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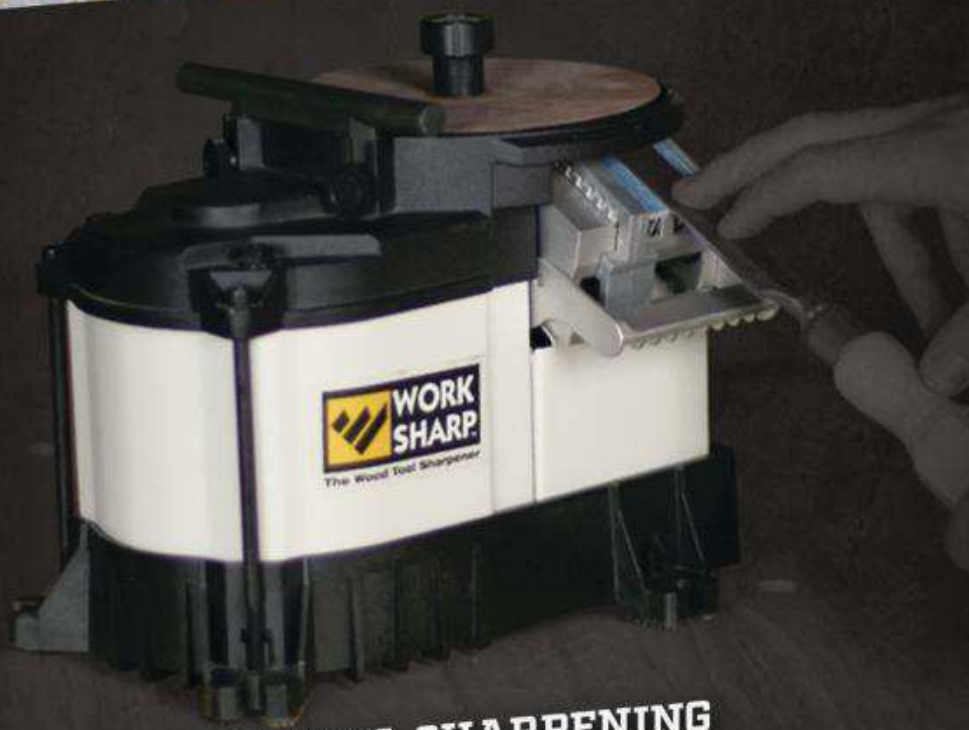
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Buy the (not) best

During our daughter Katie's junior year of high school, she was considering becoming a choir teacher. But when we took her to a career counselor known for her uncanny ability to help young adults discern the right career paths, Katie was told that her personality type is more that of a "first lieutenant"—not interested in being the top dog but perfectly happy as a highly appreciated second-in-command.

I recognized a lot of myself in that counselor's description of Katie, and the more I thought about it, the more I discovered that it applies in my shop, too: I have a slew of first-lieutenant tools.

It's not because I don't know which ones are the best; we're in the tool-testing business, for crying out loud, so I have pretty good intel on the top performers and, often, the opportunity to try them out. Still, I frequently find myself more attracted to—and often buy instead—the silver- or bronze-medal tool.

For one thing, I've learned that (check-book-minding spouses, take heart!) better tools don't necessarily make you a better woodworker. In 20+ years of visiting readers' shops, I've seen the most magnificent work made on equipment that wouldn't crack the top half of one of our category reviews, such as the sliding mitersaw roundup on *page 44*.

It's also because, until I retire, I don't get nearly as much shop time as I'd like. By the time that day arrives, who knows what tool technology will be like, so why spend a bunch of money now on equipment that may be much improved by then? The runner-up, or one farther down the list, will get me by until that day—and maybe forever.

To be fair, there are some tools where it pays to get it right the first time. For example, you may buy only one jointer or drill



press in your lifetime. But (sacrilege alert) you don't always need tools that will last forever. Some, such as cordless drills, just keep getting better as technology advances. So, if you bought a gold-medal 18-volt drill five years ago, you'd be missing out on such upgrades as brushless motors and improved lithium-ion batteries—features now available even in today's not-quite-top performers.

The converse also is true. Some tools are handy to have, but you need them for only one job, or maybe once or twice a year. Do you need to spend hundreds on top-of-the-line when el-cheapo will get the job done?

Bottom line: Every tool in your shop needn't be the best of the best. Invest in those once-in-a-lifetime buys; otherwise, get only as much as you need and can afford. Craftsmanship comes from you, not the tools.

See you in the shop.

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Want to save money woodworking?

Do you collect perfectly good bent nails from your neighbor's trash for later straightening? Do you call last week's 150-grit sandpaper this week's 220? Are you miserly? A tightwad? A cheapskate? Good. Then, you can join our woodworking club. If not, here are some articles that will bring you around to the frugal side of the hobby.

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The skyline's no limit

While shopping with his new bride nearly 20 years ago, my coworker at Ryan Companies, Rolly Stevens, was disappointed in the high prices and low quality of commercially made furniture. So, he struck a deal with his wife's grandfather, who had a small woodshop. Rolly bought the lumber, and Granddad taught him how to make coffee tables, end tables, and more.

Rolly's woodworking skills became known at the office when he began to donate his handmade wooden toys for Ryan's annual charity auction, and in 2017 he was approached by company leadership to build a model of the Minneapolis area. Working nights and weekends, Rolly spent more than 750 hours crafting more than 150 buildings, three bridges, a lock and dam, and riverfront out of paint-grade hardwood and poplar.

Now this beautiful model is showcased in the Ryan Companies' front lobby for all to see.

—**Katie Anderson**
Minneapolis

Top Tip coin cutter begets better blocks

I modified Bob LaDue's coin-cutting jig in issue 254 (Shop Tips, July 2018), as shown right, to cut varying lengths of square stock for the block puzzles I build. After boring the dowel hole in the sliding stock holder, I simply squared it with my bandsaw. In addition, I made my holder 4" wide and cut two kerfs to make burr-free blocks of two different lengths. And I can make even longer blocks by attaching a spacer to the fence side of the stock holder.

—**Bob Collins**
Snyder, N.Y.



Readers find "Pitch" perfect

I feel Dave Campbell's pain concerning dust-collection fittings in issue 254's Taking Measure ("Pitching a Fit"). I work at a woodworking store, and I have been the lightning rod for some very heated rants, as if I were responsible for designing each and every individual dust port and doing so in differing sizes intentionally.

If I were king for a day, I would require every stationary machine to be equipped with a 4" port; every benchtop power tool with a 2½" port, and portable power tools with 1¼" ports, with no deviation from those three sizes.

—**Dave Phillips**
Sacramento, Calif.

Dave, I can't express enough how I share your frustration on dust-collection fittings. We need to rally more woodworkers on this campaign. I'm with you 100% on this one.

—**Bob Houle**
Windsor, Conn.

Bless your soul! You hit a home run, Dave. Maybe the new "universal" fittings should have a color code or unique mark to identify them. Can't wait to see how long it takes to get everyone on board. By the way, you said you have only one bucket of oddball fittings? Lucky dude: I have an entire cardboard box of them.

—**Greg Forst**
Tucson, Ariz.

That was just my bucket of small adapters, Greg. I have another 30-gallon plastic tote full of 4"-ish hoses, fittings, and adapters!

—Dave Campbell



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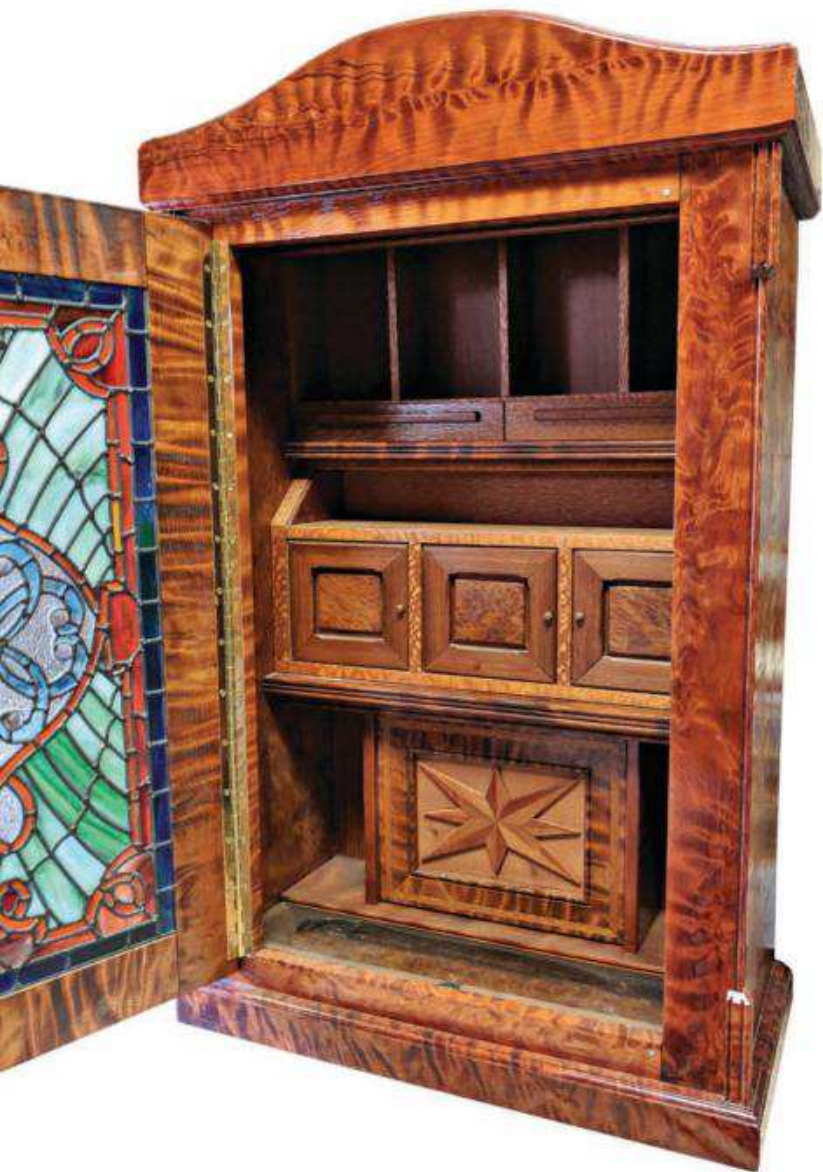
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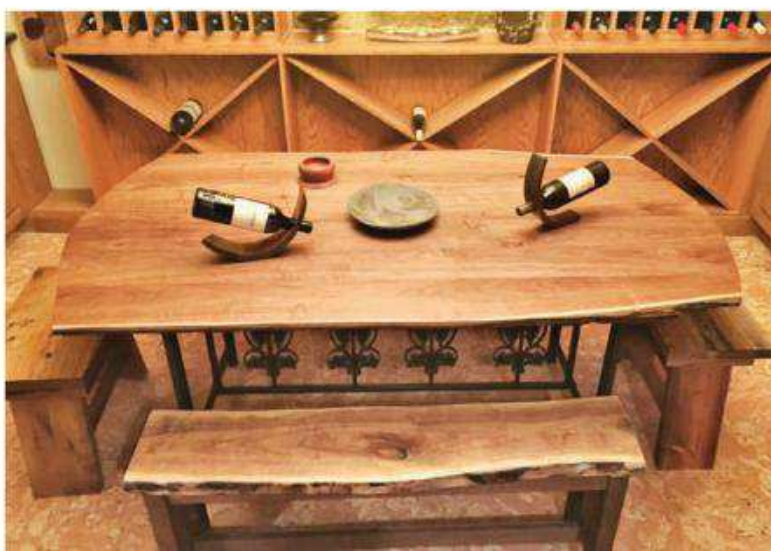


Made from 1,500-year-old curly redwood, this cabinet by **Daniel Lawrence**, of Ferndale, Calif., features a stained-glass door he also designed and crafted. Interior cabinet components include lacewood, walnut, and bird's-eye maple parts.



Working from photos, **Walter Seckel**, of Galion, Ohio, built this 4'-long model of "The General," the iconic Civil War-era locomotive, from solid walnut. It took him about 200 hours.

Ted Stephens, of Cumming, Iowa, discovered a wind-fallen walnut tree on his property, had it milled and kiln-dried, then made it into this beautiful natural-edge table and benches.



Using a "basket-weave look" technique of his design, **Jerry Syfert**, of Sebring, Fla., built this memorabilia chest from 287 pieces of walnut and white cedar harvested from a small island in northern Michigan.



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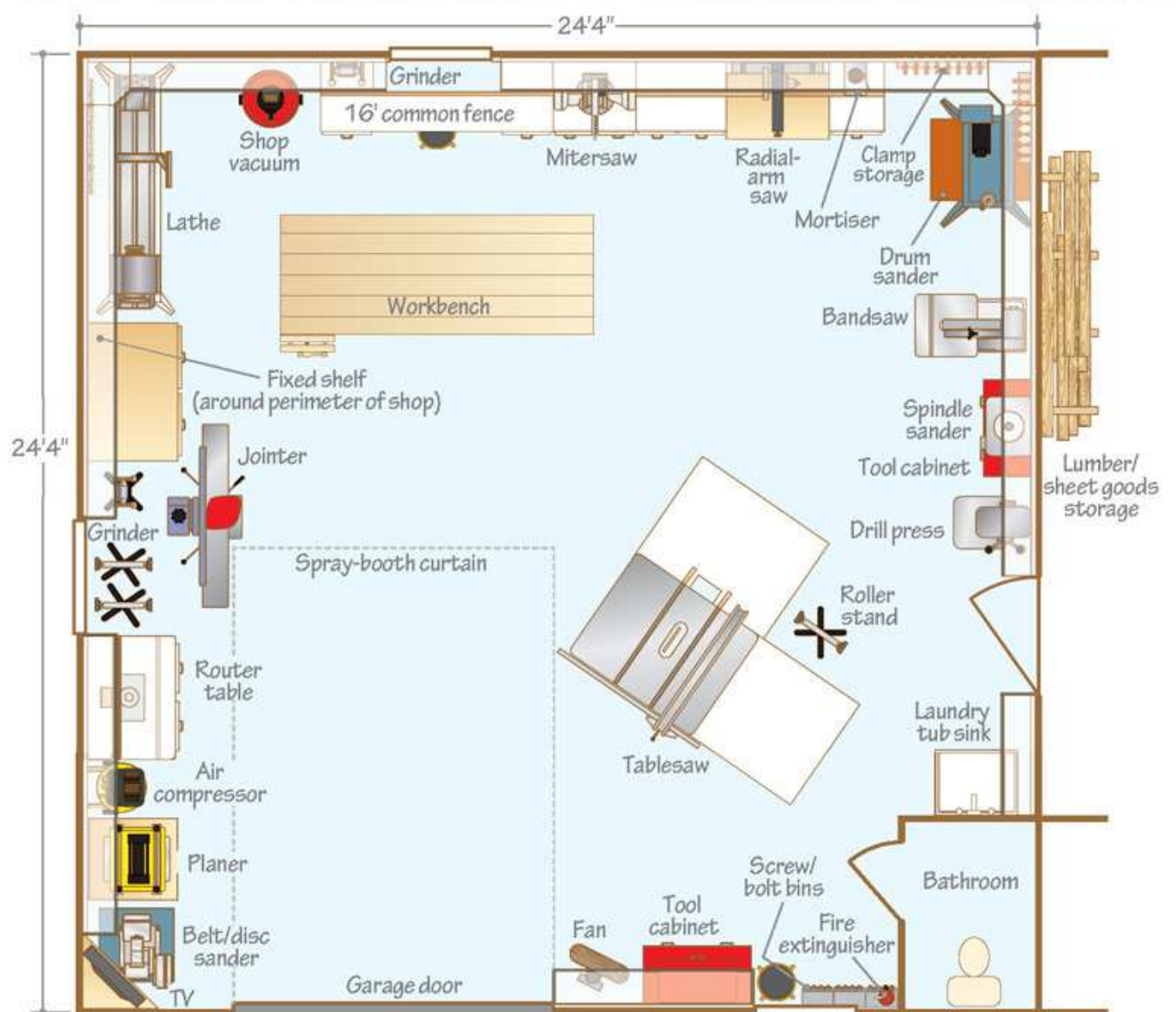


Shop organization revolves around the tablesaw. Bill can cut 4×8' sheets with the overhead door closed. He allowed plenty of walking room between stationary tools and benches.



Bill Barsh's workshops have progressed from his first, in a 10×10' metal shed, to a one-car garage, a two-car garage, and finally, his dream shop, built in 1995 on his property in Mississippi. His hobby eventually grew into a small business, Southern Yankee Workshop.

Step into Bill's shop and the first thing that hits you is how bright it is. The walls, ceiling, and cabinet faces are all white. Bright-white fluorescent fixtures and LED task lighting eliminate shadows. A few windows let in natural light. The second thing you notice is his radial-arm saw, a carryover from the 1970s. He uses it mostly for rough crosscuts and making half-lap joinery.



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Pegboard running around the perimeter of the shop provides plenty of options for hanging tools and jigs at a convenient height.



The heavy-duty workbench and wall of cabinets serve as a project-assembly area.

Bill placed his dust collector in the attic. Although changing the dust-collector bag is inconvenient, it's a small price to pay for the reduced noise and added floor space.

Sheet goods, cutoffs, and shop chemicals are stored in an adjacent room. Inside the main shop, 86 drawers keep the work area clean and organized. Yes, he knows what every drawer contains. For additional storage, he lined the walls with a 30"-wide strip of pegboard.



The attic houses project lumber and a dust collector with a trash-can separator. The dust collector is operated by a wireless remote control.



Canvas "walls" form a convenient temporary booth for spraying finish.

When needed, Bill creates a finishing "room" in the corner by sliding a canvas curtain along a wire on the ceiling. The curtain tucks in beside the garage door when not in use. A combination of open doors, fans, and vents ensures fresh-air flow when spraying.

He plumbed in a couple of conveniences, too. A bathroom occupies one corner of the shop, and a utility sink provides easy cleanup of tools and finishing gear.

Bill's shop is an example of cleanliness and efficiency in a relaxing atmosphere. He wouldn't have it any other way. 🌲



Bill is an Air Force Vietnam veteran and worked for 23 years on the space-shuttle program. Find his shop online at southernyankeeworkshop.com.

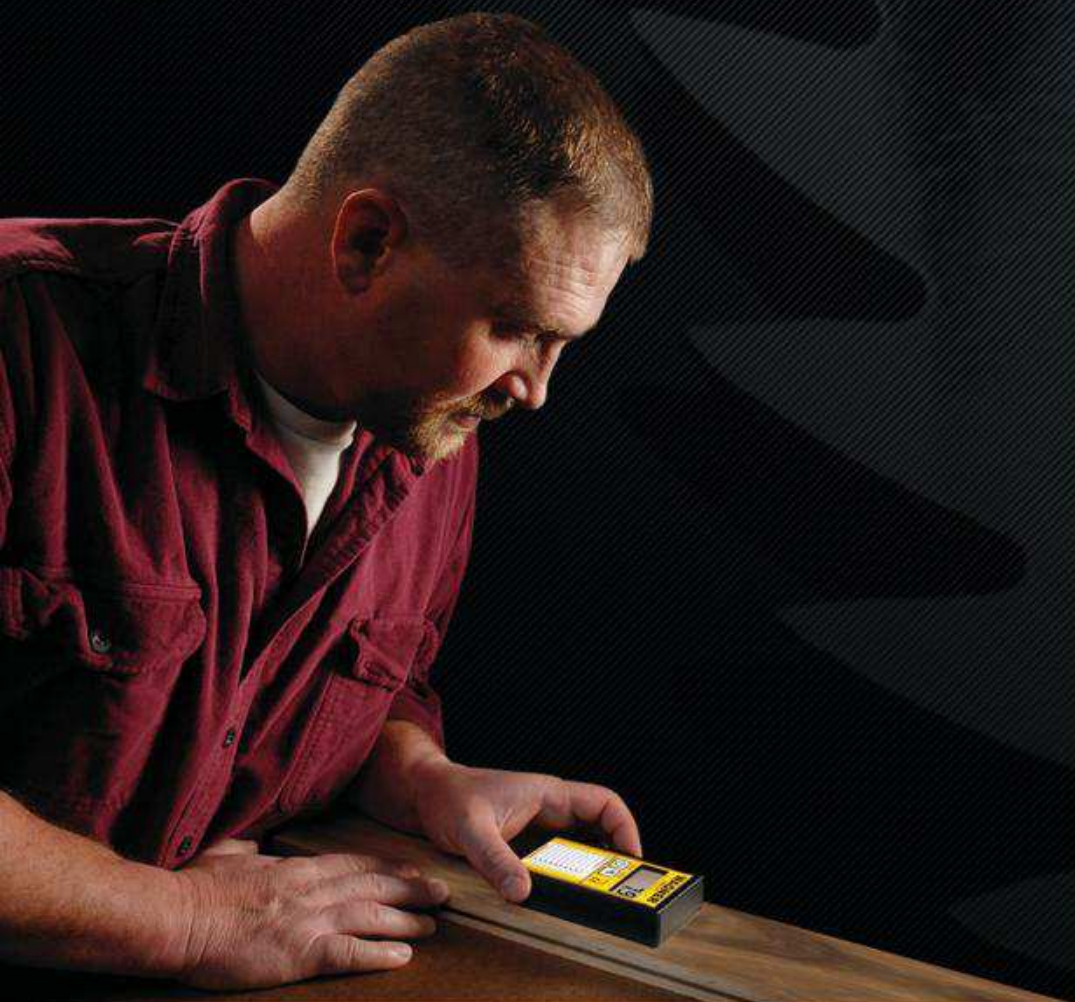
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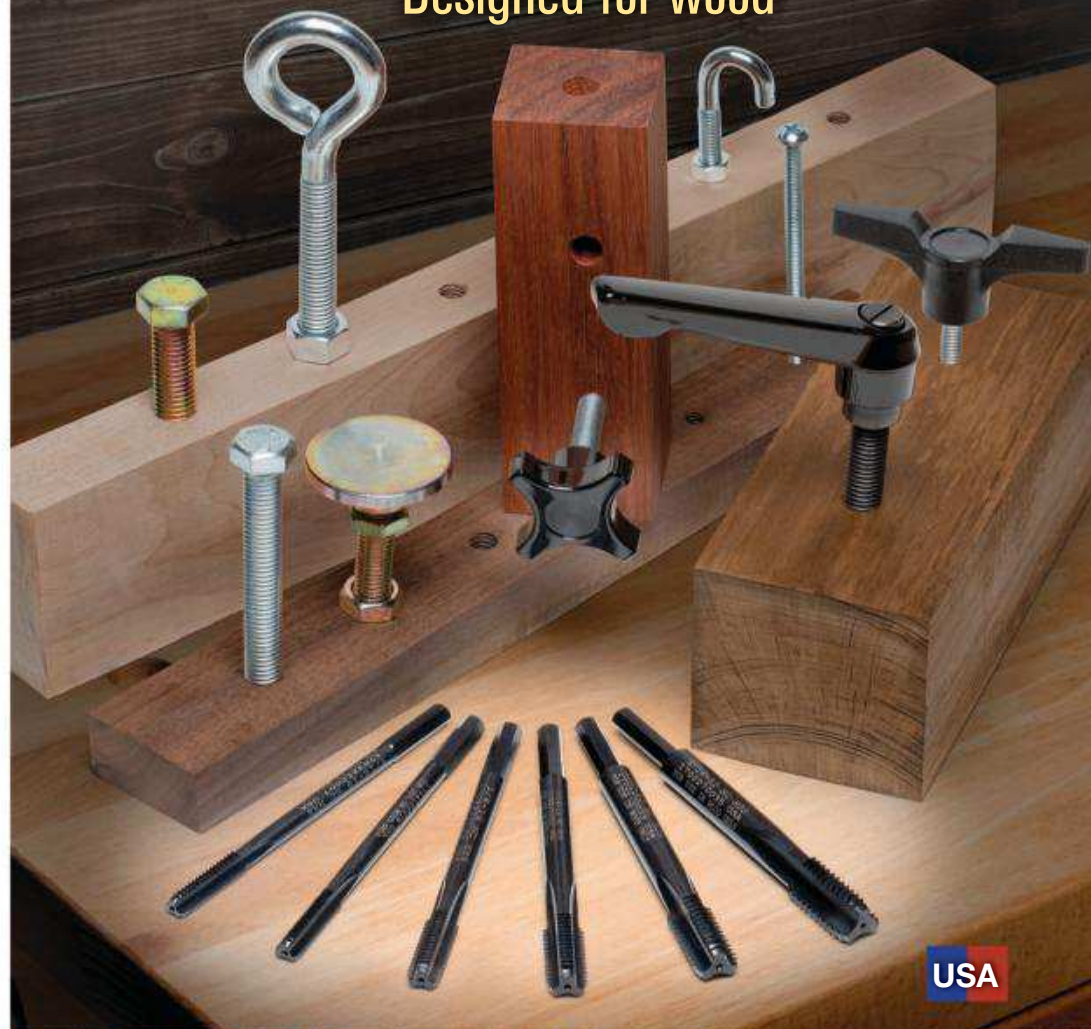


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A cold workshop requires extra precautions

Q My garage workshop does not include a significant heat source or a dust-collection system. So it's cold much of the year, and what little heat the shop does hold dissipates quickly when I open the overhead door to clear the air. What tips can you offer for working in a cold workshop?

—Brian Gard, Jeannette, Pa.

A Until the budget allows for a furnace, Brian, try these tips for improving your comfort, safety, and woodworking results:

- Place anti-fatigue mats where you stand frequently. They provide insulation from cold concrete, as well as cushion.

- A heated jacket makes a lot of sense if your cordless-tool platform includes one. (Most “professional” brands do.) And wear thin, pliable work gloves with rubberized surfaces for improved grip. Just remember to avoid wearing gloves or bulky clothing when using machinery that could grab them.

- Store glues and finishes in a warm environment until you need them. Though best applied at room temperatures, glues and finishes can be used in cold temperatures above freezing when you play it smart. (More on that in the next two tips.)

- Before gluing boards, it helps to warm them. And, if possible, bring the clamped assembly into a warm space for faster drying.

- Adding the appropriate thinner to cold, oil-based finishes can help them flow better. And remember, cooler temperatures drastically increase drying times. Finishes that tend to dry faster at any temperature include wiping varnish, shellac, and spray lacquer. (Lacquer will dry cloudy if it's too cold, however.) For any finish, a little air circulation will speed drying, even in the cold.

- When in doubt, try the finishing method on test pieces before applying finish to your project. If you can't obtain satisfactory results on the test pieces, do the finishing inside your house using a product, such as shellac or a water-based finish, that doesn't put noxious fumes into the air.

- Heating a space can cause condensation on cold surfaces, and unvented portable propane and kerosene heaters contribute moisture (and dangerous carbon monoxide) to any environment. So keep the tops of cast-iron machines coated with a good protectant. (We like Boeshield T-9.)

- Adding insulation and sealing air leaks will improve the effectiveness of a small space heater. Just a few added degrees can greatly enhance your comfort and results.

- Plastic electrical cords become stiff in cold weather, so choose portable power tools with pliable rubber cords.

- Cold can sap concentration and decrease finger sensitivity, so shorten your work sessions. Make it a habit to regularly warm up, grab a hot drink, and enjoy the journey! 🌲

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TAKE YOUR SAW TO THE WORKPIECE...

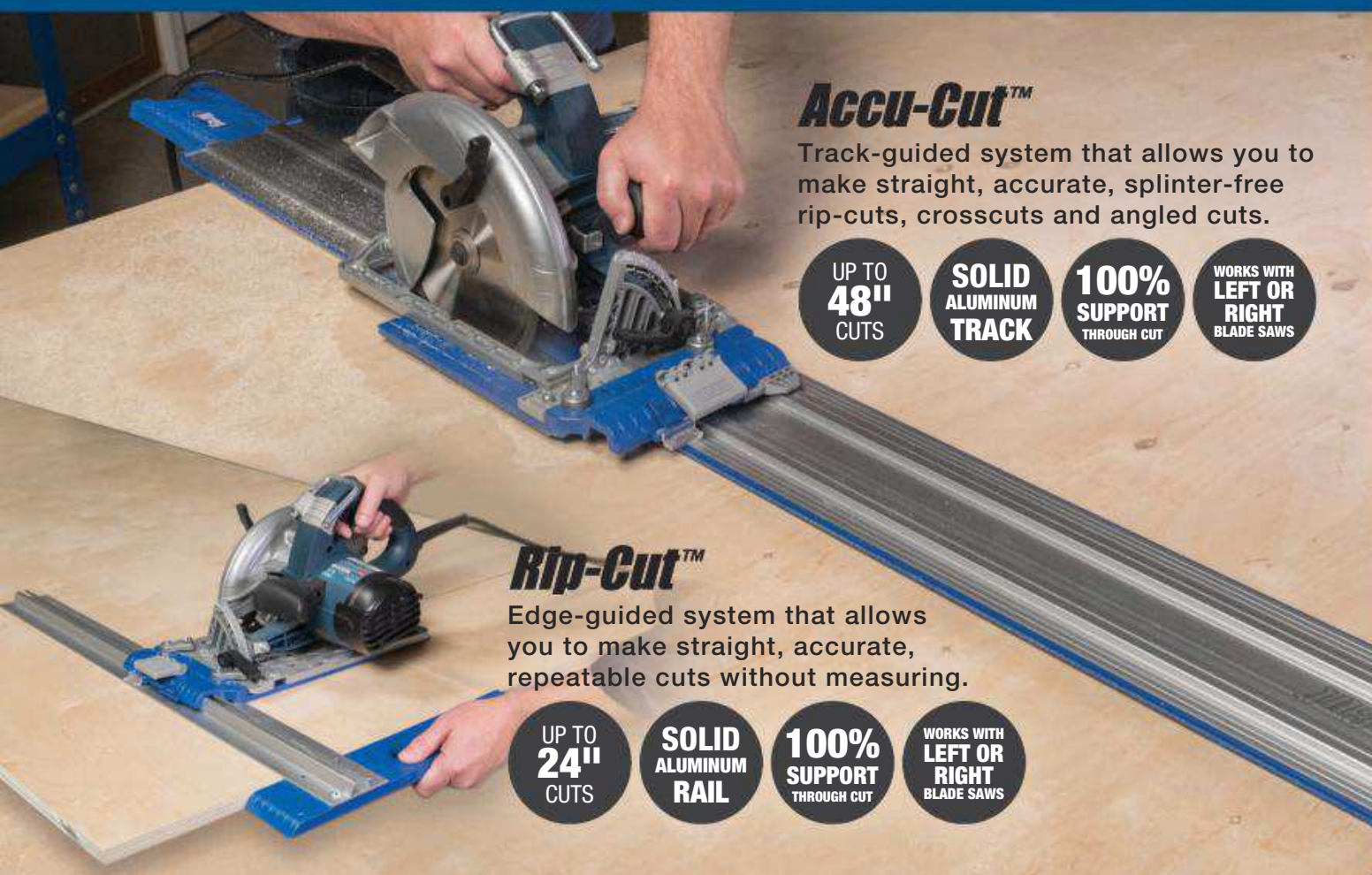
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Most every board requires flattening on one side before planing it to thickness. And that's easy to do if you have a jointer wide enough for the job, but many of us don't enjoy that luxury. Fortunately, with this simple jig, you can skip the jointer and successfully joint one face using a benchtop planer.

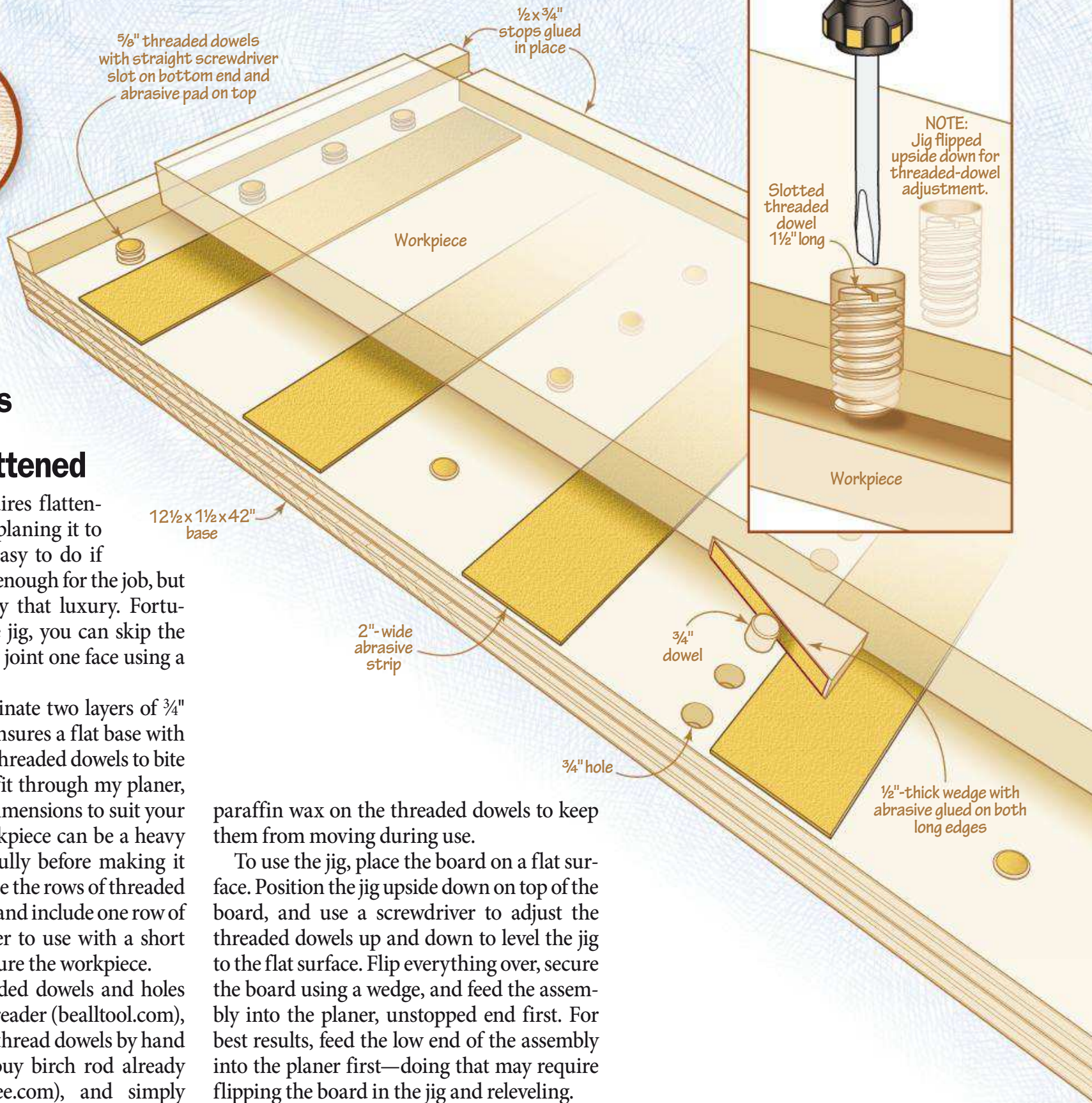
To build the jig, laminate two layers of $\frac{3}{4}$ " plywood—doing that ensures a flat base with sufficient stock for the threaded dowels to bite into. (I sized the jig to fit through my planer, but you can adjust its dimensions to suit your needs. The jig and workpiece can be a heavy load, so consider carefully before making it more than 4' long.) Space the rows of threaded dowels about every 10", and include one row of $\frac{3}{4}$ " holes near the center to use with a short dowel and wedge to secure the workpiece.

