marking on dark woods

It's hard to see a pencil mark on dark woods, such as walnut. Instead, apply painter's tape to the face of your workpiece. Then, use a marking knife to score along the outline, remove all the tape on one side, and you're left with a vivid outline.

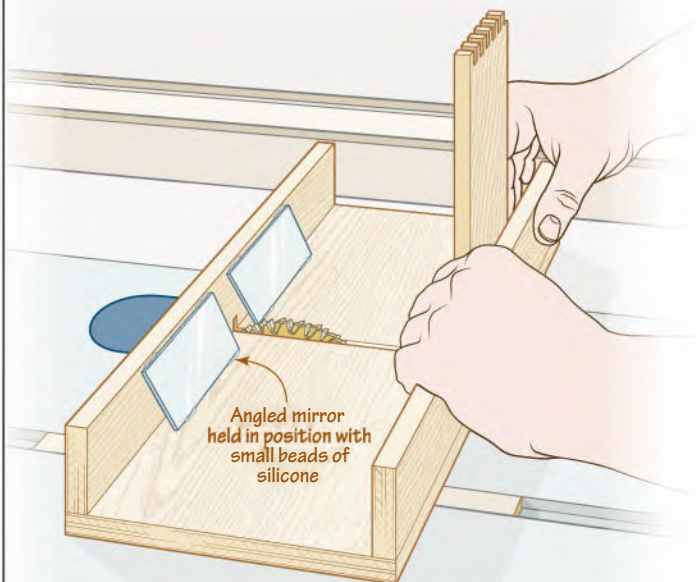
—Dan Martin, Galena, Ohio



This shiny tablesaw sled tip is easy on the eyes

When cutting box joints using my tablesaw sled, I like to keep eyes on the blade throughout the cut. That's impossible to do without leaning way over the saw, which is uncomfortable and could be dangerous. By adhering with silicone two small mirrors at an angle on my sled's front fence, I can watch the cut without leaning over.

—Chris Cook, Woodstock, Ga.



continued on page 24

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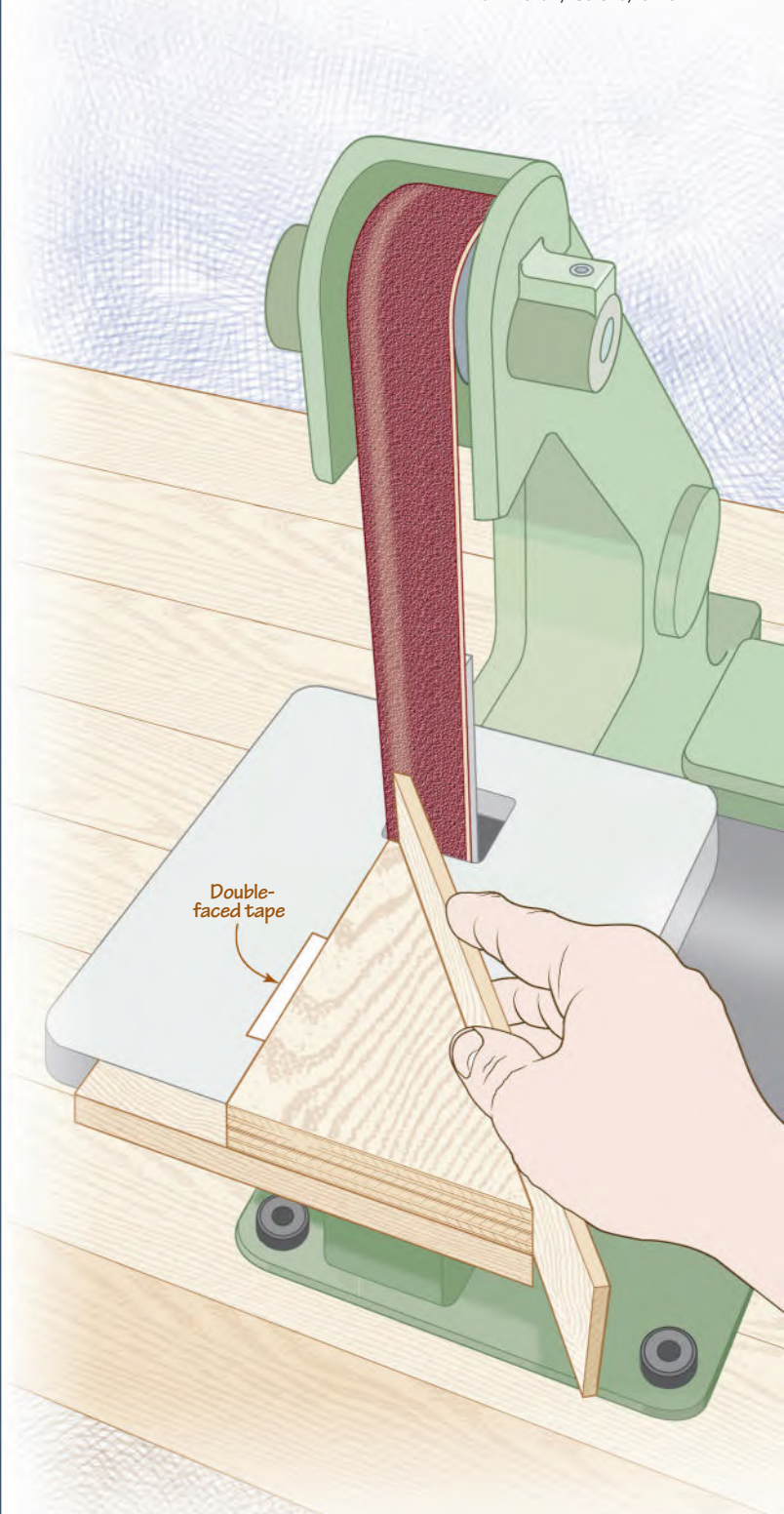
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SHOP TIPS

Shave a whisker with this simple belt-sander jig

When needing to take off just a little material from a piece of trim that has a mitered or 90° edge, use this simple jig, modeled after a rafter square. Secure the jig tightly against the edge of the belt sander's table during use. Or if your sander has a miter slot, build the jig with a runner to fit the slot. 🌲

—Dan Martin, Galena, Ohio



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A Coffee Table with Panache—and a Cache



Beautiful mahogany panels conceal capacious storage.

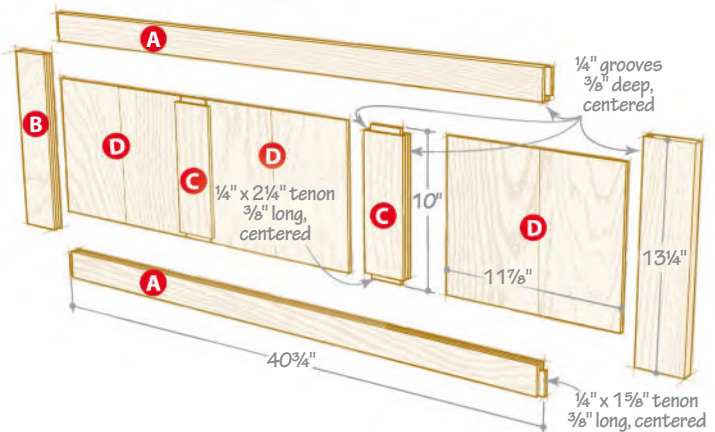
Tip! Save time by making the drawer false-front parts (P, Q, R) [Drawing 3] as you make the side parts (A-D).

Tip! Finish-sand the panels before assembly so you can sand right up to the edges. This is also the time to stain or oil the panels if you wish. (We rubbed on a coat of oil to enhance the grain.)

Start with the carcass

- 1** Cut $\frac{3}{4}$ " stock to size for the rails (A, P) and stiles (B, C, Q) [Materials List, page 30]. Center a groove on one edge of each rail and stile (A, B, P, Q) [Drawing 1]. Groove both edges of the center stiles (C).
- 2** Form tenons on the ends of the rails (A, P) and center stiles (C) [Drawings 1, 3].
- 3** Prepare and glue-up stock for the carcass panels (D) and the drawer panels (R).
- 4** Cut the carcass and drawer panels to size. Then rabbet all panel edges on the inside face [Drawing 3].
- 5** Apply glue only to the tenons on the ends of the rails (A) and center stiles (C) for one side. Fit the panels (D) in the grooves [Drawing 1]. Square the assembly, and clamp

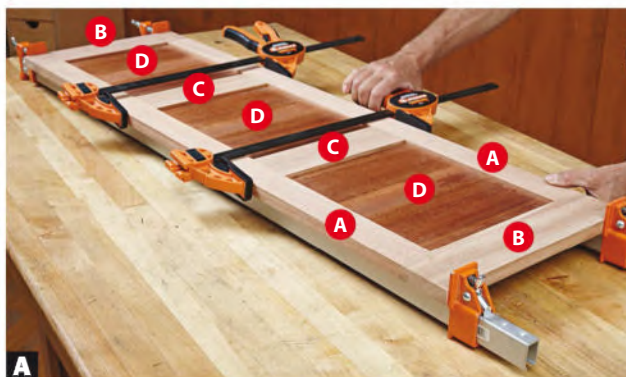
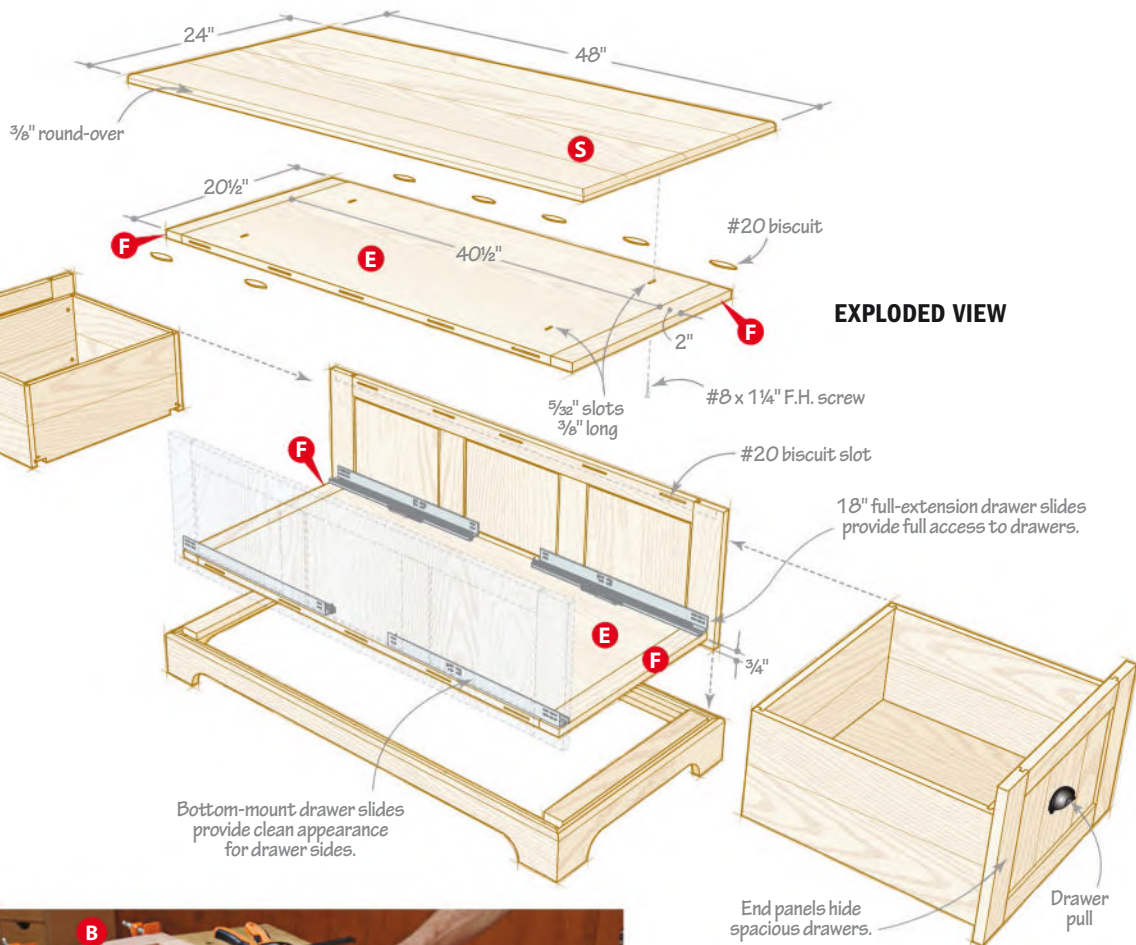
1 SIDE ASSEMBLY



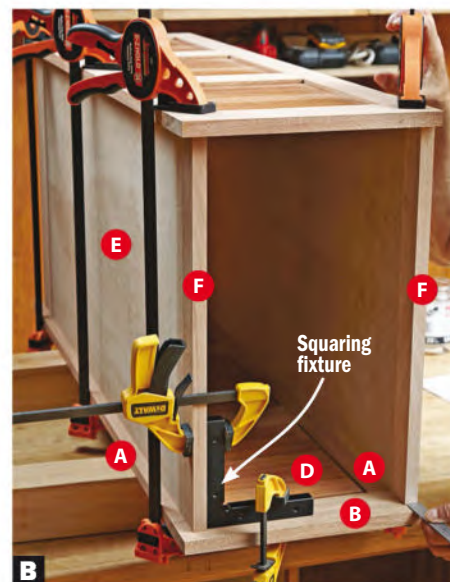
DIMENSIONS:
48"W x 24"D x 18"H

3 cubic feet
of storage in
the drawers

\$275
cost of
materials



Don't glue the panels into the stile/rail grooves. Allowing them to float freely accommodates seasonal wood movement.



A squaring fixture holds the carcass square while clamping. You can also ensure square assembly by measuring both diagonals on the end; they should be the same.

[Photo A]. Similarly assemble the other side and the drawer false fronts [Drawing 3]. Finish-sand the assemblies, and set the drawer false fronts aside.

- Learn to glue up panels that will stay flat.

woodmagazine.com/flattop

6 Cut the top/bottom panels (E) and panel trim (F) to size. Glue the trim to the panels [Exploded View].

7 Lay out and cut biscuit slots along the inside face of each rail (A) and the edges of the top/bottom panels (E) [Exploded View]. The top panel sits flush with the top edge of the side assemblies and the bottom panel sits 3/4" above the bottom edge of each side. The panel ends sit back 3/4" from each end of the sides.

- Find free plans for making a handy squaring fixture.

woodmagazine.com/clampingbrace

8 Apply glue and clamp the sides (A-D) to the top/bottom panels (E) [Photo B].

Tip! Although the Materials List specifies maple plywood for the top (E) and bottom panels and drawer bottoms (O), you can use less expensive birch plywood or another species.



C Glue and clamp the bottom supports (G). Place them flush with the ends and edges of the end stiles (B).



D Install the base cleats (H, I). Keep the outer faces of the cleats flush with the rails (A) and bottom supports (G) as you attach them to the carcass.

Add the base next

1 Cut the bottom supports (G) to size. Glue them to the bottom of the carcass, one at each end [Drawing 2, Photo C].

2 Make the side cleats (H) and end cleats (I) about 1" longer than listed. Miter-cut each cleat on one end.

3 Invert the carcass on your workbench. Place a side cleat (H) in position on the bottom edge of the lower rail (A) [Drawing 2]. Mark its length. In the same way, position and mark an end cleat (I) and miter-cut both cleats. Mark and miter-cut the rest of the them the same way.

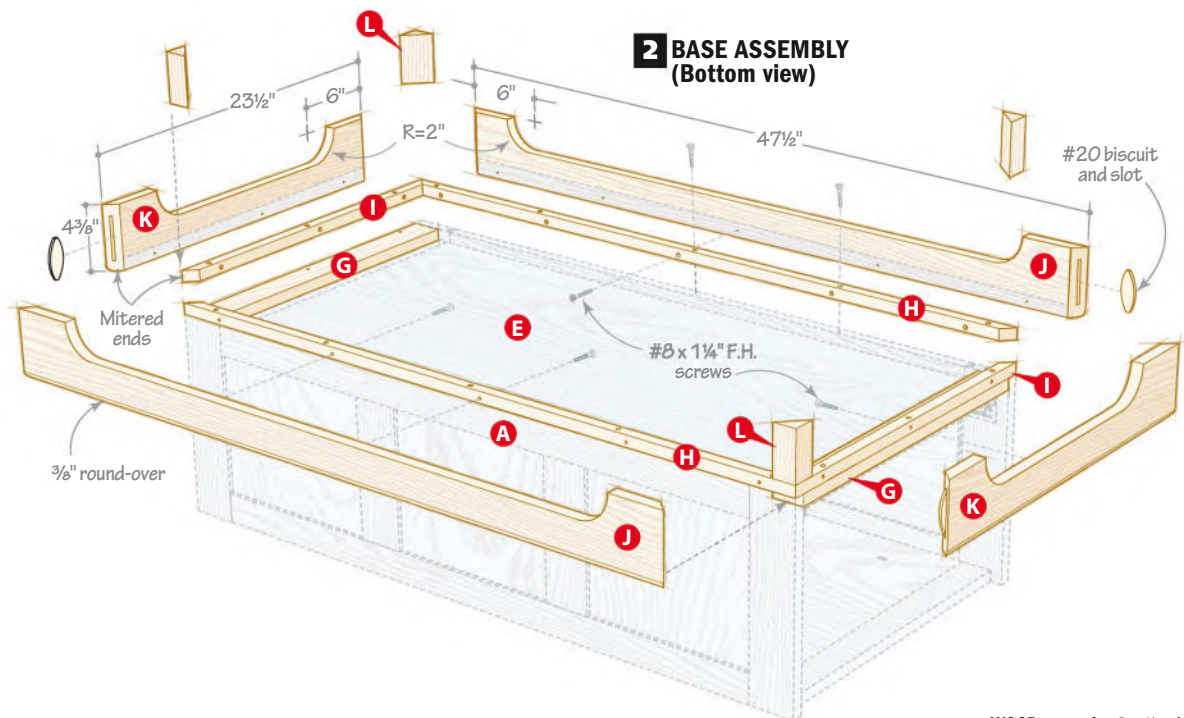
4 Drill and countersink holes for #8 screws through the side and end cleats (H, I) [Drawing 2]. Glue and screw the cleats in position [Photo D].

5 Referring to the instructions for your drawer hardware, install the slides in the



E Position the slides. To keep the panels loose, screw the slides only to the stiles (B, C). You may have to drill new mounting holes through the slides.

carcase. Observe the setback requirement for the slides when you position them [Photo E]. (We installed Hettich Quadro 18" soft-close, full-extension, bottom-mount slides. Any similar hardware will work.)





F Attach the side trim (J) first, above. Place the top edge $1\frac{1}{8}$ " above the bottom of the cleat (H). Then, glue and biscuit the miter-cut ends and attach the base end trim (K), above.



6 Cut the side and end trim (J, K) about 2" longer than listed. Then, mark and miter-cut the trim pieces to fit around the bottom of the carcass [Drawing 2]. Mark the pieces' positions.

7 Form mating slots for #20 biscuits in the mitered ends. Round over the top outside edges. Lay out the base contours [Drawing 2]; then, bandsaw and sand the contours.

8 At each corner, mark the carcass side $1\frac{1}{8}$ " from the bottom of the base cleats (H, I). Glue and screw the side trim (J) in place with the top edge on the marks [Photo F], followed by the end trim (K) [Photo G]. Sand the trim.