I made the $\frac{5}{8}$ " threaded dowels and holes using a Beall Wood Threader (bealltool.com), but you can buy kits to thread dowels by hand or with a router. Or, buy birch rod already threaded (hardwaretree.com), and simply purchase taps for threading the holes. Put

paraffin wax on the threaded dowels to keep them from moving during use.

To use the jig, place the board on a flat surface. Position the jig upside down on top of the board, and use a screwdriver to adjust the threaded dowels up and down to level the jig to the flat surface. Flip everything over, secure the board using a wedge, and feed the assembly into the planer, unstopped end first. For best results, feed the low end of the assembly into the planer first—doing that may require flipping the board in the jig and releveling.

—Howard Murray, Whittier, Calif.



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Because we try to publish original tips, please send yours only to **WOOD** magazine.



For sending this issue's *Top Shop Tip*, Howard receives an *Inkra Miter 1000HD* with mitering platform (shown) and *I-Box* jig worth \$450.



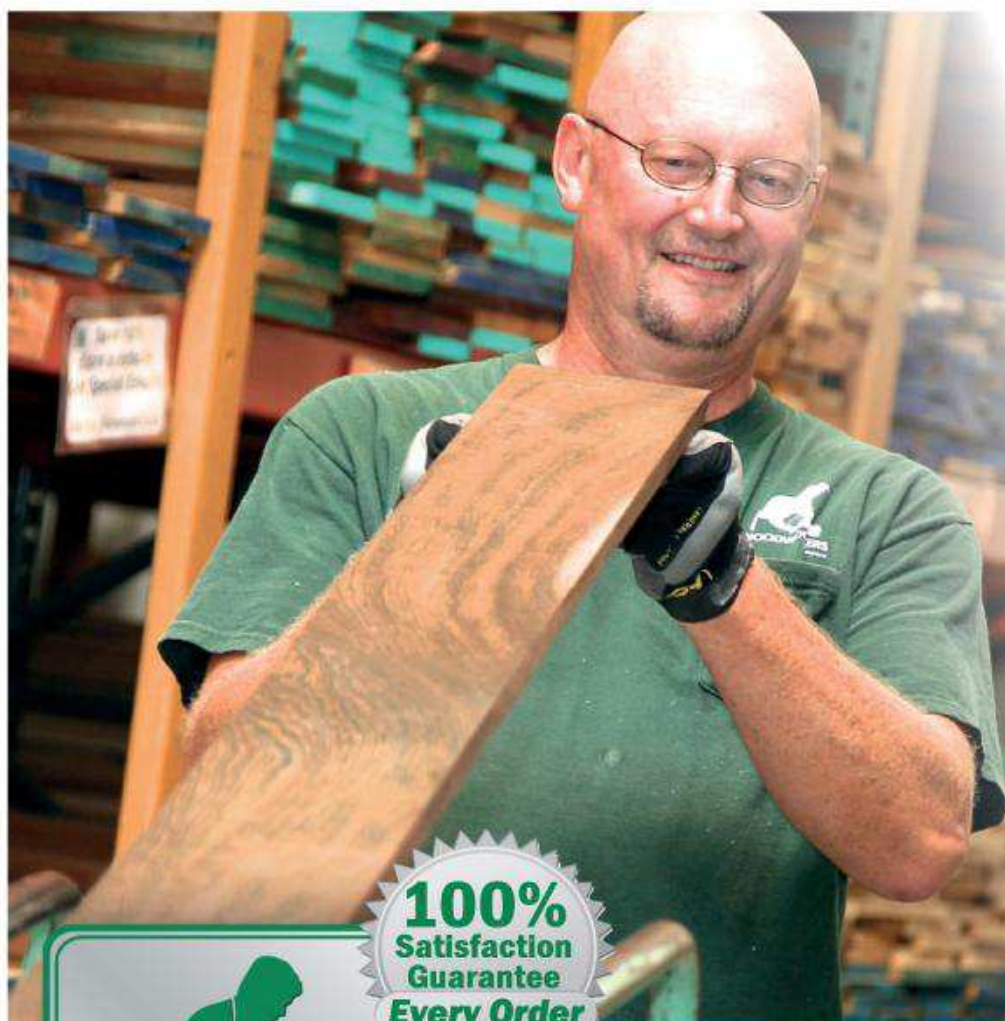
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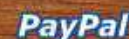
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SHOP TIPS



Clothesline tackles can-rim cleanup

To extend the longevity of stored paints, stains, and varnishes, I keep their can rims as clean as possible. To that end, I lay a short length of $\frac{7}{32}$ " cotton clothesline in the rim. It keeps most of the finish out of the rim, and soaks up much of the rest. For final cleaning, a quick wipe with a rag does the trick.

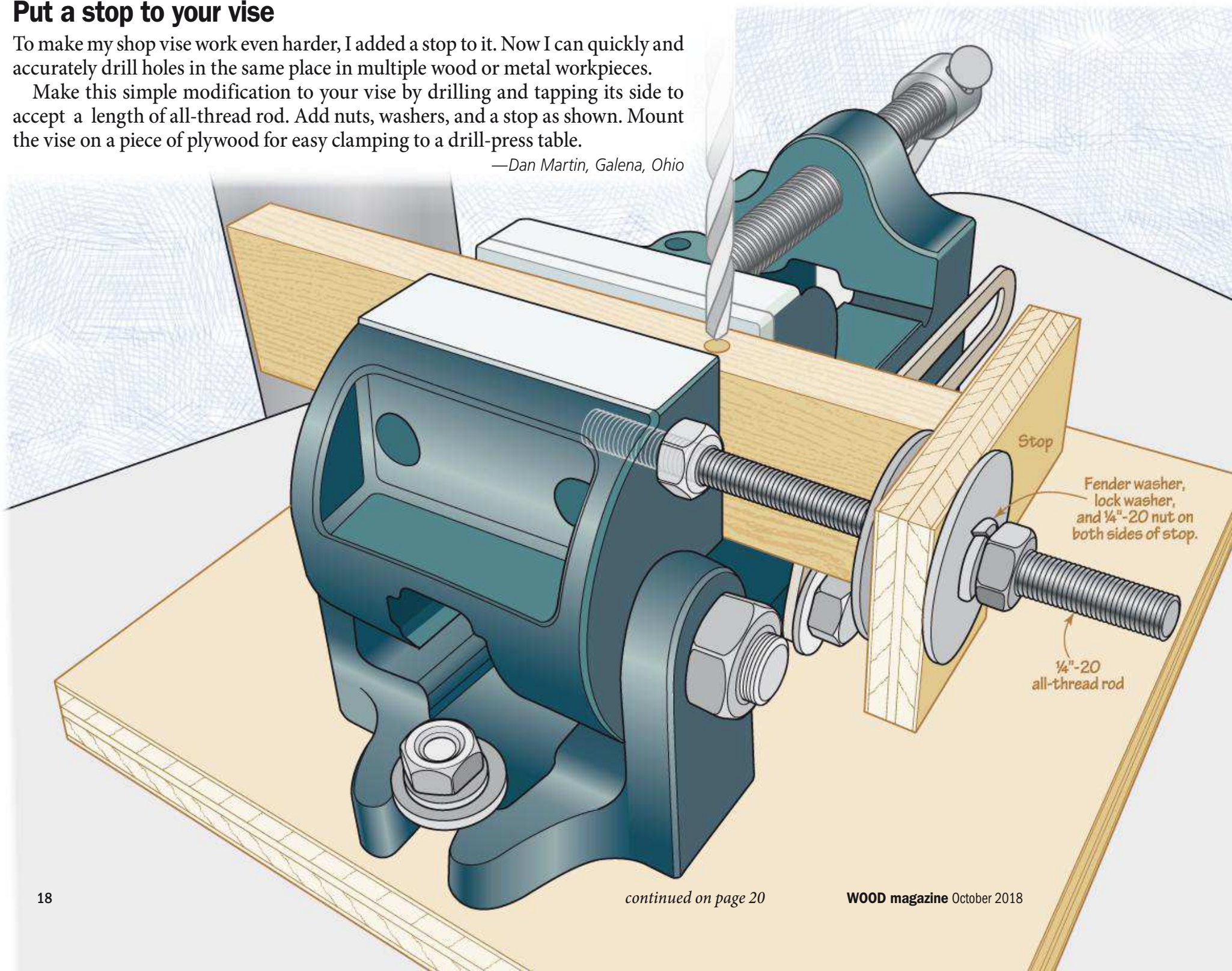
—Dennis Peterson, Lewiston, Idaho

Put a stop to your vise

To make my shop vise work even harder, I added a stop to it. Now I can quickly and accurately drill holes in the same place in multiple wood or metal workpieces.

Make this simple modification to your vise by drilling and tapping its side to accept a length of all-thread rod. Add nuts, washers, and a stop as shown. Mount the vise on a piece of plywood for easy clamping to a drill-press table.

—Dan Martin, Galena, Ohio





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Quickscrews carries the screws you need for every stage of your kitchen remodel:

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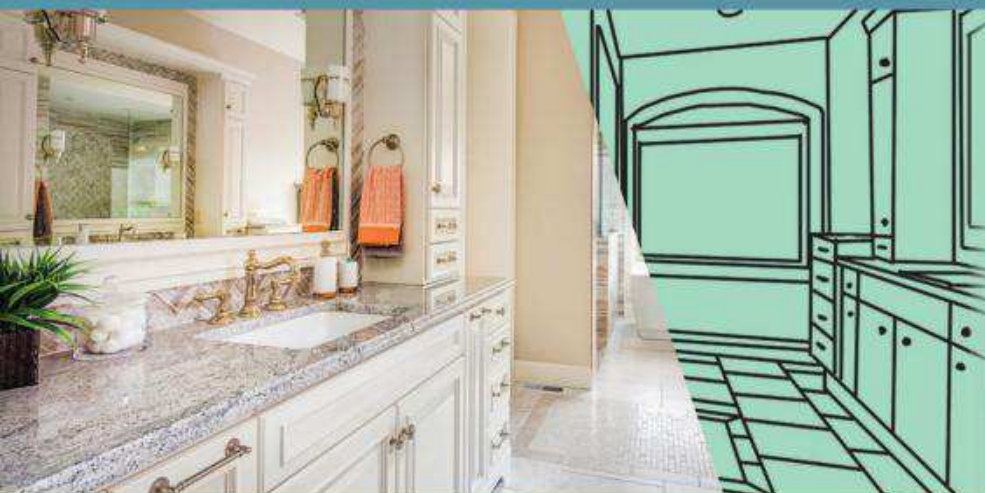
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SHOP TIPS

Clamp down for fast and easy finishing

To hold many workpieces, such as these double-tapered legs, when applying finish, look no further than your clamp rack. A clamp serves as a convenient “handle” on the workpiece, allowing you to deftly maneuver the piece for easy brushing access. Leave the piece in the clamp to suspend it above the worksurface as the finish dries.

—John Baker, Normal, Ill.

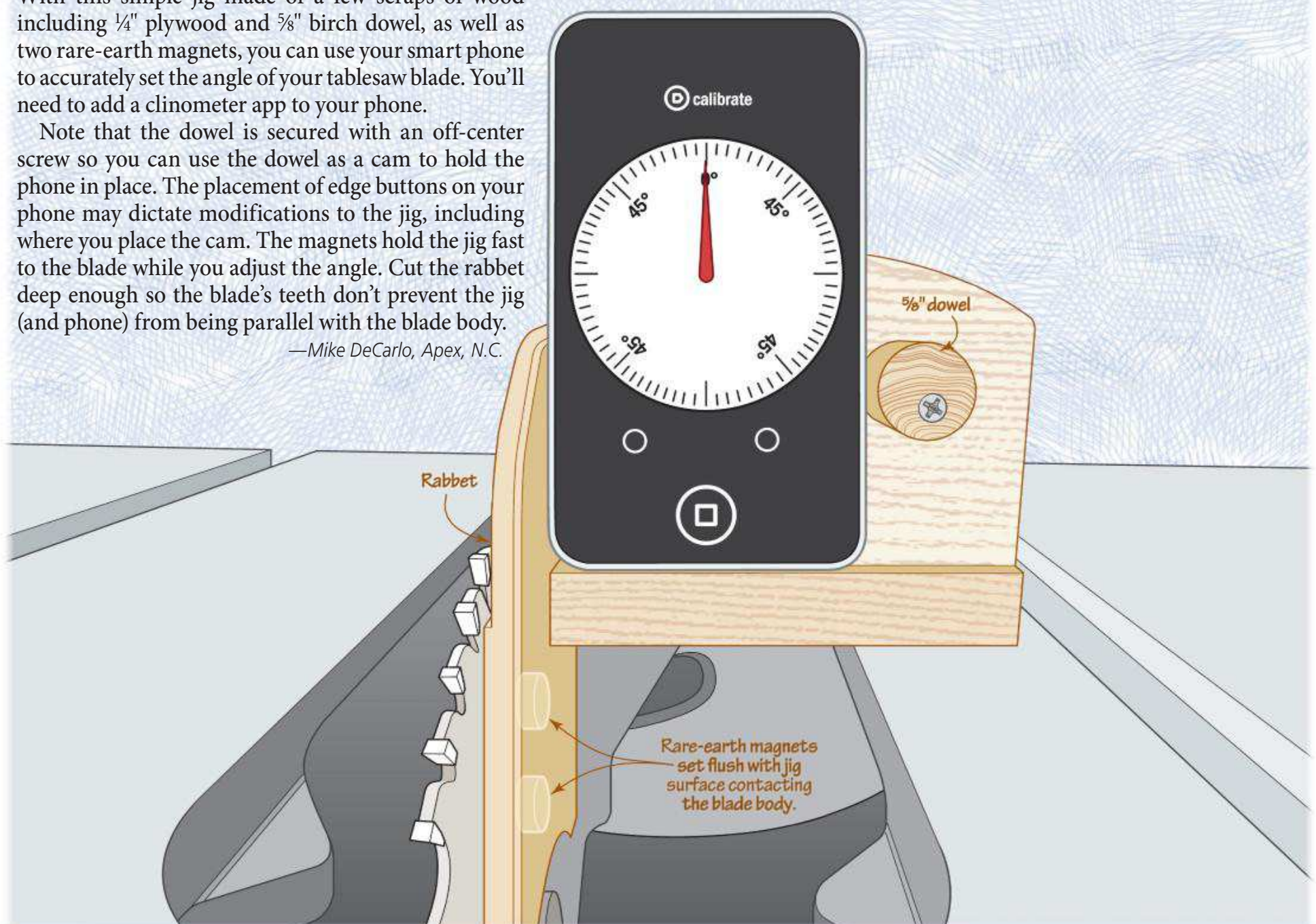


Use your phone to accurately set angled tablesaw cuts

With this simple jig made of a few scraps of wood including $\frac{1}{4}$ " plywood and $\frac{5}{8}$ " birch dowel, as well as two rare-earth magnets, you can use your smart phone to accurately set the angle of your tablesaw blade. You'll need to add a clinometer app to your phone.

Note that the dowel is secured with an off-center screw so you can use the dowel as a cam to hold the phone in place. The placement of edge buttons on your phone may dictate modifications to the jig, including where you place the cam. The magnets hold the jig fast to the blade while you adjust the angle. Cut the rabbet deep enough so the blade's teeth don't prevent the jig (and phone) from being parallel with the blade body.

—Mike DeCarlo, Apex, N.C.



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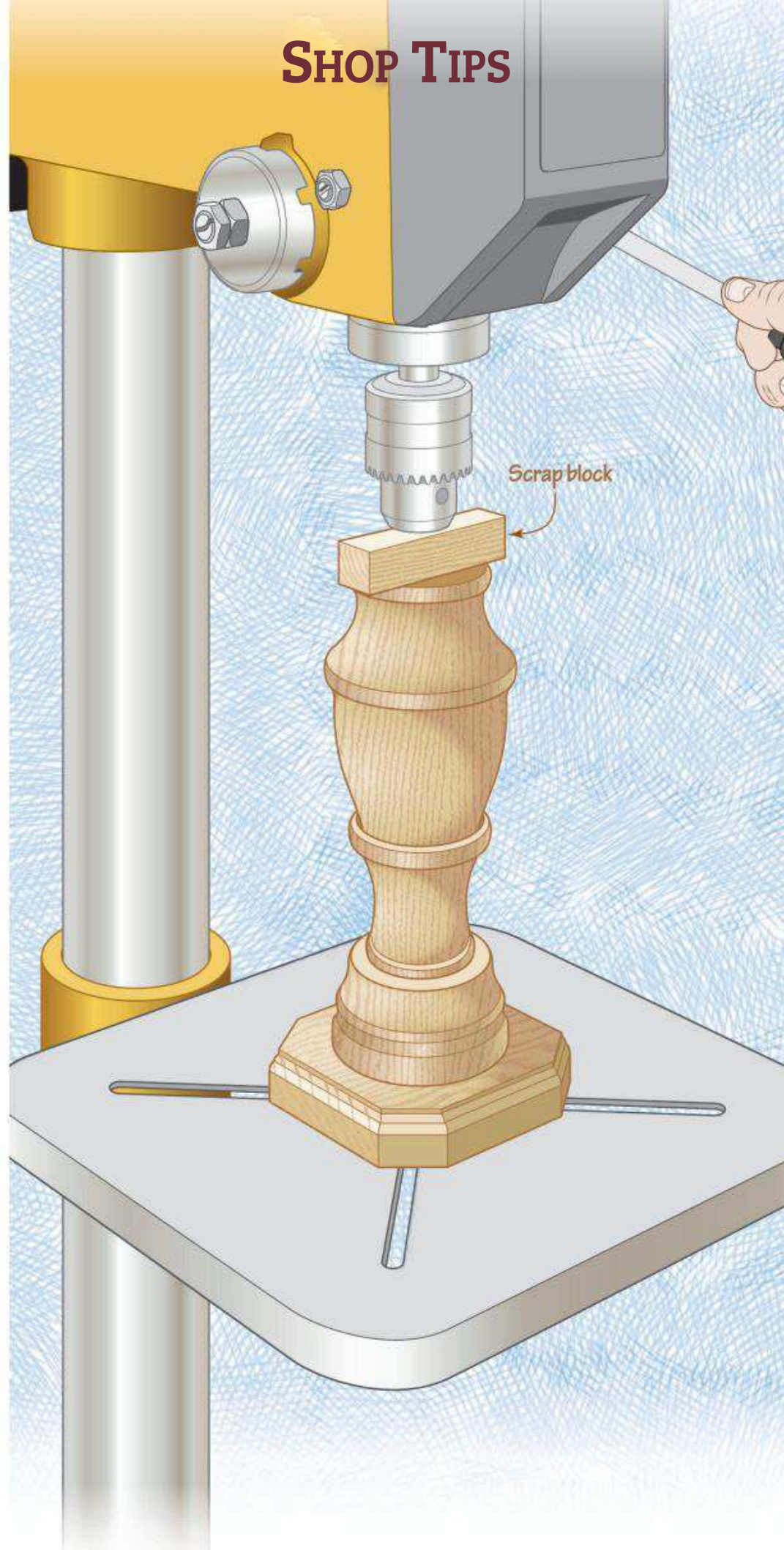
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SHOP TIPS



Press your drill press into clamping duty

For odd-shaped or long glue-ups—such as attaching a lamp body to its base—a drill press often serves as a fast, convenient, and effective clamp. For parts that fit well, you'll get the necessary pressure, without stressing the press's quill mechanism. If your drill press doesn't have a quill lock, simply raise the table to get the necessary pressure, then lock the table in place. 🌿

—Dale Daugherty, San Antonio, Texas

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Flattening sled

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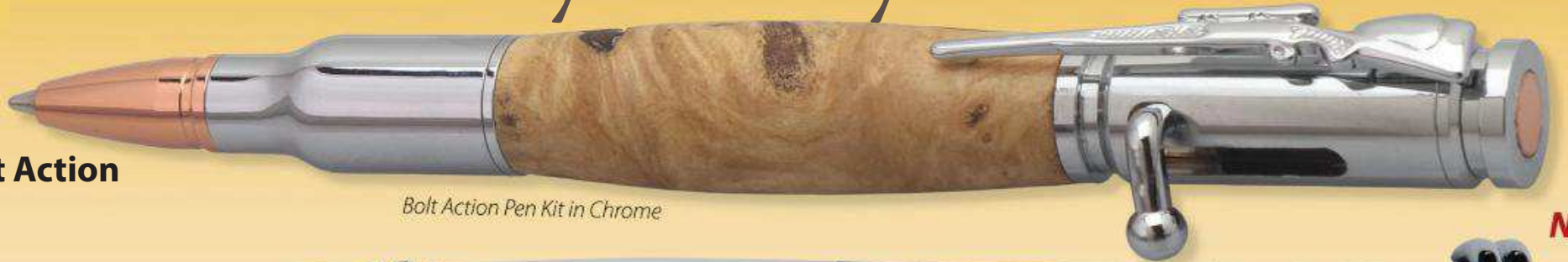
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NEW

Motorcycle



Motorcycle Pen Kit in Chrome

NEW

Football



Football Pen Kit in Antique Pewter

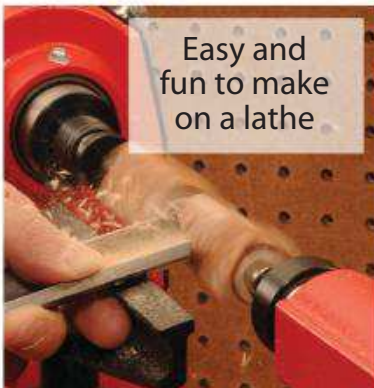
Firefighter



Firefighter Pen Kit in Chrome & Red

NEW

Discover the joy of making a one of a kind Bolt Action, Motorcycle, Football and Firefighter pen. All pen kit styles are completely authentic with precision engineered components that were carefully designed to ensure uniqueness and reliability. They feature a Parker™ style refill for smooth writing performance and instructions for how to make them.



Easy and
fun to make
on a lathe

Bolt Action Pen Kits

Our best-selling pen kits enjoys a huge following in the pen making community. It's beloved for its realistic bolt-action handle that smoothly advances and retracts to securely lock the refill in place. Includes a bolt-action rifle clip and replica 30 caliber cartridge and rose gold tip for added authenticity. Requires a pen making mandrel, bushings (Item # PKCP3000BU \$5.95) and 3/8" drill bit (Item #PKEXEC-3/8 \$3.95). Patent No.: US D682,352 S

Motorcycle Pen Kits **NEW!**

From the straight pipes to the muscular lines of the old school single cylinder engine with kickstart mechanism, your custom-built Motorcycle pen will make a statement. The pen tip features a fierce, intricately cast eagle head with the engraved words, "Ride Hard. Live Free" as a band above the eagle head. A true to life old school single cylinder engine adorns the pen end.

On shock absorber you'll find a super cool "kickstart" mechanism that replicates the kickstarter on the motorcycle. This mechanism functions the same way as our Bolt Action pen kits to smoothly advance and retract the refill. Requires a pen making mandrel, bushings (Item #PKPT100BU \$5.95) and 10mm drill bit (Item #PK10-10 \$7.95).

Football Pen Kits **NEW!**

Create this pen for the ultimate game day gift. The top of the pen is sculpted to honor the grand architecture of a professional football stadium. The interior of the stadium captures essential stadium components in wonderfully fine detail; from a scoreboard with lights, fan seating and hallways, player entrances and of course, the field. The pen clip features a graceful player in motion, cradling the ball with one arm and stiff arming with the other. The player runs on top of a yard marker that marks the football field center band; When you twist the pen to extend the refill, the marker will mark different points of the field center band to mimic a scoring drive. The pen tip replicates a football with pigskin texture and contoured for a comfortable writing experience. Requires a pen making mandrel, bushings (Item #PKFBALLBU \$5.95) and 10mm drill bit (Item #PK10-10 \$7.95).

Firefighter Pen Kits **NEW!**

The details of the pen pay homage to the dedication, sacrifice and bravery these hero's display. Including; a pen clip that represents a Firefighter's ladder and iconic Firefighter's Maltese Cross. The pen end depicts a silhouette of a Firefighter in uniform a holding a hose with the words "Honor" "Bravery" "Duty" and "Dedication" displayed behind

the silhouette. The pen top features a classic Firefighter's helmet form. The pen tip is shaped like a Firefighter's hose nozzle. While the "Push and Lock" Pen Mechanism emulates an American fire hose. To extend the refill, simply push the back-end of the pen downward and rotate to lock the upper adapter clips into place. Requires a pen making mandrel, bushings (item #PKFIREBU \$4.95) and 10mm drill bit (item #PK10-10 \$7.95).



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Chrome <i>(shown opposite page)</i>	#PKCP8010	\$12.95	\$12.05	\$11.15	\$10.25
Gun Metal	#PKCP8020	\$12.95	\$12.05	\$11.15	\$10.25
24kt Gold	#PKCP8000	\$14.95	\$13.95	\$12.95	\$11.95



Bolt Action Pen Kit in Gun Metal



Bolt Action Pen Kit in 24kt Gold

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	Item #	1-4	5-9	10-24	25+
Antique Pewter	#PKMOTAP	\$24.95	\$23.95	\$22.95	\$21.95
Matte Black	#PKMOTMB	\$23.95	\$22.95	\$21.95	\$20.95
Matte Black & Chrome	#PKMOTMBCH	\$22.95	\$21.95	\$20.95	\$19.95
Chrome <i>(shown opposite page)</i>	#PKMOTCH	\$21.95	\$20.95	\$19.95	\$18.95



Motorcycle Pen Kit in Antique Pewter



Motorcycle Pen Kit in Matte Black



Motorcycle Pen Kit in Matte Black & Chrome

4 Motorcycle Pen Kit Starter Set

You get one of each pen in Antique Pewter, Matte Black, Matte Black & Chrome and Chrome. Plus, you get the bushings and drill bit.

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Football Pen Kits **NEW!**

	Item #	1-4	5-9	10-24	25+
Chrome	#PKFBALLCH	\$18.95	\$17.95	\$16.95	\$15.95
24kt Gold	#PKFBALL24	\$19.95	\$18.95	\$17.95	\$16.95
Antique Brass	#PKFBALLAB	\$19.95	\$18.95	\$17.95	\$16.95
Antique Pewter <i>(shown opposite page)</i>	#PKFBALLAP	\$19.95	\$18.95	\$17.95	\$16.95



Football Pen Kit in Chrome



Football Pen Kit in 24kt Gold



Football Pen Kit in Antique Brass

4 Football Pen Kit Starter Set

You get one of each pen kit in Chrome, 24kt Gold, Antique Brass and Antique Pewter. Plus, you get the bushings and drill bit.

#PKFBALLSS **SAVE \$18 Only \$73.60**

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Firefighter Pen Kits **NEW!**

	Item #	1-4	5-9	10-24	25+
Chrome & Red <i>(shown opposite page)</i>	#PKFIRECHR	\$23.95	\$22.75	\$21.55	\$20.35
Antique Brass	#PKFIREAB	\$29.95	\$28.45	\$26.95	\$24.95
Polished Brass & Red	#PKFIREBRR	\$27.95	\$26.55	\$25.15	\$23.75



Firefighter Pen Kit in Antique Brass



Firefighter Pen Kit in Polished Brass & Red

3 Firefighter Pen Kit Starter Set

You get 1 pen in Chrome and Red, 1 pen in Antique Brass and 1 pen in Polished Brass and Red. Plus you get the bushings and drill bit.

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D I M E N S I O N S :
36" W x 24" D x 30" H

Approximate materials cost:

\$610

36 x 24"
closed

36 x 72"
fully extended

Masquerading as a mild-mannered cabinet, this buffet slides into action to serve a cozy breakfast for two or a dinner party of six.



► Make slippcases for the leaves to prevent scratches [**Skill Builder**, page 33].

Expanding Buffet Table

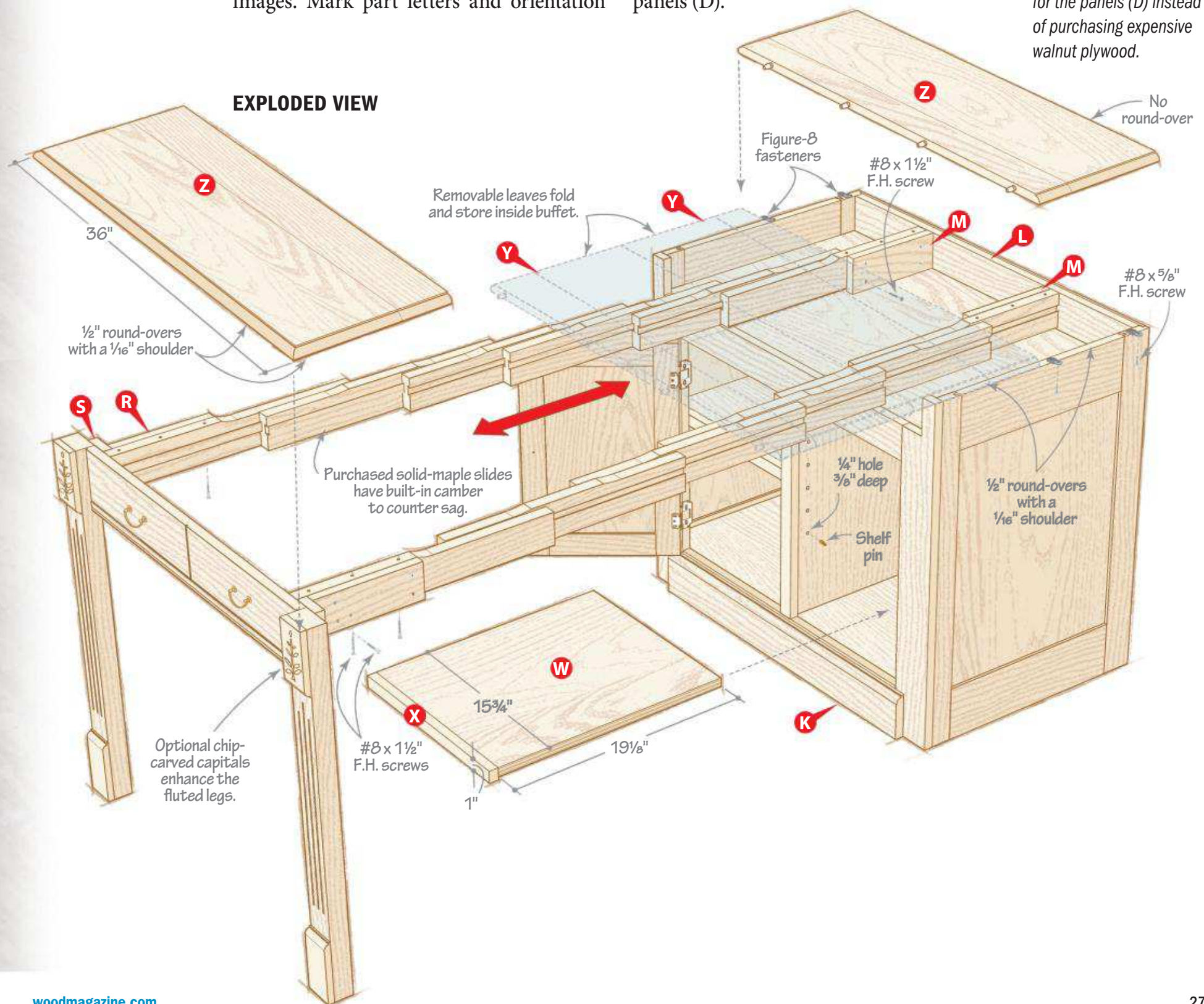
Full-size dining in a downsized space

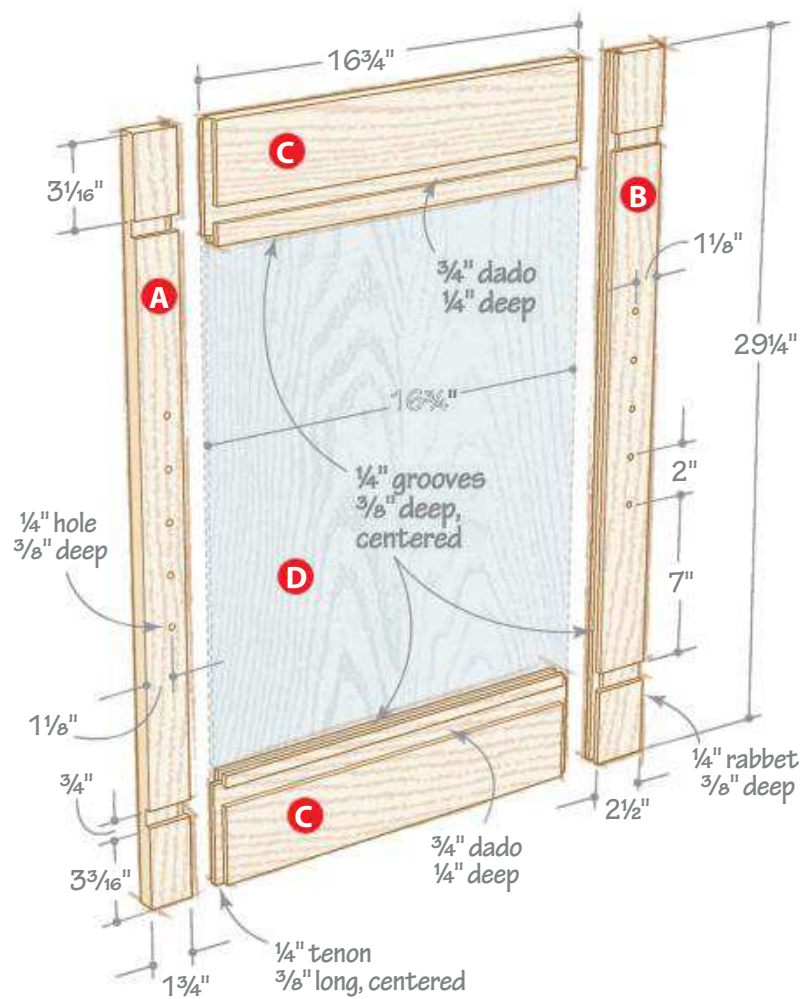
Make the case

1 Cut parts A–C for the sides [Materials List, Drawing 1], and arrange them as mirror images. Mark part letters and orientation

(right, left) on the outside faces with chalk. Also indicate the grooved edges. Cut the tenons and grooves to match the thickness of the panels (D).