9 Make the base corner blocks (L) and glue one into each corner of the base trim

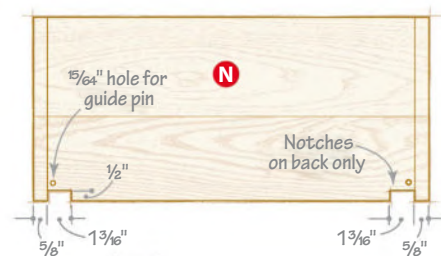
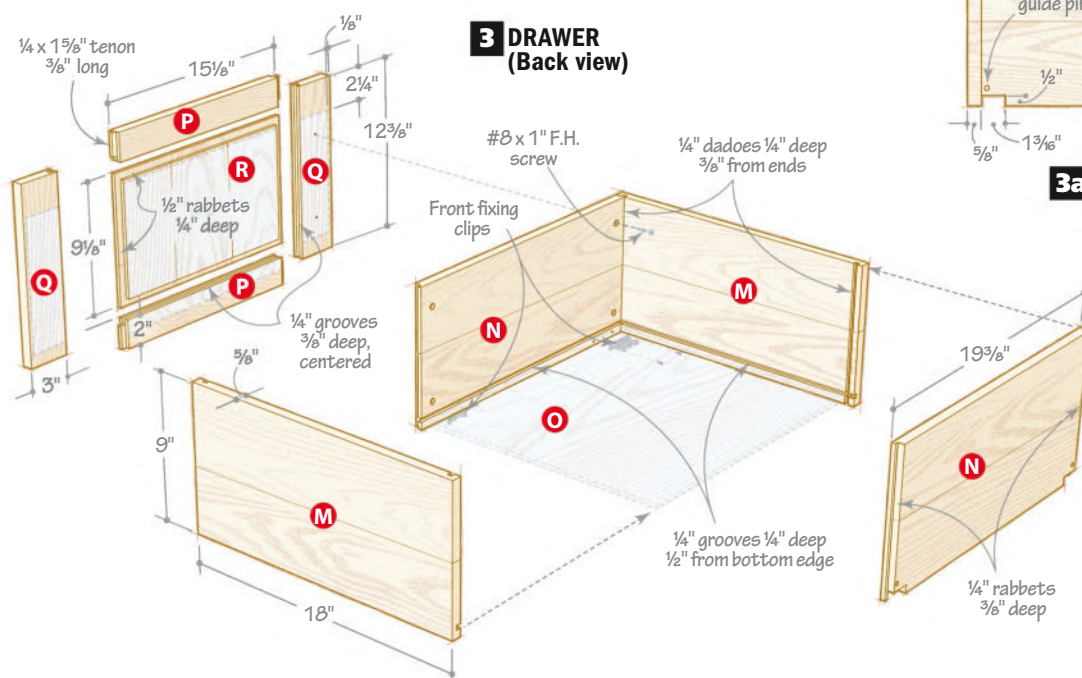
[Drawing 2], making sure the end of the block sits flush with (or slightly above) the bottom edge of the base trim.

Construct the drawers

1 Cut the sides (M) and fronts/back (N) to size. Saw or rout $\frac{1}{4}$ " grooves and dadoes [Drawing 3]. Rabbet the fronts and backs (N).

2 Cut the bottoms (O) to size. Assemble the drawers, with the bottoms floating in the grooves.

3 After the glue dries, cut notches in the backs [Drawing 3a]. (A coping saw works well.) Refer to your drawer hardware instructions for the size and location of the guide-pin hole; then drill the hole.



3a DRAWER DETAIL

Tip! Work with only one drawer in place at a time so you can reach through to push the drawer open.

Install the drawers and top

1 Turn the drawers (M–O) upside down and attach the front fixing clips for the drawer slides [Photo H]. Refer to the instructions for your drawer slides for details.

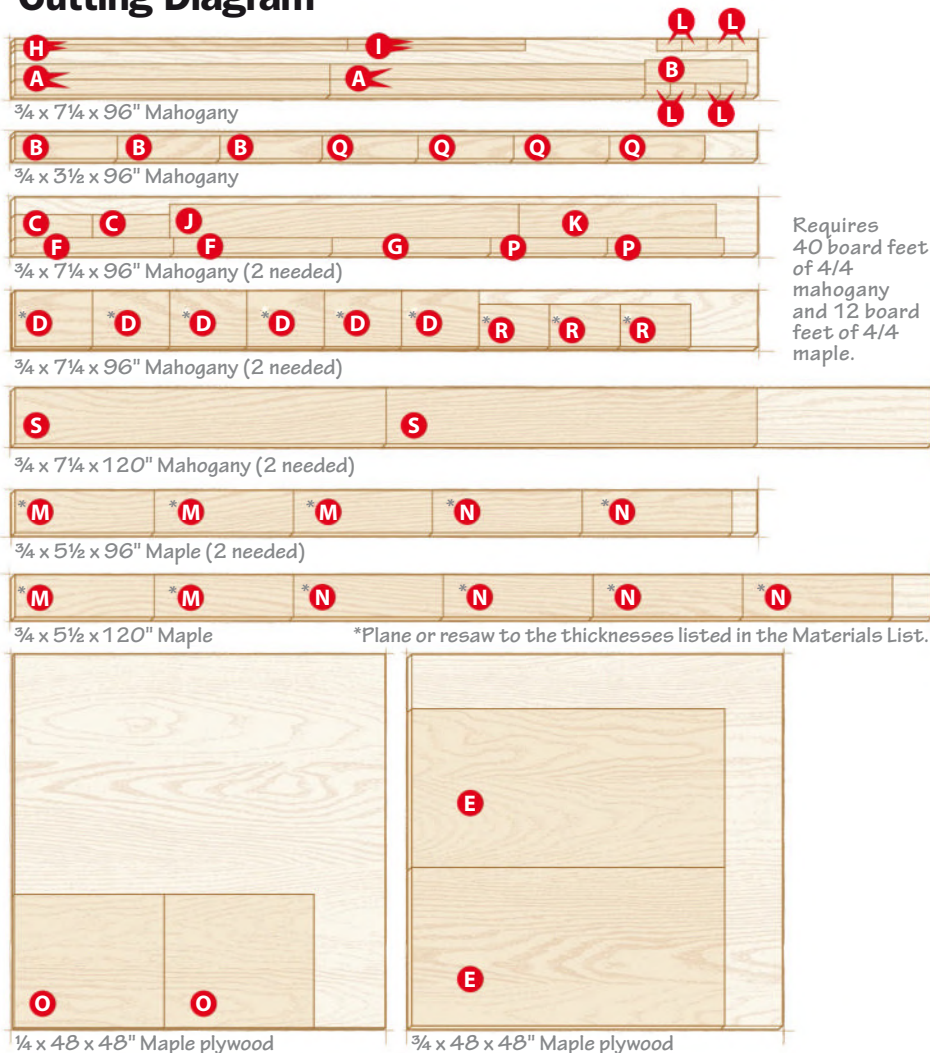
2 Retrieve the two drawer-front assemblies (P–R) and apply double-faced tape to their backs. Slide a drawer (M–O) into its opening and push it in until you hear and feel it lock. Then, center the front panel in the opening and press it onto the drawer. Carefully slide out the drawer. Drill screw holes through the front (N) [Drawing 3] and screw the front to the drawer. Add a pull. (We used no. 1013044 bin pulls, rockler.com, 800-279-4441.) Repeat for the other drawer.

3 Glue up a panel and cut the top (S) to size. Rout a round-over along the top edge all around the panel.

4 Make $\frac{5}{32}$ " slots $\frac{3}{8}$ " long in the carcass top (E) [Exploded View]. Place them so you'll be able to drive screws through them into the top from inside the carcass.

Tip! Form the slots easily by drilling adjacent $\frac{5}{32}$ " holes and cutting or filing away the wood between them.

Cutting Diagram



H Position the drawer front clips for your drawer slides. Attach them with furnished screws as directed in the hardware instructions.

5 Finish-sand the carcass/base (A–L), drawers (M–R), and top (S) as necessary. Apply a finish.

6 After the finish dries, center the top on the carcass and secure it with screws from inside the case through the middle of the slots. Then slide the drawers into the openings and start stashing lots of stuff out of sight. 🌲

Produced by Larry Johnston
with Kevin Boyle and
Brian Bergstrom
Project design: Kevin Boyle
Illustrations: Roxanne LeMoine,
Lorna Johnson

Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
Carcase					
A rails	¾"	2"	40¾"	M	4
B end stiles	¾"	3"	13¾"	M	4
C center stiles	¾"	3"	10"	M	4
D panels	½"	11⅞"	10"	EGM	6
E top/bottom panels	¾"	20½"	40½"	MAP	2
F top/bottom panel trim	¾"	2"	20½"	M	4
Base					
G bottom supports	¾"	2"	20½"	M	2
H* side cleats	¾"	¾"	46"	M	2
I* end cleats	¾"	¾"	22"	M	2
J* side trim	¾"	4⅜"	47½"	M	2
K* end trim	¾"	4⅜"	23½"	M	2
L corner blocks	1½"	1½"	3¼"	M	4
Drawers					
M sides	⅝"	9"	18"	MA	4
N front/back	⅝"	9"	19⅜"	MA	4
O bottoms	¼"	17¼"	19⅜"	MAP	2
P rails	¾"	2"	15½"	M	4
Q stiles	¾"	3"	12⅜"	M	4
R panels	½"	15"	9⅞"	EGM	2
Top					
S top	¾"	24"	48"	EGM	1

*Parts initially cut oversize. See the instructions.

Material key: M–mahogany, EGM–edge-glued mahogany, MAP–maple plywood, MA–maple.

Supplies: #8×1" and 1 $\frac{1}{4}$ " flathead screws; #20 biscuits; 18" bottom-mount, soft-close drawer slides (2 sets); drawer pulls (2).

Blades and bits: Dado set; $\frac{1}{2}$ " rabbit bit, $\frac{3}{8}$ " round-over bit.

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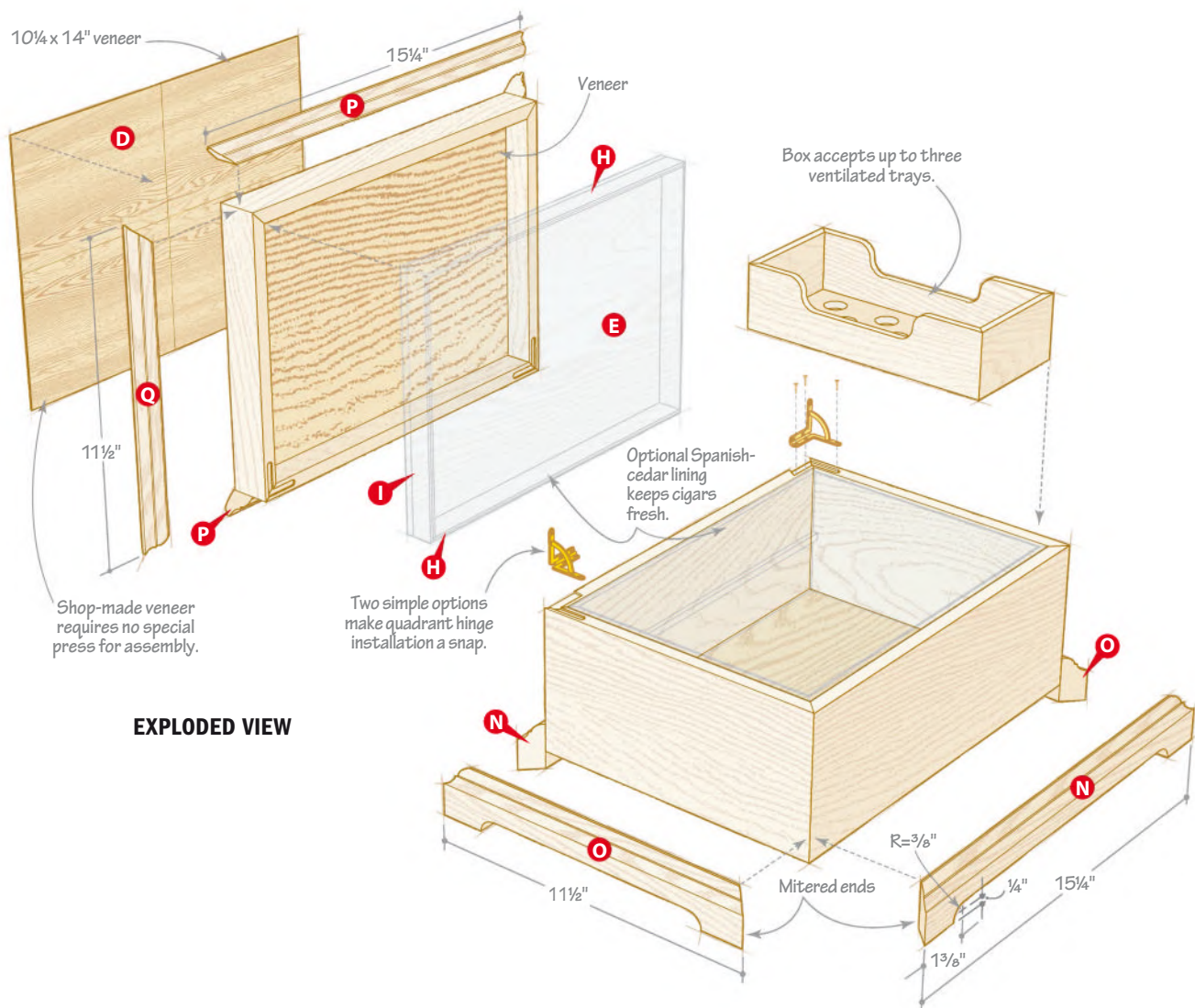
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Up to
3
trays
increases
storage

4-way
bookmatch
veneer on lid

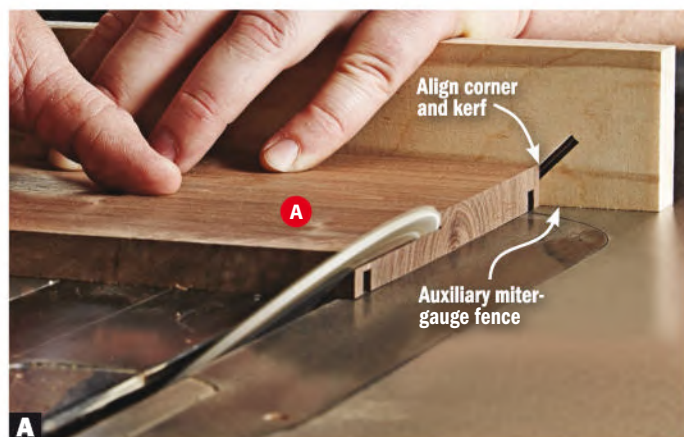


This classic project features a Spanish-cedar lining for slowing moisture transfer and maintaining a 70 percent humidity level ideal for cigar storage. The wood not only tolerates high humidity, it provides a pleasant aroma. Not a cigar aficionado? Simply forgo the lining and use the box to store jewelry or other baubles.



Build the basic box

1 Cut to size the front/back (A), and ends (B) [Materials List, page 37]. Measure the combined thickness of the material for the top (C) and the veneer with which you'll cover it. Cut grooves this distance from the edges of the front/back and ends [Drawing 1]. Then miter-cut each end [Photo A].



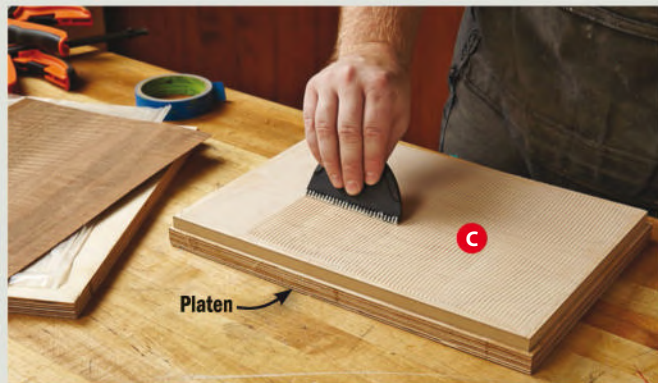
A kerf marks the miter. After making a cut through the auxiliary miter-gauge fence, align the outside corner of the box sides (A, B) with the kerf and miter-cut them.

SKILL BUILDER

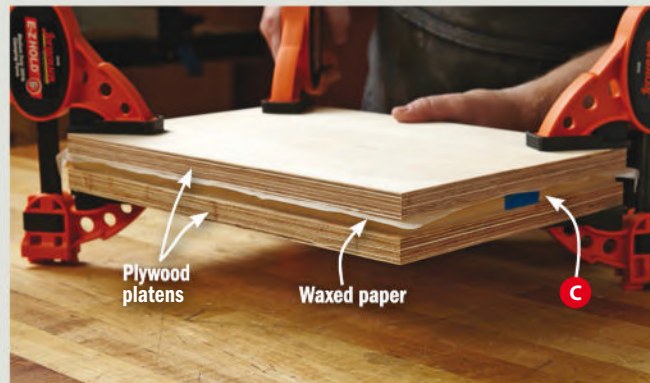
Make a simple veneer press

To apply veneer to small, flat panels, such as the box top and bottom (C), use clamps and flat $\frac{3}{4}$ " plywood platens. Start by cutting a sheet of waxed paper and two scraps of plywood about $\frac{1}{2}$ " larger than the top and bottom blanks (the substrate). Place the substrate on one of

the platens, apply glue to the exposed face, and position the veneer. (A couple of strips of painter's tape on adjacent edges will prevent it from slipping out of place.) Cover the veneer with the waxed paper and the other platen, then clamp the sandwich. Allow to dry at least 4 hours before removing the clamps.



Apply an even coat of glue on the inside face of the box top, making sure to reach the ends and edges of the panel.



Waxed paper prevents unwanted adhesion between the veneer and the plywood. Apply clamps every 4" around the "sandwich."

2 Rip the box sides (A, B) to create the lid portions. Label the parts so you can mate them up later.

Veneer the panels

1 Cut the top and bottom (C) $\frac{1}{2}$ " wider and longer than listed. Apply veneer (we purchased walnut veneer) to one face of each [Skill Builder, above]. After the glue dries, trim the panels to finished size [Photo B].

2 Rabbet the unveneered faces of the top and bottom panels (C) to create tongues

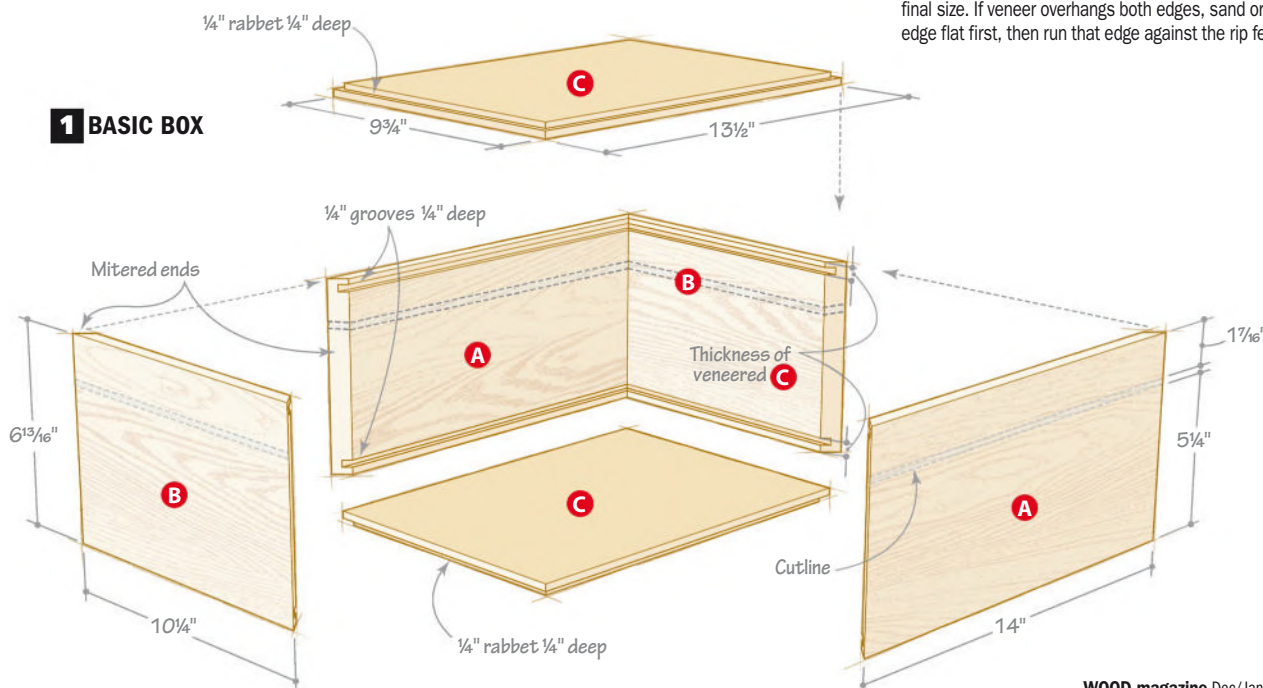
that fit the grooves in the box [Drawing 1]. Glue the lid and box together around the panels, veneer facing the inside.

3 We covered our box top (A–C) with four-way-bookmatched, shop-made veneer (D) [Skill Builder, next page]. (See page 38 for another eye-catching option.) After assembling the veneer panel, true up an edge and cut the panel $\frac{1}{8}$ " longer and wider than the box top, keeping the joint lines centered.

4 Glue the veneer (D) to the lid (A–C) [Photos G, H]. Then, trim and sand the veneer



Trim both edges and ends to bring the box top and bottom to final size. If veneer overhangs both edges, sand or plane one edge flat first, then run that edge against the rip fence.



SKILL BUILDER

Create a four-way bookmatch

► Watch a free video with tips on resawing and bookmatching. woodmagazine.com/resaw

Start with a blank at least $\frac{3}{4} \times 5\frac{1}{4} \times 7\frac{1}{8}$ ". Choose a piece with interesting grain for a striking bookmatch effect [Photo C and lower left photo on page 33]. Resaw the blank into two equal-thickness blanks. Joint one face of each flat, then resaw each piece again [Photo D]. Joint and sand the veneers (D) to about $\frac{1}{16}$ " thick. Arrange the four pieces to create a pattern symmetrical around the center.

Joint the mating edges (not the ends yet) on pairs of veneers. Glue these edges together so the grain pattern is mirrored across the joint line. Secure the joint with strips of painter's tape [Photo E].

► For a fast bond, use cyanoacrylate (CA) glue.

Now, joint the mating ends of these pairs with a hand plane [Photo F]. Glue the ends together, pressing the veneers under weight to keep them flat while the glue cures.



C A bit of light-colored earlywood adds interest. A blank similar to the rear piece yielded these two pieces with an accent at one corner on the first resaw.



D Resaw slowly to reduce blade marks that need to be sanded away. The less material you remove, the better the adjacent panels will match.



E Tape perpendicular to the joint first to pull the veneers together. Then, apply a strip along the length of the joint.



F A scrap of plywood elevates the veneer, allowing the plane blade to cut it.



G Reuse your veneer press. Tape the veneer to the lid with $\frac{1}{16}$ " overhanging on all sides. A scrap spacer $\frac{1}{32}$ " thicker than the lid depth distributes pressure to the center of the lid when you apply the top plywood platens. Place strips of tape below the spacer if you need to elevate it slightly to allow the plywood to make contact.



flush. Glue a sheet of veneer to the box bottom (C) overlapping the sides and ends.

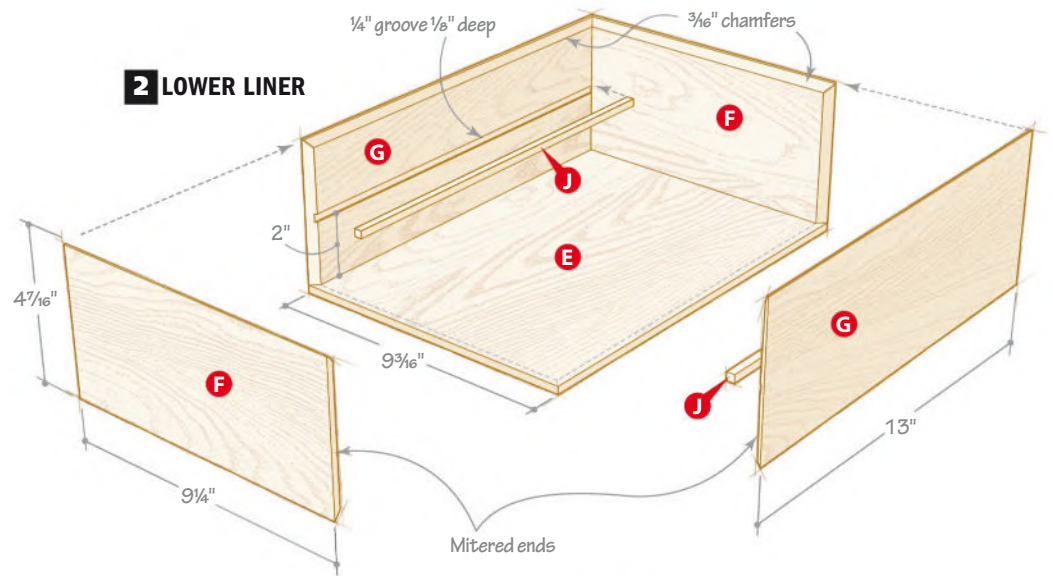
5 Rout the recesses for the hinges as described in **Installing quadrant hinges** on page 75. Don't install the hinges yet.

Line 'em up

If you don't want to add a liner or trays, skip to **Trim it up**.

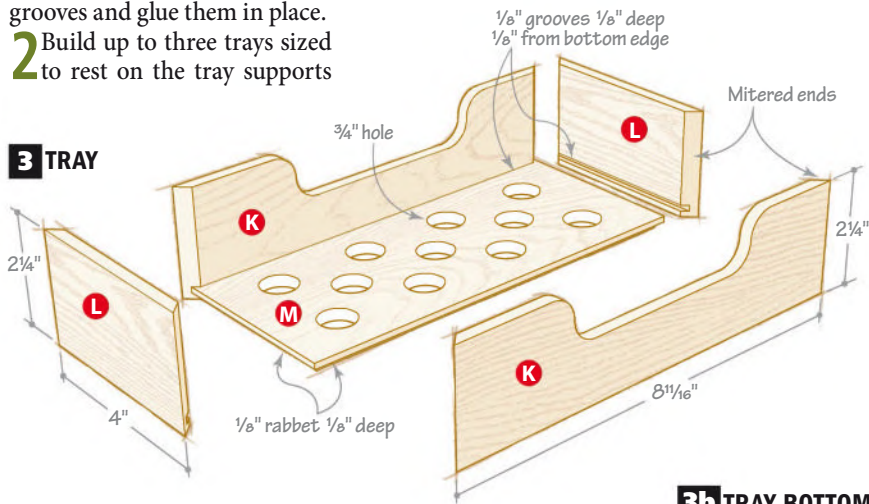
1 Cut the liner top/bottom (E) to fit in the box and lid with $\frac{1}{16}$ " of clearance [Photo I]. Miter-cut the liner fronts, backs, and ends (F–I) to fit within the box and lid [Drawing 2, Exploded View]. Plow the grooves in the lower front and back liners (G). Cut tray supports (J) to fit the grooves and glue them in place.

2 Build up to three trays sized to rest on the tray supports

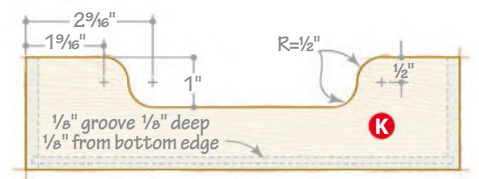


2 LOWER LINER

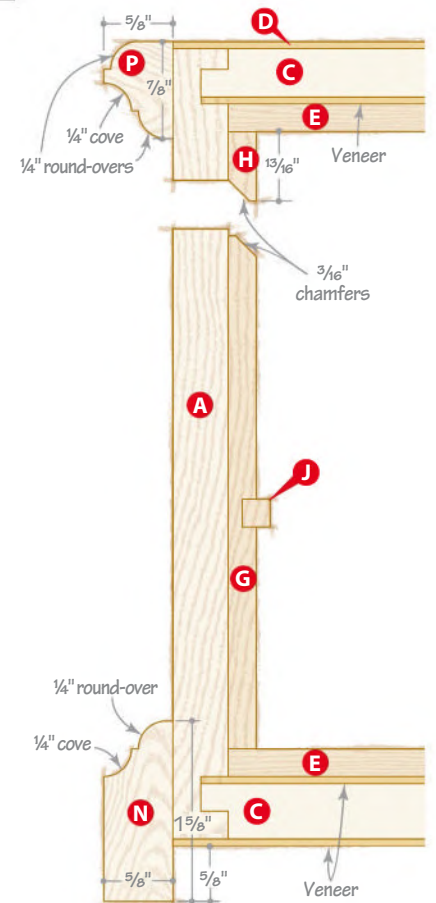
3 TRAY



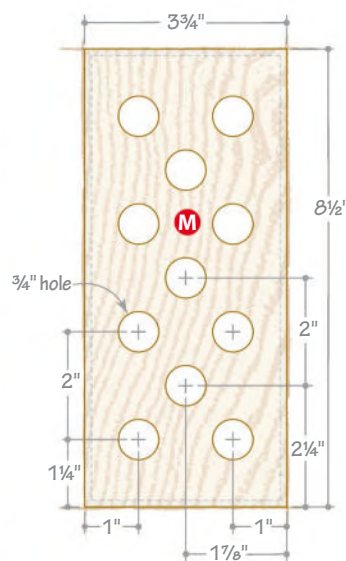
3a TRAY SIDE



4 END SECTION VIEW



3b TRAY BOTTOM



I Cut the liners to slide in. You'll remove them from the lid and box before applying a finish to the inside of the humidor.



One bit does it all. With the fence flush with the bit's bearing, and the bit raised to create a round-over on the bottom, rout the four workpieces on edge. Rout the same profile on a ½x4x12" length of scrap. Then reset the fence and bit to expose just the ¼" round-over with a ⅛" shoulder, secure the scrap in front of the bit, and complete the profile on the upper trim (P, Q).



(J) [Drawing 3]. Bore the holes in the bottoms (M) before gluing up the trays.

3 Remove the liners (F-J) and rout mating chamfers on the mating edges [Drawing 4]. Set the liners and the trays aside for now.

Trim it up

1 Cut the trim pieces (N-Q) to size [Exploded View]. Rout the cove-and-bead profile (Freud bit no. 38-314) [Photos J, K].

2 To make the cutouts in the lower trim (N, O) drill out the ends. Bandsaw just inside a line tangent to the holes, and rout to the line [Photo L].

3 Miter-cut the trim to fit around the box and lid and glue it in place. Align the straight portion of the cutout in the lower trim with the bottom of the box.

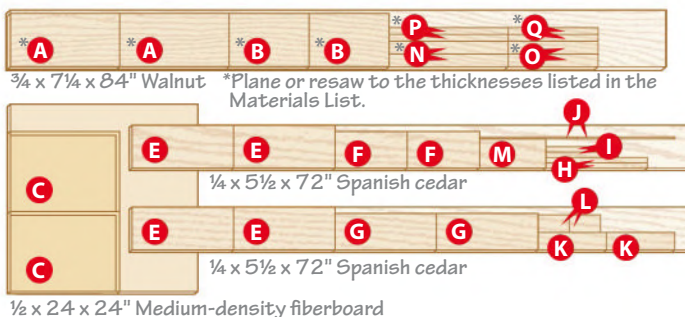
4 Mask off the inside faces of the lid (A/B). Apply a finish to all pieces except the liner

and trays (E-M). (We sprayed on three coats of aerosol satin-finish lacquer.) Install the hinges, and allow the finish to cure thoroughly. Dry-fit the liner top (E) in the lid and secure it by gluing the liners in with just a dot of glue centered on their lengths. Fit the bottom liner in the box (no glue), put the trays in place, and season your humidor (see the link in the margin *below*) before filling it with your favorite cigars. 🌿



Rout for a straight line. Swing the trim into the bit to start the cut and away from the fence at the end of the cut. Sand the profile to blend the cuts together.

Cutting Diagram



Materials List

Part		FINISHED SIZE			Matl.	Qty.
		T	W	L		
Box						
A	front/back	½"	61⅜"	14"	W	2
B	ends	½"	61⅜"	10¼"	W	2
C*	top/bottom	½"	9¾"	13½"	MDF	2
D*	veneer	⅛"	10¼"	14"	W	4
Liner						
E	top/bottom	¼"	9⅜"	1215⁄16"	SC	2
F	lower ends	¼"	47⁄16"	9¾"	SC	2
G	lower front/back	¼"	47⁄16"	13"	SC	2
H	upper front/back	¼"	1⅜"	13"	SC	2
I	upper ends	¼"	1⅜"	9¾"	SC	2
J	tray supports	¼"	¼"	127⁄16"	SC	2
Tray**						
K	sides	¼"	2¼"	811⁄16"	SC	2
L	ends	¼"	2¼"	4"	SC	2
M	bottom	¼"	3¾"	87⁄16"	SC	1
Trim						
N	lower front/back	5⁄8"	1⅝"	15¼"	W	2
O	lower ends	5⁄8"	1⅝"	11½"	W	2
P	upper front/back	5⁄8"	7⁄8"	15¼"	W	2
Q	upper ends	5⁄8"	7⁄8"	11½"	W	2

*Parts initially cut oversize. See the instructions.

**Quantities listed for one tray.

Materials key: W-walnut, MDF-medium-density fiberboard, SC-Spanish cedar.

Supplies: 1¼x1¼" quadrant hinges.

Router bits: 3⁄16" straight, cove and bead, 45° chamfer.

► Season your humidor properly before use. woodmagazine.com/seasonhumidor

This project requires 4 board feet of 4/4 walnut and 6 square feet of ¼"-thick Spanish cedar.

Produced by **Craig Ruegsegger** with **John Olson**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine, Lorna Johnson**

Try your hand at Basket-weave Veneer

This simple technique creates an eye-popping optical illusion.

By Peter Marcucci

After more than 30 years spent woodworking, award-winning furnituremaker Peter Marcucci has perfected his unique basket-weave veneer technique, which he integrates into some of his original furniture designs.



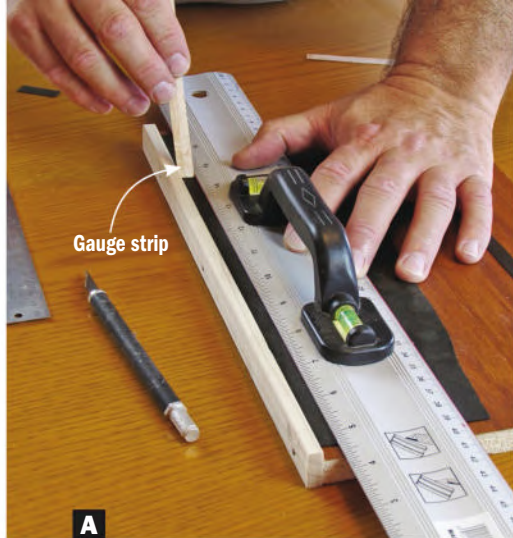
Dress up a box and create a unique and elegant look with a basket-weave veneer top. Like many woodworking techniques, it looks complex at first. However, once you understand the process, shown here in step-by-step simplicity, you'll find it very easy.

Lay out the pattern

To create the basket-weave pattern, I used black-dyed maple veneer squares and lighter-colored cherry rectangles.

The secret to creating the pattern is the ratio between the squares and the rectangles. The rectangles should be twice as wide and four times as long as the squares. By applying this 1:2:4 relationship, you can create basket-weave patterns of any size.

In the example shown here, $\frac{3}{4} \times 1\frac{1}{2}$ " rectangles complement $\frac{3}{8}$ " squares. A $\frac{3}{16}$ " black-veneer border and 1" walnut-veneer frame surround the weave pattern. Once completed, the oversize panel was trimmed to fit an $8\frac{1}{2} \times 11$ " box top.



Gauge strip

A

A no-measure strip trick. A gauge strip quickly and accurately positions the straightedge.



B

Slice the strips. With the straightedge in place, hold the razor knife against its edge and make a few light passes to cut the veneer.



C

Bundle the strips to crosscut. Tape several black strips together and square one end. With the gauge strip, set your straightedge; then, cut the strips to make squares.

Cut the veneer strips

This panel requires 63 squares and 62 rectangles, but it's a good idea to make some extras. To cut the parts, gather a razor knife, metal ruler, and a cutting board. (For the cutting board, use a scrap of plywood or melamine-coated particleboard, with a raised hardwood fence to butt the veneer against.)

Begin by cutting a $\frac{3}{8}$ " gauge strip from $\frac{1}{2}$ " or thicker scrap. With a piece of black veneer against the fence, use the gauge strip to position the straightedge $\frac{3}{8}$ " away from and parallel to the fence [Photo A]. Cut at least 24 lineal inches of veneer to use for making

squares [Photo B]. Then cut two more strips 12" long and set these aside. Tape together edge to edge the strips used to make the squares and crosscut them [Photo C].

To make a gauge strip for the cherry veneer rectangles, tape together edge to edge the two $\frac{3}{8}$ " black strips you set aside. Cut at least 93" of $\frac{3}{4}$ "-wide cherry strip. As before, tape these strips together edge to edge, square up one end and butt this end against the fence. Tape two of the $\frac{3}{4}$ "-wide strips together and use this $1\frac{1}{2}$ "-wide gauge strip to position your straightedge for crosscutting the rectangles.

► The tape holds the strips tightly together and prevents the edges from splintering when cutting across the grain.

Tip! After cutting the pieces to final size, carefully peel away the tape 45° to the grain direction to avoid breaking the veneer. This is when extras come in handy.

Add depth with a quick burn

Darkening the ends of the rectangles using hot sand simulates a shadow and creates the over/under basket-weave illusion.

Set an electric hot plate to medium-high heat, and place on it a small cast-iron frying pan filled $\frac{2}{3}$ full with fine sand. Practice with scrap veneer to get a feel for how long it takes to char the cherry strips. Char both ends of each piece [Photo D].

Tip! A long pair of tweezers keeps your fingers away from the hot sand.

Give each strip a dip. Briefly insert the ends of each cherry strip approximately $\frac{1}{8}$ " into the sand. Try to make all pieces consistent in appearance with minimal charring.