Tip! To reduce cost, we used birch plywood for the interior case parts. Extend cost savings by substituting solid walnut for the panels (D) instead of purchasing expensive walnut plywood.



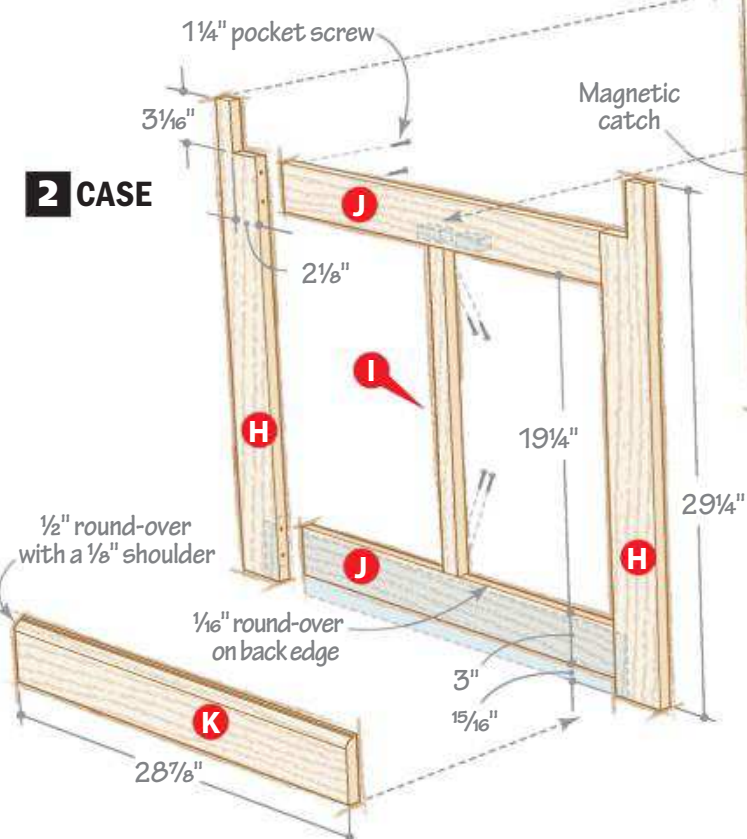


1 SIDE ASSEMBLY, INSIDE FACE (Left assembly shown, right is a mirror image)

2 Cut the panels (D) and finish-sand them. With the good sides of the panels facing out, glue and clamp the side assemblies. Rabbet the inside rear edges. Finish-sand the sides.

3 Cut the top and bottom (E) to size. Dado the side assemblies [Drawing 1] and the top and bottom [Drawing 2]. Dry-assemble the sides, top, and bottom, and cut the divider (F) to fit.

4 Finish-sand the top, bottom, and divider. Glue, clamp, and screw the assembly with all parts flush at the front. Cut the back (G), finish-sand it, and set it aside.



2 CASE



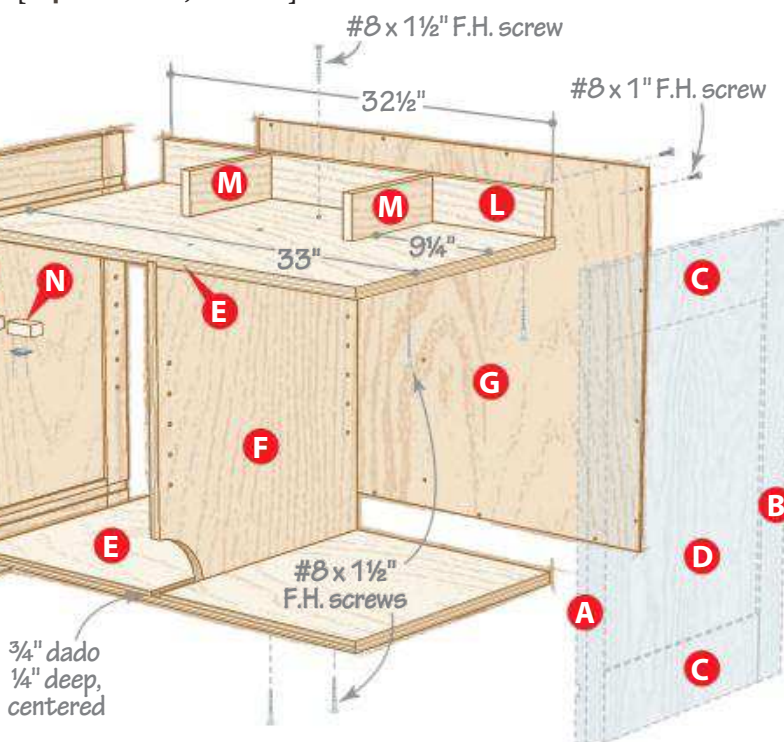
Trim the face-frame stile (H) overhangs flush with the side assembly stiles (A), using a flush-trim bit.

5 Cut face-frame parts H-J. Notch the outer stiles (H) [Drawing 2]. Drill pocket holes in the center stile (I) and front rails (J). Round over the lower rail. Assemble the face frame.

6 Glue and clamp the face frame to the case, with the stiles equally overhanging the sides, and the top of the upper rail (J) flush with the top face of the top (E). (The top of the lower rail protrudes slightly above the top face of the bottom.) Trim the stiles (H) [Photo A].

7 Cut the trim (K) 29" long and rout the top edge [Drawing 2]. Finish-sand the part and set it aside.

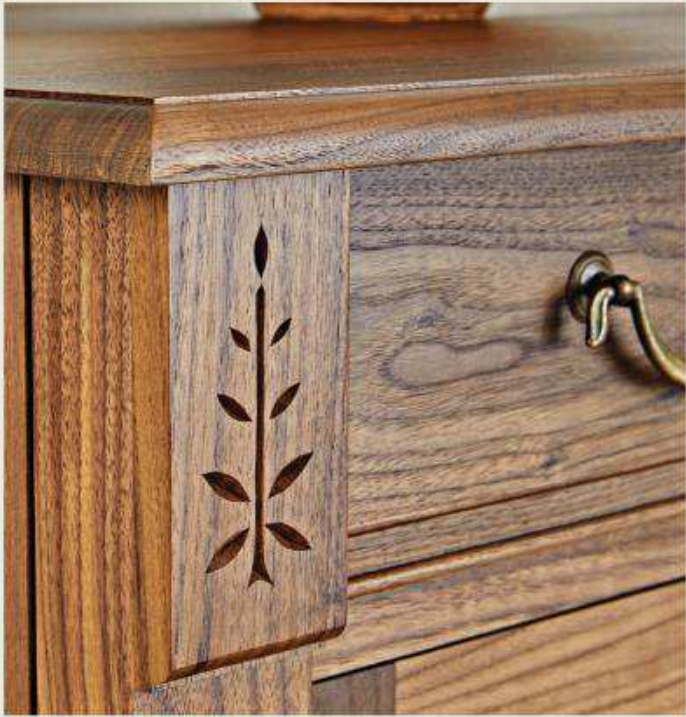
8 Cut parts L-N. Glue and screw the back rail (L) to the top (E) [Drawing 2] and the cleats (M) to the back rail and top. Glue the catch blocks (N) to the upper rail (J). Drill counterbored holes for figure-8 fasteners [Exploded View, Sources].



SKILL BUILDER

Enhance your projects with easy-to-carve accents

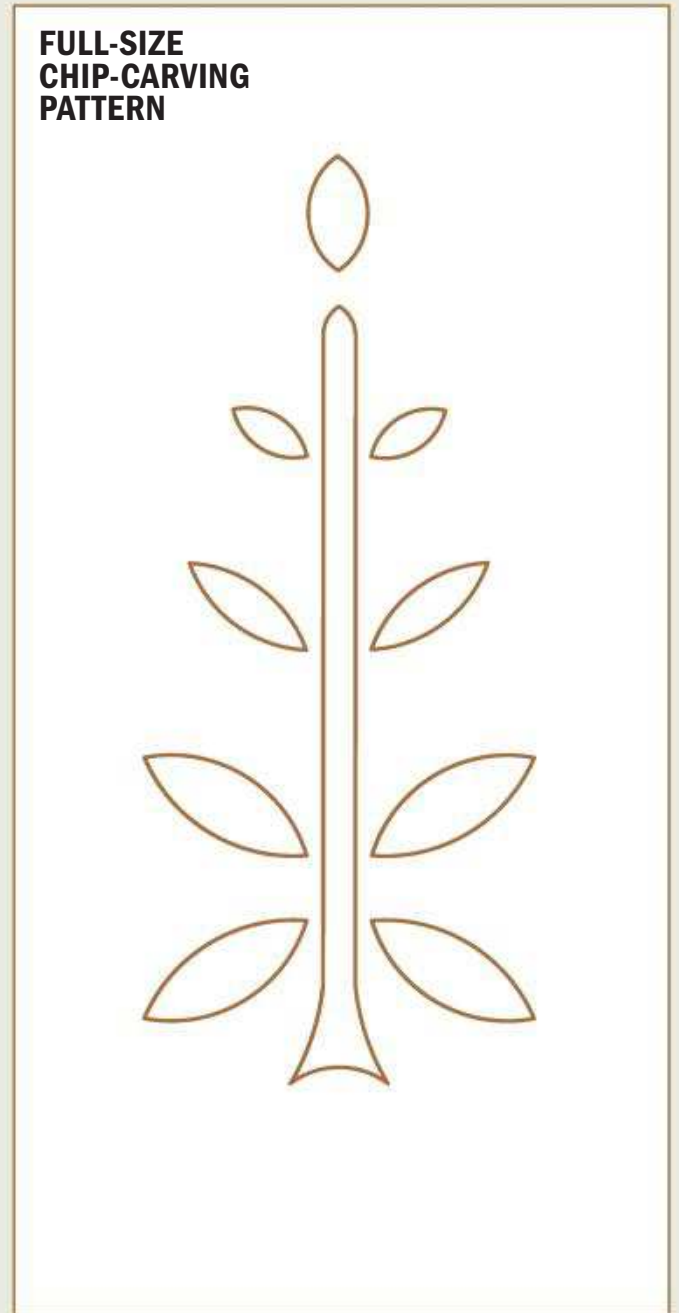
Combine a full-size pattern, an inexpensive chip-carving knife [Sources], and a little patience to give your project a custom touch. When carving hardwood, sneak up to the pattern line, making repeat cuts as shown. In softwood, make one cut to the pattern line on each side of center.



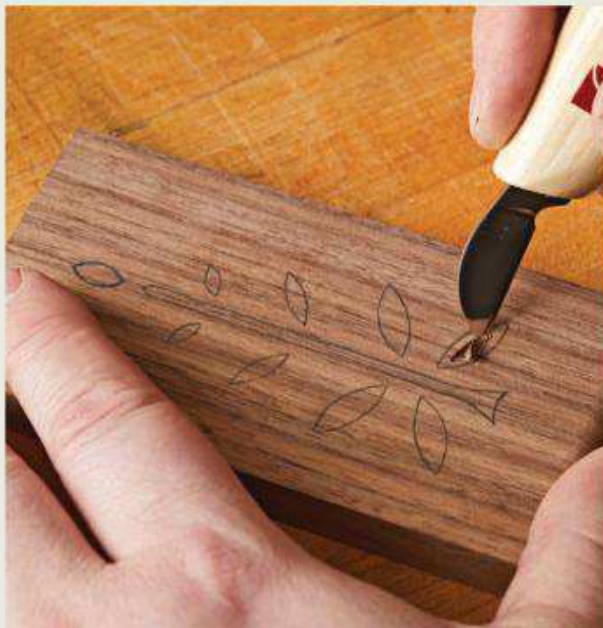
Use our pattern for a complete custom look, or design your own.



Trace the cut-out pattern onto the workpiece.



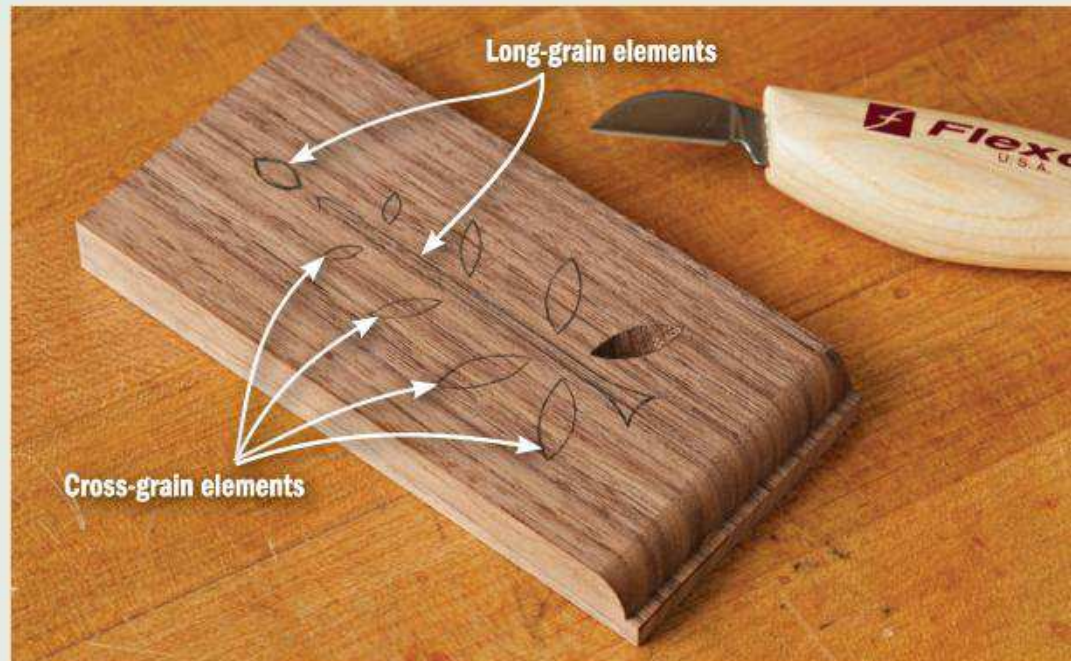
Make a cut inside and parallel to the pattern line. Start shallow, increase pressure to cut deeper in the middle, and finish shallow.



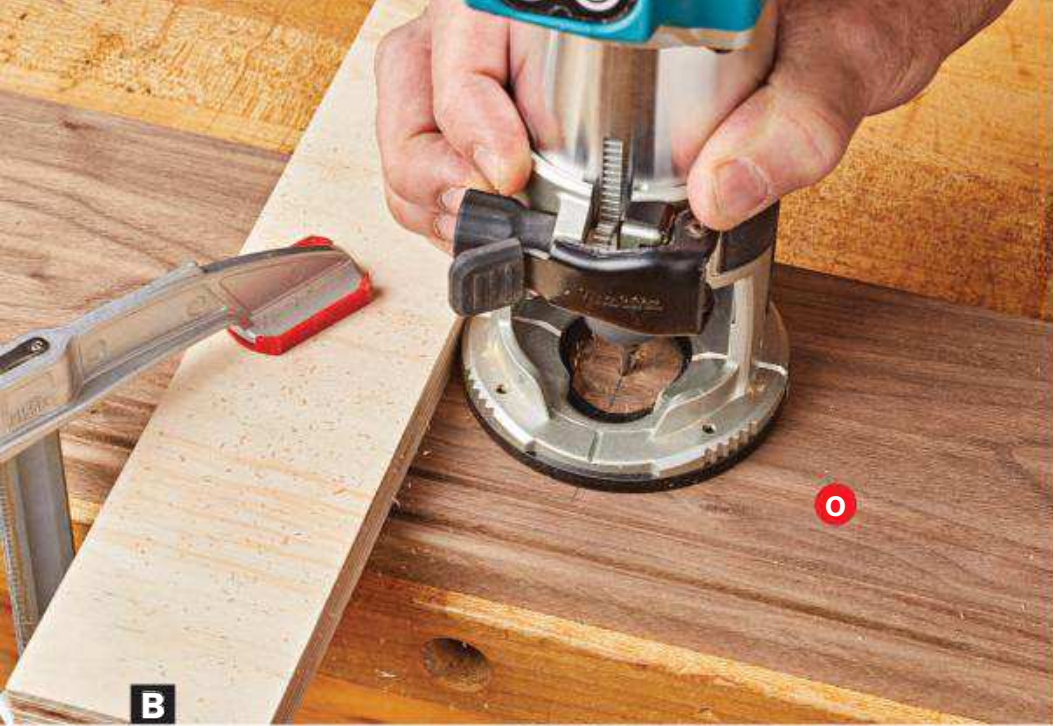
Rotate the workpiece and repeat the cut on the other side of center.



Make multiple concentric cuts, working from the center of the carved element to the pattern line, rotating the workpiece as necessary.

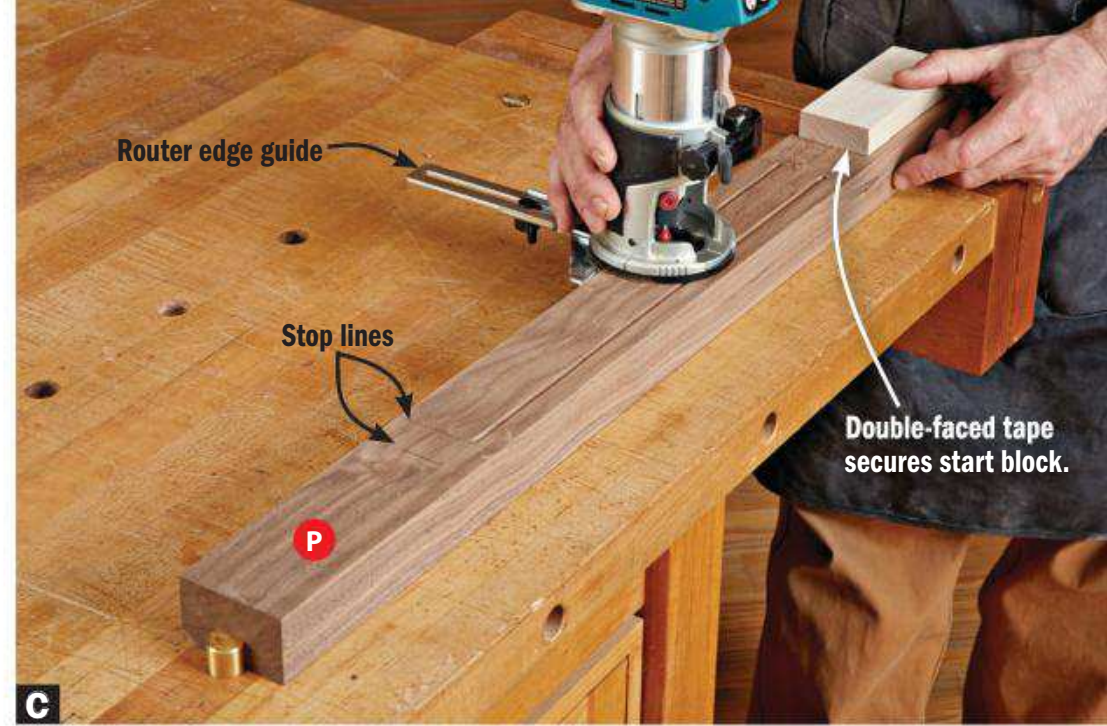


Cross-grain elements are easier to carve cleanly than long-grain elements. To keep long-grain elements from splintering along the edges, make more small cuts.



B

Rout the center dado with a 1/8" straight bit, guiding the router with a straightedge. Use the same setup to rout the end rabbets and groove near the bottom edge.



C

Rout the leg grooves, starting at the bottom with the router against a start block and ending at the stop lines.

Add the leg assembly

►The 1/8" groove, dado, and rabbets in the rail (O) create the appearance of drawer fronts.

1 Cut parts O and P and form the mortises and tenons [Drawings 3 and 3a]. Rout the bead, groove, centered dado [Photo B], and rabbets in the rail, and drill the handle [Sources] holes.

2 Mark V-groove stop lines on the legs (P) [Drawing 3] and rout the grooves [Photo C].

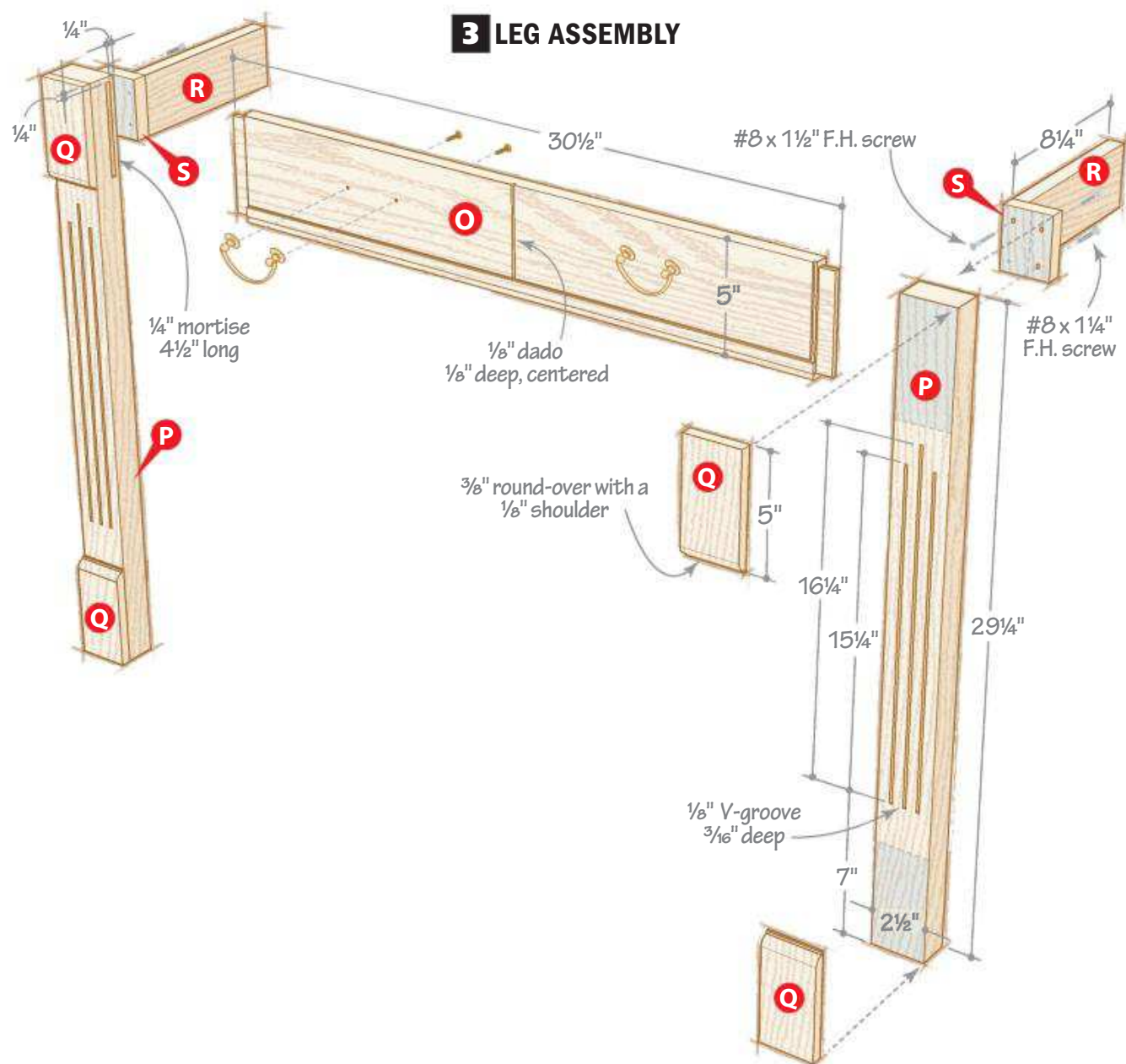
3 Finish-sand the rail and legs and glue and clamp the assembly. Cut the plinths

and capitals (Q) and rout the round-overs [Drawing 3]. If you wish, carve the capitals [Skill Builder, page 29]. Glue the plinths and capitals to the legs.

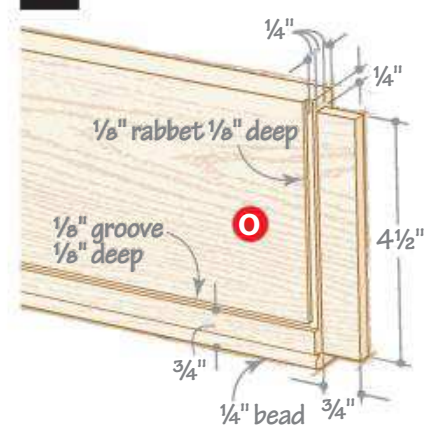
4 Cut the slide blocks (R) and leg blocks (S). Glue and screw the leg blocks to the slide blocks, and then glue and screw the leg blocks to the legs, flush at the top [Drawings 3 and 3b].

►Plinth: a block at the base of a column or pilaster.

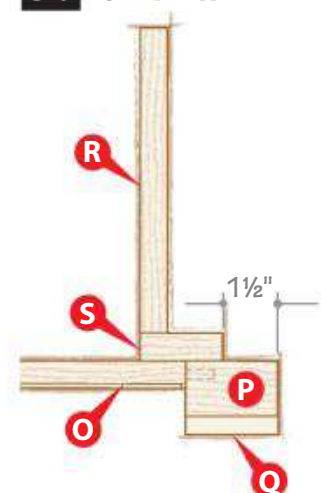
►Capital: the crowning member of a column or a pilaster.



3a LEG RAIL DETAIL



3b TOP VIEW





D Screw the table slides to the cleats (M) flush at the top, and with the slide ends against the back rail (L).

Note: The table slides are left- and right-handed. Orient them as shown.

5 Attach the table slides [Sources] to the case [Exploded View, Photo D], and then to the leg assembly [Photo E].

6 Slide the leg assembly against the case face frame. Retrieve the trim (K) and fit it between the legs (P), trimming it to leave a $\frac{1}{16}$ " gap at both ends. Glue the trim to the face frame [Exploded View].

Build the doors and shelves

1 Cut door parts T-V. Groove the stiles (T) and groove and rabbet the rails (U) [Drawing 4]. Assemble the doors.

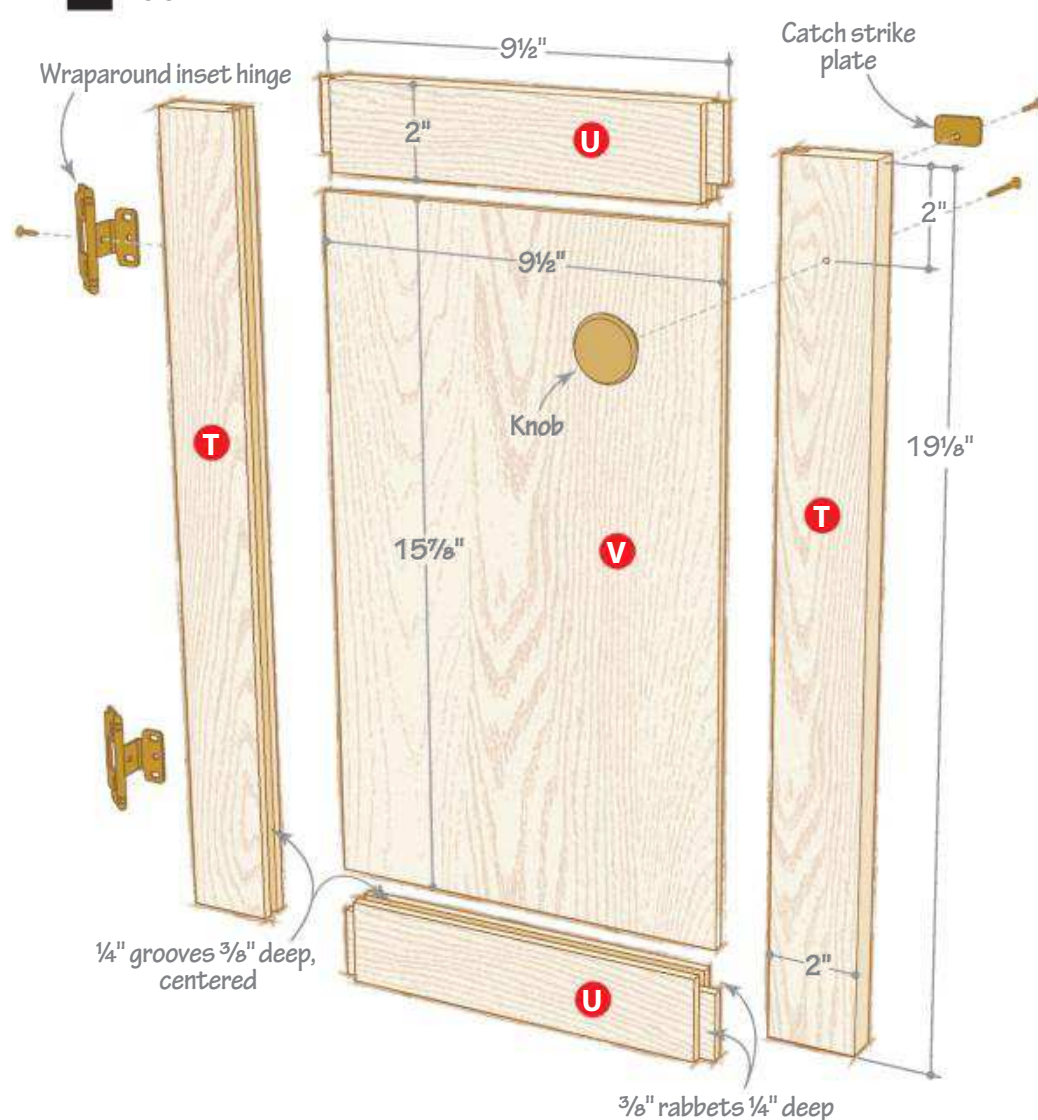
2 Screw each hinge [Sources] to the doors, aligning the outside point of the finial with the inside edge of the rail. Drill holes and install the knobs [Sources]. Mount the doors in the case with even gaps all around. Fasten the catches [Sources] to the catch blocks (N) and the strike plates to the doors.

3 Cut the shelves (W) and banding (X). Glue the banding to the shelves [Exploded View]. Drill shelf-pin holes in the case sides [Drawing 1]. Drill holes in the same locations in the divider (F).



E Fasten the table slides to the slide blocks (R) with a single screw at the top front. Make the space between the stiles (H) and legs (P) equal at top and bottom, and drive the remaining screws.

4 DOOR



SKILL BUILDER

Make sew-simple slipcases

You don't need to be an expert seamstress (or seamster) to make these slipcases, just access to a sewing machine. Simply cut material to size [Cutting Diagram], fold, and stitch the sides. (We purchased 2 2/3 yds. of 36"-wide wool felt.) Turn the cases inside out, slide in the folded leaves, and tuck in the flap.



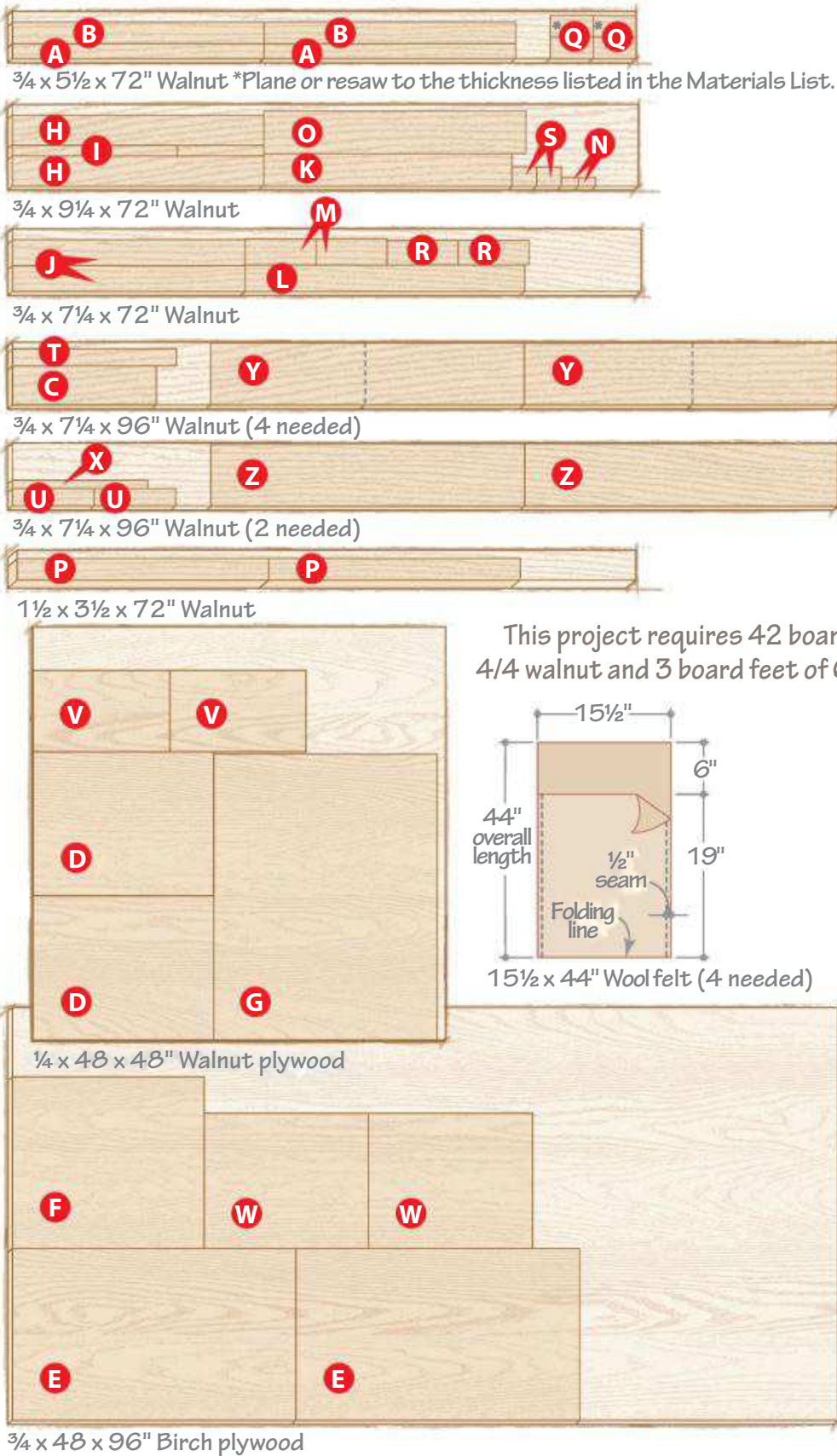
Finish up

1 Remove all hardware and the tabletop slides. Mark the folding leaf halves for reassembly. Inspect all parts and assemblies and finish-sand where necessary. Apply a

finish. (We used a water-based satin polyurethane.)