D

Assemble the panel

To keep the pieces of veneer in position as you build the pattern, place a sheet of contact paper, sticky side up, on a self-healing cutting mat or some cardboard [Photo E]. Draw two perpendicular reference lines on the contact paper, intersecting at the center of the sheet. Like the lines chalked on a floor before laying tiles, these

will help you keep the pattern square. Place the rectangles and squares good side down [Photos F and G].

If some pieces slide or pull away on the slightly sticky contact paper, use just enough transparent tape to temporarily hold them together. Complete the pattern and cut it free [Photos H, I, J].

► Transparent tape helps you confirm a piece's proper position.



E

Lay out a sticky surface. Tape the contact paper to your work surface, sticky side up, to prevent it from moving.



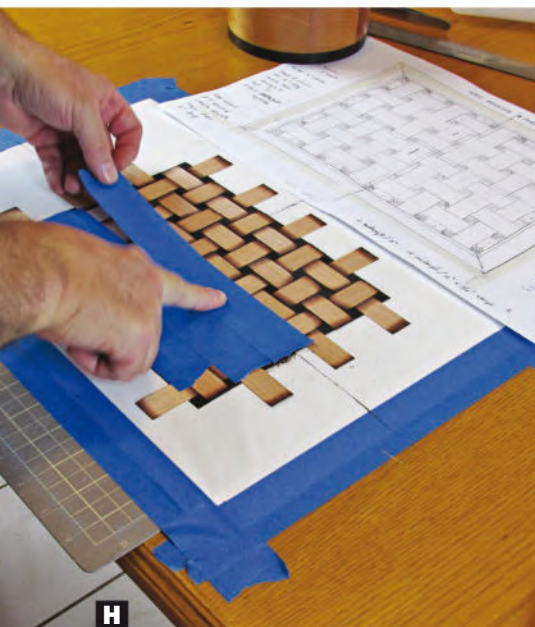
F

Start at the center. With the first rectangle centered on one of the reference lines, place a black veneer square against it and the reference line. Place another rectangle abutting the first, centered and perpendicular, to form a "T." Add another black square to the other side.



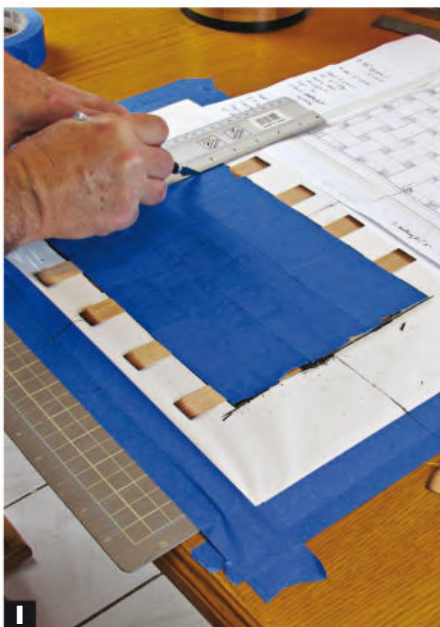
G

Build from the middle. Continue to form "T" shapes with the cherry strips, filling in with squares. As you build out your pattern, check that it remains square to the reference lines.



H

Cover the face with tape. When the pattern is complete, remove any transparent tape and cover the pattern with painter's tape.



I

Free the pattern. With a straightedge and razor knife, cut the panel to 7½x9¾". Don't worry if it is not exactly these dimensions. You can adjust the final size of the panel when you add the border and veneer frame.



J

Peel the paper. After cutting the panel free, carefully peel away the contact paper. Leave the painter's tape in place.

Add a mitered border

Cut the $\frac{3}{16}$ "-wide black border strips and 1"-wide walnut frame strips in the same manner as the black and cherry strips. Apply the border to the pattern [Photo K], overlapping the strips at each corner. Miter the

overlap [Photo L]. After cutting the miters on all four corners, flip the panel over and cover the border with blue painter's tape. Remove the transparent tape from the front surface.

Tip! Place transparent tape diagonally across the corners on both faces of the veneer to prevent the corners from breaking off when cutting.



K **Wrap the pattern.** Use transparent tape to affix the black border strip to the frame strip. Then tape that assembly to the edge of the basket-weave panel.



L **Slice perfect miters.** Cut diagonally with several light passes to miter each corner of the border.

Apply veneer tape

► Need veneer tape?
Find it here: no. 153093,
\$12, 800-225-1153,
woodcraft.com.

Before gluing the completed panel to the substrate, the painter's tape must be removed. To do that, first moisten strips of veneer tape and cover the entire front of the panel [Photo M]. The wet veneer tape may warp and curl the panel. Don't panic! It will flatten out when glued to the substrate. After the veneer tape dries, carefully peel away the painter's tape at 45° to the grain direction and flat to the surface to minimize the chances of pulling out one of the pieces.

Tip! If a piece comes loose when removing the painter's tape, put it back in and rub a drop of glue into the joint with your finger.



M **Layer on the veneer tape.** Run the tape over a wet sponge to moisten it, then apply it to the face of the pattern. The veneer tape shrinks as it dries, tightly pulling the joints together.



N

Glue it down and wrap it up. With veneer and basket-weave panels glued to the substrate, tape the edges to keep the panels from shifting in the press.



O

Put the squeeze on your panel. Place waxed paper between the panel and press platens to prevent sticking. A thin layer of cardboard between the waxed paper and platen compensates for any slight inconsistencies in veneer thickness, ensuring even pressure on all parts.

Glue up the panel

To secure the panel to the substrate, you can use a vacuum press, a veneer press, or simply clamp the work between platens, such as pieces of $\frac{3}{4}$ " MDF. I use liquid hide glue because it allows me to reposition a panel after the glue dries by heating it with an iron, but any woodworker's glue will work.

Cut a stable substrate, such as MDF or plywood, to the same size as the basket-weave panel. Then cut a backer veneer to the same size as the substrate. Choose a veneer that complements the inside of your box. Gluing a backer veneer to the bottom of the substrate will keep the finished panel from warping.

Spread glue on the substrate and apply the backer veneer. Then flip over the substrate, spread glue on it, and apply the basket-weave panel [Photo N]. (Apply glue to the substrate, not to the basket-weave panel.) Insert the panel into the press and apply pressure [Photo O]. Leave the panel in the press for a few hours, then remove it and set it aside for 24 hours to let the glue cure completely. 🌲

► The author uses a shop-made veneer press that utilizes a stout wood frame and an inexpensive bottle jack. You can simply use F-clamps, hand-screws, or one-hand bar clamps instead.





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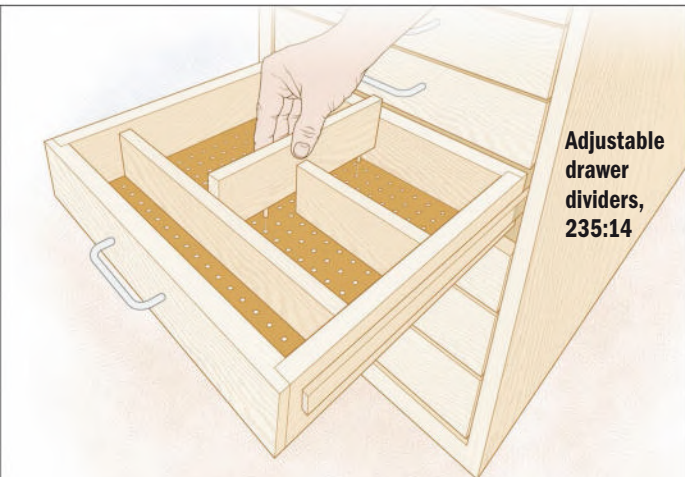
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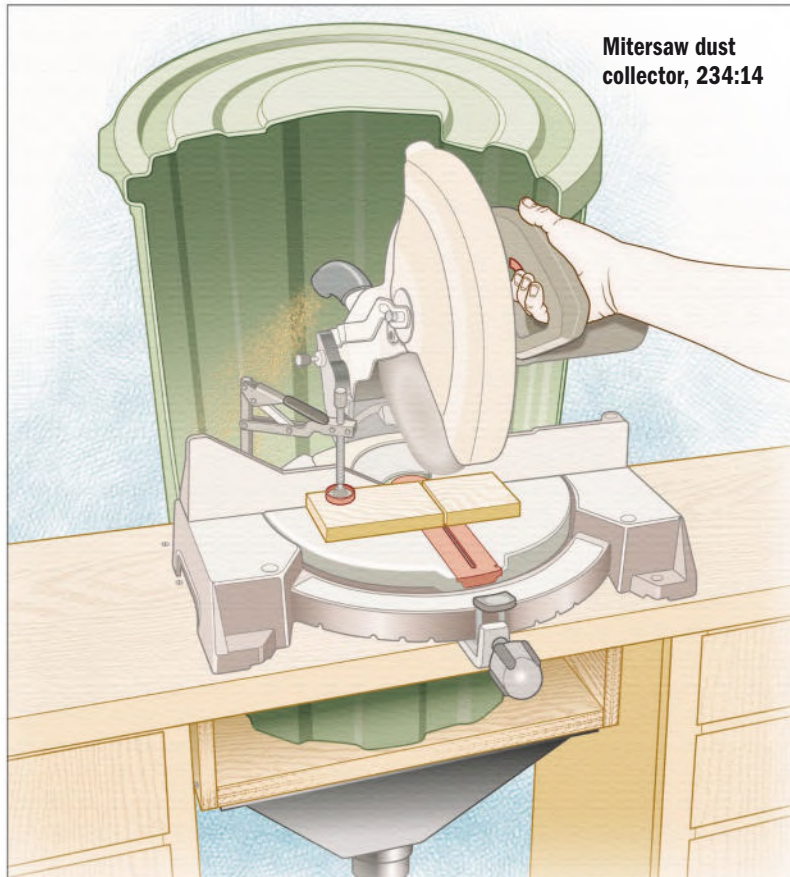
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HOW TO USE THIS INDEX

This annual index includes every article and Shop Tip that appeared in *WOOD*® magazine from the December/January 2014/2015 issue through the November 2015 issue. To quickly find the article you're looking for, first identify the major index category most likely to contain the article:

- Projects (plans with step-by-step instructions)
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- Shop Tips/Skill Builders (quick ideas you can put to use in your shop today)

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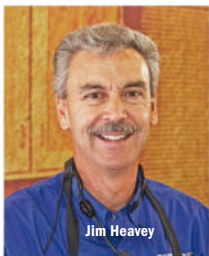
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Cut cleaner and safer with an Auxiliary Rip Fence

By Jim Heavey



Jim Heavey

When the new tool catalogs arrive, I find myself searching for any interesting accessories that might make my work in the shop easier and more accurate. I've tried a number of manufactured auxiliary fences for my tablesaw with limited success; it wasn't until I'd made my own that I felt like I'd covered every base. It's functional, accurate, versatile, and

inexpensive. I've been using this one for years and I have yet to be disappointed.

I chose medium-density fiberboard (MDF) and some scrapwood to build my fence. MDF doesn't expand and contract the way solid wood does with seasonal changes in humidity, making it an excellent, stable choice. The short wood spacers won't shift enough to impact the fence's accuracy.

continued on page 48

Tip! To keep the fence glue-up from sliding under clamp pressure, hand-press the glued spacers to one piece of MDF and let them set for a couple of minutes before gluing on the second MDF piece.

Make the fence and mount it

Design the fence to be as tall as and about 6" longer than your existing tablesaw fence. Assembly is a snap. Glue a few solid-wood spacers—I made mine 1½" long—between the lengths of MDF, approximately 8" apart

[Photo A]. I reinforced the joints with countersunk screws after the glue dried (skipping the middle of the fence above the blade). Attaching the fence is easy, using a couple of F-clamps, *previous page*.

Tip! Cut the spacers to make the final width of the fence easy to remember, such as 3". That way you can still rely on your fence's rip scale by subtracting 3" from the reading.



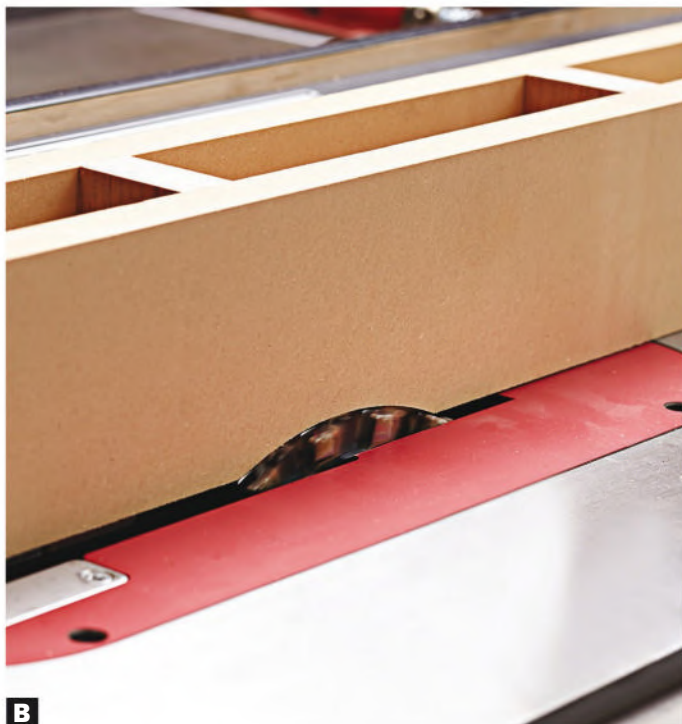
A

Glue it up flat. Clamp the glue-up to a known flat surface such as a workbench or tablesaw top. When the glue has dried, the fence will retain the shape it was clamped to, assuring a dead-flat fence.

Use the fence for rabbeting

To cut a ¼×¼" rabbet using your new fence, first install a ⅜" dado set and slowly raise the full width of the blade into the outside face of the MDF to a height of about ⅜"

[Photo B]. Turn the saw off, lower the blade to ¼", and move the fence to expose ¼" of the blade width. Now, make a single pass with the workpiece held tight against the fence [Photo C].



B

Go bigger, early. To prevent the blade from rubbing on the fence and to provide adjustability, make the first cut into the fence slightly wider and higher than the intended rabbet.



C

Run along the fence. Rabbets, when cut on a tablesaw using the auxiliary fence, are precise, repeatable, and splinter-free.



D Get in the groove. This drawer slides on a pair of concealed wooden runners.



E Measure and mark your setback. Need a 12"-long stopped groove? Clamp a stopblock to your fence 12" from the front-most tooth of the blade.

Make stopped grooves and dados

When building a set of drawers for a nightstand, I needed a stopped groove centered on each side of the drawer box that would end just short of the dovetailed edge [Photo D].

To do this, I raised the dado blade to height and used a combination square to transfer the point where the blade emerged from the table-saw surface to the auxiliary fence [Photo E]. I then clamped a stopblock the desired length of the groove from the mark.

Setting the rear of the drawer box against that block and carefully lowering it onto the spinning blade, I cut a groove directly behind the dovetailed end and out the back edge of the drawer side. Because this groove was centered, I simply flipped the drawer box to the opposite side and repeated the cut. About a minute with a chisel cleaned out the sloped entry of the dado blade, creating a perfect stopped groove.

Try it as a sheet-goods cutting aid, too

Like most woodworkers, I usually work alone in my shop and find it "exciting" when ripping long plywood sheets. Most saws have only about 12" of bearing surface on the fence before material makes contact with the blade. Trouble keeping that material parallel to the blade when starting the cut can result in less-than-perfect edges. If I clamp my auxiliary fence to extend about 12" off the front edge of the table, I've more than doubled the bearing area and eliminated those false starts [Photo F]. 🌲



F Off to a good start. When dealing with long or awkward stock, such as sheet goods, clamp the auxiliary fence so it overhangs the front edge of the tablesaw. This will help stabilize the stock before it reaches the blade.

Win-win Window Cabinet

This project wins points for its design, simple construction, and low cost. That's because the stylish, four-lite sides and doors don't require a single tool to make, just an expenditure of \$17 each!

DIMENSIONS:
41 1/2" H x 24" D x 51 1/4" L

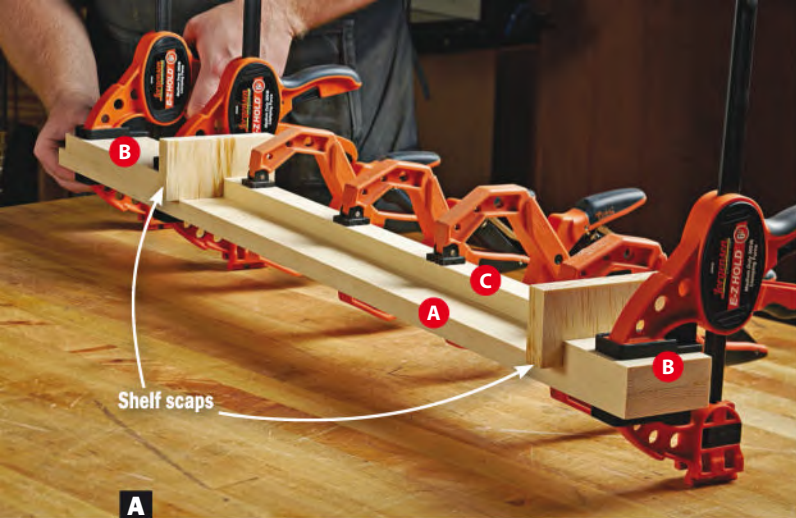
Approximate materials cost:

\$225

including four manufactured windows

Windows disassemble for finishing: no masking necessary!





Shelf scraps

A

Use shelf scraps as spacers. Select the boards you'll use to make the shelves in the next section. Cut from them four scraps sized 2x4". The cabinet's shelves will fit the leg assemblies perfectly if you use these scraps to space parts B, C, and D when gluing and clamping them to part A.



B

Cut a full bead in one pass. Use the same router-table setup to cut beads in the leg assemblies (A–D) and divider (E). Apply firm and steady pressure with a padded block for a smooth and consistent bead.

► We designed this cabinet for versatility. It could serve as a buffet, display cabinet, or TV stand.

First, get some legs up

We sized this cabinet around stock windows measuring 20" wide x 25" tall. Windows of a different size will work, too, but you'll need to adjust the sizes of the project parts to fit your windows and the intended use of the cabinet.

1 Cut to size the legs (A), and leg spacers (B–D) [Materials List, Drawing 1]. Glue and clamp the spacers to the legs making mirrored pairs of front and back leg assemblies [Photo A]. Laminate two pieces of $\frac{3}{4}$ " material to make the divider (E) [Exploded View].

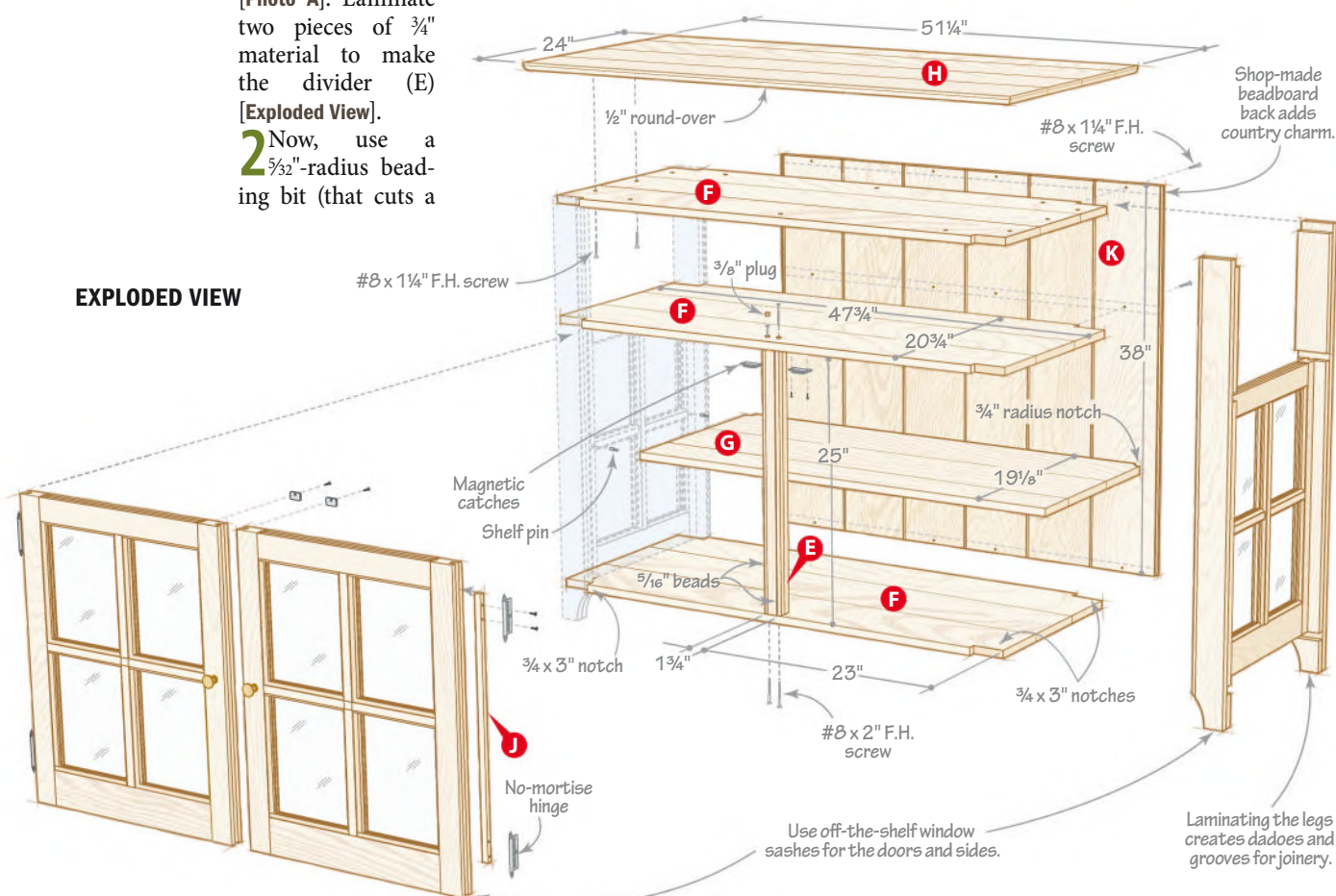
2 Now, use a $\frac{5}{32}$ "-radius beading bit (that cuts a

full $\frac{5}{16}$ "-diameter bead in one pass [Sources]) to rout a bead along the divider and both front leg assemblies (A–D) [Exploded View, Drawing 1, Photo B].

3 Cut the $\frac{1}{4}$ " grooves in the back leg assemblies [Drawing 2]. Make a copy of Drawing 1a, cut it to shape, and transfer its radius to the bottom face of all four leg assemblies. Cut and smooth the radius. Set aside the leg assemblies for now.

► For that shabby-chic look at a down-to-earth price, use old discarded window sashes.

EXPLODED VIEW





C

Notches fit the shelves to the legs. Given the size of the fixed shelves (F), you'll get your cleanest cuts using a fine-toothed blade for wood in a jigsaw set to no orbital action.



D

Get square and stay there. As you tighten the clamps holding the fixed shelves (F) to the leg assemblies, check for square by measuring for equal diagonals on the sides, front, and back.

► Learn six steps to perfectly plugging counterbored holes. woodmagazine.com/6plugsteps

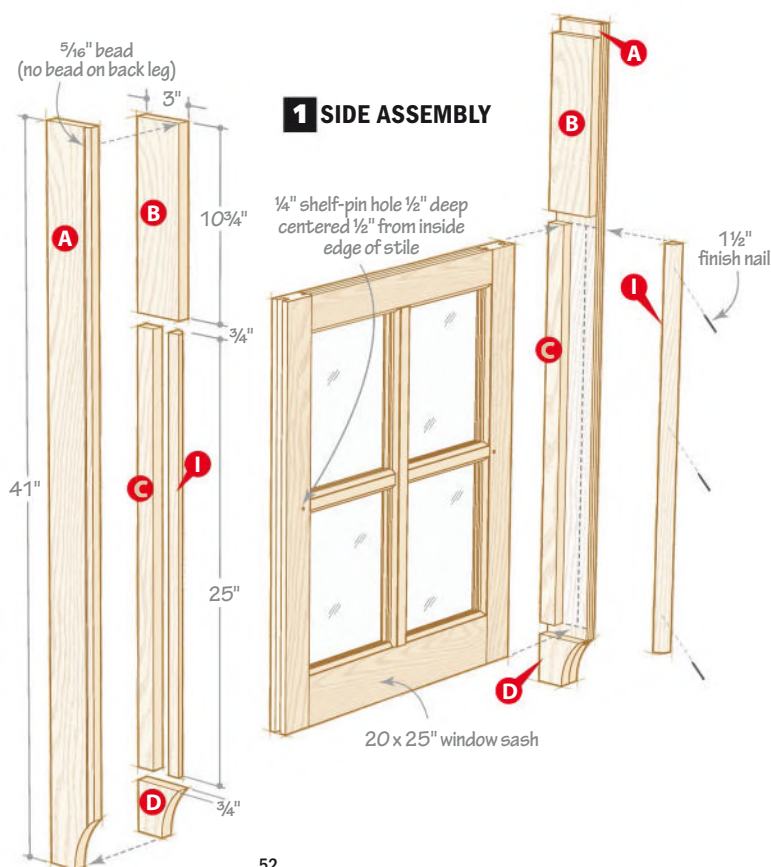
Tip! The square window can serve as a handy squaring aid to realign a slightly out-of-square carcass during assembly.

Next up, the shelves and top

1 Glue up slightly oversize panels for the shelves (F, G), and top (H). Trim them to finished size [Materials List]. Then notch the corners of the fixed shelves [Photo C].

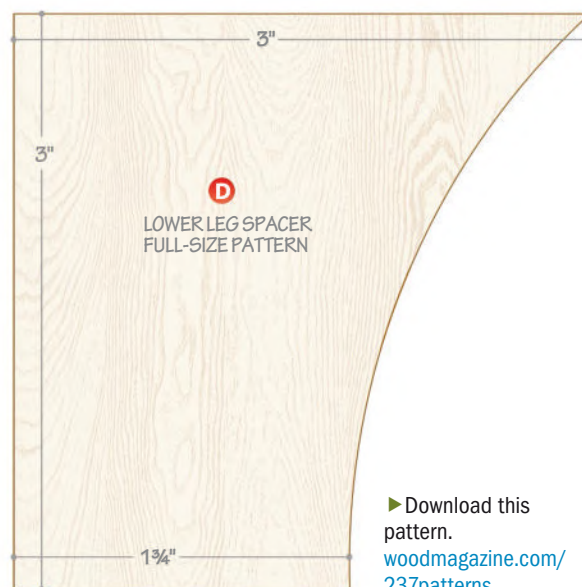
2 Mark and cut a $\frac{3}{4}$ "-radius notch in the back corners of the movable shelf [Exploded View]. Then, round over the bottom edges and ends of the top (H).

3 Glue and clamp the fixed shelves (F) to the leg assemblies. Then, glue, center, and clamp in place the divider (E) [Photo D]. After the glue dries, drive screws through counterbored pilot holes to reinforce the shelf/divider joints [Exploded View]. Plug the counterbores.



1 SIDE ASSEMBLY

1a LOWER LEG SPACER FULL-SIZE PATTERN



► Download this pattern. woodmagazine.com/237patterns



E **Mark the shelf-pin locations.** Use a movable shelf (G), centered on the window muntin, as an aid in locating holes for shelf pins.



F **A rule reveals all.** Check for an even gap (reveal) all around the door using a steel rule. With a fine pencil, mark areas that need trimming.

Let there be lites

1 Align the end of the movable shelf (G) with the middle muntin on a side window and mark the position of the shelf bottom onto both window stiles [Photo E]. At these marks drill shelf-pin holes [Drawing 1]. Repeat for the other window.

2 Place a side window into the cabinet carcass and check for fit. Cut the window supports (I) to fit between the lower fixed shelves. Set them aside for now.

3 Trim the front sashes to fit inside their openings. Glue door fillers (J) into the grooves in the outside edges of both doors [Exploded View]. Screw no-mortise hinges onto these door edges, locating one hinge 2" from the door top and the other 3" from the door bottom.

4 Attach the hinges to the legs and check for an even reveal all around the doors

Tip! When trimming the sashes, remove equal amounts from opposite edges and ends for even reveals.

Note: The door fillers (J) stop short of the screws in the grooves to allow disassembling the windows for finishing.

[Photo F]. Remove the doors and trim them if necessary. Attach 1¼"-diameter wooden knobs centered on the width and length of the door stiles.

Put your back into it

1 Cut the back slats (K) to size. In the edge of five of the slats, cut centered grooves to match the grooves in the back legs [Photo G]. Then, cut centered tongues in the other edge of the slats as well as in both edges of the sixth slat [Drawing 2, Photo H].

2 Using the beading router bit, cut a bead on the tongue side of each slat [Photo I, Drawing 2]. Drill countersunk pilot holes, centered on the width of the boards, at locations matching the center of each fixed shelf (F). Screw the slats to the back of the cabinet, leaving a slight (1/16" or so) gap between

2 BACK



G **Get in the groove.** Cut the 1/4" groove by making two passes over a full-kerf blade raised 3/8" high. Place opposite board faces against the fence to ensure a centered cut.



H **Cut a tongue to match.** Mount an auxiliary face to your tablesaw fence and adjust it so the dado blade cuts a 3/8"-long tongue. Raise the blade in small increments, flipping the board with every cut, until the tongue snugly fits a groove.



I **A bead at every tongue.** Adjust the height of the beading bit to cut a full bead on the face side of each slat at the base of every tongue.



J **Create some room to grow.** Wood moves across its width as seasonal humidity changes, so you need to leave gaps at every tongue/groove joint so the back slats don't buckle or crack with expansion.

them to allow for seasonal wood movement [Photo J].

A few finishing details

For easiest finishing, disassemble the cabinet as much as practical.

1 Remove the side windows and the front doors as well as the back slats (K). Remove the hinges. If possible, disassemble the sashes (six screws hold together the unglued Menards sashes [Sources]). Finish-sand all parts to 100 grit if you plan to paint the project as we did (more on that in the next step), or to 150 grit for a clear finish. If you plan to stain the cabinet, sand to 180 grit and then sand exposed end grain to 220 grit; to avoid blotching, apply a sealant such as wipe-on polyurethane or wood conditioner, followed by light sanding to 320-grit and an application of one or more coats of gel stain.

2 To get a traditional, painted-pine look, we applied two coats of General Finishes Milk Paint in Basil color. Although a modern, water-based paint not containing milk,

it gives a look similar to old milk paints, but with a lot more convenience.

3 After the finish dries, attach the top (H) to the top fixed shelf (F) by driving screws up through countersunk pilot holes in the fixed shelf [Exploded View]. Install the side sashes and secure them with window supports (I) held in place with 1½" finish nails. Slide the adjustable shelf into place atop the shelf pins. Reattach the back slats, hinges, and doors. Add magnetic catches [Sources] to hold the doors closed. 🌲

Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A legs	¾"	3"	41"	P	4
B upper leg spacer	¾"	3"	10¾"	P	4
C mid leg spacer	¾"	1½"	25"	P	4
D lower leg spacer	¾"	3"	3"	P	4
E divider	1½"	1¾"	25"	LP	1
F* fixed shelves	¾"	20¾"	47¾"	P	3
G* movable shelf	¾"	19½"	43½"	P	1
H* top	¾"	24"	51¼"	P	1
I window supports	¾"	¾"	25"	QR	4
J door fillers	½"	¾"	20"	P	2
K back slats	¾"	7¼"	38"	P	6

Produced by **Bill Krier** with **John Olson**
Project design: **John Olson**
Illustrations: **Roxanne LeMoine**, **Lorna Johnson**

*Parts initially cut oversize. See the instructions.

Materials key: P-pine, LP-laminated pine, QR-pine quarter-round.

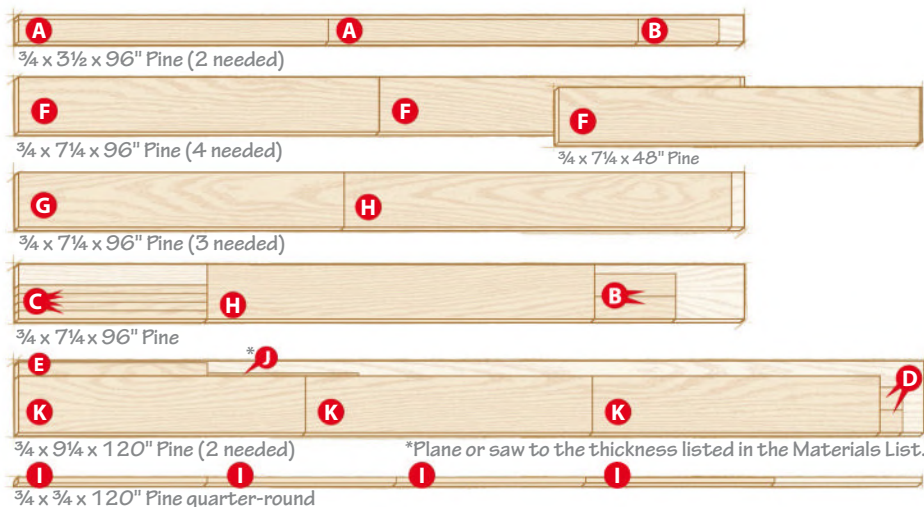
Supplies: No-mortise hinges (4), magnetic door catches (2), 1¼" wood door knobs (2), shelf pins (4), #8×2" flathead screws (4), #8×1¼" flathead screws (2), 1½" finish nails (12).

Blade and bits: Dado set; ⅝"-dia. corner & edge beading and ½" round-over router bits; ⅜" plug cutter.

Sources: Northview 20×25" unfinished wood 4-lite barn sash with single pane glass, no. BSW2025, SKU 4031936, \$16.89 (4); from Hickory Hardware: Natural Woodcraft Collection simple knob-2 ct., no. P183-UW, SKU 2239421, \$1.19; 1½" self-mortise hinge-2 ct., no. P8293-SM, SKU 2239517, \$3.39 (2); Super magnetic catch, no. P109-2C, SKU 2200061, \$1.49 (2). All available at Menards stores or menards.com (add processing and shipping fees for online orders). Price subject to change.

Woodline corner and edge beading bit no. WL 1461, ⅝"-radius, ⅝"-dia., \$18.40, 800-472-6950, woodline.com. General Finishes Milk Paint in Basil color: To find your nearest retailer go to generalfinishes.com

Cutting Diagram



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Tablesaw Jigs and Accessories

Make your saw work more safely, accurately, and effectively by adding these helpful products.



► Haven't made "the big three" upgrades to your saw yet? Read reviews of tablesaw rip fences, crosscut accessories, and blades.
reviewatool.com/tsaccessories

When woodworkers look to step up the performance of their tablesaws, the most obvious (and often most expensive) upgrades typically include a miter gauge or sled, a premium blade, and—especially on older saws—an aftermarket rip-fence system. After you've amped up your saw with these "big three," now comes the fun stuff: tablesaw jigs and accessories that make tricky or tedious tasks safer, easier, and more accurate. Here are some of our favorites.

Jigs that make life easier

Cove-cutting jig

Rockler Woodworking and Hardware, no. 22395, \$90
800-279-4441, rockler.com

Buying crown molding—especially if it's wide or custom-made from species not typically found at retail—can hit you hard in the wallet. Rockler's cove-cutting jig helps you make your own from stock up to 7" wide and 1½" thick. To change the cove's shape, simply vary the angle of cut across the blade. This jig securely traps workpieces at that angle, while the included featherboard holds it flat to the tabletop—with no clamps in the way. When finished, you'll need to scrape or sand the cove, but using a sharp 60- or 80-tooth blade minimizes that cleanup.



I-Box box-joint jig

Incra, \$170

888-804-6272, incra.com

Rather than making a new jig each time you want to cut different-size box joints, get Incra's I-Box. This handy jig's adjustable metal key lets you set the finger width to any dimension from $\frac{1}{8}$ " to $\frac{3}{4}$ ". Its microadjuster fine-tunes the finger width and spacing simultaneously for a perfect fit every time. I-Box rides in your saw's miter slot on an adjustable-width miter bar. Its guard registers the workpiece and holds it securely: no need for clamping. The built-in replaceable backer board prevents tear-out.



Taper/straightline jig

Rockler Woodworking and Hardware, no. 21597, \$78

800-279-4441, rockler.com

Ripping tapers on a tablesaw typically requires a jig that runs against the rip fence. Instead, Rockler's jig is guided by your saw's right miter slot and lets you fine-tune the bar's fit so it glides without sloppiness. After cutting the jig's left edge, the jig provides zero-clearance support against tear-out. Adjust the fence to match the taper angle, and the hold-downs secure the workpiece, keeping your hands clear of the cut zone. You can also use the jig to cut a straight edge on stock that has none.



Box-joint blade sets

Freud, no. SBOX8, \$95

800-334-4107, freudtools.com

Forrest Manufacturing, no. DK0824316, \$207

800-733-7111, forrestblades.com

Stack these two blades one way and they cut precise $\frac{1}{4}$ " slots. Stack them the other and cut perfect $\frac{3}{8}$ " slots. And, the flat-tipped teeth cut dead-square finger slots—no tiny "ear marks" in the corners.

woodmagazine.com





Spline-Jig Pro

Eagle America, no. 400-1039, \$90

800-872-2511, eagleamerica.com

Splines not only reinforce miter joints, they also add a decorative element to a project, especially when using a contrasting wood species. Eagle America's Spline-Jig Pro cuts precise spline slots without fuss. The jig cradles the project (in this case, a keepsake box) securely front-to-back and side-to-side, and provides zero-clearance protection against tear-out.



Thin-rip jig

Eagle America, no. 400-1040, \$30

800-872-2511, eagleamerica.com

Whether cutting blanks to fit in spline slots, or ripping thin edge banding for plywood, this aluminum jig ensures all strips are the same thickness. Position the jig in the miter slot ahead of the blade, tighten the knob, trap your workpiece between the bearing point and rip fence, and then rip.

Improve workpiece control and cutting precision



Magnetic featherboards

Magswitch, starter kit no. 8110134, \$77; vertical featherboard with

risers no. 8110178, \$17

303-468-0662, magswitch.com.au

It's not always easy to mount a featherboard where you want it. The Magswitch setup shown mounts to the cast-iron tabletop with switchable on/off rare-earth magnets that grip like nobody's business. The two featherboards give you sideways and downward pressure wherever you need it. (The base, MagJigs, and horizontal featherboard sell as the starter kit; the vertical featherboard and risers sell separately.) You can also remove the MagJigs to use in shop-made jigs.