2 Reassemble the buffet and fasten the back to the case. Rest the shelves on shelf pins [Sources]. Close the buffet and stow the folded leaves inside the cabinet. Remove the old dining table and enjoy the extra space! 🌳

Cutting Diagram



Materials List

Part		FINISHED SIZE			Matl.	Qty.
		T	W	L		
Case						
A	front stiles	¾"	1¾"	29¼"	W	2
B	rear stiles	¾"	2½"	29¼"	W	2
C	rails	¾"	4½"	16¾"	W	4
D	panels	¼"	16¾"	21"	WP	2
E	top and bottom	¾"	20"	33"	BP	2
F*	divider	¾"	20"	22½ ¹⁶ "	BP	1
G	back	¼"	33¾"	26"	WP	1
H	outer stiles	¾"	3½"	29¼"	W	2
I	center stile	¾"	1¼"	19¼"	W	1
J	front rails	¾"	3"	27½ ¹⁶ "	W	2
K*	trim	¾"	3¾"	28⅞"	W	1
L	back rail	¾"	3½ ¹⁶ "	32½"	W	1
M	cleats	¾"	3½ ¹⁶ "	8¼"	W	2
N	catch blocks	¾"	1"	2"	W	2
Leg assembly						
O	rail	¾"	5"	30½"	W	1
P	legs	1½"	2½"	29¼"	W	2
Q	plinths and capitals	½"	2½"	5"	W	4
R	slide blocks	¾"	2⅞"	8¼"	W	2
S	leg blocks	¾"	2¼"	2⅞"	W	2
Doors and shelves						
T	stiles	¾"	2"	19⅞"	W	4
U	rails	¾"	2"	9½"	W	4
V	panels	¼"	9½"	15⅞"	WP	2
W	shelves	¾"	15¾"	19⅞"	BP	2
X	banding	¾"	1"	15¾"	W	2
Tabletop						
Y*	folding leaves	¾"	12"	18"	EW	8
Z*	fixed leaves	¾"	12"	36"	EW	2

*Parts initially cut oversize. See the instructions.

Materials key: W-walnut, WP-walnut plywood, BP-birch plywood, EW-edge-joined walnut.

Supplies: #8x3/8" flathead screws, #8x1" flathead screws, #8x1 1/4" flathead screws, #8x1 1/2" flathead screws, 1 1/4" pocket screws.

Blade and bits: Dado set; 3/8" brad-point drill bit; 1/16", 1/8", 3/8", and 1/2" round-over; bottom-bearing flush-trim; 1/4" bead; 1/8" straight; and 45° V-groove router bits.

Sources:

Figure-8 desk top fasteners, 8-pack no. 21650, \$5.49 pk. (1 pack); urn-tip full back-to-back wraparound inset hinges, oil-rubbed bronze finish no. 29087, \$6.99 pr. (2 pairs); narrow-profile magnetic catches no. 26559, \$2.49 ea. (2); flat-tipped butt hinges, 1 1/2" Lx2" W, rubbed-bronze finish no. 29401, \$6.99 pr. (4 pairs); wood table pins, 8-pack no. 21253, \$3.99 pk. (3 packs); 1/4" shelf-pin supports, antique brass, 16-pack no. 22765, \$4.99 pk. (1 pack); Flexcut chip-carving knife no. 23403, \$22.95, Rockler, 800-279-4441, rockler.com. Victorian handles, 96mm, no. 01A72.21, \$10.60 ea. (2); Victorian knobs, 30x22mm no. 01A72.41, \$5.30 ea. (2), Lee Valley, 800-871-8158, leevalley.com. 20" table slides, 50" opening no. 9058, \$101.90 pr. (1 pair), Osborne Wood Products, 800-849-8876, osbornewood.com.

Produced by **Jan Svec** with **Kevin Boyle** and **John Olson**
Project design: **Kevin Boyle**
Illustrations: **Roxanne LeMoine**, **Lorna Johnson**

Mani/pedi Caddy

D I M E N S I O N S :
5" W x 3½" D x 4⅞" H

Materials cost:

\$0

if you use scraps from your shop!

Corrals grooming aids for quick, easy access.



Note: Combine different species of wood for a dramatic look. You could use light wood for parts A and C and a dark one for B and D, for instance. Figured or exotic wood also makes an attractive bath accessory.

We built this caddy to hold a 3 Swords eight-piece grooming kit [Source]. To accommodate different tools, simply adjust the slot sizes and spacing.

Cut the pieces

1 Cut two boards ¾×4×12" for the body laminations (A–C) and base (D) [Exploded View].

2 Mark the dado locations [Drawing 1], but leave the boards full length for easier

handling. (We laid out parts A and B on one board, C and D on the other, positioning one piece at each end of the board.)

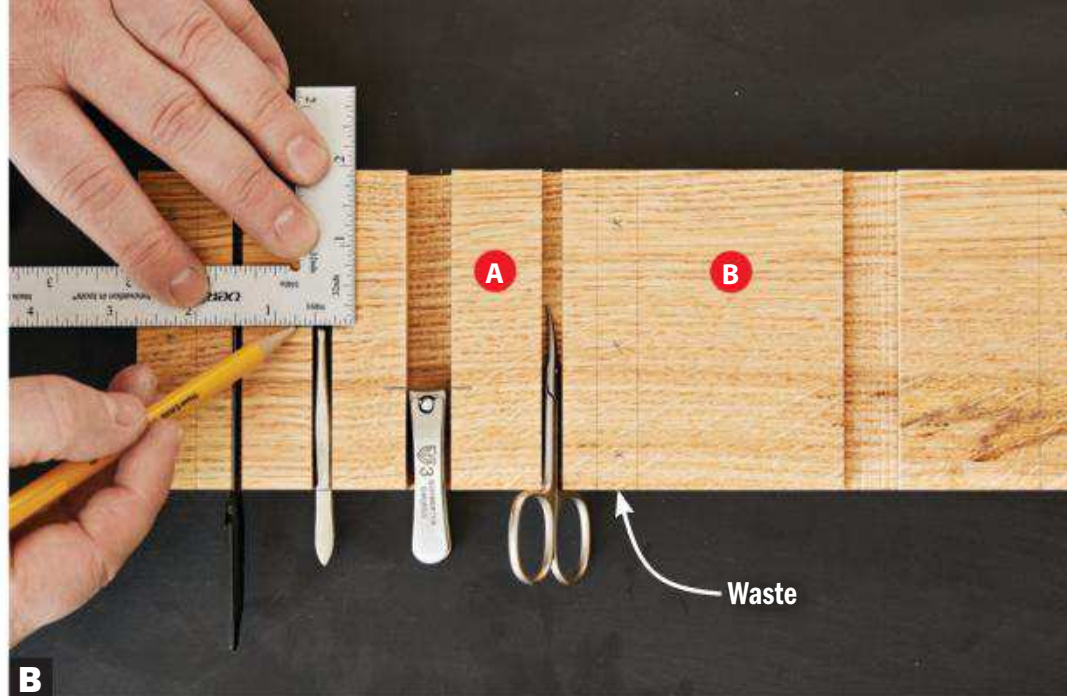
3 Cut the dados [Photo A]. Start with the ⅜"-deep dado in part B. Then, raise the blade to cut the ¼"-deep dado in part A and the ⅜"-deep and ⅞"-deep ones in parts A and C.

Tip! A tablesaw crosscut sled provides the safest and most accurate means for cutting the body dados. To make the sled shown, see page 52.



A

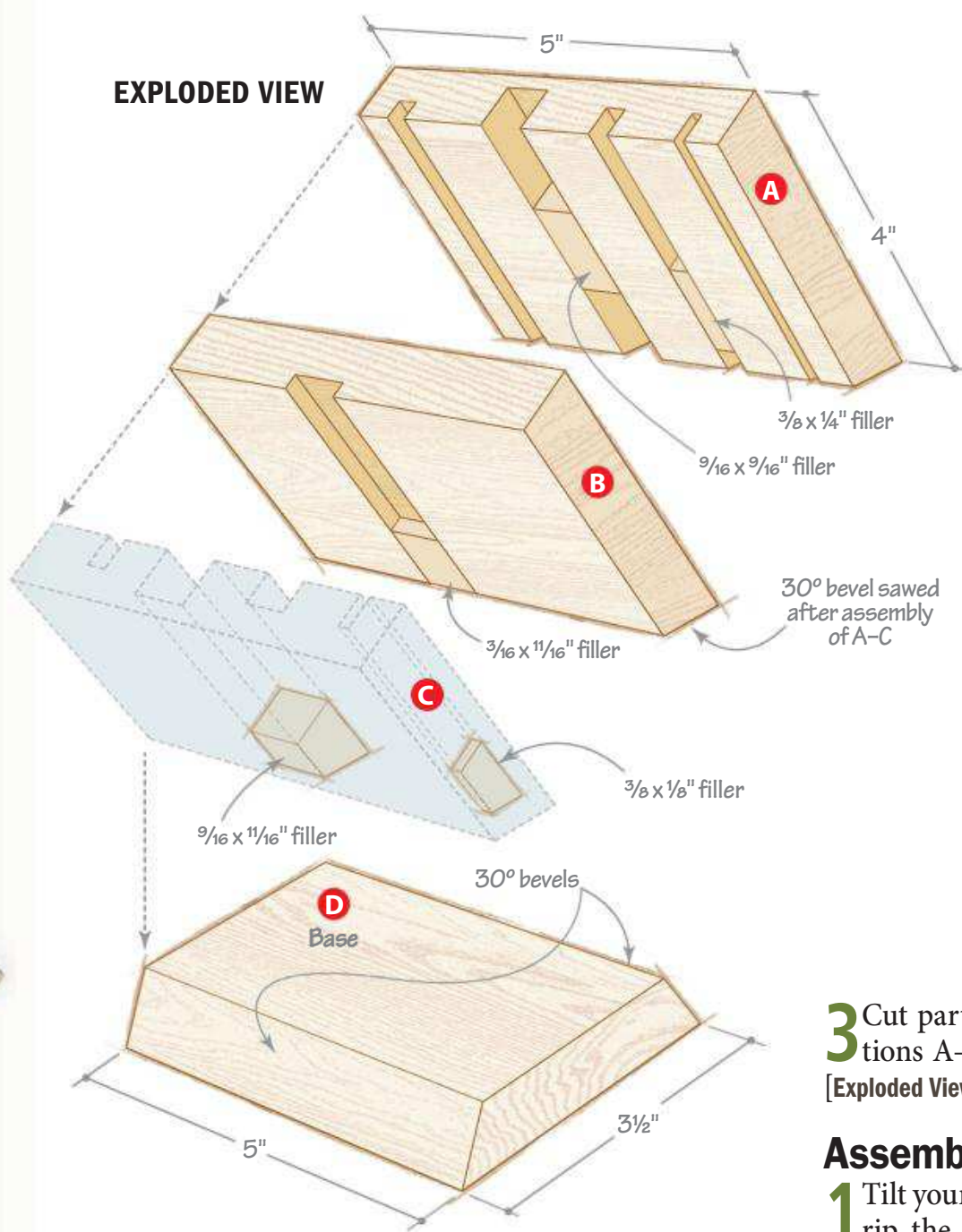
A combination blade with raker teeth makes flat-bottom dados. Cut the wider dados in multiple passes, aligning the layout marks with the kerf in the crosscut sled.



B

Place the tools in the dados so they extend far enough above the caddy surface to grasp easily. Fillers do not necessarily need to go to the dado bottoms.

EXPLODED VIEW

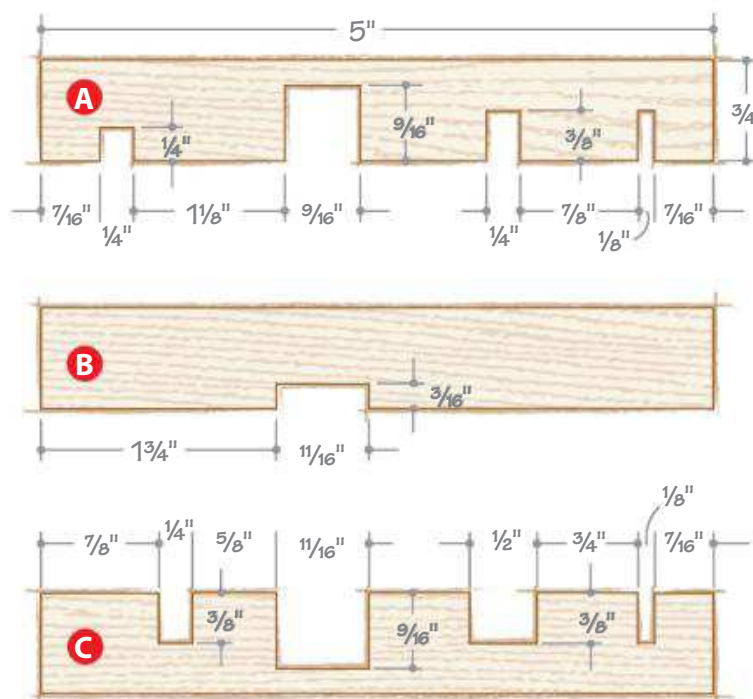


Build the body

1 Set the tools in their dados in parts A and C [Opening photo]. Mark the lengths of the fillers [Photo B]. Cut a filler for the dado in part B the same length as the corresponding one in part C [Exploded View].

2 Cut the fillers to size and glue them in place. After the glue dries, sand the fillers flush to the faces of the laminations.

1 DADO DETAIL



3 Cut parts A–D to 5" long. Glue laminations A–C together, aligning the dados [Exploded View].

Assemble the caddy

1 Tilt your tablesaw blade to 30° and bevel-rip the body and base to size [Exploded View]. Glue the base to the body.

2 Sand the back and sides of the assembly flush. Finish-sand and apply a durable finish, such as polyurethane. Finally, insert the tools in their slots and put the caddy in a handy spot. 🌳

Source

Manicure set, 3 Swords eight-piece grooming kit, \$33, woodmagazine.com/3swords

Note: We crosscut and planed the fillers from a 3/4 x 1 1/4" board. They do not need to be the same stock as the body.

Produced by **Larry Johnston** with **John Olson**
Project design: **John Olson**
Illustrations: **Roxanne LeMoine**, **Lorna Johnson**



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► See George's first set of three router-table joints.
woodmagazine.com/4bits

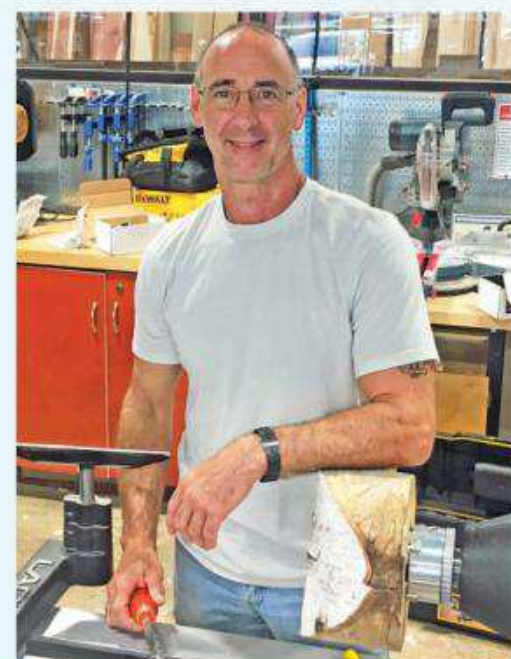
4 Bits, 3 Joints, Too Easy! Vol. 2

by George Vondriska

Put your router table to work creating rock-solid joinery.

You can easily create biscuit joints, splined corners, and finger joints, turning your router table into a joinery machine. All it takes are a few simple shop-made jigs, along with the step-by-step

setups provided here. It's likely that you already own the bits required for these joints. If not, no problem, we've sourced them for you on *page 43*.



► In addition to classes at Vondriska Woodworks in Hammond, Wisconsin, George teaches at woodworking shows and guilds across the country and "Weekend With WOOD." You may also recognize his name and face from videos he hosts for the Woodworkers Guild of America.

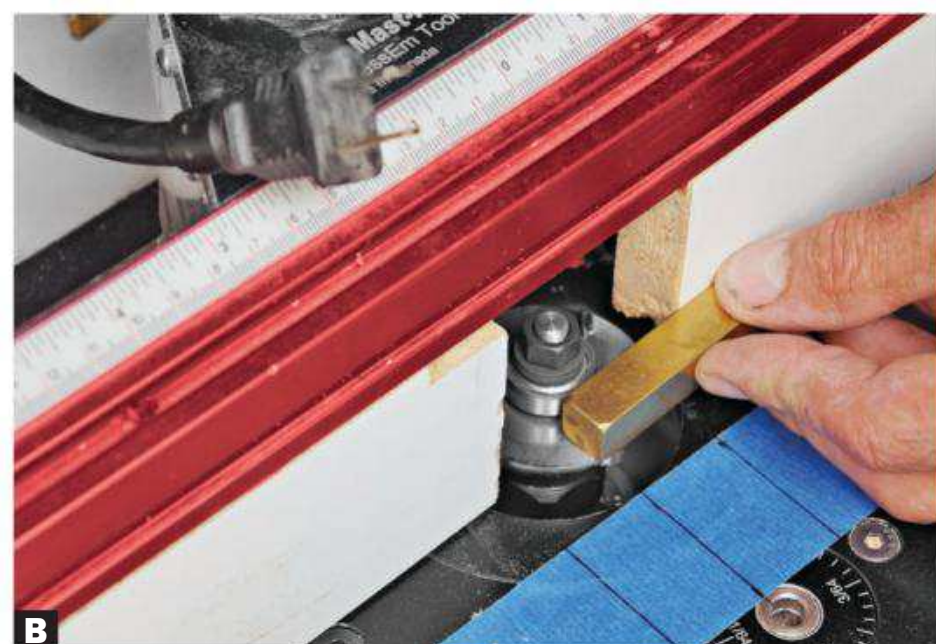
1. Order up biscuits

► If you plan to use biscuits regularly, a dedicated machine makes the process easier and faster.

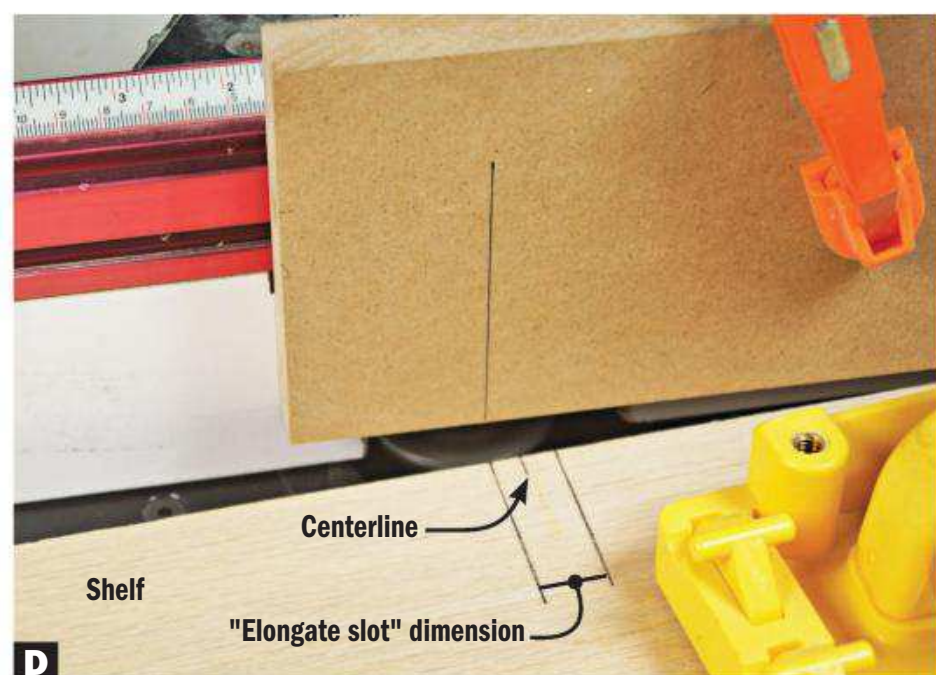
No biscuit joiner? No problem. You can create biscuit joints on your router table using a $\frac{5}{32}$ " slot cutter [Source]. In the example shown in Photos A-G, I'm adding solid edging to a plywood shelf. Photos H-K show how to make end-grain cuts, such as when joining a rail to a table leg.

Slot Specs for 2"-diameter Slot-cutting Bit

Biscuit Size	Depth of Cut	Elongate Slot
#0	$\frac{5}{16}$ "	$\frac{1}{2}$ "
#10	$\frac{7}{16}$ "	$\frac{9}{16}$ "
#20	$\frac{1}{2}$ "	$\frac{5}{8}$ "



Set the depth of cut based on the size of the biscuit you'll be using (chart above). Then set the bit height to center the biscuit slot on the shelf. I use brass setup bars [Source] to make these adjustments quick and precise.

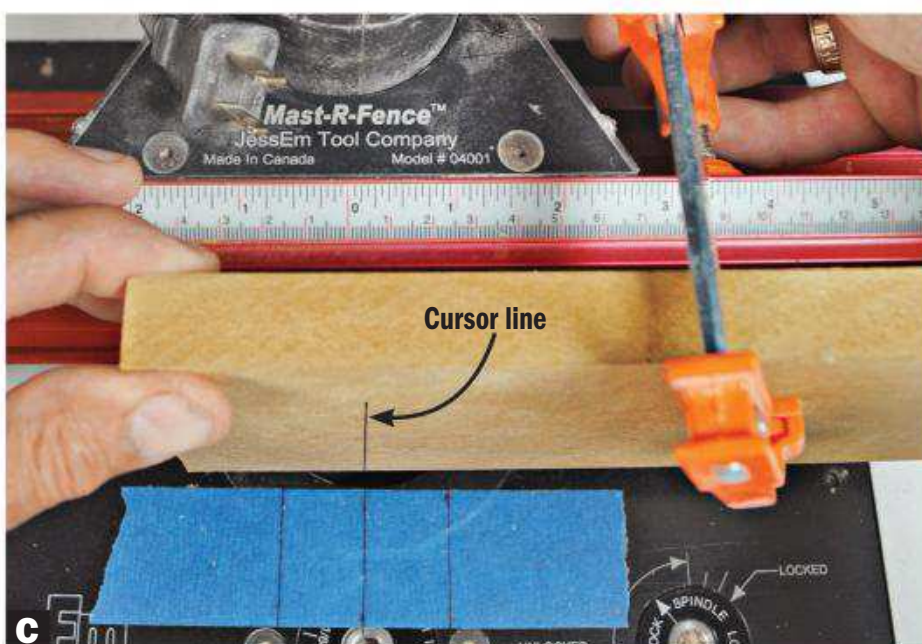


On the shelf, mark the center of each slot on the bottom (non-showing) face. Then add lines to the left and right, spaced half the Elongate Slot dimension. Align the left line with the cursor and plunge the workpiece onto the spinning bit.

ADD EDGING



Locate the center of the bit by sliding a piece of scrap against the fence and the body of the slot cutter. Trace the end of the board onto the tape, marking both sides of the bit. Find and mark the center by dividing the line-to-line distance in two.



Clamp to the fence a cursor board with a line perpendicular to its edge. Align the cursor line with the bit centerline, positioning the board high enough so your material can just slip under it.

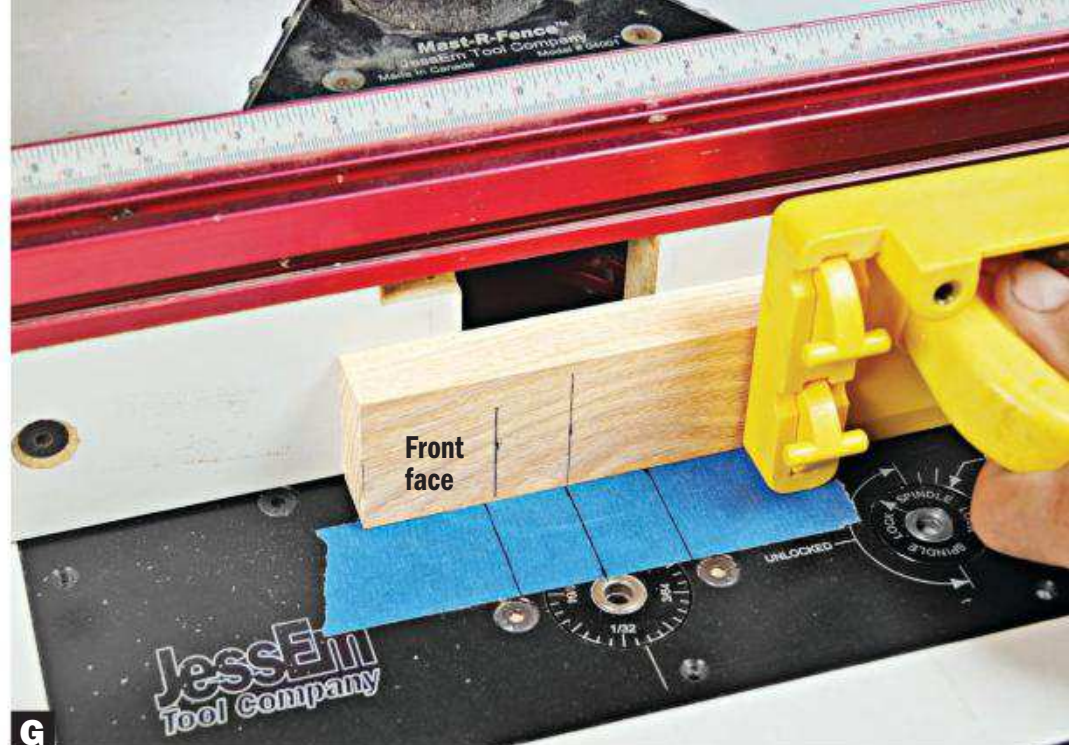


Move the workpiece until the right line aligns with the cursor, and pull the board straight away from the bit. Repeat the process for each slot.



F

Remove the cursor board from the router table. Transfer the left and right layout lines on the shelf to the edging. Transfer the lines around to the front face of the edging.



G

Plunge the rear face of the edging onto the slot cutter, using the layout lines as start and stop points on the bit centerline, as you did with the shelf. Repeat for the remaining slots and assemble the workpieces with glue and biscuits.

JOIN YOUR LEGS TO AN APRON



H

To join a rail to a leg, calculate the distance from an edge of the rail to the center of the biscuit slot, and add half the Elongate Slot number. Clamp a guide to the fence this distance from the bit centerline.



I

With the outside face of the rail down on the router table, plunge the rail straight into and out of the slot cutter.



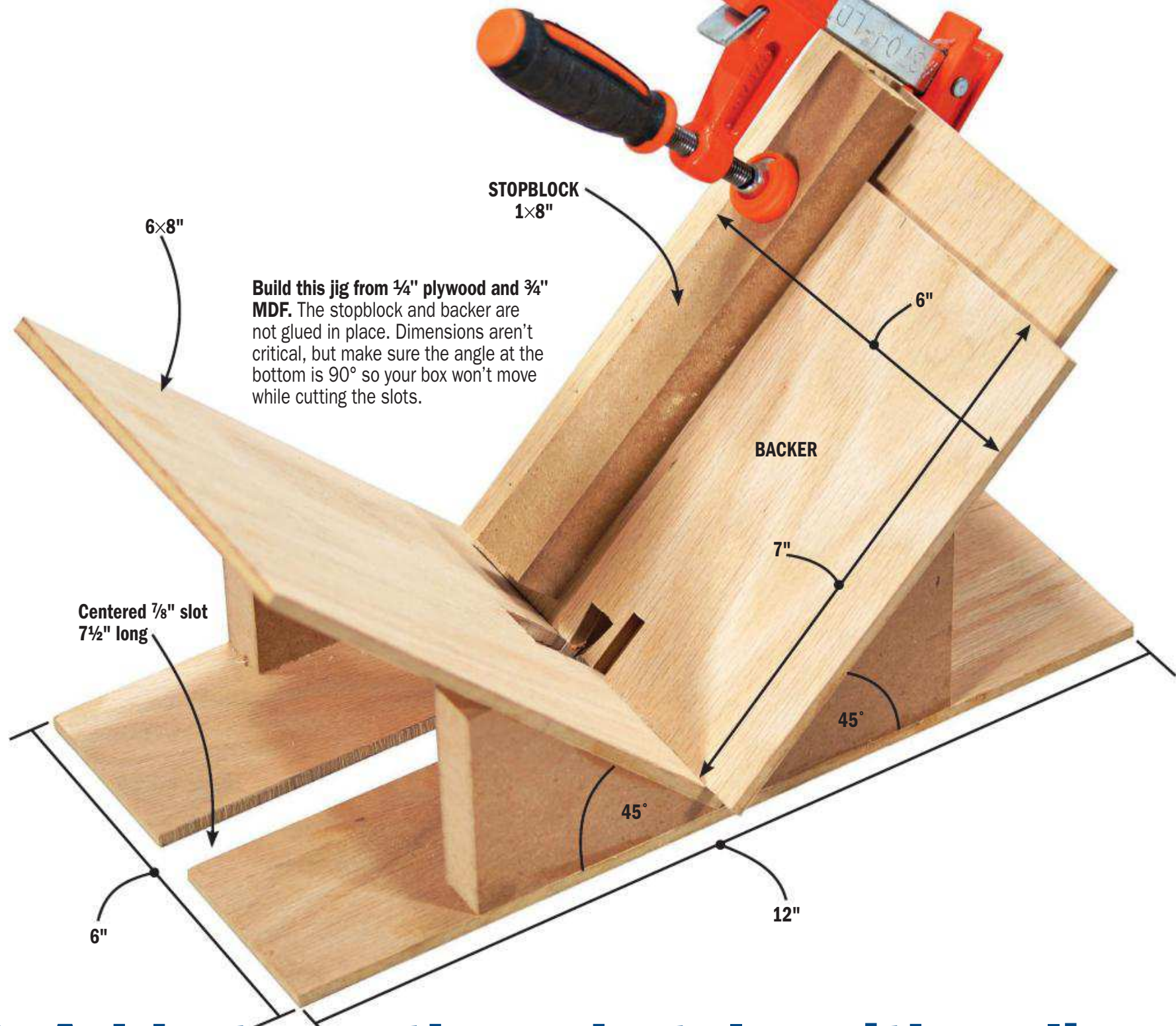
J

Rip a spacer equal in width to the Elongate Slot dimension and insert it between the rail and the guide, and plunge again.



K

Cut the biscuit slot in the leg using the same procedure shown for biscuiting a shelf/edging assembly [Photos F and G]. If you want an offset (reveal) between the leg and rail, raise the bit by the amount of the reveal before making this cut.

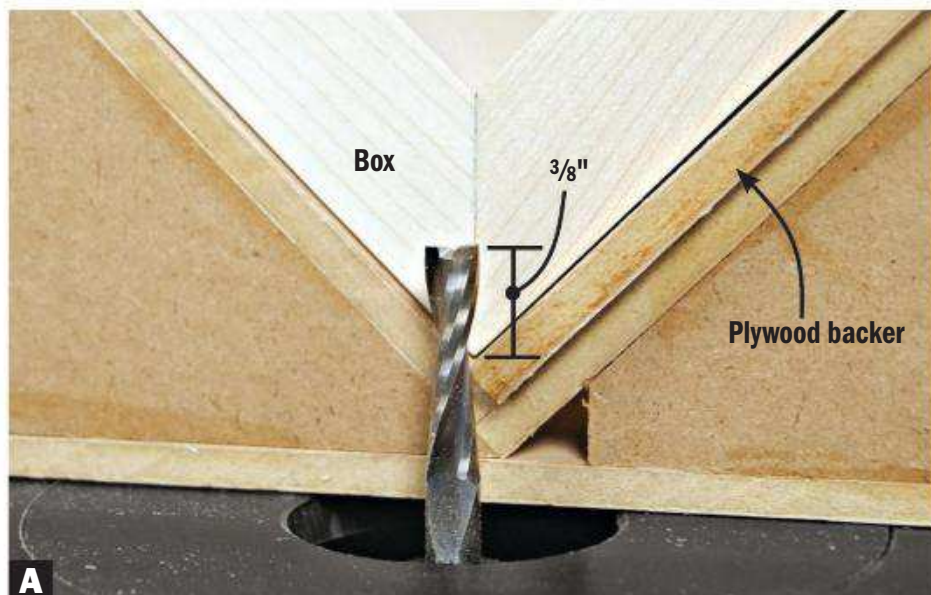


Build this jig from 1/4" plywood and 3/4" MDF. The stopblock and backer are not glued in place. Dimensions aren't critical, but make sure the angle at the bottom is 90° so your box won't move while cutting the slots.