Zero-Play miter-slot bars

MicroJig, single bar, \$16; two-bar kit, \$35

855-747-7233, microjig.com

Although you can make a miter-slot bar from solid wood for a shop-made jig, seasonal humidity swings will make the fit sticky or sloppy. These synthetic guide bars won't do that. The two-piece bars work with opposable wedges: Get the fit you want, then tighten them up. Mount your jig, sled, or other fixture to the bars, and you're good to go.



Miter-gauge extension fence

Peachtree Woodworking Supply
22" no. 1099, \$60; 48" no. 1100, \$100
800-512-9069, ptreeusa.com

Add this fence extension to your table saw's factory-supplied miter gauge to make it perform like an aftermarket model. The aluminum fence has T-slots and a sliding length stop to make repeated cuts up to 22" or 48", depending on the model.



Veritas dado shims

Lee Valley, no. 05J13.01, \$13.50
800-871-8158, leevalley.com

Sheet goods typically measure a little less than common thicknesses of $\frac{1}{4}$ ", $\frac{1}{2}$ ", or $\frac{3}{4}$ ". This makes it tricky to set up a stacked dado set for a precise fit, especially if the set doesn't come with shims. This Veritas kit provides 14 shims in four color-coded thicknesses, letting you precisely fit dados.



Universal fence clamps

Rockler Woodworking and Hardware
no. 31373, \$20 per pair
800-279-4441, rockler.com

To attach an auxiliary fence to a rip fence lacking T-slots, such as for cutting rabbets, we like Rockler's fence clamps. Simply drill two holes in the top edge of an auxiliary fence, slip the clamps into the holes, and then tighten the clamps to the opposite face of the rip fence.



LegUp Lift panel lifter

Landon Innovations, \$40
800-423-5008, gorillagripper.com

As we get older, it gets tougher to hoist full sheets of plywood or MDF onto a table saw for cutting. With the LegUp Lift, you don't have to bear that weight alone. Attach the device to any table saw's rip-fence rail or tabletop edge, lift a sheet a few inches onto the hooked foot, and then simply pivot the sheet onto the saw. Think of this as an investment in *not* going to the chiropractor. 🌲

Produced by **Bob Hunter**



Cherry



Spalted maple

Simply Elegant Hole-saw Bracelet

Make unique jewelry using only a few tools and some choice pieces from your scrap bin.

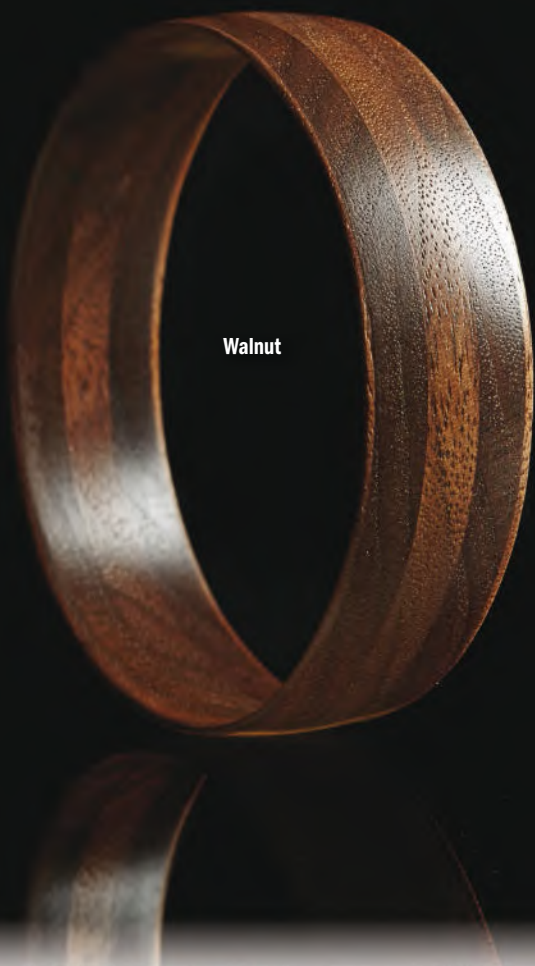
- Purchase the holesaws and glue needed for this project.
woodmagazine.com/holesawkit



1 **Laminate a blank.** Cut thin stock (we used 1/4"-thick cherry) into 4x4" squares. Laminate them, face to face, alternating grain direction with each layer.



2 **Define the outside diameter.** Glue the blank to a carrier board. Clamp the carrier to your drill press table after the glue dries. Then, bore a 3 1/4"-diameter circle through the blank and 1/8" into the carrier board. Plunge slowly for best cut quality.



Walnut



Birch



3

Now, cut the inner diameter. Without moving the carrier board, drill a second circle inside the first using a 2 3/4"-diameter hole saw.



4

Get more from your wood. If you'd like to make another smaller bracelet (perfect for children), drill a third circle inside the other two using a 2 1/4"-diameter hole saw.



Free the rings. Cut the blank at the bandsaw so that the bracelets' outside laminations end up the same finished thickness. Begin with the cut on the outside face; the second cut releases the bracelets from the carrier board.

Tip! No oscillating spindle sander? Use your drill press equipped with a sanding drum instead.



A bevel adds comfort and good looks. Cut a $\frac{1}{8}$ "-thick piece of scrap and tape it next to a sanding drum. Sand bevels on the inside profile by slowly and steadily rotating the bracelet. Feel the bevel for smoothness as you work. Repeat for the outside profile. Hand-sand the inside and outside of the bracelet to 320 grit, then apply a finish. We wiped on several layers of CA glue and polished to a high shine. Start with 400-grit sandpaper, sand in steps to 800-grit, then polish the bracelet with 0000 steel wool. 🌲

Produced by Nate Granzow with
John Olson
Project design: Dr. Paul Kincaid,
Lawrence, Kan.



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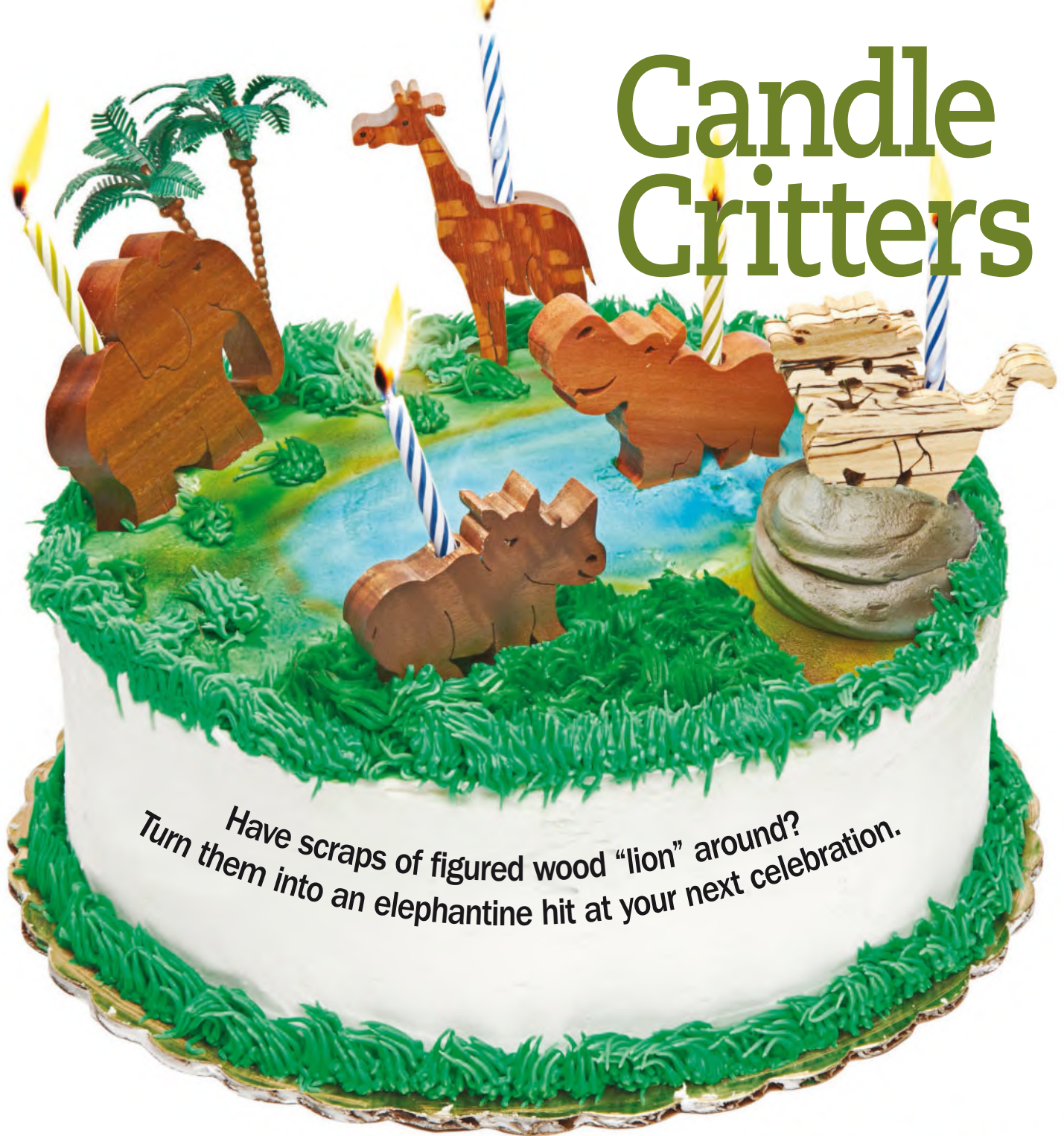
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Candle Critters



Have scraps of figured wood “lion” around?
Turn them into an elephantine hit at your next celebration.

1 Photocopy the patterns (page 66) and apply them to blanks using spray adhesive, aligning the grain direction on each pattern with that of the blank.

2 Using a #5 blade, scrollsaw each candle holder. To cut inside areas, such as the eyes, mouths, and noses, first drill a $\frac{1}{16}$ " hole in those areas. Insert the blade through the drilled hole before mounting it in the scrollsaw; then make the cut.

3 To drill the candle hole in each holder, clamp it in a wooden handscrew (or

SHOP TIP

Quick trick for slick scroll cuts

To help a new scrollsaw blade run cooler and make tighter turns, round over its back edge by gently holding a fine file or abrasive stone against it with the saw running.



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Forrest continues to outpace the competition. Take a look at our five newest blades...



Ply Veneer Worker (PVW)

Just introduced! Perfect for rip and cross cutting two-sided plywood (finished or unfinished) and cross cutting solid woods. Features 10° hook, 70 teeth, high alternate bevel grind.



"Signature Line" Chop Master

Features redesigned angles, 90 teeth, and a -5° hook to control the feed rate. Choice of 10" or 12" diameters.



Woodworker II 48-Tooth

Has a 20° face hook, a 25° bevel for an easier feed, and a 10" diameter with 1/8" kerf. Sharp points deliver clean cross-grain slicing with reduced vibration.



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5/16" cuts or 1/4" and 3/8" cuts. Also ideal for rabbets and grooves.

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- Visit our website: www.ForrestBlades.com

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Dan Krage, Milford, OH

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Gregory Georges, Chapel Hill, NC

"I only use your company's blades. You have a lifelong customer in me."

Chad Cottrell, Minatare, NE

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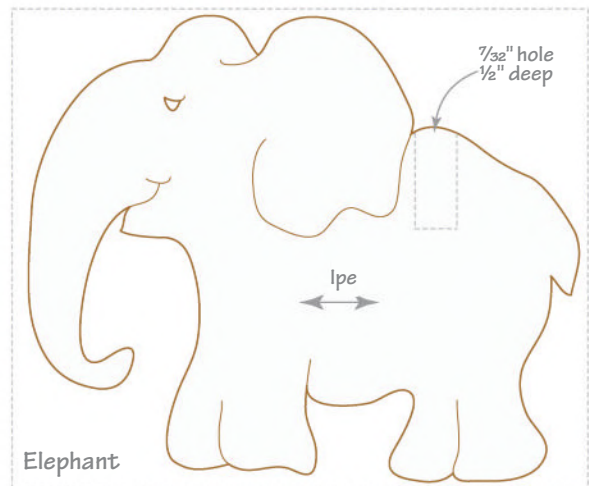
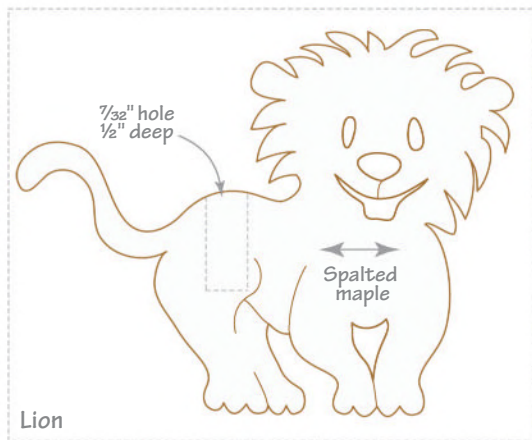


Duraline Hi-AT
Woodshop News



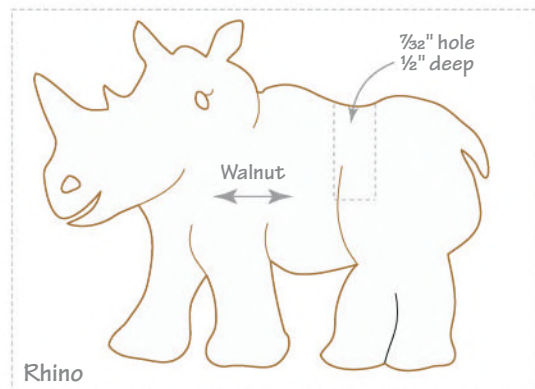
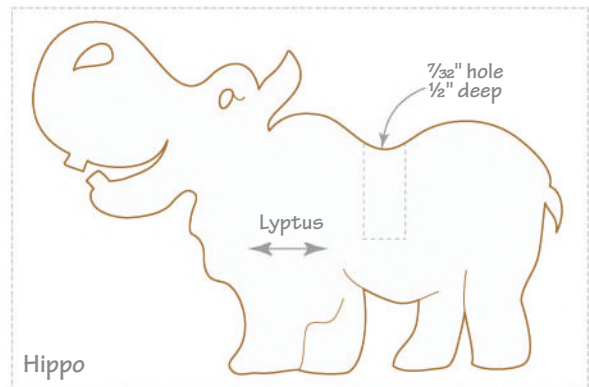
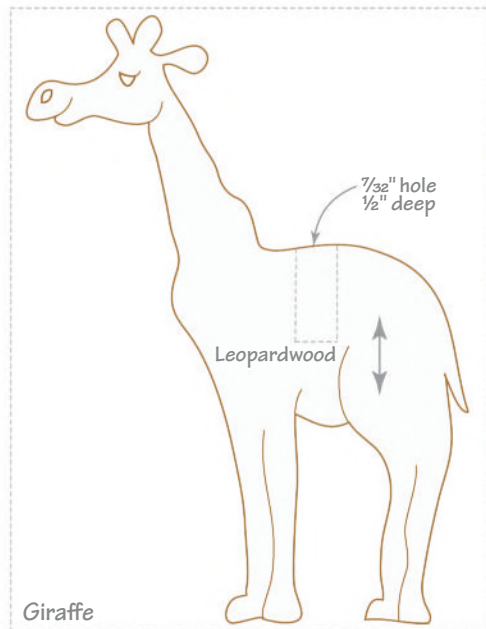
Custom Woodworker II
Woodshop News





NOTE:
All stock
is 1/2".
Grain direction
↔

► Download these
full-size printable
patterns at
[woodmagazine.com/
237patterns](http://woodmagazine.com/237patterns)



between two 2x4 blocks), and, using your drill press, bore the hole into the top edge, where shown on the patterns.

4 Remove the patterns, finish-sand each candle holder to 220 grit, and apply a clear finish. We sprayed on three coats of aerosol lacquer, sanding between coats with 320-grit sandpaper. 🌲

Choose the right scrollsaw blade for the job

Fine scrollsaw blades make clean, tight-radius cuts, but break more easily than wider ones. That means picking the best scrollsaw blade for any job can be a bit of a balancing act. Here's help. Keep a copy of this chart by your scrollsaw to identify the optimal blade size for specific applications.

FOR THIS WORK... ➡ ...CHOOSE THIS BLADE. ⬇	Intricate cuts in material 1/16-3/32" thick			Tight-radius cuts in material 1/16-3/32" thick			Tight radii in 1/8" or thicker material		Cuts in hard and soft woods from 3/16" to 2" thick.						
Universal number	2/0	0	1	2	3	4	5	6	7	8	9	10	11	12	
Teeth per inch (TPI)	28	25	23	20	18	15	14	13	12	11.5	11.5	11	9.5	9.5	

Produced by **Nate Granzow** with
Kevin Boyle
Project design: **Kevin Boyle**
Illustrations: **Kevin Boyle**



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We appreciate innovation in woodworking tools, especially when it makes a meaningful difference in shops large and small, pro and hobbyist. These eight cutting-edge products are tops among the dozens we considered.



Cut dados as thin as 1/16"

Most stacked dado sets won't cut less than a 1/4" width, and only a couple will cut 3/16". But Amana's new kit goes as narrow as 1/16". It consists of two mating hubs with quartered blade sections that nest together. Add shims (included) to fine-tune the width as needed.

8" thin-kerf stacked dado set

no. 61380, \$320
Amana
800-445-0077, amanatool.com



Diamonds don't dull

Carbide saw blades work great and stay sharp a long time cutting most hardwoods. But they're no match for abrasive woods, such as ipe and teak, and synthetic flooring materials. For these dulling duties, Diablo's Pergo blade uses diamond-infused carbide teeth, which stay sharp about 75 times as long as standard carbide, according to Freud.

Pergo circular saw blade

10" (no. D1012LF), \$115
12" (no. D1216LF), \$135
Freud Diablo
800-334-4107, diablotoools.com





Rotary plunge kit adds finesse

High-speed compact rotary tools work essentially like small-scale routers. This robust plunge base and microadjustable edge guide from Lee Valley give you the ability to do fine-detail routing, such as for inlays or interior recesses. Simply remove the rotary tool's nose collar, thread the base onto the tool, and you're good to go. Most brands of rotary tools will work if they share this thread pattern.

Rotary-tool plunge base (no. 05J65.01), \$85

Edge guide (with 6" rails) (no. 05J65.03), \$75

Microadjuster (no. 05J65.05), \$27

12" rails (no. 05N29.06), \$14

Complete kit (no. 05J65.07), \$169

Lee Valley

800-871-8158, leevalley.com



Quad-hinge quick-stepper

Cutting multiple mating mortises for right-angle quadrant hinges in a box and lid proves tricky because everything must align precisely for the hinges to work correctly and look flawless. With Rockler's jig, you rout these mortises in three steps, box and lid at the same time, to avoid misalignment. The jig comes with two sizes of insert plates, depending on your hinge dimensions. (Clamps not included.)

Quadrant-hinge mortising jig

(no. 58822), \$50

Rockler Woodworking and Hardware

800-279-4441, rockler.com



Affordable laser etching

Until recently, laser engravers started at about \$8,000. This desktop unit with a 12x20" workpiece capacity sells for less than half that. The manufacturer says it works as simply as printing on a desktop printer, including reproducing high-resolution photos. It will cut wood or acrylic up to 1/4" thick, and engrave most materials. The removable bottom panel lets you engrave items too large to fit inside, as well as reposition for step-and-repeat large jobs.