2. Add strength and style with splines

Splines in a mitered box corner provide eye-catching detail and significantly strengthen the joint. To cut either straight or dovetailed splines, build the jig *above*, then cut the slots [Photos A-D].

Dovetail splines provide the illusion of dovetailed corners. The same jig works for cutting this joint [Photos E-H]. Prepare stock 1/16" thicker than the bit diameter for splines and for testing setups.



A

Install a 1/4" spiral bit in the router table, place the box in the jig, and set the height of the router bit (3/8" here, for these 3/4"-thick box sides). The 1/4" plywood backer prevents chip-out on the exit side of the cut.



B

Center the bit in the slot in the jig's base, and lock the router-table fence against it.



C

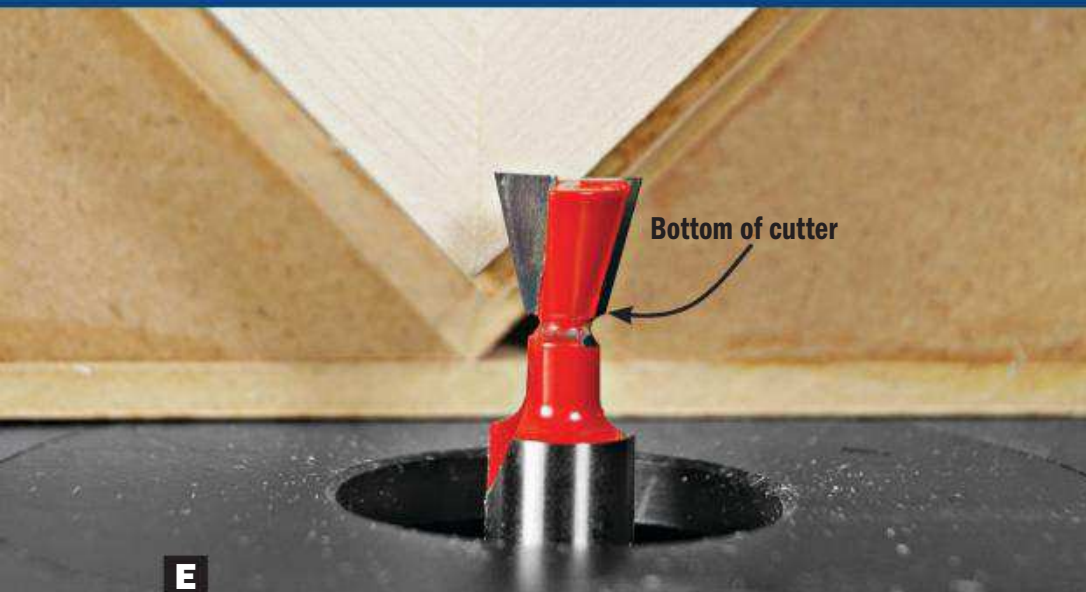
Clamp the stopblock to the jig, measuring from the router bit to the block to locate the spline on the box.



D

Cut a slot in each corner. For symmetry, flip the box top for bottom and cut a second set. Relocate the stopblock for additional slots as needed. Cut splines to fit the slots, and glue them in. Trim the excess after the glue dries, and sand the splines flush.

NOW, DO A DOVETAIL



E

For dovetail splines, install a dovetail bit and set the height so the bottom edge of the cutter sits below the bottom corner of the box. Center the bit in the jig slot, as with the straight bit, add the backer and stopblock, and cut the slots.



F

To create matching splines, lower the dovetail bit, positioning the bottom of the cutter just below the table surface.



G

Position the fence so a small portion of the bit projects past the face. Make a test cut in a piece of scrap. Check the fit. If the dovetail is too large, move the fence back from the bit and recut the same edge. If the dovetail is too small, move the fence toward the bit and start on a fresh edge. Be conservative when moving the fence; because you cut each face, small changes have a large effect on the size of the dovetail.

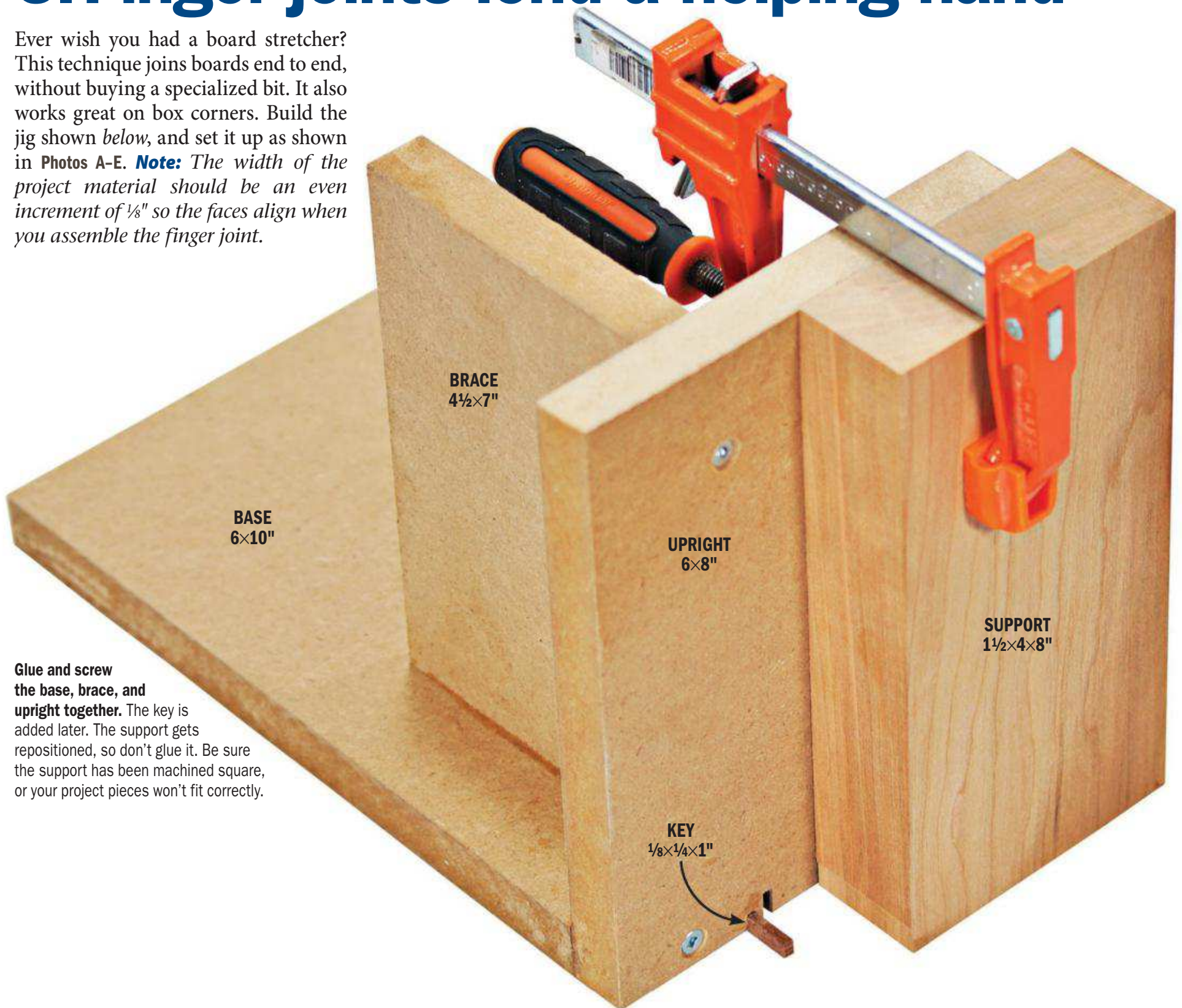


H

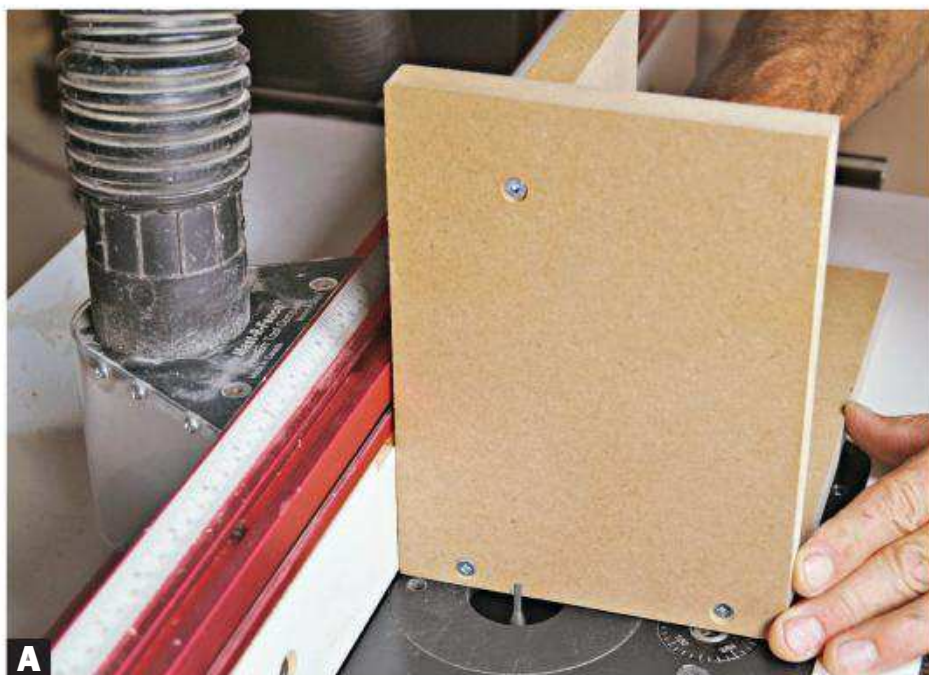
When the fence is perfectly set, cut the final spline material. Rip the dovetail from the board, cut splines to length, apply glue, and tap them in. Trim and sand the splines flush after the glue dries.

3. Finger joints lend a helping hand

Ever wish you had a board stretcher? This technique joins boards end to end, without buying a specialized bit. It also works great on box corners. Build the jig shown *below*, and set it up as shown in **Photos A-E**. **Note:** The width of the project material should be an even increment of $\frac{1}{8}$ " so the faces align when you assemble the finger joint.



Glue and screw the base, brace, and upright together. The key is added later. The support gets repositioned, so don't glue it. Be sure the support has been machined square, or your project pieces won't fit correctly.



A Install a $\frac{1}{8}$ " straight bit and set its height to $\frac{1}{4}$ ". Position the fence $1\frac{1}{8}$ " from the center of the bit and make a $\frac{1}{2}$ "-long cut into the jig.



B Make a 1"-long hardwood key to fit the groove, and glue it in place.



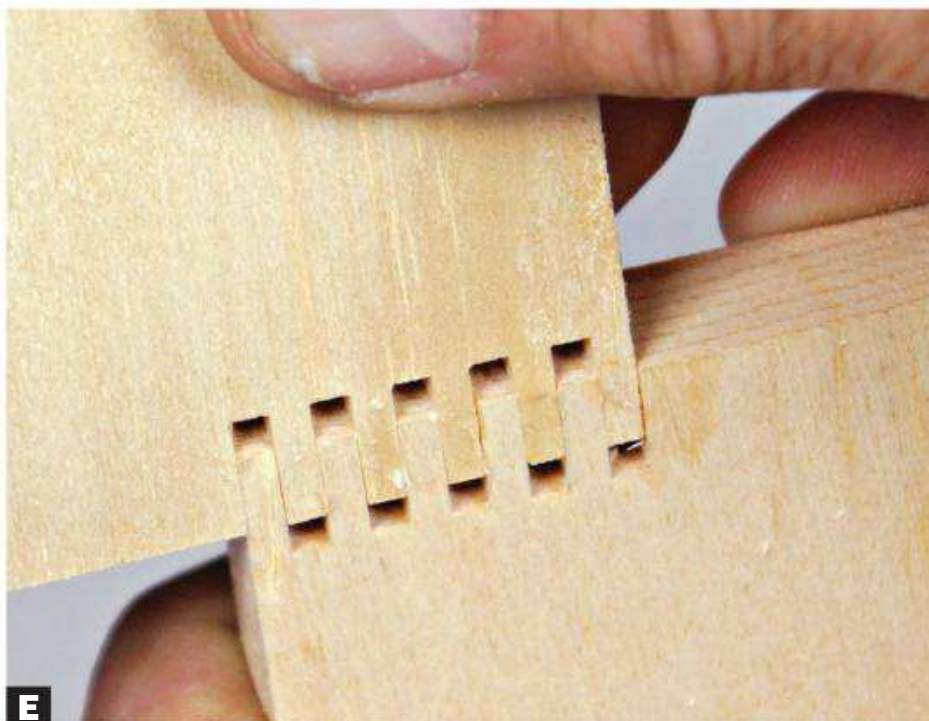
C

Reposition the fence so the bit is $\frac{1}{8}$ " from the key. Again, I like to use a setup bar.



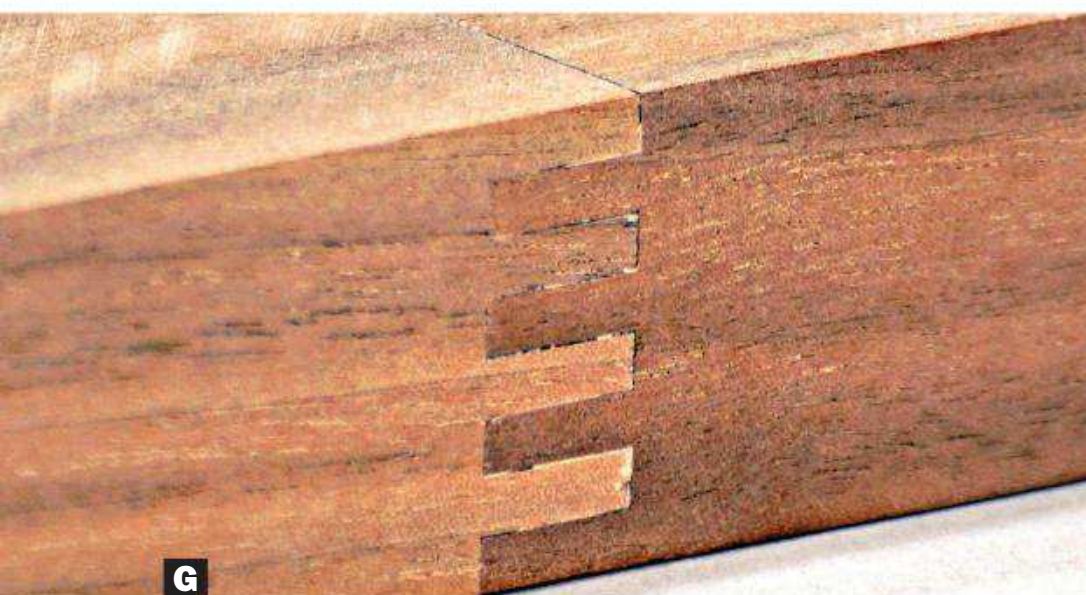
D

Make a series of cuts in two scrap pieces by placing the edge of a test piece against the key. Make a cut, place the slot over the key, and repeat.



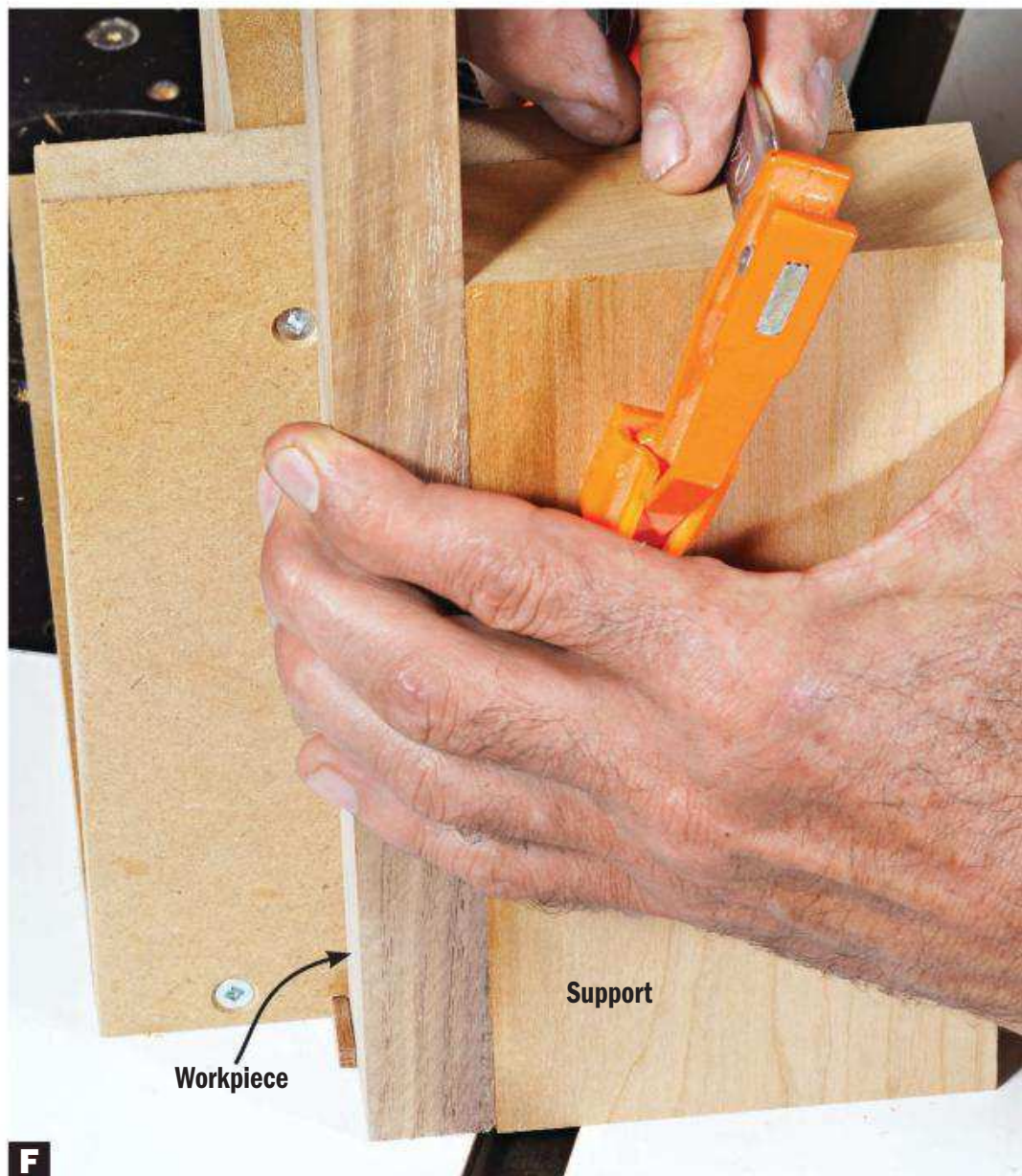
E

Slip the two pieces together to check the fit. If the fit is too tight, move the fence closer to the bit. If the fit is too loose, move the fence away from the bit. Make additional test cuts until you get a snug fit.



G

Glue the joint, plane and sand the surfaces flush, and you've "stretched" your board. 🌲



F

Increase the depth of cut of the router bit to $\frac{1}{2}$ ". Butt the workpiece against the key in the jig. Steady a narrow workpiece, such as the one shown, by clamping the support against it. Cut the joint as you did with the test pieces, repositioning the support against the workpiece as you go.

Source: Purchase any or all of these items at the link below. Freud $\frac{5}{32}$ " slot cutter no. 63-159, \$22; Freud $\frac{1}{4}$ " upcut spiral bit no. 75-102, \$20; Freud $\frac{1}{2}$ " 14° dovetail bit no. 22-112, \$20; Freud $\frac{1}{8}$ " upcut spiral bit no. 75-100, \$19; Whiteside brass set-up gauges no. 9810, \$17. woodmagazine.com/joinerybits

SHOP TEST

10" Sliding Mittersaws

A 10" slider makes an ideal mittersaw for woodworking because of its wide crosscut, miter and bevel capacities, and portability for work in the house or outdoors.



Whether cutting trim boards, picture frames, crown molding, or just wide hardwood boards, a 10" sliding compound mitersaw can do it all. With cross-cut capacities nearing 13", these saws have made radial-arm saws all but obsolete.

But with so many sliders on the market, how do you know which to buy? To find out, we tested 11 models head-to-head, including three powered by lithium-ion batteries. Here's how they fared.

Five key qualities of a good sliding mitersaw

1. Power. All the saws we tested have sufficient power to cut through even the hardest wood, but some do it faster and with less bogging. The Bosch CM10GD, Delta Cruzor 26-2240, and Hitachi C10FSHPS showed the most muscle. Two cordless saws—Makita XSL06PT (powered by two 18-volt packs) and Milwaukee 2734-21HD (one 18-volt pack)—surprised us with their power output, besting or equaling a few corded machines.

2. Accuracy. If you're framing a house, "close enough" is okay. But for precision woodworking, cutting angles must be spot-on. Eight of the 11 saws (see the chart on *page 50*) proved capable of making cuts so precise we could build picture frames with eight

miters—where even a $\frac{1}{10}^\circ$ inaccuracy can mean visible miter gaps.

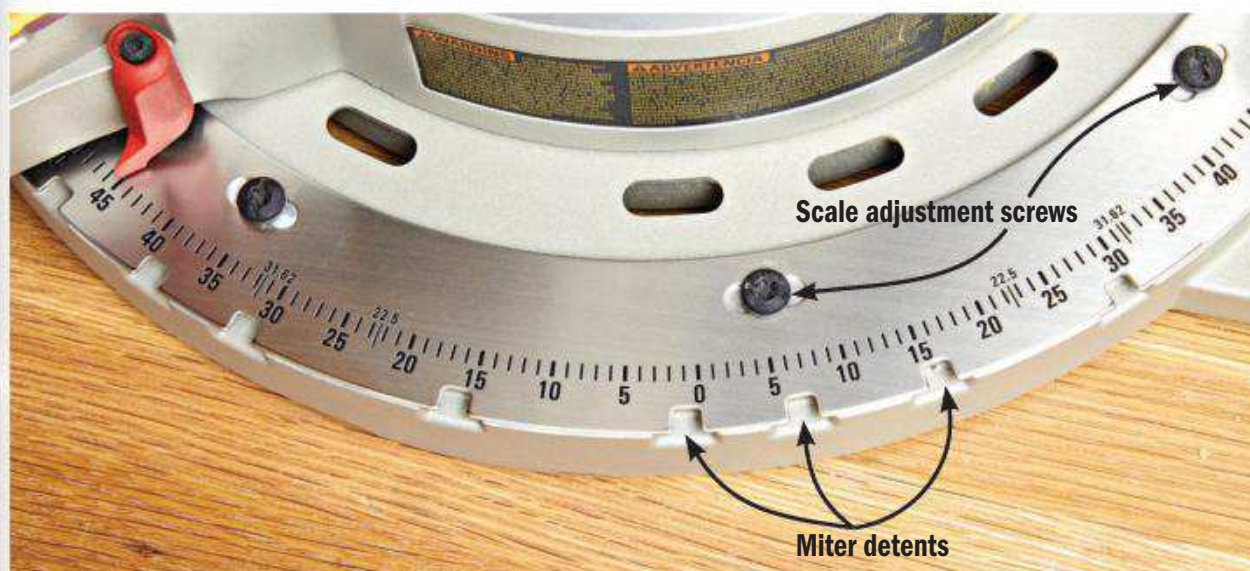
We give extra credit to those saws that have lots of accurate miter detents and bevel stops, and miter scales that can be recalibrated should they lose their accuracy: Bosch, Delta, DeWalt DW717 (shown *below*), Makita LS1019L, Makita XSL06PT, Milwaukee, and Ridgid R4210. And all but two saws (Craftsman 21237 and Hitachi) have detent overrides, allowing you to lock in an angle just slightly off a detent.

The bevel-tilt stops, though fewer, prove accurate and easy to calibrate on all but the Craftsman, Hitachi, and Ryobi saws. We found the scales on the Bosch, Delta, Makita, Milwaukee, and Ridgid saws easiest to read when setting a non-stop angle. Four saws (Bosch, Delta, and both Makitas) feature easily accessible bevel locks located on the front of the machine (shown *next page*), but only the Bosch has all bevel controls up front, eliminating the need to reach behind the saw.

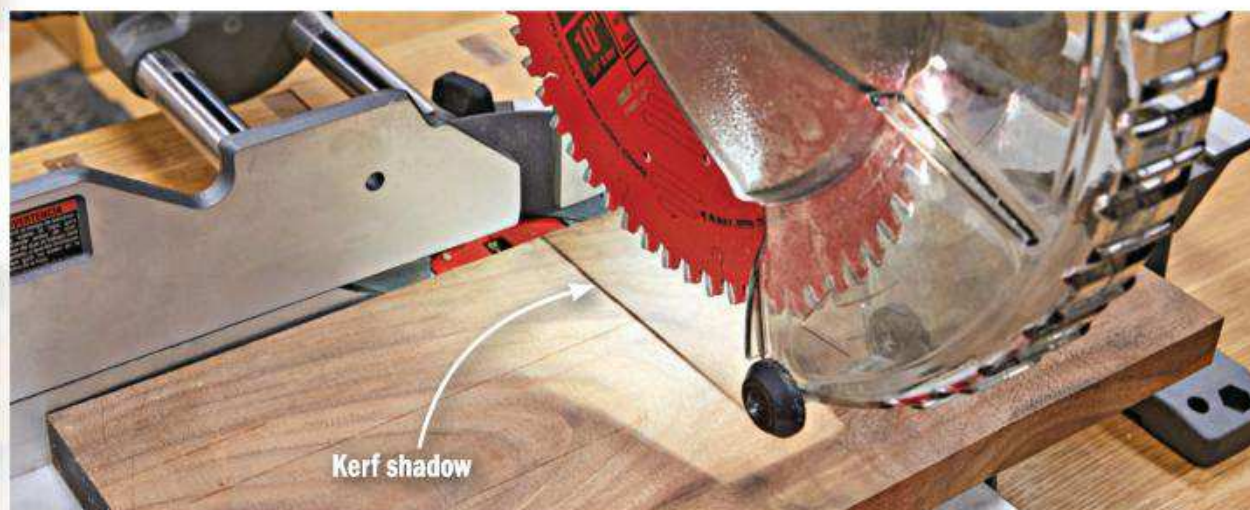
Eight of the 11 saws have a cutline indicator to show where the blade will cut. The Makita saws have the best laser indicators because they're accurate and easy to see and adjust. But we like the LEDs on the Milwaukee (shown *below*) and Ridgid saws even better. (DeWalt has an optional LED accessory.)

► In addition to the 10" sliders tested here, we reviewed all other battery-powered mitersaws on the market. See *page 78*.

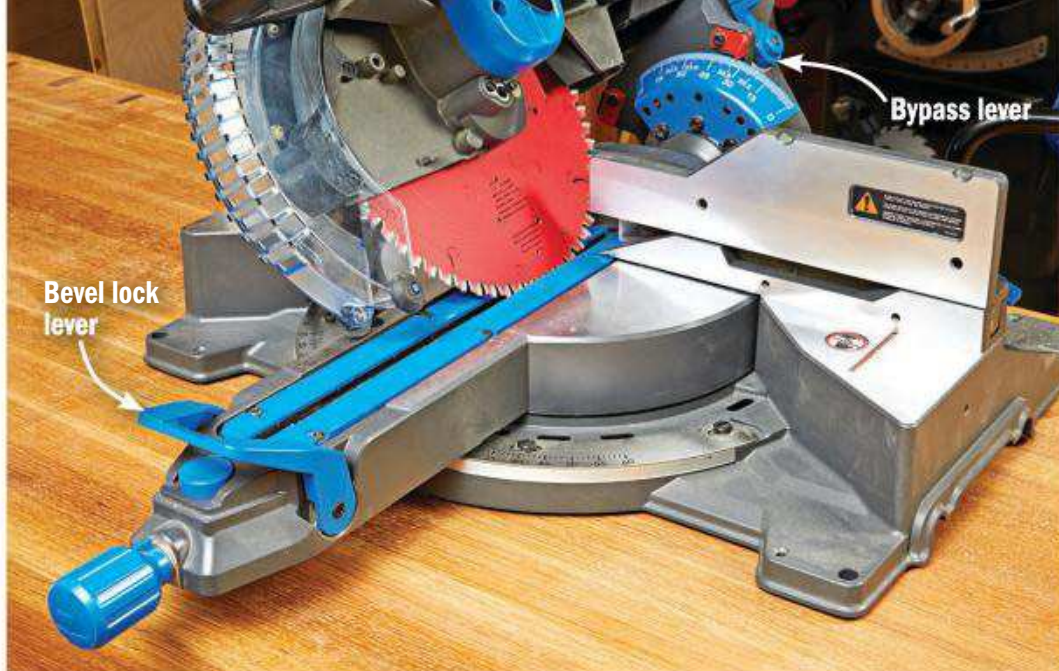
► Hitachi brought the first sliding mitersaw to the market in 1988.



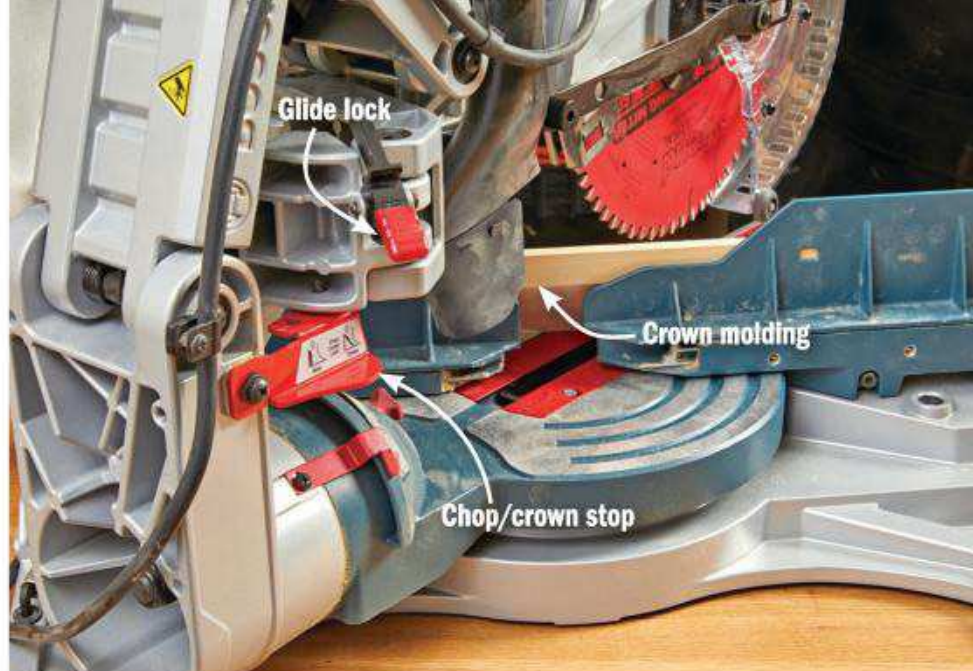
Calibrate DeWalt's miter scale by loosening the screws and sliding the scale sideways to align the detent stops with the blade at those precise angles.



Better than a laser to indicate the cutline, LEDs on the Milwaukee (shown here) and Ridgid saws create a shadow equal to the thickness of the blade—a can't-miss guide.



Front-mounted bevel locks, shown here on the Delta Cruzler, make it easy to tilt the saw without having to reach behind it. (You still have to reach for the bypass lever to set an angle beyond the built-in stops.)



We like Bosch's chop/crown stop best among the test group. This feature locks the saw in position slightly forward of the "normal" back position. This helps to cut wide crown molding held in the nested position.

3. Smooth operation. A good sliding mitersaw must slide forward and backward, pivot, and tilt smoothly, lock solidly, and plunge without excessive resistance from its built-in spring. The Bosch and Delta saws stand out here with their articulated-arm mechanisms that glide without the slightest hiccup. The other saws slide on dual rails, located either behind, beneath, or beside the motor/blade. Of these, the Makita saws operated smoothest.

4. Workpiece support. Because mitersaws have such small tables for workpieces to rest on, it's important to make the most of that space. That's why we like the textured tables and fences of the Bosch, Delta, DeWalt, Makita, Milwaukee, and Ridgid saws that provide a better grip than smooth ones. And credit to both Makita machines for having the largest table surface.

Most of the saws have tall fences (at least 3"), crucial for cutting a workpiece oriented other than lying flat on the table, such as cutting crown molding nested against the fence (shown *top right*). All but the Craftsman, Hitachi, and both Ryobis have tall fences on both sides of the blade. The top portions of all the fences slide sideways to provide clearance when tilting the blade to 45°, except the single-bevel Craftsman and Ryobi TSS102L, where only the left fence slides to the side.

► Buy a Freud LU91R010 10" blade like we used in testing these sliding mitersaws. woodmagazine.com/sliderblade

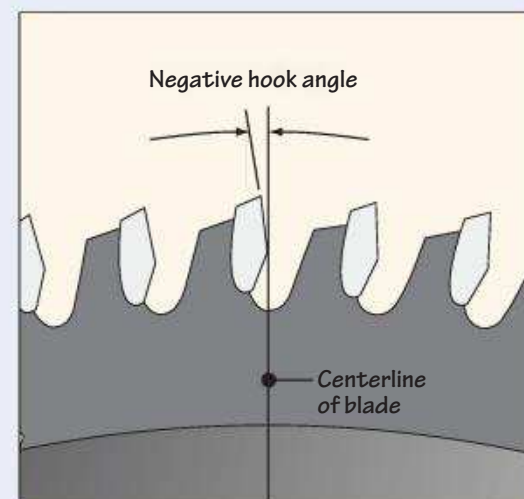
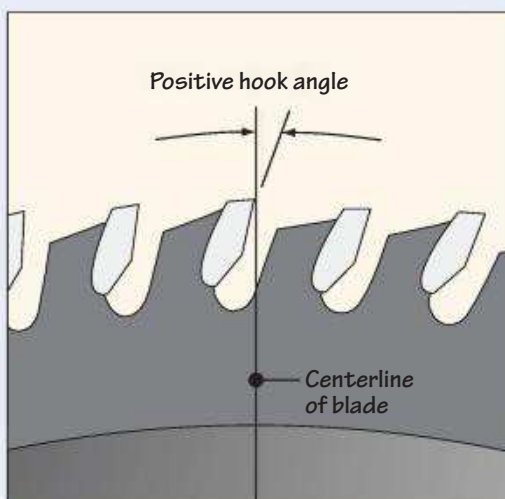


An adjustable depth stop lets you cut dados or tenons on workpieces by limiting the plunge of the blade. These stops flip or slide out of the way when not in use.