Full Spectrum 12x20 laser engraver

(no. 55598), \$3,850

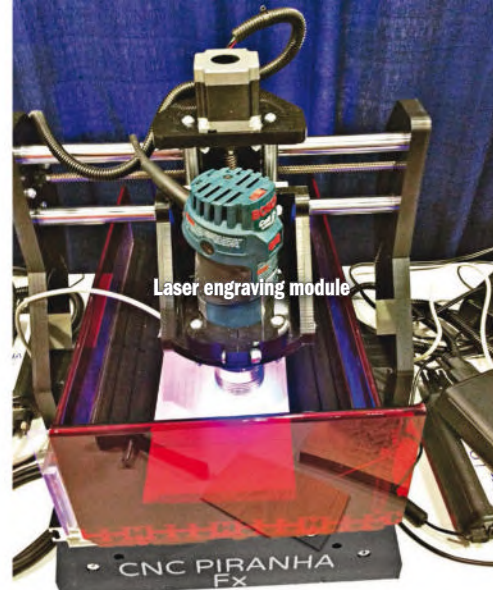
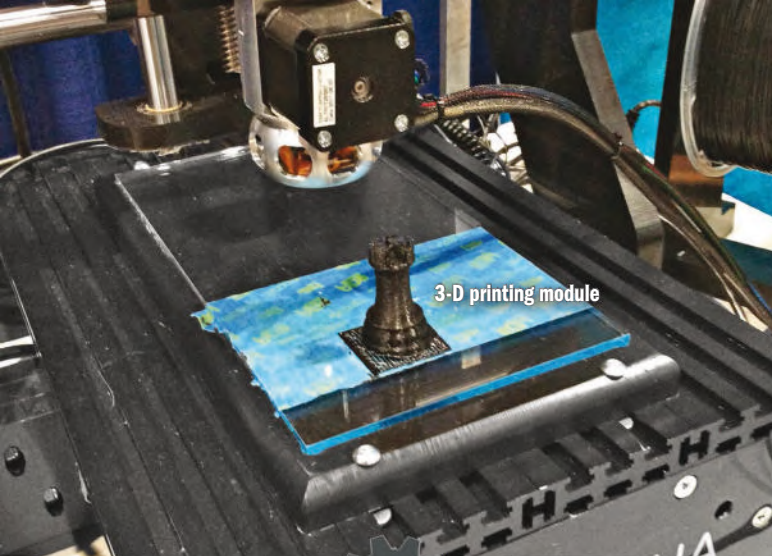
Full Spectrum Laser

702-802-3100, fslaser.com

Available from Rockler Woodworking and Hardware

800-279-4441, rockler.com





3 tech tools in one

Start with the CNC Piranha carving module and you get a 12×18" capacity automated routing station (using your own trim router). Then add the laser engraver, which mounts in the router chuck (with the router switched off), and you can add detailed engraving into any project. Finally, swap in the 3-D printer to create objects, such as chess pieces or project mock-ups, using a plastic-line feed. All three systems operate via a touch-screen interface.

CNC Piranha system

CNC carving module, \$1,600
Carving module, laser engraver,
and 3-D printer package, \$3,200
Next Wave Automation
419-318-4822, nextwaveautomation.com



Lighter, more durable sanders

We like tools with brushless motors because they run cooler, with more power, and less vibration than carbon-brush motors. That's a welcome relief when it comes to sanding. In addition to their brushless motors, these compact Festool sanders weigh less than comparable brushed-motor models. They're also compatible with the company's nine-hole sanding discs and pads, as well as its dust-extraction hoses.

Brushless random-orbit sander

5" pad (no. ETS EC 125/3 EQ), \$385
6" pad (no. ETS EC 150/3 EQ), 1/8" stroke, \$485
6" pad (no. ETS EC 150/5 EQ), 3/16" stroke, \$485
Festool
888-337-8600, festoolusa.com



A finger (and blade) saver

Bosch's flesh-detecting Active Response Technology immediately drops the spinning blade harmlessly below the table, should a finger accidentally touch the blade. And, because there's no brake pawl plunging into the blade's teeth, your blade lives to cut another day. The safety mechanism—born out of Bosch's automotive-airbag technology—consists of a two-activation cartridge. Replacement cartridges cost \$100. The 110-volt saw comes on a collapsible mobile stand, has 25" rip capacity, and includes a slide-out outfeed support.



REAXX 10" job-site tablesaw

(no. GTS1041A-09), \$1,500
Bosch
877-267-2499, boschtools.com

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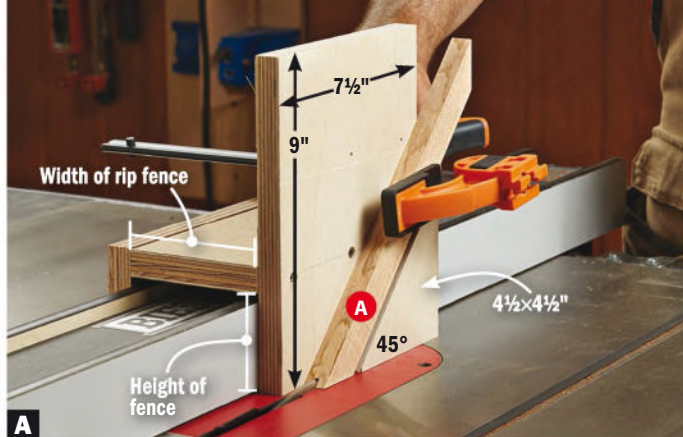
Splined-Miter Frame

No worries about misfit miters here: Contrasting splines bridge the gap for a stunning look.

This picture frame provides a great opportunity to use contrasting species to highlight the pinned-and-splined joinery: We chose cherry and maple. Add a personal touch by using wood that holds a special meaning, or cutoffs from exotic species you've been saving.

These plans include details for making frames that hold 8×10" photos, but we also provide part dimensions for 5×7" photos.





A The jig slides easily along the table saw's rip fence without any wiggle. A 45° support block at the lower corner supports the workpiece. Clamp the frame parts to the jig.



B Apply glue to the groove and rub the spline back and forth a couple of times. Make sure the spline's outer tip sits flush to the frame edges.

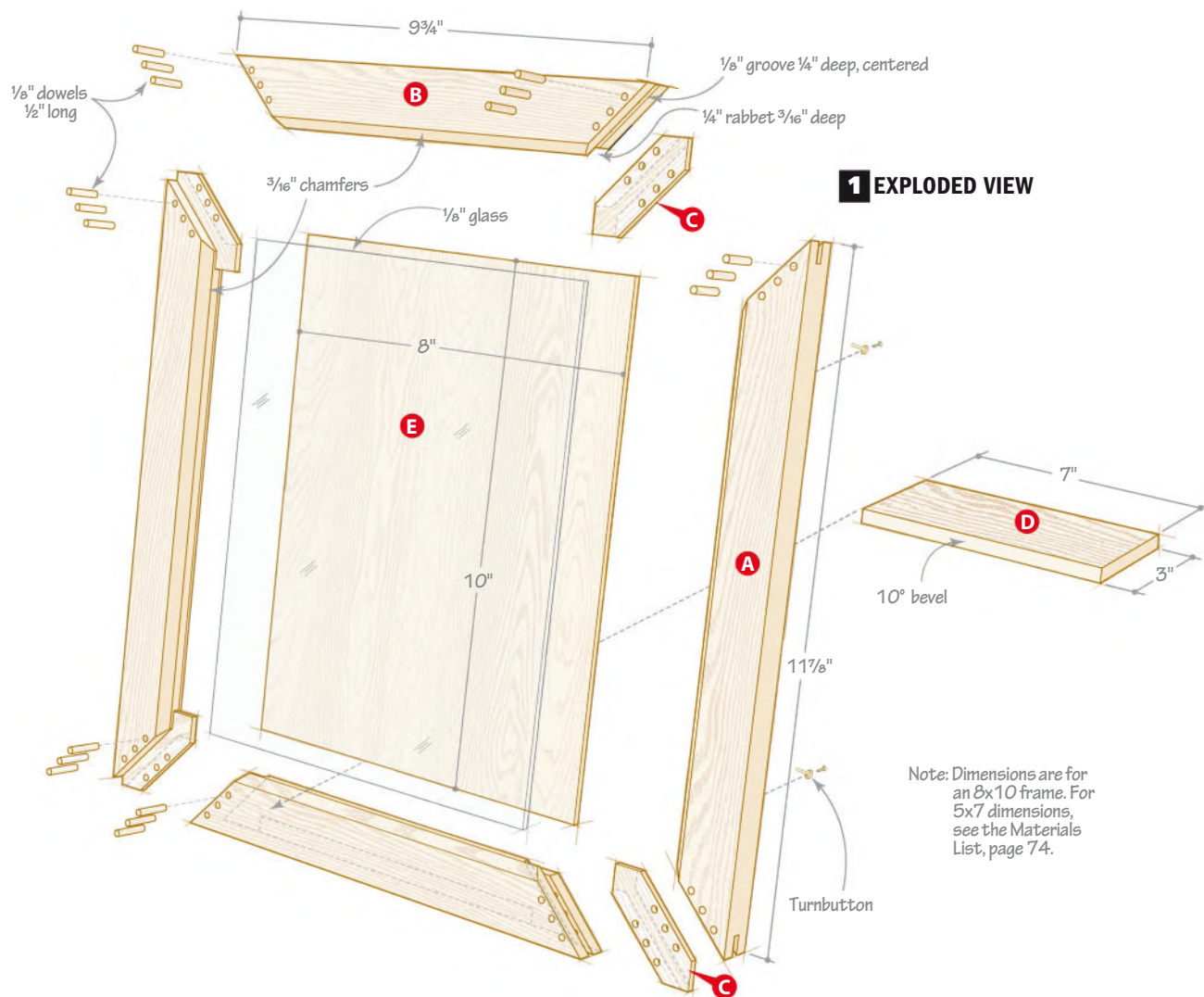
Note: Frames consist of stiles (vertical members) and rails (horizontal). These designations do not change even if the rails are longer than the stiles.

- From $\frac{5}{8}$ "-thick stock, cut a pair of $1\frac{1}{4} \times 24$ " blanks for the 8x10 frame's stiles and rails (18" long for the 5x7 frame). Chamfer one edge of each blank, and then rabbet the same edge on the opposite face [Drawing 1].
- Miter-cut the stiles and rails to length [Materials List].

- Build a miter-spline jig like the one in Photo A. Cut a centered groove in both ends of each stile and rail [Drawing 1].

- Cut the splines (C) to size [Drawing 2]. Using a handsaw, miter-cut the ends. Glue the splines in place [Photo B], working your way around the frame.

Tip! To avoid tear-out, attach an auxiliary fence to your miter gauge or miter saw to back up the cuts.



1 EXPLODED VIEW

Note: Dimensions are for an 8x10 frame. For 5x7 dimensions, see the Materials List, page 74.

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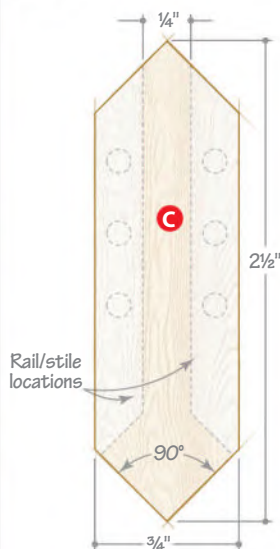
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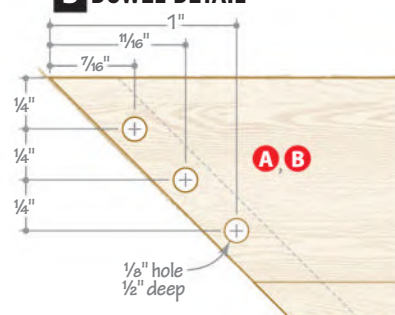


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2 MITER SPLINE



3 DOWEL DETAIL



5 After the glue dries, lay out and drill three $\frac{1}{8}$ " holes along each miter [Drawing 3]. Glue in dowels, preferably of the same species (or color) as your splines. Cut and sand the dowels flush when dry.

6 Cut the support (D) with a 10° bevel along one edge [Drawing 1]. Glue the beveled edge to the bottom rail.

7 Cut a back (E) from $\frac{1}{8}$ " plywood to fit the rabbet, and cut a piece of glass to match. Attach turnbuttons to the frame to secure the back.

8 Remove the turnbuttons, back, and glass, and sand the frame to 220 grit. Apply your finish of choice. We used Watco aerosol satin lacquer. Then reassemble with a picture, and enjoy the view! 🌳

Note: If you can't find $\frac{1}{8}$ " dowels where you usually buy materials, try a craft store or art-supply store.

Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
8×10 frame					
A* stiles	5⁄8"	1 1⁄4"	11 7⁄8"	C	2
B* rails	5⁄8"	1 1⁄4"	9 3⁄4"	C	2
C splines	1⁄8"	3⁄4"	2 1⁄2"	M	4
D support	5⁄8"	3"	7"	C	1
E back	1⁄8"	8"	10"	P	1
5×7 frame					
A* stiles	5⁄8"	1 1⁄4"	8 7⁄8"	C	2
B* rails	5⁄8"	1 1⁄4"	6 3⁄4"	C	2
C splines	1⁄8"	3⁄4"	2 1⁄2"	M	4
D support	5⁄8"	3"	5"	C	1
E back	1⁄8"	5"	7"	P	1

*Parts initially cut oversize. See the instructions.

Materials key: C-cherry, M-maple, P-plywood.

Supplies: $\frac{1}{8}$ " glass, $\frac{1}{8}$ " dowels.

Source: Turnbuttons, 10-pack (no. 146010), \$5.29, Woodcraft, 800-225-1153, woodcraft.com.

Bits: $\frac{1}{8}$ " brad-point bit.

Produced by **Bob Hunter** with
Kevin Boyle
Project design: **John Olson**
Illustrations: **Roxanne LeMoine**,
Lorna Johnson



Installing Quadrant Hinges

Rout the recesses right
to hold a lid upright.
Here's how.

Like many hinges, the leaves of quadrant hinges rest flush with the surface of the lid and box. However, the stays that hold the lid open need room to hide inside when the box is closed, which requires four precisely positioned mortises. The two methods shown on the following pages make this task easy.

The budget option

This method uses a plunge router with an edge guide, and a downcut spiral bit that matches the width of the narrowest hinge leaf. And because you use the hinge itself to lay out the cuts, you can use this technique with any size quadrant hinge.

To start, lay out the length of the side leg of the hinge [Photo A]. Set the router bit's depth to match the hinge leaf thickness, then rout a centered recess to the line [Photo B]. Repeat on the opposite side of the lid and the mating surfaces of the box.

Without changing the edge guide position, rout a shorter $\frac{3}{4}$ "-deep mortise inside each recess [Photo C].

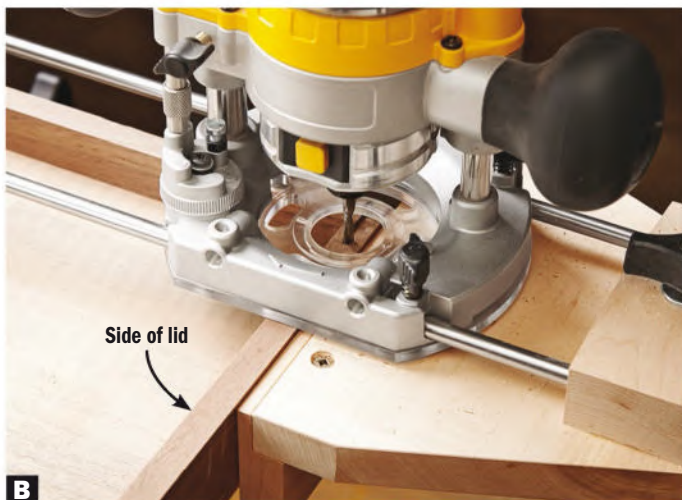
Slide a hinge leaf into each recess and mark the length of the back leg [Photo D]. Rout the recess [Photo E], then square up the ends with a chisel. Fit a hinge in each recess, and drill the screw pilot holes. Replace the lid stop in each hinge before screwing them in place.

► Find the edge guide plan in issue 213 (September 2012) or purchase the plan at woodmagazine.com/edgeguide.

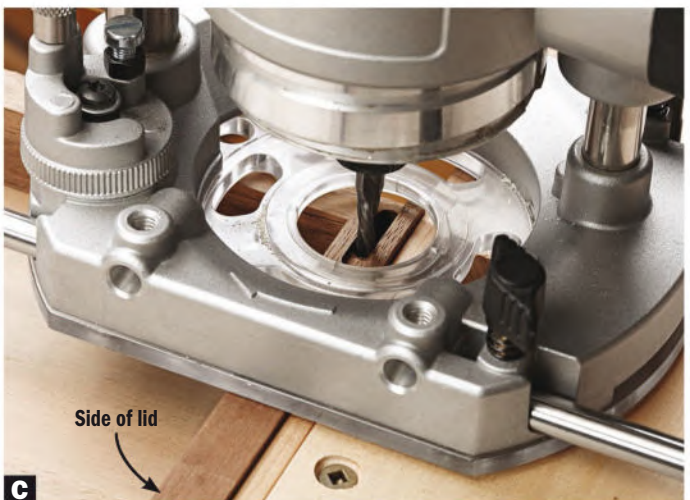
► Angle the pilot holes for the back leg inward a few degrees to prevent blowout on the rear of the box or lid.



A Center a hinge on the thickness of mating corners of the lid and box, with one leaf pressed against the back face of the box or lid. Mark the leaf length on the mating edges.



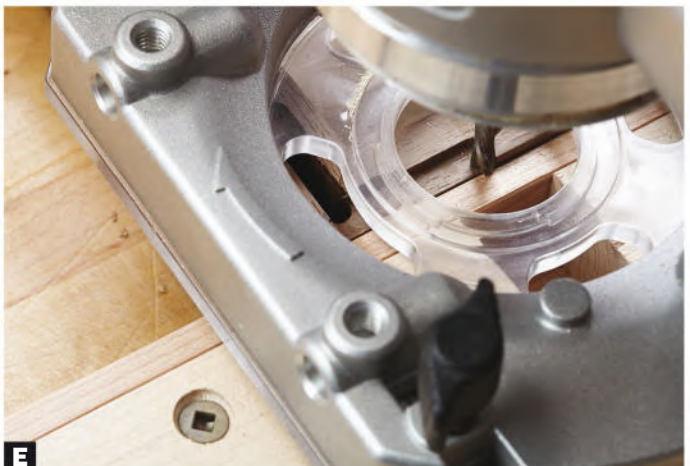
B A downcut spiral bit cuts clean shoulders and leaves a rounded end that matches the hinge leaf. An edge guide keeps the router on track while routing the recesses.



C Starting $\frac{1}{8}$ " from the rear edge of the lid or box, rout a $\frac{5}{8}$ "-long mortise inside the existing recess. Rout in several successively deeper passes.



D With a leaf snug in the recess, and the edge of the back leg against the back of the lid, mark the length of the leg.



E As with the side recesses, rout the rear recesses with an edge-guided router. After making the initial pass on each, reset the edge guide if needed to clean up the rear edge.