5. Portability. Eventually, you'll want to take your slider to a location other than your shop to set up and work. The Craftsman and Ryobi saws weigh less than 40 pounds each, making them easy to carry. The test-heaviest Bosch weighs 64 pounds, and its many features make it cumbersome to lug around. Props to the cordless saws that work anywhere without having to string an extension cord.

Coordinate your slider with the right blade

Sliding mitersaws work best—and safest—with a high-tooth-count blade (40 teeth for an 8"-or-smaller blade, 60–80 teeth for 10", and 80–100 for 12"), and a tooth-hook angle of 0° to –5° to prevent overly aggressive cutting. For this review, we outfitted each saw with a new Freud LU91R010 60-tooth, –5° hook-angle blade.



Get to know the 10" sliders

Bosch CM10GD, \$550

877-267-2499, boschtools.com

High Points

- ▲ One of the most powerful saws in the test.
- ▲ The articulated-arm mechanism works smoothly and solidly, and reduces the amount of space required behind the saw (14½", compared to traditional sliders at 19–24"), when mounted against a wall.
- ▲ It has an easy-to-calibrate miter scale.
- ▲ The bevel lock and angle-range selector, located at the front of the saw, make it easiest in the group to tilt the blade.
- ▲ A tall fence and textured table and fence surfaces make it easy to securely hold and cut stock.
- ▲ This saw's depth stop and chop/crown lock work best among the test group. (See the photo at top right, previous page.)

Low Points

- ▼ At 64 pounds, this saw weighs the most and is awkward to carry and lift.
- ▼ Changing blades requires a six-step process—far more difficult than with other saws.



Craftsman 21237, \$250

sears.com/craftsman

High Points

- ▲ Table extensions (with a stop on the right) provide up to 18¾" of workpiece support on each side of the blade, longest in the test.
- ▲ It's lightweight (39 pounds) and easy to carry.
- ▲ The \$250 price goes easy on your tool budget.

Low Points

- ▼ It bogged down when cutting 2-by pressure-treated pine and dense or thick hardwoods.
- ▼ Miter detents could not be calibrated to spot-on accuracy, and it lacks a detent override. The bevel stops proved easier to calibrate, but we had to do so several times during testing. It tilts only to the left.
- ▼ Its short fences can't support crown molding cut in the nested position.
- ▼ The blade guard catches on wide workpieces, and the saw head demonstrated the most side-to-side deflection during cuts.
- ▼ Despite a large port, dust collection was only fair.



Delta 26-2240, \$500

800-223-7278, deltamachinery.com

High Points

- ▲ One of the most powerful saws in the test.
- ▲ The saw glides smoothly on dual articulated arms instead of sliding rails, and it requires the least amount of space behind the saw (12½").
- ▲ The bevel lock is located at the front of the saw for easy changes, and the bevel scale is among the easiest to read.
- ▲ Its clearly marked miter scale can be easily calibrated.
- ▲ A tall fence and textured table and fence surfaces make it easy to securely hold and cut stock.
- ▲ 5-year warranty

Low Points

- ▼ The dust bag mounts close to the top handle, making the saw clumsy to lift and carry.
- ▼ Blade changes proved difficult because the guard does not stay retracted by itself.

More Points

- ▶ Removing the fence and screwing on a 2x12 as an auxiliary table adds 3" of crosscut capacity.
- ▶ A single-trigger power switch can more easily (and possibly accidentally) activate the blade.



DeWalt DW717, \$500

800-433-9258, dewalt.com

High Points

- ▲ Setting miter angles proved foolproof thanks to solid-locking detents and an easily read and calibrated scale. Bevel angles adjust and set almost as easily.
- ▲ A tall fence and textured table and fence surfaces make it easy to securely hold and cut stock.
- ▲ Comes with a 3-year warranty.

Low Points

- ▼ The chop/crown stop kept dropping from its upright “neutral” position, accidentally locking the saw forward of the fence.
- ▼ The saw head slides stiffly on the rails, and we found the small knob that locks the saw’s position on the rails difficult to operate.

More Points

- ▶ Removing the fence and screwing on a 2x12 as an auxiliary table adds 2" of crosscut capacity.
- ▶ A single-trigger power switch can more easily (and possibly accidentally) activate the blade.



Hitachi C10FSHPS, \$550

800-829-4752, hitachipowertools.com

High Points

- ▲ One of the most powerful motors with a soft-start feature that eliminates the lurch common to some others.
- ▲ At just 43 pounds, we found this saw easy to lift and carry.
- ▲ 5-year warranty

Low Points

- ▼ The short right-side fence can’t support crown molding cut in the nested position.
- ▼ The miter and bevel scales are difficult to read, there’s no way to calibrate the miter scale, there’s no miter-detent override, and the threaded miter lock came loose a few times.
- ▼ We found its vertically oriented D-handle and power switch awkward to use, and even more difficult to operate left-handed.
- ▼ The blade wrench does not store on the saw.

More Points

- ▶ Its rear-mounted laser proves effective when clean, but got covered in sawdust after a few cuts.



Makita LS1019L, \$550

800-462-5482, makitatools.com

High Points

- ▲ A tall, textured fence and large, textured table make it easy to securely hold and cut stock.
- ▲ Has the best cutline laser and factory blade among the test saws.
- ▲ The compact frame reduces the amount of space required behind the saw (14"), when mounted against a wall.
- ▲ Slide-out extension wings provide up to 17" of workpiece support each side of the blade.
- ▲ Its excellent miter scale can be easily recalibrated, with 60° maximum miter capacity left and right.
- ▲ It has the best workpiece clamp in the test.

Low Points

- ▼ We found it clumsy to change bevel angles, especially when tilting to the right.

More Points

- ▶ Although this saw couldn’t quite match the power of the top saws, its soft-start feature eliminates startup lurch.
- ▶ Dust collection was test-best when hooked to a shop vacuum, but among the worst when using the included collection bag.
- ▶ The side-mounted rails help the saw slide smoothly and make it compact, but the rails and bevel lock get in the way too often. And the slide lock works only in the fully retracted position.
- ▶ The chop/crown stop works fine, but is not easy to locate.



Makita XSL06PT, \$650

High Points

▲ This saw shares the high points of its corded sibling, but with an even smoother startup and faster blade braking.

▲ Powered by two 18-volt, 5-amp-hour battery packs, this saw averaged 190 crosscuts per charge in 2x4 pine.

▲ When paired with Makita's optional Bluetooth-compatible 2-gallon HEPA vacuum (no. XCV08Z, \$460), starting the saw triggers the vacuum as well. We found this cord-free setup excellent at collecting dust.

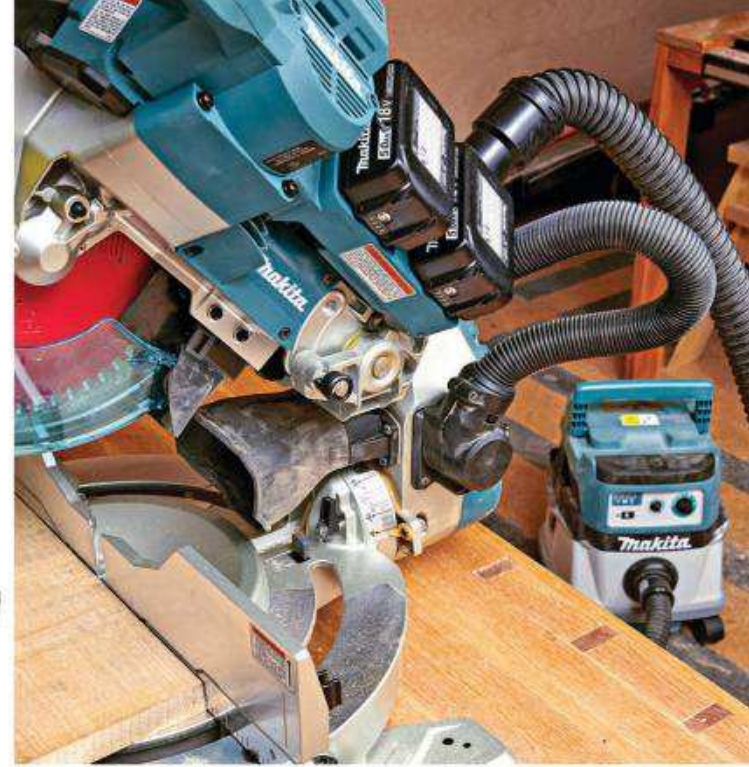
Low Points

▼ It shares the LS1019L's issues with the slide rails, beveling, and dust-bag collection.

More Points

► Buy it without batteries (model LXSL04ZU) for \$600.

► With batteries in place, this saw weighs 2 pounds more than the LS1019L.



Makita's cordless saw starts up an optional battery-powered vacuum thanks to Bluetooth connectivity. Both tools run on a pair of 18-volt battery packs.

Milwaukee 2734-21HD, \$600

800-729-3878, milwaukeetool.com

High Points

▲ Powered by a single 18-volt, 5-amp-hour battery pack, this saw averaged 126 crosscuts per charge in 2x4 pine.

▲ Lightweight (45 pounds) and easy to carry with top or side handles. It's surprisingly compact for its many capabilities and solid build.

▲ It has an easy-to-read and -calibrate miter scale, and the bevel lock is located on top of the saw for easy access.

▲ Blade changes were easiest on this saw because the blade guard stays retracted without loosening any screws.

▲ We found the LED cutline indicator more reliable than the lasers on other saws.

▲ A tall fence and textured table and fence surfaces make it easy to securely hold and cut stock.

▲ 5-year warranty

Low Points

▼ The small pin that locks the saw into chop/crown mode, located beneath the throat plate, was prone to getting jammed with sawdust.

▼ Its stiff spring required the most effort to plunge the saw.

▼ The dust port is located too far from the blade to effectively capture dust.

More Points

► Buy it without a battery pack (model 2734-20) for \$500.



Ridgid R4210, \$350

866-539-1710, ridgidpowertools.com

High Points

▲ The miter scale reads and calibrates easily, and both side support tables pivot to allow miter angles up to a test-best 71° left and right.

▲ The chop/crown stop makes it easy to cut crown molding in the nested position.

▲ A tall fence and textured table and fence surfaces make it easy to securely hold and cut stock.

▲ We found the LED cutline indicator more accurate than the lasers on other saws.

▲ Blade changes are easy.

▲ Comes with a 3-year warranty, upgradable to a lifetime service agreement upon registering the tool online. This covers most parts and service.

Low Points

▼ The top handle is awkward to use by itself when lifting and carrying the saw.



10" Sliding compound miteraws make the high-capacity cut

MODEL	PERFORMANCE RATINGS (1)																		CUTLINE INDICATOR (2)	MITER			
	MITER				BEVEL				OBSERVED POWER	EASE OF PLUNGE AND SLIDE	ABSENCE OF SIDE-TO-SIDE DEFLECTION	PORTABILITY	EASE OF USING POWER SWITCH/HANDLE	EFFECTIVENESS OF FENCE	QUALITY OF FACTORY BLADE	EASE OF CHANGING BLADE	EFFECTIVENESS OF BLADE GUARD	EFFECTIVENESS OF LASER/LED LIGHT		DUST COLLECTION, AS EQUIPPED	MAXIMUM (LEFT, RIGHT), DEGREES	DETENTS, DEGREES (ALL HAVE 0, 15, 22.5, and 45) (3)	DETENT OVERRIDE? (YES, NO)
	ACCURACY OF DETENTS	EASE OF CHANGING POSITION	LOCK RELIABILITY	SCALE READABILITY	ACCURACY OF STOPS	EASE OF CHANGING POSITION	LOCK RELIABILITY	SCALE READABILITY															
BOSCH CM10GD	A	A	A	A	A	A	A	A-	A	A	A-	C	A-	A	B	C-	A-	N/A	B-	N/A	52, 60	31.6, 60*	Y
CRAFTSMAN 21237	C-	A	C+	B	B+	C+	A-	B+	C-	C+	C+	A	B	C	C	C+	B-	C	C+	T	50, 50	31.6	N
DELTA 26-2240	A	A	A	A	A-	A-	A	A-	A	A	A-	C	A	A-	B	B	A	N/A	B	N/A	50, 60	30	Y
DEWALT DW717	A	A	A	A	A	A-	A	B-	A-	B	B+	B+	A	A	B-	B	A	N/A*	B	N/A*	60, 52	30, 31.6, 60**	Y
HITACHI C10FSHPS	A-	A	C+	C	B+	B-	A-	B-	A	C+	C+	B+	C-	C+	C	C	B	C	C+	R	45, 57	31.6	N
MAKITA LS1019L	A	A	A	A	A-	B-	B+	A-	B+	A	B	B-	A	A	A	B+	A	A-	C	T	60, 60	30, 31.6, 60	Y
MAKITA XSL06PT (36V)	A	A	A	A	A-	B-	B+	A-	B+	A	B	B-	A	A	A	B+	A	A-	C	T	60, 60	30, 31.6, 60	Y
MILWAUKEE 2734-21HD (18V)	A	A	A	A	A	A	A-	A-	B	C+	B-	A-	A	B+	A-	A	A	A-	D	L	50, 60	31.6, 50	Y
RIDGID R4210	A	B+	A	A	A	A	A	A	A-	B-	B+	B+	A	B+	B	A-	A	A	B	L	71, 71	31.6, 60, 67.5	Y
RYOBI TSS102L	D	C+	B-	B	B	C	B	B	C	C	B-	A	A	C	C	B+	B	B-	B-	T	46, 52	31.6	Y
RYOBI P3650B (36V)	D	C+	B-	B	B	C	B	B	C	C	B-	A	B+	C	C	B+	B	B-	B-	T	46, 52	31.6	Y

- A** Excellent
B Good
C Fair
D Poor
N/A Not applicable
 * LED available as an accessory
- (L)** LED
(R) Rear-mounted laser
(T) Top-mounted laser
(N/A) No cutline indicator
 * LED available as an accessory
- (*)** Right side only
()** Left side only
- (*)** Single-bevel saws tilt only to the left
- Space required to allow full range of miter, bevel, and slide motions.

Ryobi TSS102L, \$200

800-525-2579, ryobitools.com

High Points

- ▲ At 36 pounds, this saw is easy to lift and carry.
- ▲ Lowest price in the test group
- ▲ Slide-out extension wings provide up to 15¼" of workpiece support each side of the blade.
- ▲ 3-year warranty

Low Points

- ▼ This saw lacks the power of most saws in the test, but it works fine if you cut slower.
- ▼ The miter detents were inaccurate with no way to adjust them. But the detent override lets you lock the saw just slightly off the detent angles to correct some inaccuracy. Changing angles was stiff and jerky, and tilting the saw was difficult as well. It tilts only to the left.
- ▼ Short fences make it difficult to cut workpieces in positions other than lying flat on the table.
- ▼ Adjusting the laser proves difficult because it's located underneath the blade guard.

More Points

- ▶ This saw has an adjustable depth stop (helpful for cutting dadoes), but no chop/crown stop.
- ▶ A single-trigger power switch can more easily (and possibly accidentally) activate the blade.



► Read reviews of other miteraws, as well as accessories for these tools.
woodmagazine.com/mitersawreviews

BEVEL		DIMENSIONS		CUTTING CAPACITIES, INCHES						ACCESSORIES (6)		DUST PORT, INCHES							
MAXIMUM (LEFT, RIGHT), DEGREES ⁽⁴⁾	STOPS, DEGREES (ALL HAVE 0 and 45)	FOOTPRINT WITHOUT EXTENSIONS, INCHES (W × D × H) ⁽⁵⁾	WIDTH, (EXTENSIONS FULLY EXTENDED), INCHES	MAX. WIDTH				MAX. HEIGHT		STANDARD	OPTIONAL	INSIDE DIAMETER	OUTSIDE DIAMETER	CORD LENGTH, FEET ⁽⁷⁾	WEIGHT, POUNDS	WARRANTY, YEARS ⁽⁸⁾	COUNTRY OF ASSEMBLY ⁽⁹⁾	SELLING PRICE ⁽¹⁰⁾	
				AT 0° MITER, 0° BEVEL	AT 45° MITER, 0° BEVEL	AT 0° MITER, 45° BEVEL	AT 45° MITER, 45° BEVEL	VERTICAL AT FENCE, ¾" STOCK	DIRECTLY BELOW ARBOR										
47, 47	33.9	32¼ × 34 × 26½	N/A	12¼	8½	12	8	5½	3¾		P, R, S, W, X	1¼	1½	6	64	1	C	\$550	
45, 0*	33.9	31 × 37½ × 23¾	37½	12¾ ₁₆	8⅞	12	8	4½	3¾	S, X		2¼	2½	6	39	1	C	\$250	
45, 45	22.5, 33.9	30 × 30 × 24	N/A	12	8⅝ ₁₆	12	8	5½	3⅞		P	1⅜	1⅝	7	53	5	T	\$500	
48, 48	22.5, 33.9	31½ × 37 × 24½	N/A	12 ¹¹ ₁₆	9	12 ⁵ ₈	8⅞	6	3⅞		L, P, R, S, W, X	1⅜	1½	6	51	3	M	\$500	
45, 45	none	29 × 40½ × 24	N/A	12 ⁹ ₁₆	8¾	12	8 ¹⁹ ₃₂	3½	3¾		P, R, W	2	2⅜	6	43	5	C	\$510	
48, 48	22.5, 33.9	30 × 32 × 26	34¼	12	8½	12	8½	6	3¾	T, W	P, R	1⅜ ₁₆	1⅞ ₁₆	6	58	1	C	\$550	
48, 48	22.5, 33.9	30 × 32 × 26	34¼	12	8½	12	8½	6	3¾	T, W	P, R	1⅜ ₁₆	1⅞ ₁₆	N/A	60	3	C	\$650	
48, 48	22.5, 33.9	40 × 41¾ × 26½	N/A	11⅜	8⅞ ₁₆	12	8	5¾	5¾	L	P	1⅜, 2¼	1½, 2½	N/A	45	5	T	\$600	
45, 45	22.5, 33.9	40¼ × 43 × 29	N/A	12½	8¾	12	8	6½	3⅞	L	P, S	1¼	1½	6	47	3*	C	\$350	
45, 0*	none	32½ × 40 × 27¼	32½	12 ¹¹ ₁₆	9⅞	12	7¼	4	3⅞	W	P	1⅜	1½	6	36	3	C	\$200	
45, 50	none	31½ × 39¾ × 25½	N/A	12 ¹³ ₁₆	9⅞	12	7¼	4	3⅞		P, W	1⅜	1½	N/A	34	3	C	\$300*	

6. (L) LED cutline indicator
(P) Portable stand
(R) Crown molding stops
(S) Cutoff stop
(T) Triangular setup square
(W) Extension wings (rods)
(X) Slide-out table extensions
7. (N/A) Battery powered
8. (*) Lifetime service upon online registration
9. (C) China
(M) Mexico
(T) Taiwan
10. Prices current at time of article production and do not include shipping, where applicable.
(*) Does not include battery packs



Ryobi P3650B, \$300

High Points

▲ Powered by two 18-volt battery 4-amp-hour packs (not included), this saw averaged 285 crosscuts per charge in 2×4 pine.

▲ Unlike the corded Ryobi, this saw tilts both right and left.

▲ At 34 pounds (with battery packs), this is the lightest saw in the test.

▲ 3-year warranty

Low Points

▼ This saw does not have an adjustable depth stop or a chop/crown stop.

More Points

► This saw sells only as a bare tool. A two-pack of 4-amp-hour battery packs costs \$99.

Switch into glide

We think you'd be happy with more than half of the 11 sliders we tested, but two stand out as the best of the pack: the Bosch CM10GD and Delta Cruzar glide mitersaws. They share Top Tool honors. Yes, their price tags rank near the top of the group, but for that investment you get an accurate, smooth-handling, well-appointed machine with all the cut capacities and power you'll need.

If you need to save some bucks, opt instead for the Ridgid R4210, our Top Value. At \$350, you get a feature-laden saw that weighs less than the Bosch or Delta. It also comes with a 3-year warranty that can become a lifetime service agreement. 🌳

Produced by **Bob Hunter** with **Peter Kasper**

Perfect-cut Tablesaw Sled

*Make dead-on crosscuts or
miters with equal ease.*

► Switch from cross-cutting to miters
in seconds by dropping the miter plate
into the sled-base kerf. Pop it out again
to make crosscuts.

D I M E N S I O N S :
24" W x 20" D x 45/8" H

Approximate
materials cost:

\$11

Cut right and
left miters
without
adjustments.



EXPLODED VIEW

Before you cut the sled parts, align your tablesaw blade parallel to the miter slots. Then adjust the rip fence parallel to the blade and slots. See woodmagazine.com/sawtuneup for tips on preparing your saw.

Ace the base

This sled can crosscut parts up to 17½" wide and miter-cut stock up to 3⅞" wide. To miter-cut wider parts, lengthen the base (A) and miter-slot runners (D). The assembly steps remain the same.

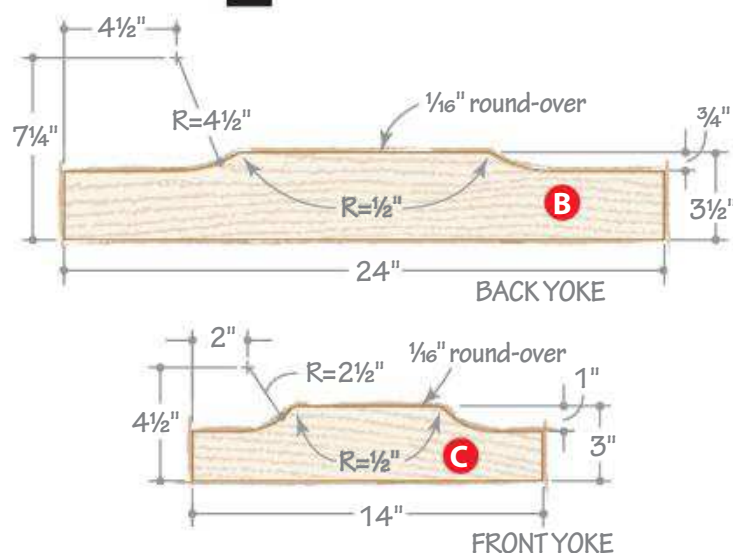
1 Cut the base (A) [Materials List, Exploded View]. Saw to shape, round over, and sand the yokes (B, C) [Drawing 1]. Glue and screw the yokes to the base.

2 Saw the miter-slot runners (D) for a snug fit inside the miter slots.

3 Position the saw's rip fence to center the blade on the width of the base. Place three pennies or washers about 10" apart in each miter slot. Apply double-faced tape on one face of each runner, and lay the runners on the pennies with ends aligned.

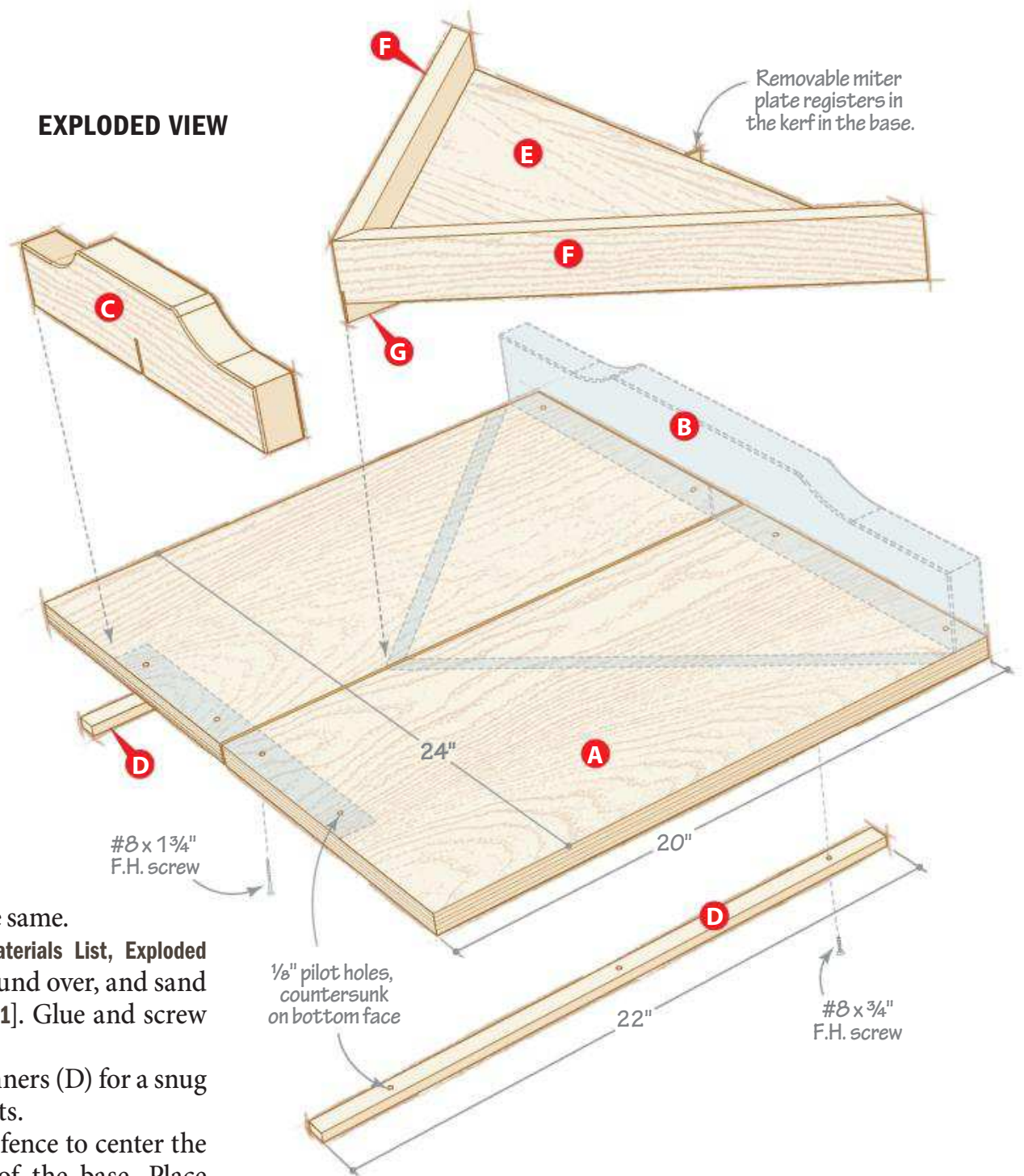
4 With the base edge held tight against the fence, press the base onto the runners [Exploded View, Photo A]. Make test crosscuts to confirm the back yoke (B) is 90° to the blade, then screw the runners to the base.

1 YOKES



BACK YOKE

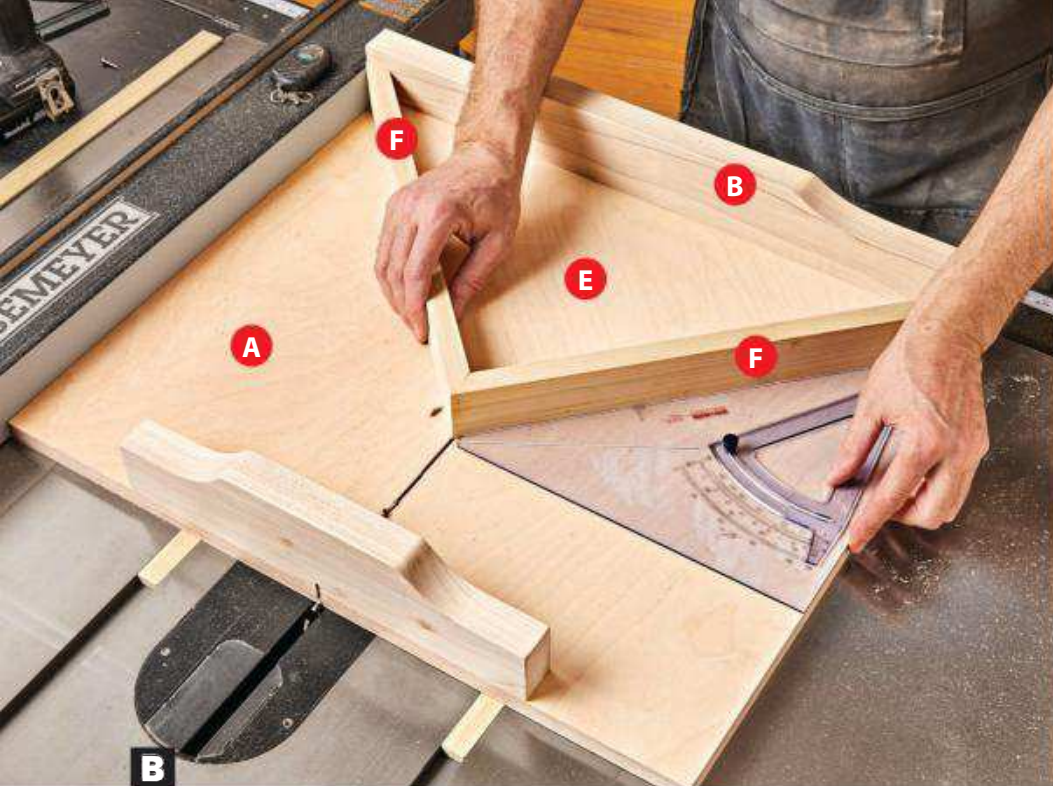
FRONT YOKE



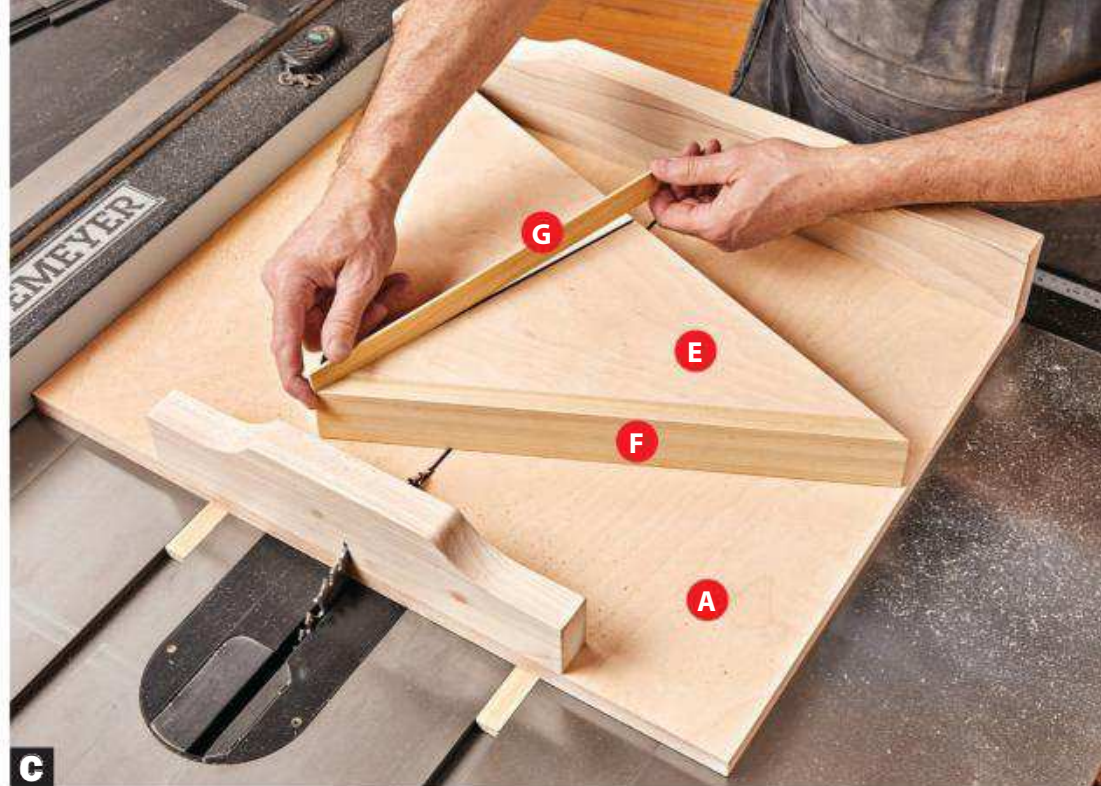
Tip! Lubricate the runners with paraffin or paste wax to help them slide smoothly inside the miter slots.



Tape the base (A) to the runners (D) with the ends of the runners flush with the back edge of the base.



B Align the miter-plate faces (F) 45° to the base edges even if the long edge of the miter-plate base (E) doesn't rest flat against the back yoke (B).



C Glue the miter-plate key (G) flush with the front ends of the miter-plate faces (F). The end of the key will slide inside the kerf cut in the back yoke (B).

Note: To cut the miter-plate base (E), switch to a circular saw and a shop-made cutting guide.

woodmagazine.com/circsawguide

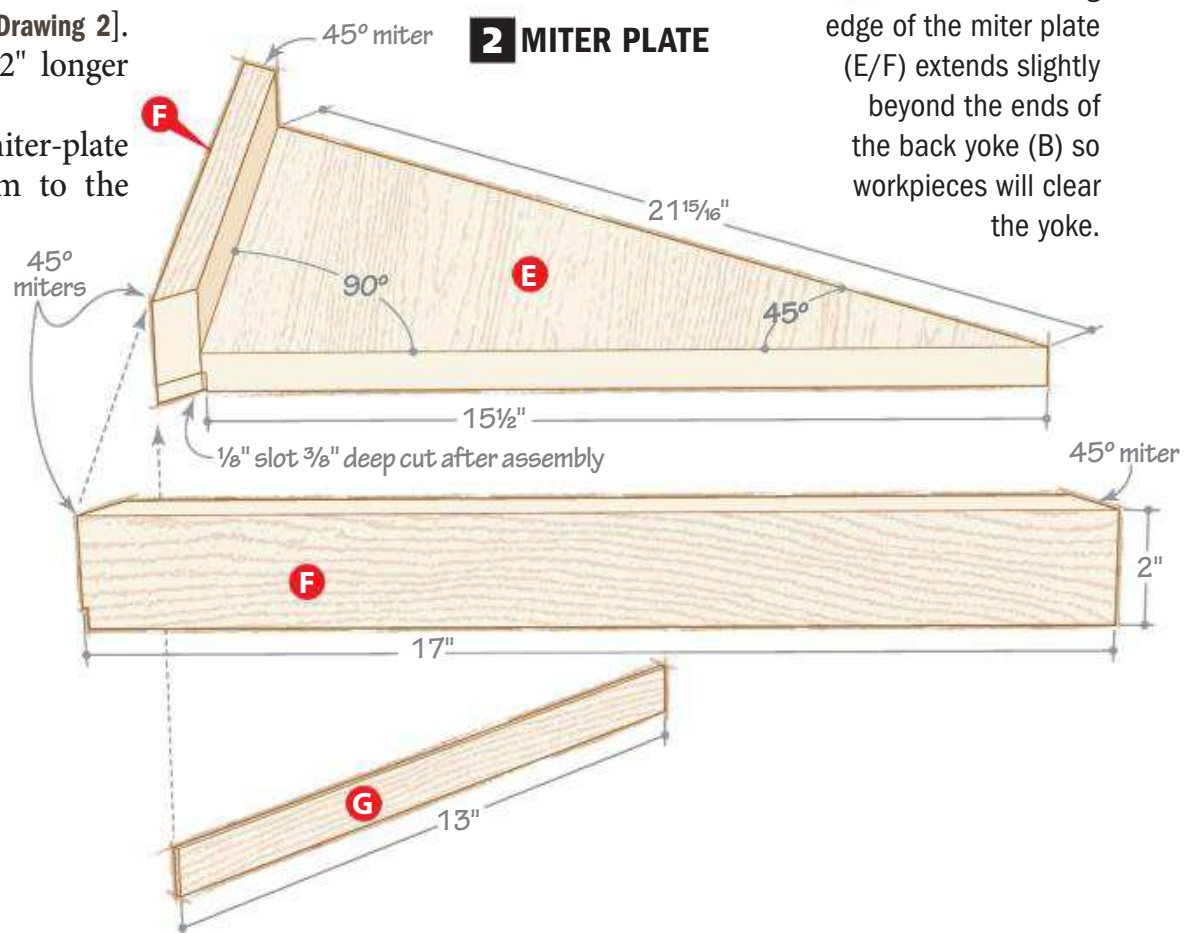
Add a miter-maker

1 Saw the miter-plate base (E) [Drawing 2]. Cut the miter-plate faces (F) 2" longer than listed.

2 Miter-cut both ends of the miter-plate faces to length and glue them to the miter-plate base [Drawing 2].

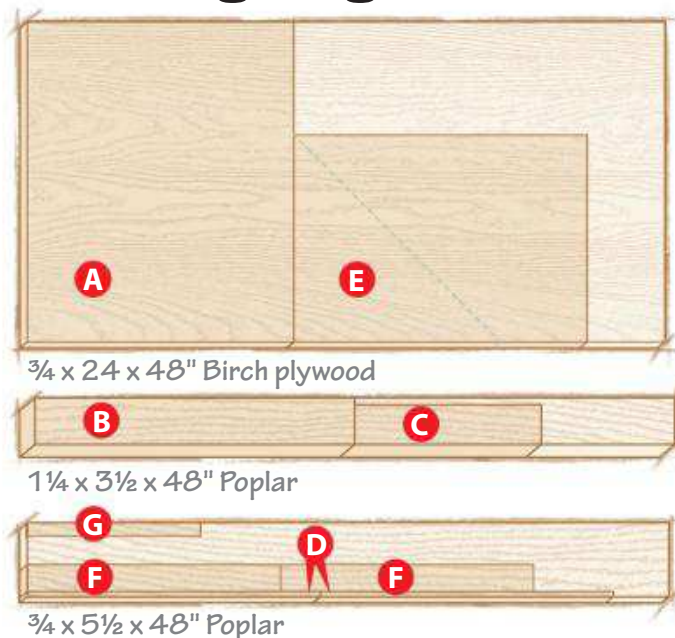
3 Raise the tablesaw blade to 1 1/8". Center the miter plate (E/F) on the base kerf with the faces 45° to the edges of the sled [Photo B]. Hold the miter plate in position while you cut through the bottom.

4 Cut the miter-plate key (G) to fit the width of the saw kerf in the base. Glue it into the miter plate (E/F) [Photo C].



► Check that the long edge of the miter plate (E/F) extends slightly beyond the ends of the back yoke (B) so workpieces will clear the yoke.

Cutting Diagram



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A base	3/4"	24"	20"	Ply	1
B back yoke	1 1/4"	3 1/2"	24"	P	1
C front yoke	1 1/4"	3"	14"	P	1
D miter-slot runners	3/4"	3/8"	22"	P	2
E* miter-plate base	3/4"	15 1/2"	21 15/16"	Ply	1
F** miter-plate faces	3/4"	2"	17"	P	2
G miter-plate key	1/8"†	1"	13"	P	1

*Width denotes the length of the two equal shorter edges of the triangle. Length refers to the triangle's long edge

**Parts initially cut oversize. See the instructions.

†This may be smaller for a narrow-kerf saw blade.

Materials key: Ply-birch plywood, P-poplar.

Supplies: #8x3/4" flathead screws, #8x1 3/4" flathead screws.

Bit: 1/16" round-over router bit.

Produced by **Robert Wilson** with **Kevin Boyle**
Project design: **Michael Driver**,
Strongsville, Ohio
Illustrations: **Roxanne LeMoine**,
Lorna Johnson

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Visit: **CycloneRake.com**

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► Watch a video of
the stool being turned.
[woodmagazine.com/
turnedstool](http://woodmagazine.com/turnedstool)

Functional for shop use, yet elegant enough for any room in the house, this steady stool combines face turning and spindle turning. Along the way, you'll learn how easy it is to break down a spindle profile into smaller segments to turn three duplicates.

Turned Stool

First, take a seat

1 Bandsaw a 2"-thick blank (we used cherry) to 14" diameter. On the best face, drill a centered $\frac{1}{2}$ "-deep hole to fit your screw chuck. If your screw chuck extends farther than $\frac{1}{2}$ ", shim with a scrap of plywood [Photo A].

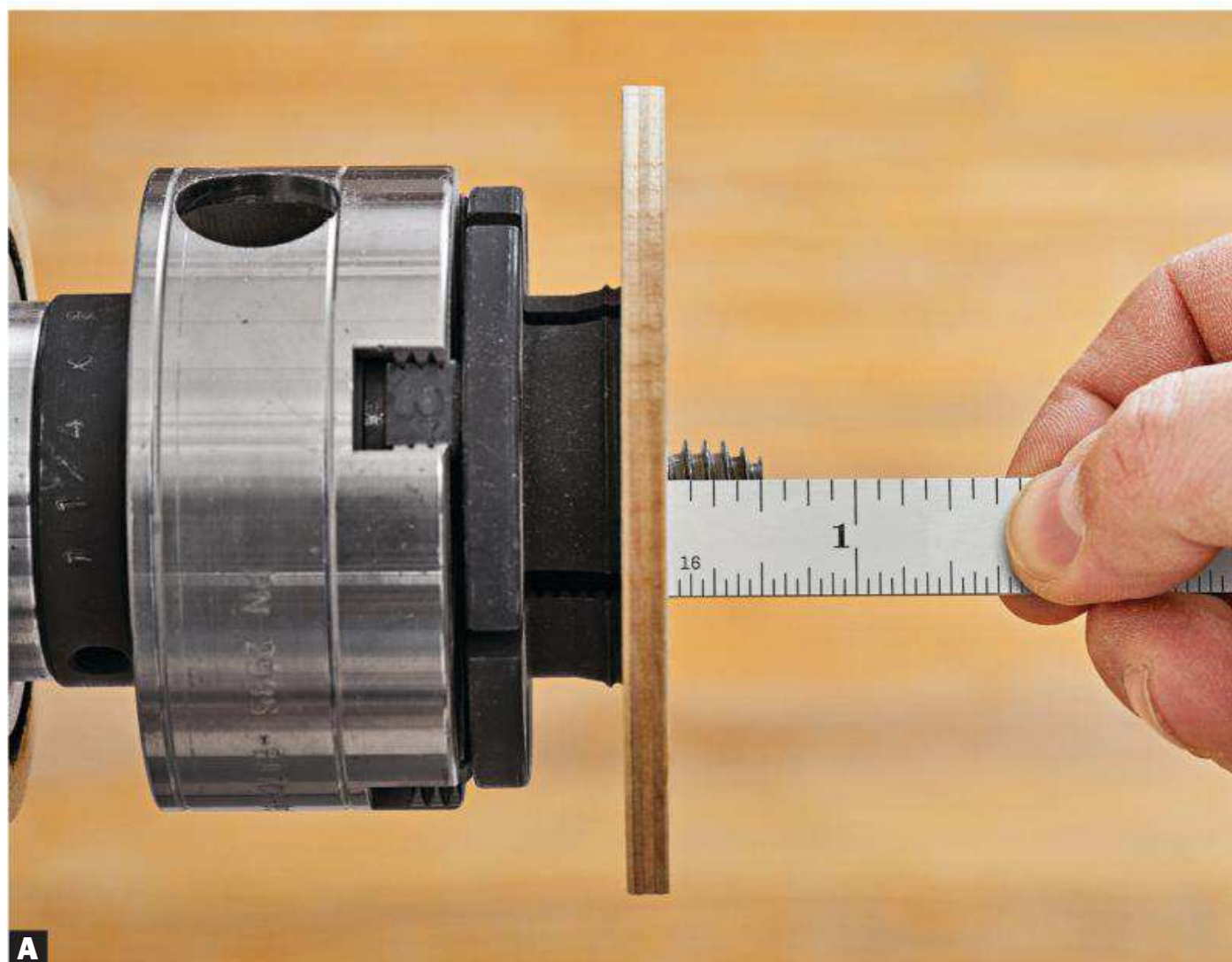
2 Mount the blank on the screw chuck. With the lathe at about 500 rpm, use a $\frac{3}{8}$ " bowl gouge to flatten the face and turn the circumference round.

3 Shape a round-over along the edge [Photo B]. Then mark the leg locations [Photo C].

4 With a squarenose scraper, turn a centered recess to fit your 4-jaw chuck. Sand the face, leaving the punch marks intact.

5 Reverse the seat, mounting it by the recess on the bottom face. Flatten the top face, then mark a diameter on the face $1\frac{1}{8}$ " from the edge. With a bowl gouge, round over the edge between the lines [Photo D].

6 Shape the seat working from the line to the bottom of the hole drilled for the screw center. Sand the seat, then remove it from the lathe.



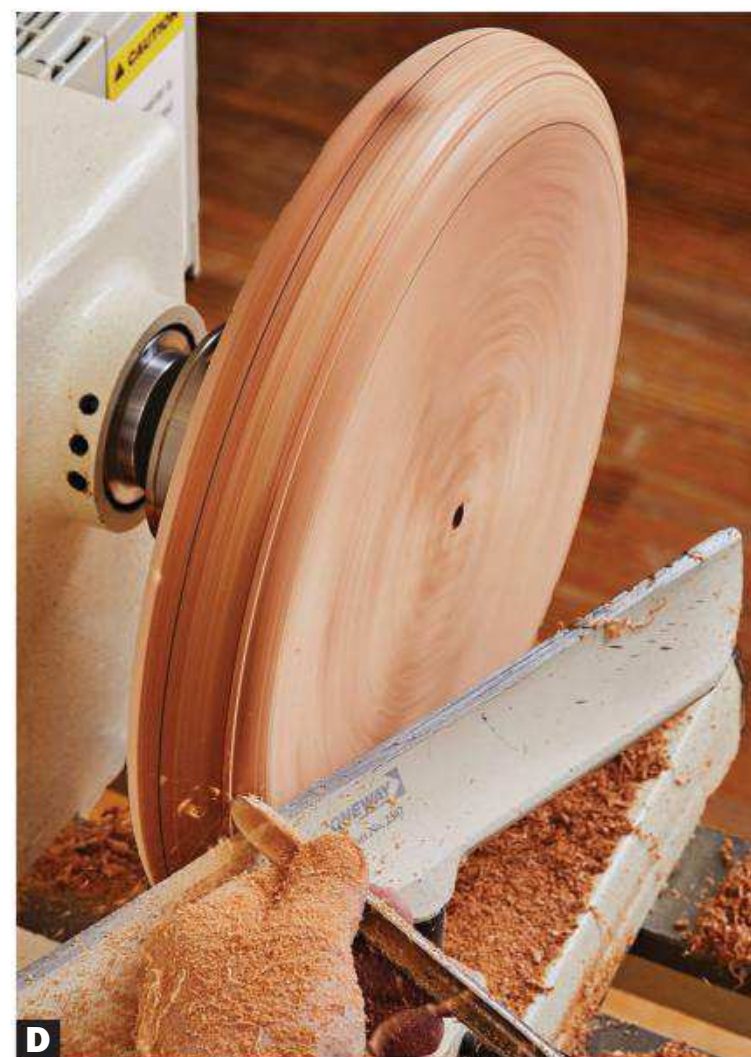
A The $\frac{1}{2}$ " hole depth marks the bottom of the dish on the seat, so make sure your screw chuck extends no farther.



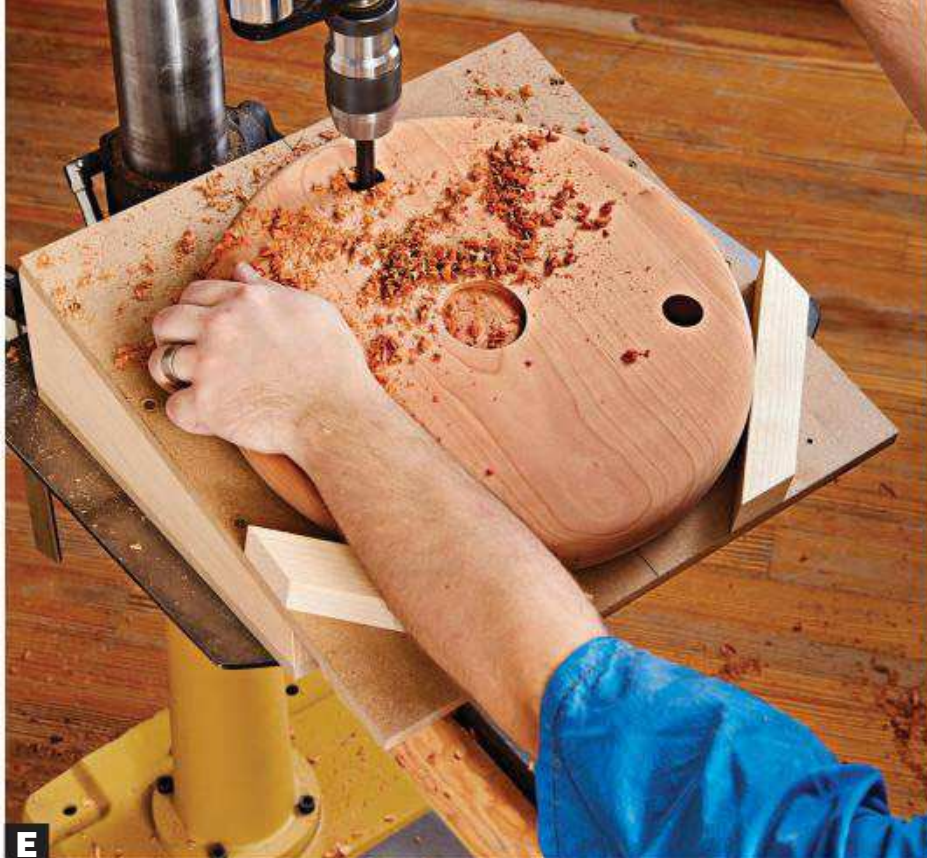
B On the face of the blank, mark a circle $\frac{1}{2}$ " from the edge. Mark another line around the circumference $\frac{3}{4}$ " from the face. Leave the lines intact as you round over the edge—you'll need the mark on the edge later.



C Lay out a 10"-diameter circle. Without adjusting the compass, place the point on the diameter, and make a mark along the line. Move the compass point to the new mark and repeat until you have six marks. Make an indentation at every other mark with a spring punch.



D Working from the face to the line on the edge, round over the top edge of the seat. Maintain the line on the face for use in the next step.



E Center a 1" Forstner bit on one of the punch marks on the seat bottom. Clamp the jig in place and drill 1¼" deep, measured at the deepest portion of the hole.



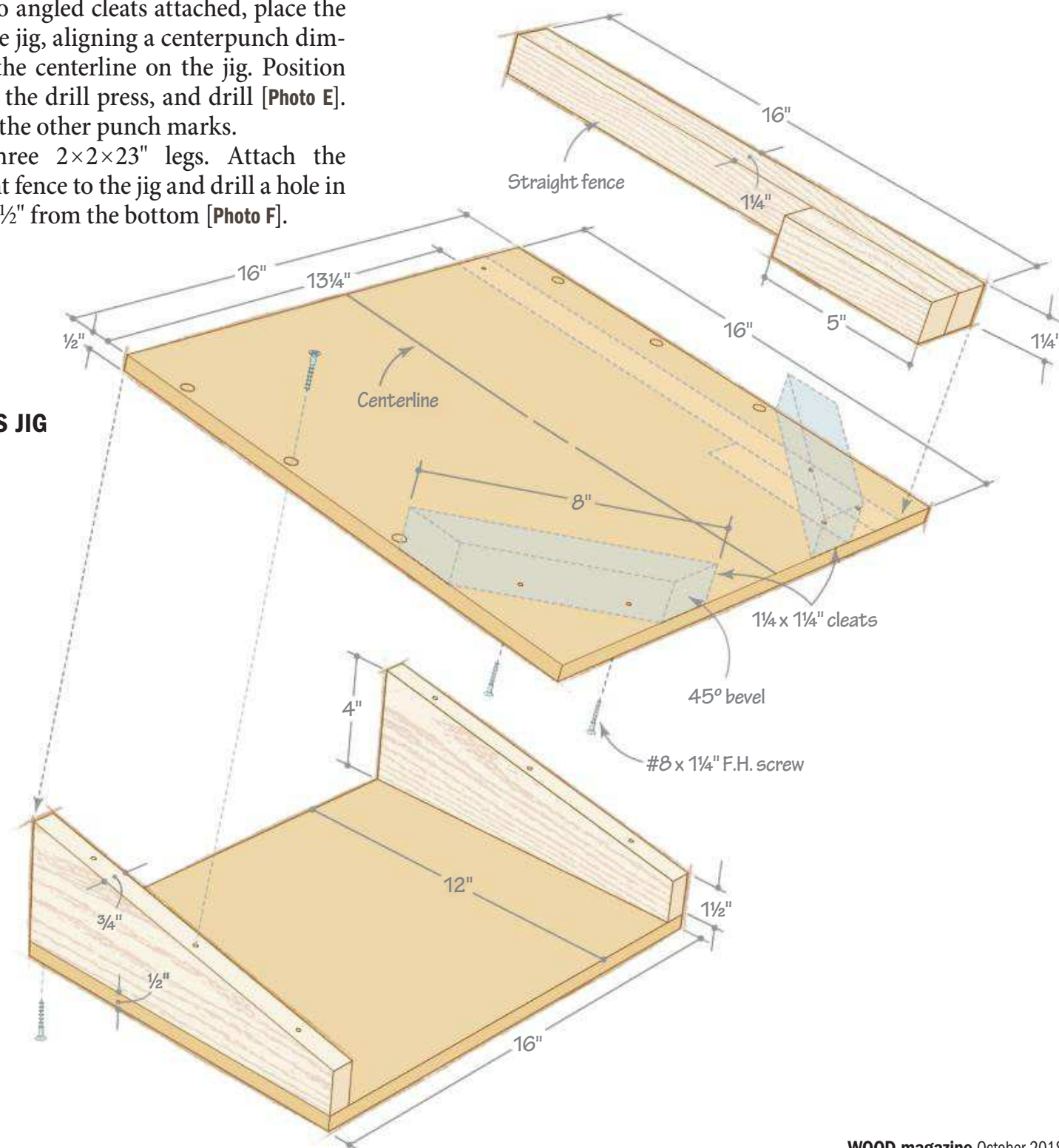
F Reposition the jig. Center each leg under a ¾" Forstner bit, and drill 1" deep, measuring to the deepest portion of the hole.

Set up for drilling

1 Make the drill-press jig [Drawing 1]. With the two angled cleats attached, place the seat on the jig, aligning a centerpunch dimple with the centerline on the jig. Position the jig on the drill press, and drill [Photo E]. Repeat at the other punch marks.

2 Cut three 2×2×23" legs. Attach the straight fence to the jig and drill a hole in each leg 6½" from the bottom [Photo F].

1 DRILL-PRESS JIG

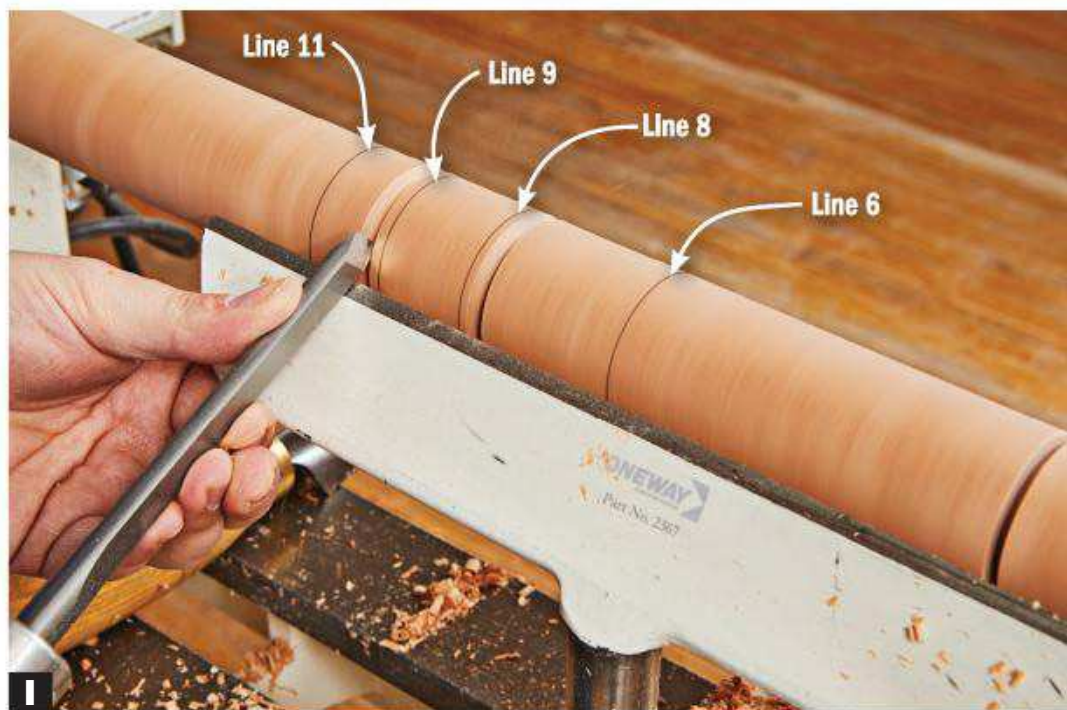




G To mark **lines 1–11**, make an 18"-long story stick with a short hook on the right end to register against the end of the leg. Handsaw a short kerf at each of the eleven dimensions shown in **Drawing 2**.



H



I

Turn to the legs

Tip! Use centers less than $\frac{3}{4}$ " in diameter so you can turn the tenons without damaging your parting tool.

1 Mount a leg between centers with the rung hole closest to the headstock. With the lathe at 2,000 rpm use a roughing gouge to round the blank to a 2" cylinder. Then mark **lines 1–11** on the blank [**Photo G**, **Drawing 2**].

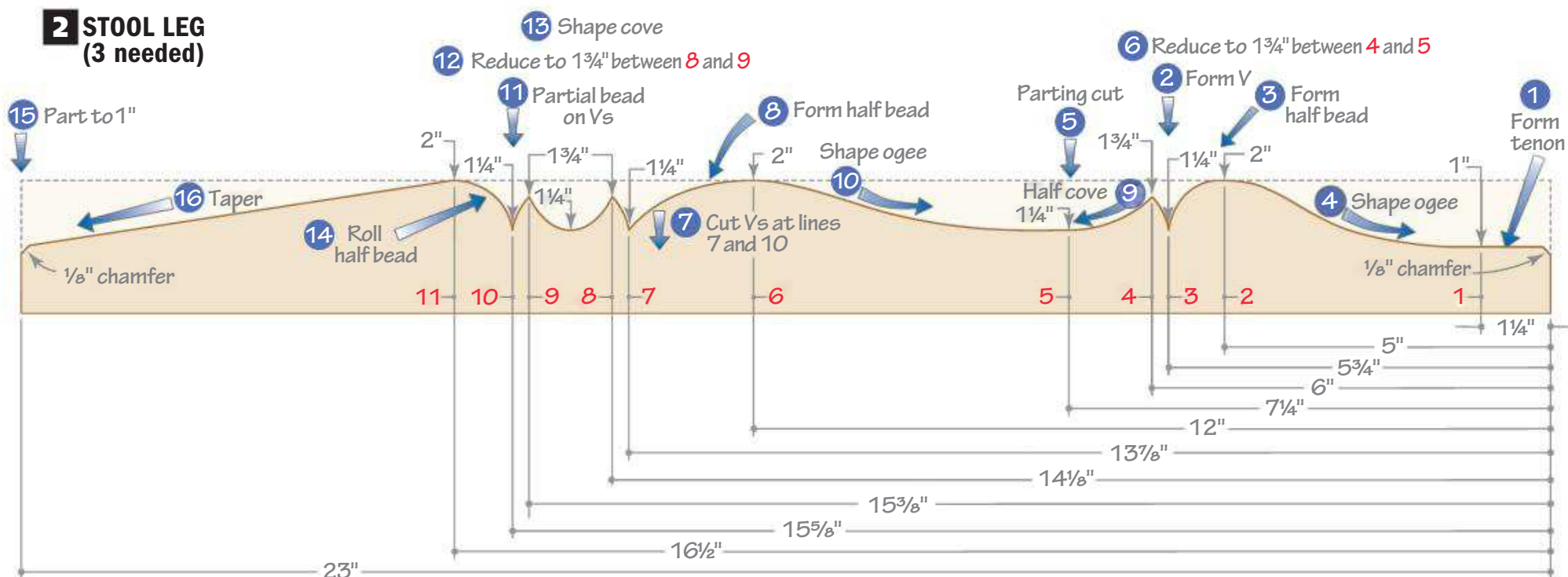
Refer to the blue circled step numbers in **Drawing 2** as you follow the instructions below.

Step 1. Using a parting tool, turn a 1"-diameter tenon with a $\frac{1}{8}$ " chamfer on the end. Test the tenon's fit in a hole in the seat as you go.

Steps 2–4. With a skew chisel, cut a $\frac{3}{16}$ "-deep V $\frac{3}{16}$ " wide centered on **line 3** [**Photo H**]. Form a half bead from **line 2** to **line 3** and a partial bead from **line 4** to **line 3**. Using a spindle roughing gouge, shape an ogee from **line 2** to the shoulder of the tenon, leaving the pencil lines intact.

Steps 5–7. At **line 5**, part to $1\frac{1}{4}$ " diameter. With a roughing gouge, reduce the diameter

between **lines 4** and **5** to $1\frac{1}{4}$ ". With a skew chisel, cut $\frac{3}{16}$ " wide Vs $\frac{3}{16}$ " deep centered on **lines 7** and **10** [**Photo I**]. Make sure you don't remove **lines 8** and **9**.





Step 8. Roll a half bead from **line 6** into the V at **line 7** [Photo J].

Steps 9-10. With a roughing gouge, form the half cove from **line 4** to **line 5**. Then shape the ogee from **line 6** to **line 5**.

Step 11. Switch to a skew to form a partial bead from **line 8** to **line 7** and from **line 9** to **10**.

Steps 12-13. Reduce the diameter between

lines 8 and **9** to $1\frac{3}{4}$ ". Make a parting cut centered between the Vs to $1\frac{1}{4}$ " diameter. With a spindle detail gouge, shape a cove between **lines 8** and **9** to the depth of the parting cut [Photo K].

Step 14. With a skew chisel, form the half bead from **line 11** to **line 10**.

Steps 15-16. Part the left end of the leg to 1"

diameter. Then taper from **line 11** to the parting cut. Check the taper for true with a straightedge. Form a $\frac{1}{8}$ " chamfer on the end of the leg. Sand the leg smooth, removing the pencil lines.

2 To replicate the profile on the two remaining legs, repeat this process, using a contour gauge as needed [Skill Builder].

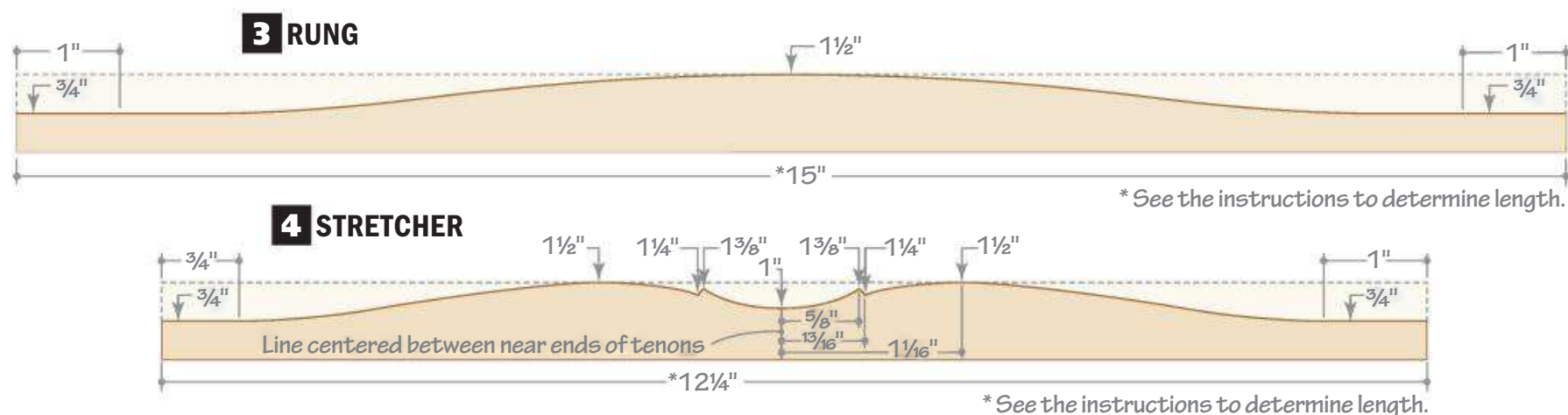
SKILL BUILDER

Use a contour gauge for can-do duplicates

A contour gauge contains a row of metal or plastic pins trapped between two sides. The sides provide just enough friction on the pins to allow them to slide when pressed, and then hold them in position. Press the tips of the pins against an existing profile, then

hold the gauge against your work-in-progress to see how it compares. Gauges come in various lengths, but a 6" and a 10" gauge should serve most of your needs. You can buy them at woodmagazine.com/contourgauces.





Turn the stretcher and rung

1 Dry-assemble the legs and seat, rotating two rung holes to face each other. Measure for the rung [Photo L] and cut it to length from a $1\frac{1}{2} \times 1\frac{1}{2}$ " blank. Drill a $\frac{3}{4}$ " hole $\frac{3}{4}$ " deep centered on one face.

2 Turn the rung round, then turn a tenon on each end [Drawing 3], checking the fit into the legs. Mark the centerline of the rung, and form an ogee to one end. Use a contour gauge to help you create an identical profile on the other end.

3 Dry-assemble the seat, legs, and rung, measure for the stretcher [Photo M], and cut it to length from a $1\frac{1}{2} \times 1\frac{1}{2}$ " blank.

4 Turn the stretcher round, shape a tenon on each end (note the differing lengths)

[Drawing 4], then mark the centerline between the tenons. Lay out the profile dimensions shown, and turn the profile as you did for the legs: Form the Vs, shape the cove between them, roll the half bead into the V, then form the ogee to the tenon. Finish-sand the stretcher.

5 Glue up the stool by assembling the stretcher, rung, and legs. Immediately glue this assembly to the seat, making sure the legs are fully inserted into the mortises. With the stool resting on its seat, place a scrap of plywood on the ends of the legs and weight it. Then wrap the legs with a strap clamp.

6 After the glue dries, apply a finish. (We used three coats of General Finishes Arm-R-Seal.)

Produced by **Craig Ruegsegger**
with **Brian Simmons**
Project design: **Brian Simmons**
Illustrations: **Lorna Johnson**



L

Secure two dowels with a rubber band and extend them to the bottom of the leg holes. Tape the dowels to lock them together, then remove a leg to remove your measuring stick.



M

As you did for the rung, use two dowels to measure for the length of the stretcher.



Let There Be (Better) Light

Roll with the technical advances in lighting and brighten up your shop with LEDs. You'll see better, save money, and change lightbulbs far less often.



► We gave this shop a lighting makeover, replacing incandescent and fluorescent bulbs with LEDs, and added some new LED fixtures to replace older units. The results speak for themselves.

Most of us don't think about the lighting in our shops. Instead, we tend to just accept it for what it was the day we moved into the space. But almost every shop can be better lit. And with today's LED technology, better lighting won't put a big strain on your wallet.

Older technologies, such as incandescent and halogen lights, have nearly disappeared from the market. And fluorescent lighting is fading quickly, especially in the home and workshop sectors.

Why you should switch to LED

LED stands for light-emitting diode, an electronic light that requires less electrical current than other light technologies. With LED lights, you'll enjoy these benefits:

- Lower energy consumption equals greater cost savings. A 60-watt-equivalent LED bulb uses only 8–10 watts compared with an incandescent bulb.
- Immediate full brightness when turned on.
- Because LEDs generate little heat, you can

install a brighter bulb in a fixture with a wattage limitation for incandescent bulbs.

- Greater range of light in the color spectrum. (See the chart on *page 64*.)
- Unaffected by excessively hot or cold environments.
- You pay more up front for LEDs, but their longer lifespan—typically 5–20 times longer than incandescents, depending on the type and brand of LED—saves money over time.
- Unlike fluorescent lights, LEDs contain no mercury, a known carcinogen.

What to know before you buy

■ **Replacement bulbs and tubes.** LEDs come in a variety of styles and shapes. Many bulbs fit screw-in fixtures, so there's no need to buy new fixtures. And LED tubes fit into most common fluorescent-light fixtures.