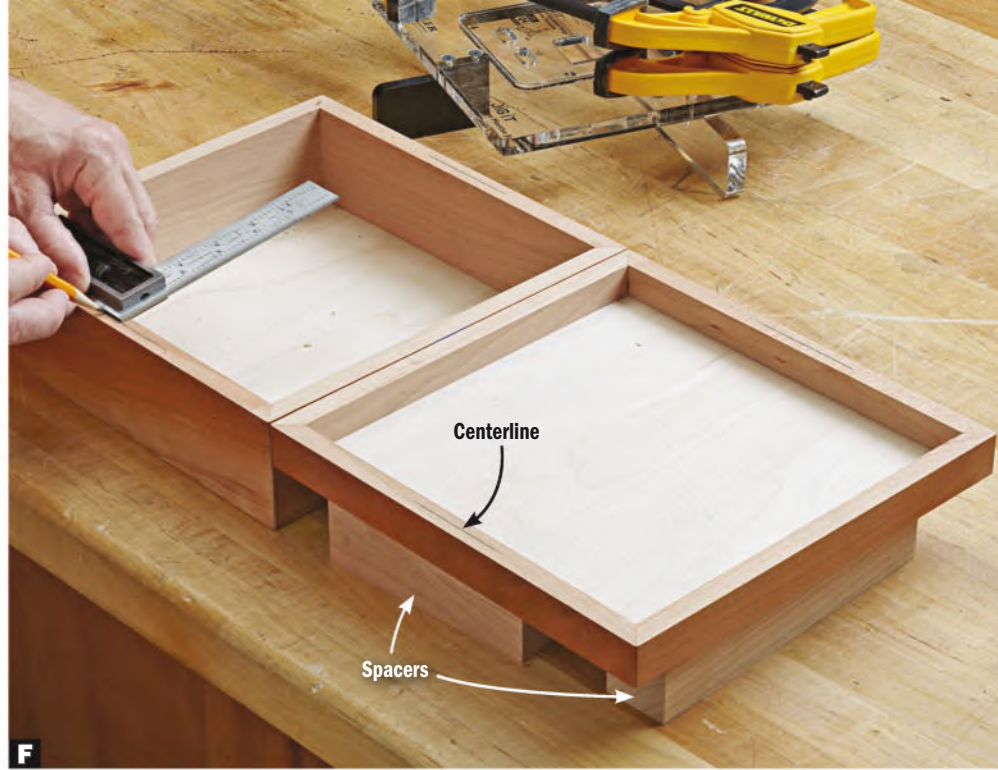
The easily repeatable option

If you plan to install a number of quadrant hinges, the Rockler Jig-it can make the job easier, provided you are using hinges with leaves that are 1x1", 1¼x1¼" or 1⅝x1⅝". The jig clamps to the box and lid as shown in **Photos I and J**. A ⅜" guide bushing in the base of the router guides a ⅝" downcut bit around the jig openings to make the cuts in mating parts in one operation. (You'll need to buy the bit and guide bushing if you don't already have them.) 🌲

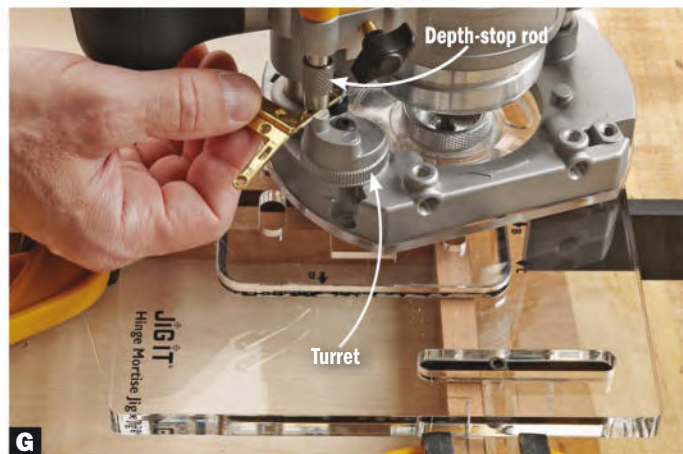
Produced by **Craig Ruegsegger** with **John Olson**

Sources: Jig-It platform \$50, no. 58822; template inserts sized for specific hinges, \$8 each, Rockler Woodworking and Hardware, 800-279-4441, rockler.com.

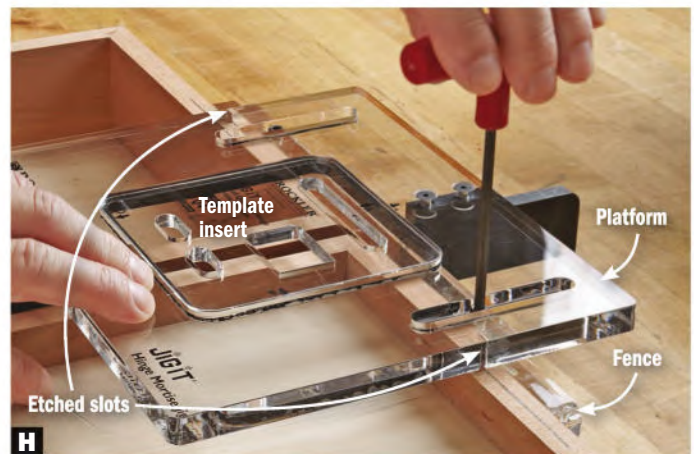
⅝" CMT downcut spiral bit with ⅜" cutting length no. 192.005.11, available at Sears and amazon.com.



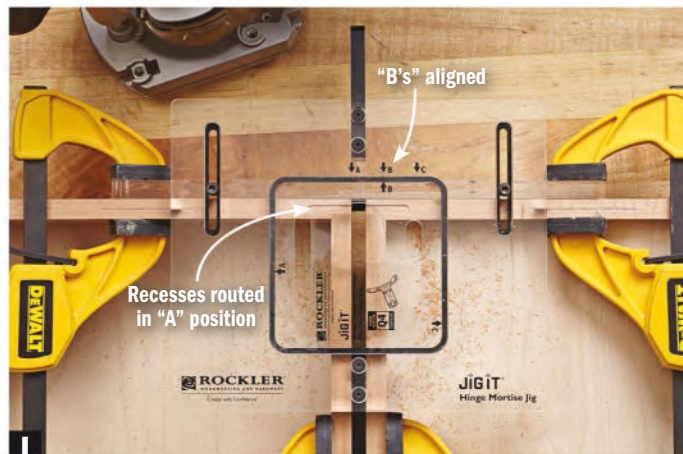
F First, mark centerlines on the mating edges of the lid side and box side. Elevate the lid on spacers to level it with the box.



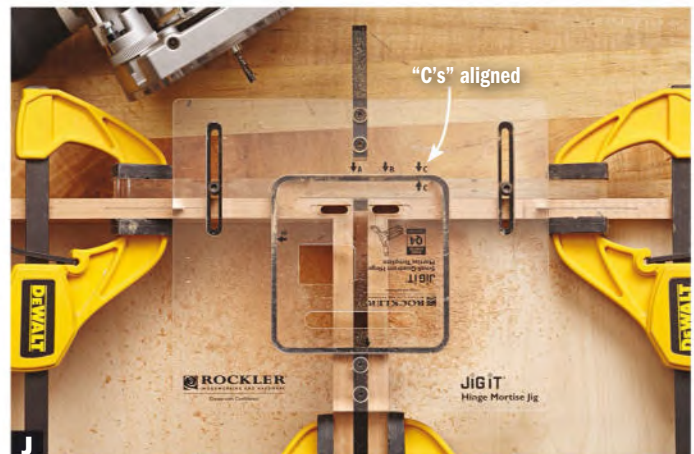
G To set the router-bit cutting depth, place the router on the jig and lower the bit until it contacts the box. Sandwich a hinge leaf between the depth-stop rod and the turret and secure the depth-stop rod.



H Align the etched slots in the jig with the centerlines. Slide the fence against the box and lid, and secure it. Clamp the jig in place, making sure the box and lid contact the underside of the platform. (The template insert rests above the bottom face of the platform.)



I Align the "A" on the template insert with the "A" on the jig platform and rout the recesses in the sides of the lid and box. Rotate the template 90° to align the "B's" and rout around the large opening to form the recesses in the rear of the lid and box.



J Rotate the template again to align the "C's" and, in several passes, rout the two remaining slots ¾" deep. Repeat the routing procedures on the opposite side of the lid and box. Remember to reset the bit depth before beginning.

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\$31.99 ~~comp at \$69.99~~

Includes 6V, 900 mAh NiCd battery pack.

LIMIT 3 - Good at our stores or HarborFreight.com or by calling 800-423-2567. Cannot be used with other discount or coupon or prior purchases after 30 days from original purchase with original receipt. Offer good while supplies last. Non-transferable. Original coupon must be presented. Valid through 3/24/16. Limit one coupon per customer per day.

WOW SUPER COUPON

10" 12 SPEED BENCH MOUNT DRILL PRESS

LOT 60237 shown 44836/62408

SAVE \$100

\$99.99 ~~comp at \$199.99~~

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WOW SUPER COUPON

4000 PEAK/3200 RUNNING WATTS 6.5 HP (212 CC) GAS GENERATORS

SAVE UP TO \$230

TYPE	LOT	COMP AT
EPA	69729/69676	\$529.99
EPA/CARB	69728/69675	\$469

• 70 dB Noise Level
Item 69676 shown

\$299.99 ~~comp at \$529.99~~

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WOW SUPER COUPON

drillmaster 1500 WATT DUAL TEMPERATURE HEAT GUN (572°/1112°)

LOT 96289 shown 62340/62546

SAVE 70%

\$8.99 ~~comp at \$29.97~~

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Tool-triggered vacuums

We tested several vacuums (also called dust extractors) with multiple portable and benchtop tools, and found these four best in show. All have HEPA-rated filtration that traps every speck of dust—great news for your lungs!

Quietest

Festool CT 26

\$650

Noise level with hose attached: 67 decibels

Replacement fleece filter bags: 5-pack, \$38

You don't need to be invested in Festool tools to make great use of this vacuum. With good suction, a 6-gallon-capacity fleece filtering bag, and secondary cartridge filters, you'll be breathing clean air when sucking up dust with this unit. It's so quiet, you won't have to wear hearing protection, unless you attach a louder tool. Plus, Festool Systainers (the cases tools come in) lock onto the top of the vacuum for easy storage and access. As you'd expect, its 27mm (1 $\frac{1}{16}$ ") hose with rubber nozzle fits all Festool tools precisely, but also tools with 1-1 $\frac{1}{8}$ " fittings. And it fits inside dust ports measuring about 1 $\frac{1}{2}$ " in diameter.

888-337-8600, festoolusa.com



Most compact

Festool CT Mini

\$475

Noise level with hose attached: 80 decibels

Replacement fleece filter bags: 5-pack, \$28

The CT Mini has the same hose, suction, and filter media as the CT 26, but the storage bag holds only 2 gallons of dust, so you'll have to replace it more frequently. It's also louder than the other three vacuums on this page, so wear hearing protection when using it.

▶ A HEPA filter stops 99.97 percent of particles down to 0.3 microns in size. For perspective, typical human hair measures about 40-60 microns in diameter.



Best value

Fein Turbo II (9-20-28)

\$400

Noise level with hose attached: 74 decibels

Replacement fleece filter bags: 5-pack, \$42

You can't beat this vac's combination of price and performance. With slightly better suction than the Festool models, thanks in part to its 35mm (1 $\frac{3}{8}$ ") hose, the Turbo II excels at sucking up debris larger than dust. For use with a router table, upgrade to a 2 $\frac{1}{4}$ " hose and a permanent fleece filter (\$80) to avoid filling bags frequently. 800-441-9878 feinusa.com



Best for benchtop tools

Bosch VAC090S

\$550

Noise level with hose attached: 78 decibels

5-pack fleece filter bags, \$35; 5-pack paper filter bags, \$22

Because it has the best suction, we like this unit for benchtop tools and router tables, although you'll need to buy a larger-diameter hose or adapter to connect with 2 $\frac{1}{4}$ " or 2 $\frac{1}{2}$ " ports. The 9-gallon tank holds a lot of chips, yet it's easy to dump when full. A built-in "pulse" cleaner knocks buildup off the filters when you activate it or when buildup gets too dense. This vacuum has the best cord and hose wrap of the lot, a big benefit for transport. 877-267-2499 boschtools.com



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Compact router kit works big, costs little

Grizzly Industrial, 1-hp compact router combo kit (no. T27139), \$70
800-523-4777, grizzly.com

For about the same price (or less) that you'd pay for most trim routers, this kit provides a stout variable-speed (10,000–30,000 rpm) 1-hp motor, plunge and fixed bases, an edge guide, and a bearing-guided flush-trimming attachment (not shown).

This router impressed me with its power and nimbleness in all sorts of applications. Despite the lack of a built-in LED light, good sight lines let me see the bit clearly in both bases during use. Each base has good grip points, and the motor slips in and out of each with ease.

I wish the plunge base would default to a locked position, freed to move up and down only when depressing the plunge lever. As it is, locking the lever required loosening my grip on the left handle. And I found the bit-depth scale and indicator clunky and ineffective, and had to set cutting depths by other means.

—Tested by Bob Hunter, Tools Editor



Separator arrests dust before it fouls up the filter

Oneida Air Systems, Ultimate Dust Deputy (no. AXD000009), \$250
800-732-4065, oneida-air.com

I've been using an Ultimate Dust Deputy on my Festool vacuum for more than three years, and it's so effective at trapping dust and chips from my sander, router, and track saw that I'm still using the vac's original collection/filtering bag. And because the filter never plugs, it never loses suction. When the Dust Deputy gets full, I simply dump it and start over. Oneida makes other lower-priced Dust Deputy models, but this unit snaps directly onto Festool vacuums.

—Tested by John Olson, Design Editor

► Read more reviews of dust-collection accessories and routers, as well as many other tools. reviewatool.com

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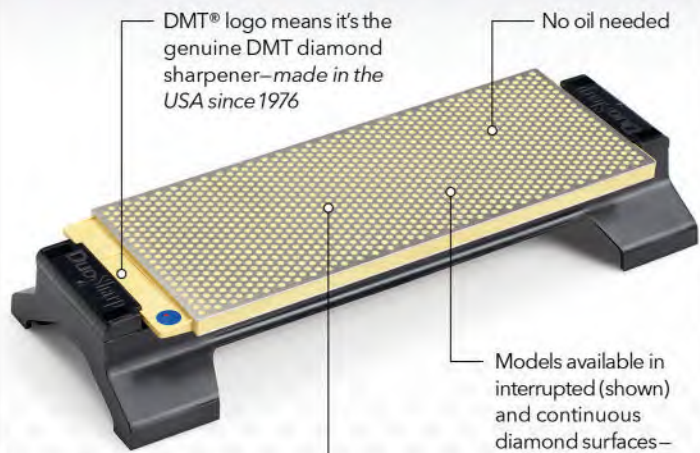


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TOOLS & MATERIALS

NEW AND NEXT

Here's a look at some of the more intriguing new tools and machines launched at the Association of Woodworking and Furnishings Suppliers Fair in Las Vegas, the largest U.S. woodworking trade show in 2015.

Easy speed changes

17" variable-speed drill press (no. 30-236)
\$750

Rikon's woodworker-friendly drill press has a variable speed range of 550–2,300 rpm, 6" of quill travel, 14×14" table that tilts 45°, 5/8" keyed chuck, quick-positioning depth stop, long quill-feed handles, and a flexible-neck LED light.

Rikon, 877-884-5167, rikontools.com



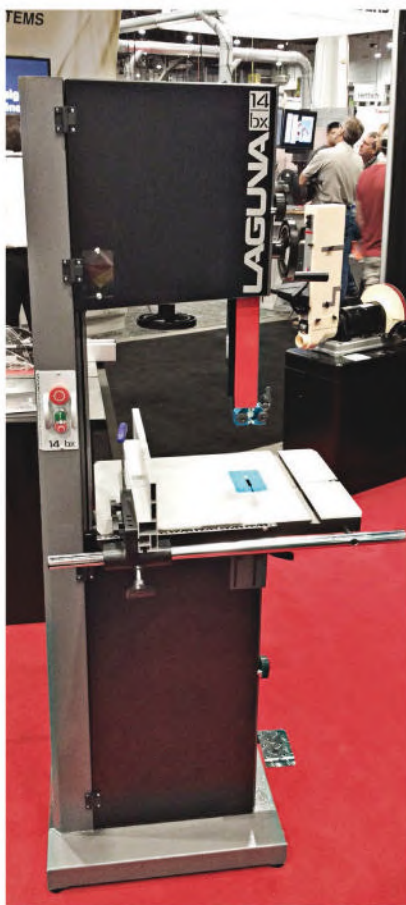
Just gas it 'n' go

18-gauge brad nailer
(no. GC1850)

\$500

Grex's newest bradder runs not on compressed air, but fuel cells. Two AAA alkaline batteries provide the actuation power. This nailer drives brads 3/8–2" long.

Grex, 888-447-3926
grexusa.com



When you need a brake

14" bandsaw, (no. 14bx)

\$1,400 for 110 volts, \$1,500 for 220 volts

Laguna's 14Twelve bandsaw—the company's first 110-volt model—has proven itself in the WOOD® shop over the past two years. This updated version adds a foot brake for fast blade stops, but lacks the original's built-in mobile base.

Laguna, 800-234-1976, lagunatools.com

Cutting-edge versatility

Veritas shop knife (no. 05D21.01)

\$36.50

With a boomerang-esque zinc-alloy handle, this marking knife gives you multiple ways to grip it. The PM-V11 alloy blade can be easily removed for resharpening or positioned to face right or left.

Lee Valley, 800-871-8158, leevalley.com



Meet the Beauty in the Beast

Discover this spectacular 6½-carat green treasure from Mount St. Helens!

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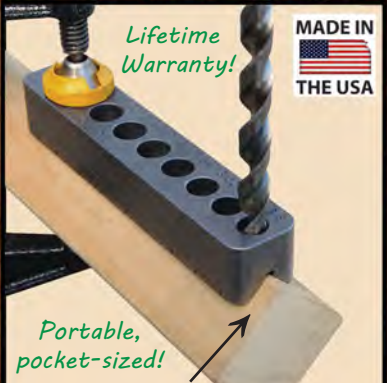
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f. Total Distribution (Sum of 15c and e): 389,065
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i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100): 99.68%

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e. Total Nonrequested Distribution (Sum of 15d (1), (2), (3), and (4)): 1,121
f. Total Distribution (Sum of 15c and e): 361,000
g. Copies not Distributed (See Instructions to Publishers #4, (page #3)): 59,000
h. Total (Sum of 15f and g): 420,000
i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100): 99.69%

16. Electronic Copy Circulation
Average No. Copies Each Issue During Previous 12 Months
a. Requested and Paid Electronic Copies: 13,121
b. Total Requested and Paid Print Copies (Line 15c) + Requested/Paid Electronic Copies (Line 16a): 400,926
c. Total Requested Copy Distribution (Line 15f) + Requested/Paid Electronic Copies (Line 16a): 402,186
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c. Total Requested Copy Distribution (Line 15f) + Requested/Paid Electronic Copies (Line 16a): 375,526
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A GLIMPSE INSIDE THE MARCH ISSUE (ON SALE JANUARY 12)



Rolling kitchen island

Give your cookbook collection a home, and scoot around the scullery with this maple-topped storage solution.



Pop a top
We show you how to craft a bottle-shape bottle opener. (Please open responsibly.)

Idea Shop 6: Build on a budget

Outfit a shop—from scratch—in less than a year by earmarking a small amount of money from each paycheck.



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