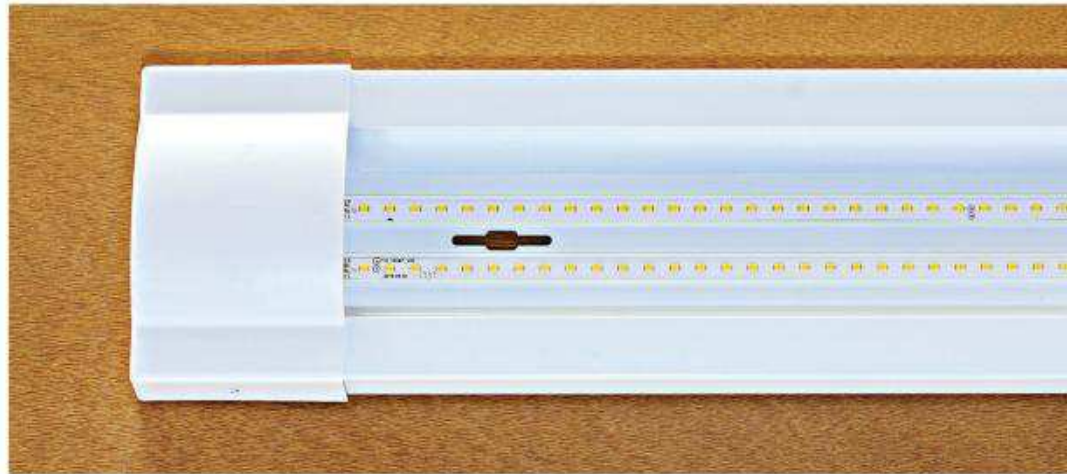
Traditional fluorescent-tube fixtures use ballasts to regulate electric current running to the bulbs, and replacement LED tubes often work fine in fixtures with electronic ballasts. However, fixtures with



older-style magnetic ballasts (*top right*), will not work with LED tubes. In either case, when LED tubes won't work—unfortunately, discovery can be trial and error—hire an electrician to replace or bypass the ballast, or simply buy a new LED fixture,



A magnetic ballast must be replaced or bypassed to make this fluorescent fixture work with LED tubes. (The old fluorescent bulbs display the darkened ends common to tubes about to expire.)



Dedicated LED fixtures do not use replaceable tubes, but rather a string of diodes mounted directly to the fixture.

above. When you bypass the ballast, you must buy LED tubes rated specifically to work without ballasts. These typically cost 20–40 percent more and can be more difficult to find.

■ **Lumens means light output.** LED lights are rated not by wattage (as with older technologies), but rather by lumens, the true measure of a light's output. A typical LED screw-in bulb with a light output equivalent to a 60-watt incandescent bulb puts out about 800 lumens. Find the lumens rating on the bulb package, shown *below*.

Brightness/Luminosité	800 lumens
Estimated Yearly Energy Cost	\$1.02
Coûts énergétiques annuels estimés Based on 3 hrs/day, 11¢/kWh. Cost depends on rates and use. Basé sur une consommation de 3h/jour, 11¢/kWh. Les coûts varient selon les tarifs et l'usage.	
Life/Durée de vie	10 years/ans
Based on 3 hrs/day/Basé sur une consommation de 3h/jour	
Light Appearance/Allure de la lumière Warm/Chaud Cool/Froide 5 000 K	
Energy Used/Énergie consommée	8.5 watts

INDOOR INTÉRIEUR	
* COMPARE — COMPAREZ	
 A19 LED 8.5 W 800 Lumens Lumens	 A19 Incandescent 60 W 800 Lumens Lumens

LED bulb packaging includes lumens and color rating, as well as equivalency reference to other types of bulbs.

For a woodworking shop, a good rule of thumb is to have 75 lumens per square foot. So, multiply your shop's square footage by 75, and divide that figure by the fixtures you have to determine the size bulbs you need. If you don't like the final lighting after converting your shop using this formula, add fixtures or replace some bulbs with those rated higher or lower in lumens until you're satisfied.

■ **Even white light has color.** You might not notice it, but artificial light ranges in color from the yellowish-orange tones at the warm end of the spectrum to bluish tones at the cool end (measured in degrees Kelvin, shown *right*). Most living rooms, dining rooms, and bedrooms feel best with warm tones in the sub-3000° range. But this can be less beneficial in a shop setting. Light in the 6000°-plus range presents a stark light that can be unsettling and distort visual perception of wood tones (which tend to be warm). The middle of the spectrum, from 4000° to 5500°, presents “pure white” light that's usually best for a shop setting. This helps you accurately read wood tones while still providing sufficient lighting for fine-detail work.

More tips for better shop lighting

■ **Lighten the walls.** Painting shop walls and the ceiling white or another light color reflects more light back to work surfaces. By contrast, dark colors absorb light.

■ **Watch out for overhead doors.** Ceiling light fixtures covered by an open overhead door do you little good. If the natural light coming through the open door isn't enough, add extra light fixtures to compensate.

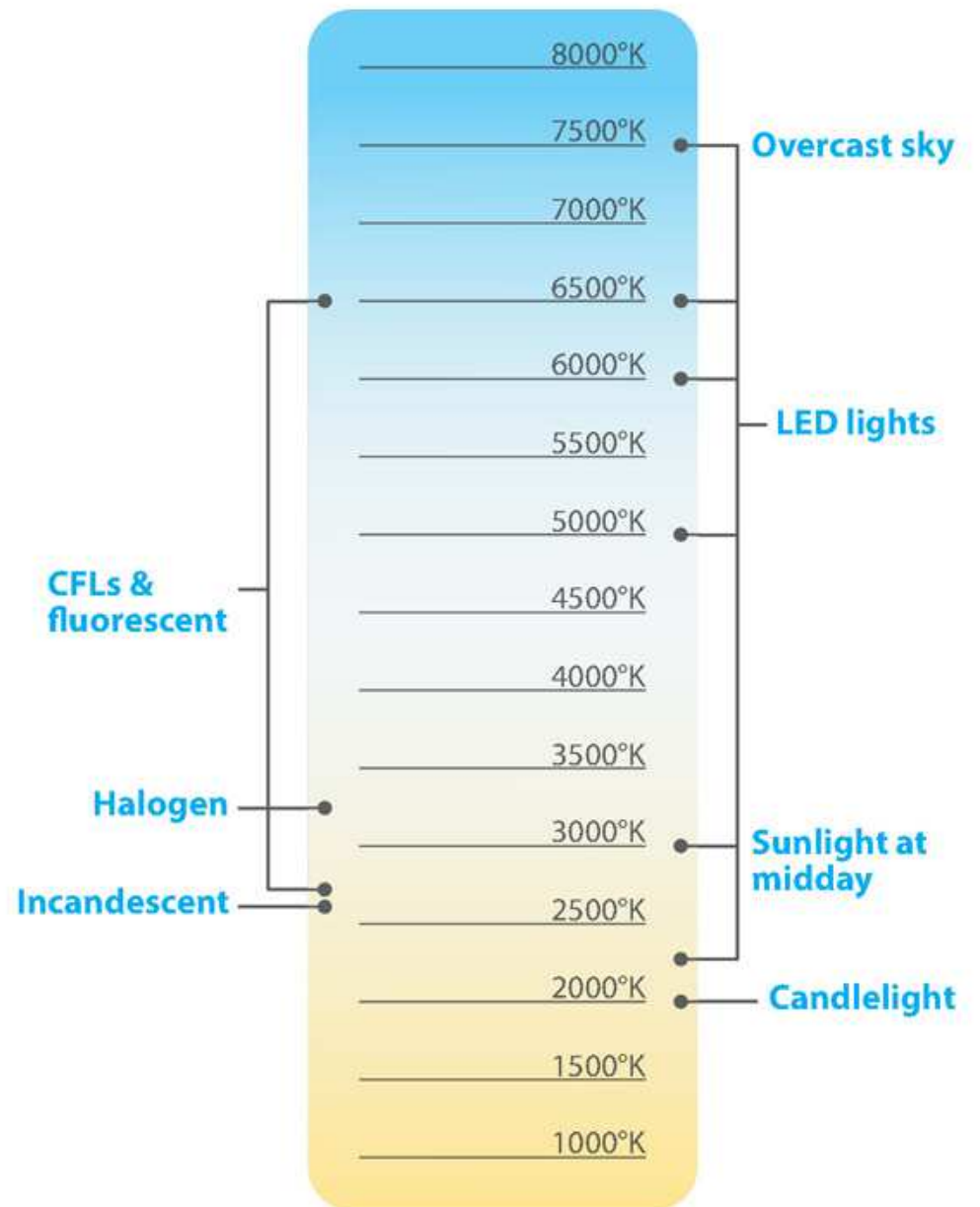
■ **LEDs aim light.** Fluorescent tubes project light in all directions, so reflective-hooded fixtures help direct the light downward. LED tubes don't require reflective hoods because they project light straight down (or outward, if wall-mounted).

■ **Consult a pro.** If you're not sure about how to approach shop lighting, work with a professional lighting consultant to form a plan. And if you're not comfortable doing your wiring—or local codes prohibit it—hire an electrician to add fixtures or rewire existing ones.

■ **Check for incentives.** Many energy companies offer incentives for switching to power-saving LEDs throughout your house. This might make the upgrade a true bargain.

■ **Supplement lighting in dark areas.** Add small AC- or battery-powered LED fixtures beneath wall cabinets (as shown *right*) or any structure on the wall or ceiling that blocks light. Or use portable LED lamps—powered by the same battery packs as your

Range of light in the color spectrum



► To get the best visual perception of how a project will look once finished, look at it in the setting where it will ultimately be located. Looking at a nightstand in a bedroom will give you the most accurate depiction of its colors.

► Although you won't have a dimmer switch in the shop, you might in your house. These fixtures require LED bulbs specifically rated for use with dimmers.

cordless drill, for example, or an LED headlamp or visor-clip light—to illuminate shadowy work areas that don't warrant permanent light fixtures. 🌱

Produced by **Bob Hunter**
Illustration: **Lorna Johnson**



A small LED mounted under a cabinet illuminates storage bins below it as well as a benchtop sander. This light has an easy-on/off touch switch.

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Multi-grain Table

*Empty the cutoff bin and
turn out a tremendous table.*



D I M E N S I O N S :
25³/₄" W x 25³/₄" D x 23" H

Approximate
materials cost:

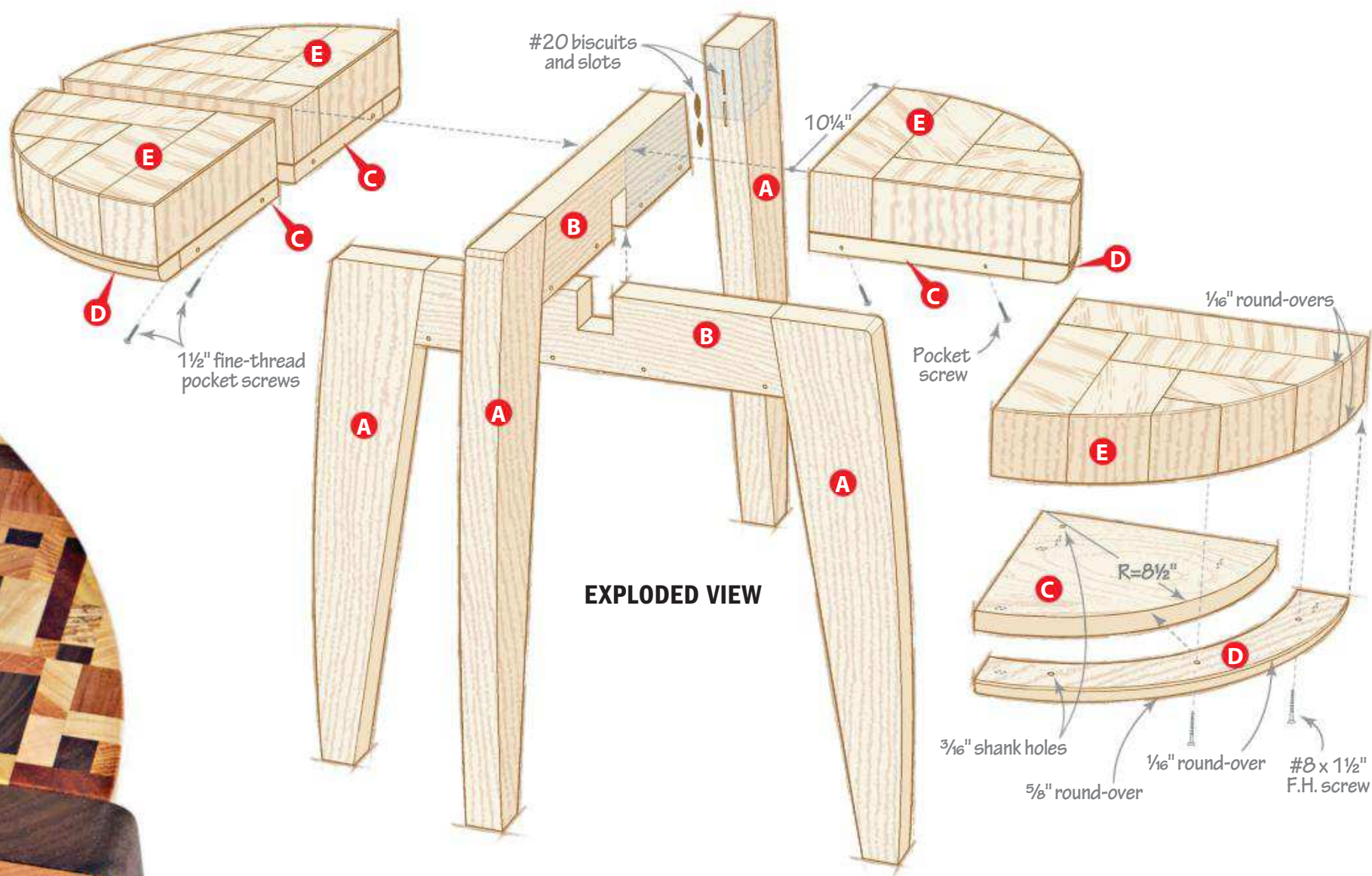
\$60

for about

8

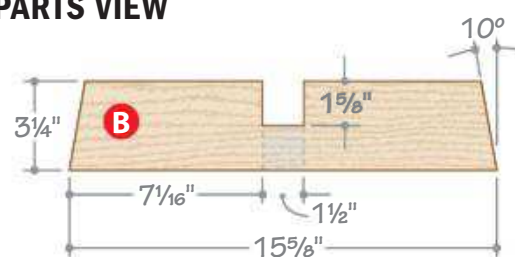
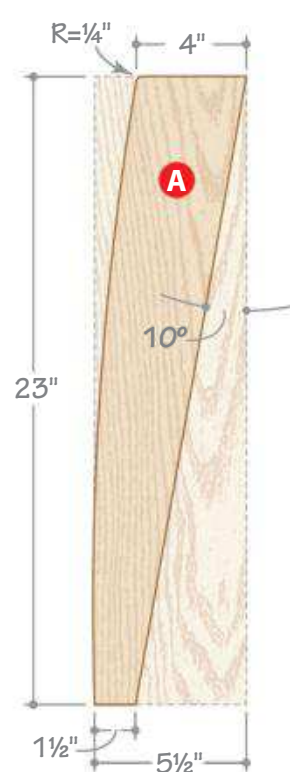
board feet
of walnut

Make this table uniquely yours, using remnants of past projects, and colored by whatever species you choose.



EXPLODED VIEW

1 PARTS VIEW

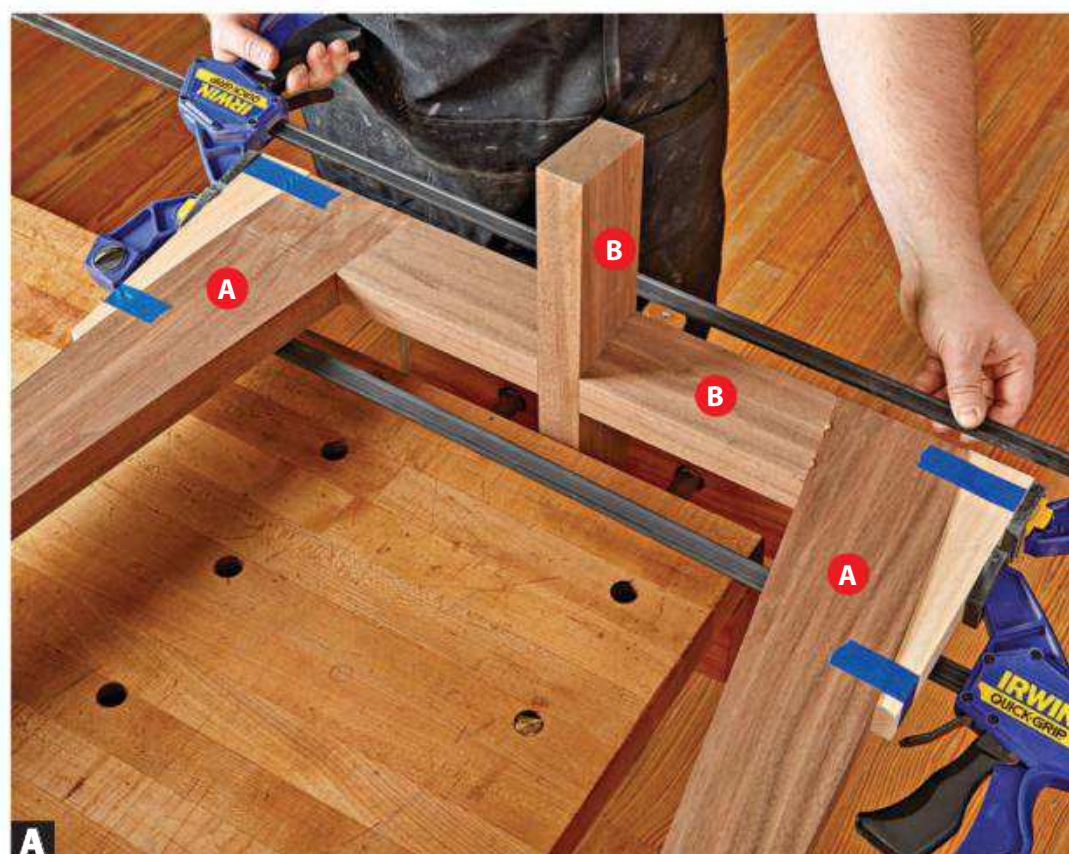


Tip! Use a fairing stick (woodmagazine.com/fairing) to lay out the curve on one leg. Cut the leg, then use it as a pattern to shape the other three.

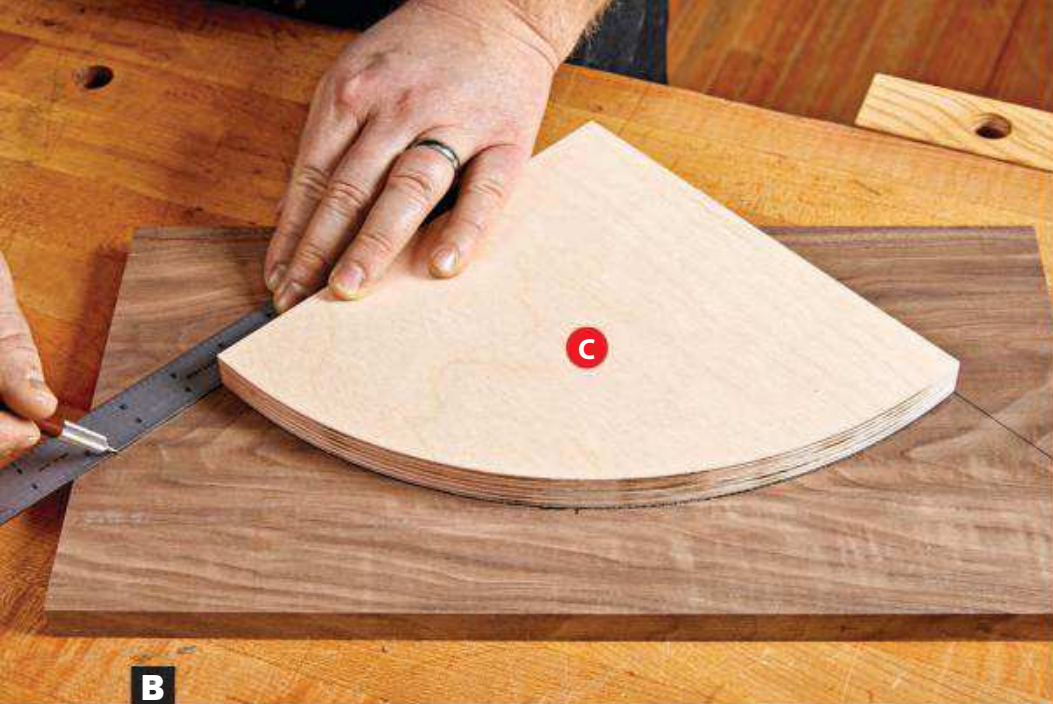
Start with a solid base

1 Cut the legs (A) and stretchers (B) to size and shape [Drawing 1, Materials List]. Cut mating notches in the stretchers [Exploded View].

2 Cut biscuit slots in the legs and stretchers, then glue the stretchers together. After the glue dries, glue the legs to this assembly [Photo A].



A Use the leg cutoffs or cut and scribe wedges from scrap to match the arc on the legs. Tape them to the legs to provide parallel clamping surfaces.

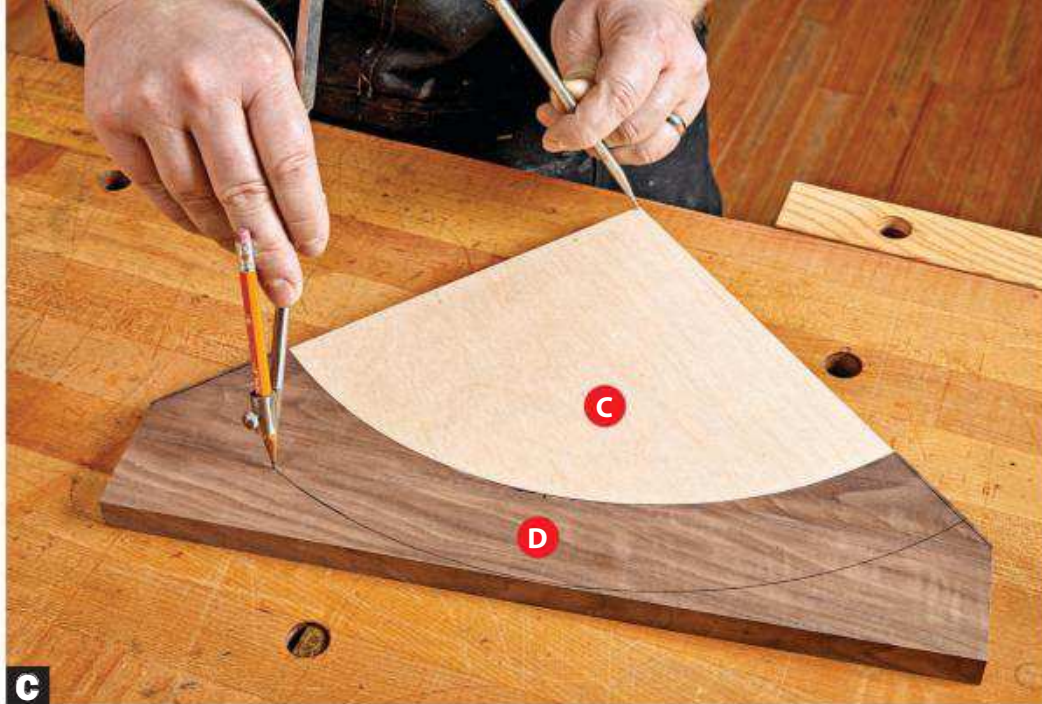


B Position each base (C), extend the straight edges, and trace along the curved side.

Tip! Don't worry about keeping edges perfectly flush while building the blanks. Instead, joint a surface before adding the next piece of scrap.

3 Cut and sand the bases (C) to size and shape [Exploded View]. Scribe the bases onto two pieces of $7\frac{1}{4} \times 14\frac{3}{4}$ " solid stock for the base trim (D) [Photo B, Drawing 2], marking each piece so you can mate them up again. Cut along the lines and sand for a close fit. Mark the outer edge [Photo C], cut and sand the trim to shape, and glue it on [Photo D].

4 Round over the curved edges of each trim (D) [Exploded View]. Glue and pocket-screw the base/trim assemblies flush with the bottom edges of the stretchers.

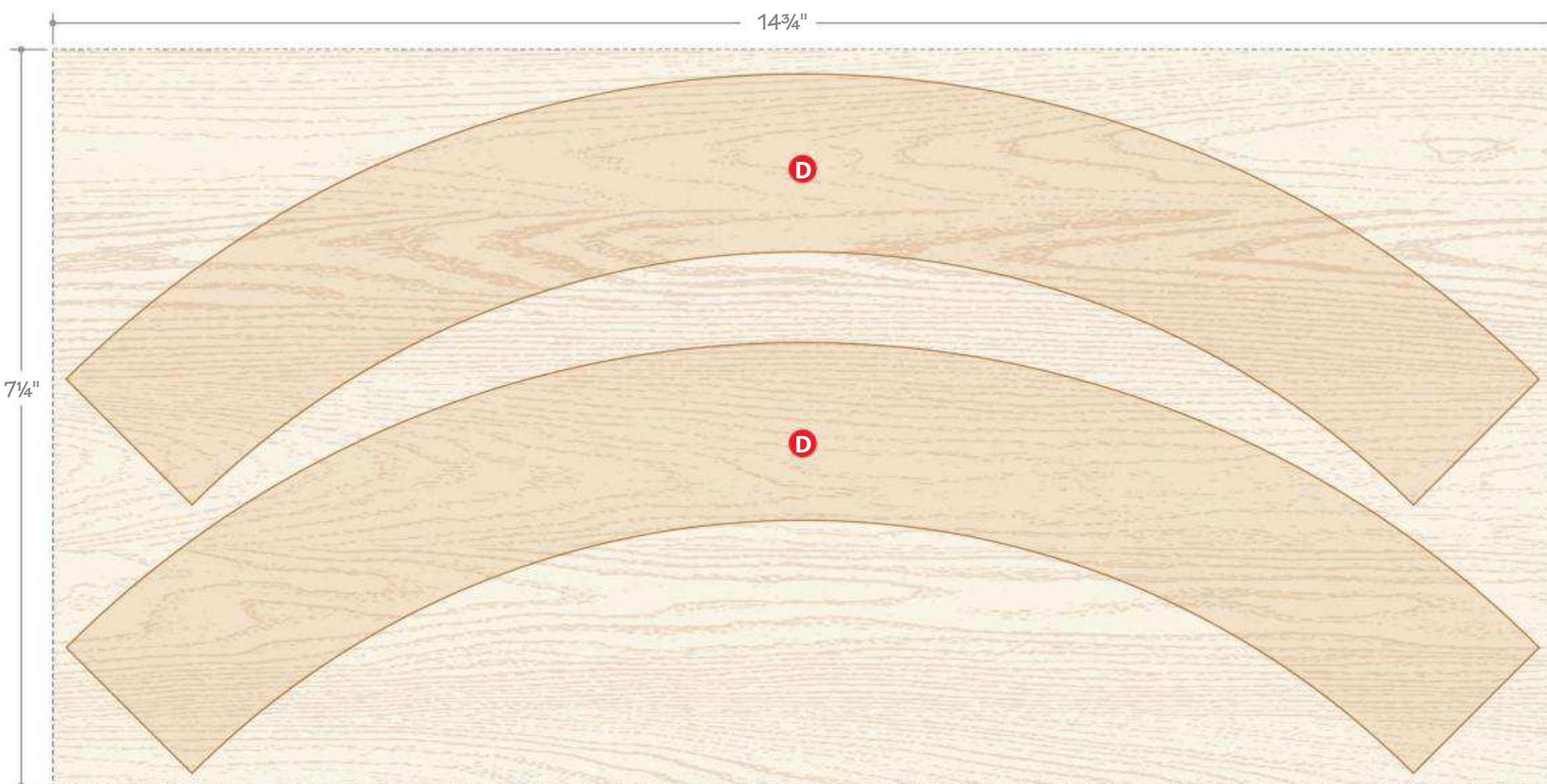


C Nest each base against its trim, and strike a $10\frac{1}{4}$ " arc. Cut and sand to the line.



D Glue the trim to the base, clamping as shown. Keep the faces of the pieces flush.

2 TABLETOP BASE TRIM





E

Mix up species, thicknesses, and widths in each glue-up. This adds visual interest to the completed table.

Clean out the scrap bin

You'll need two blanks at least $2\frac{1}{2} \times 10\frac{1}{2} \times 27$ " made of glued-up scrap to cover the table. As you build them up, keep the thickness less than 3" [Photo E] so you can cut the blanks at the tablesaw.

1 For each blank, we ripped and planed scraps to make four glue-ups about $2\frac{5}{8}$ " square, and a fifth about $1 \times 2\frac{5}{8}$ " [Photo E, Skill



F

Assemble the glue-ups into one wide blank. Press the bottom edges against the clamp bars to provide a flat surface to rest on the planer bed later.

Builder]. Joint and plane the glue-ups square, then glue them into a wide blank [Photo F].

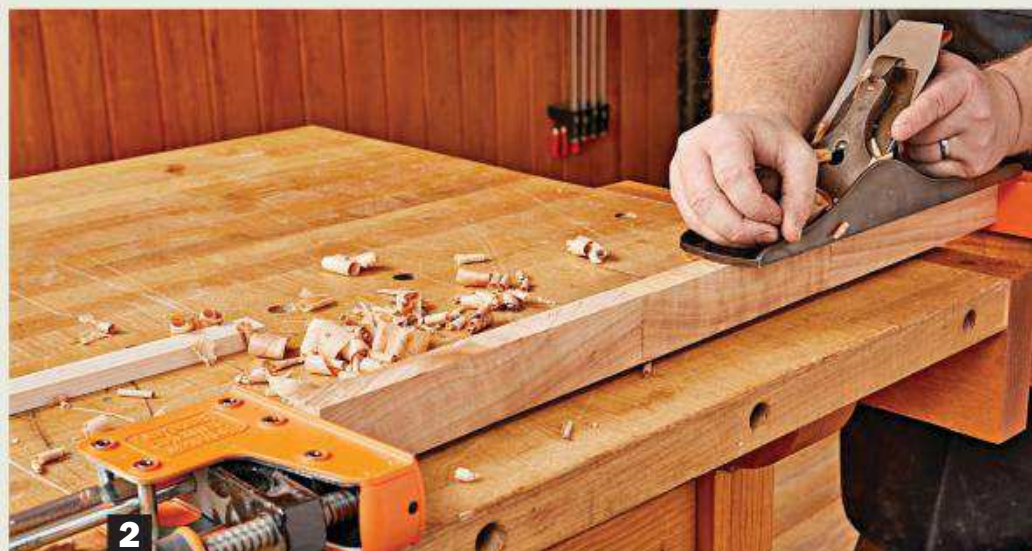
2 After the glue dries, plane both faces of the blanks to bring them to $2\frac{1}{2}$ " thick. Crosscut one end square to an edge.

3 Measure from the top of a base (C) to the top of a stretcher (B). Crosscut 16 blocks to this length.

SKILL BUILDER

Make big sticks from little sticks

For this project, make short scrap longer by gluing it end to end. Rip short, wide boards into narrower strips, and glue the strips together to get at least 27" of length.



2

Joint an edge of the glue-up while it is still in the clamps. Rotate the piece and joint other faces as needed.



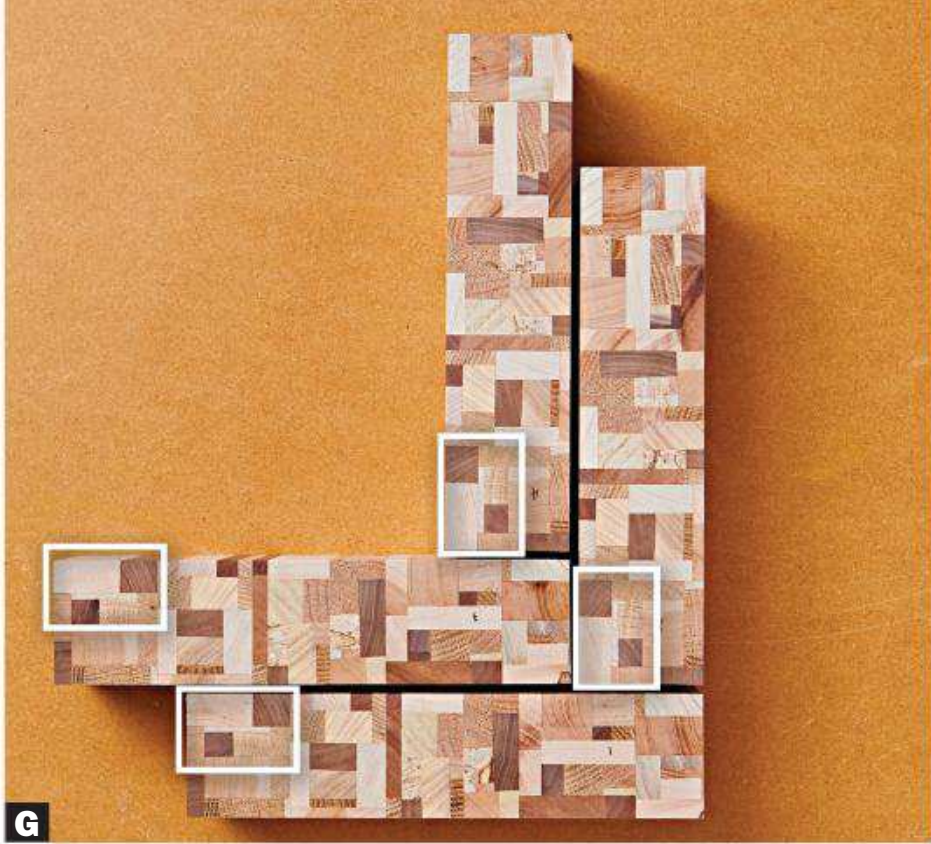
1

Clamp an end-to-end joint in a parallel-jaw clamp and let the glue dry.

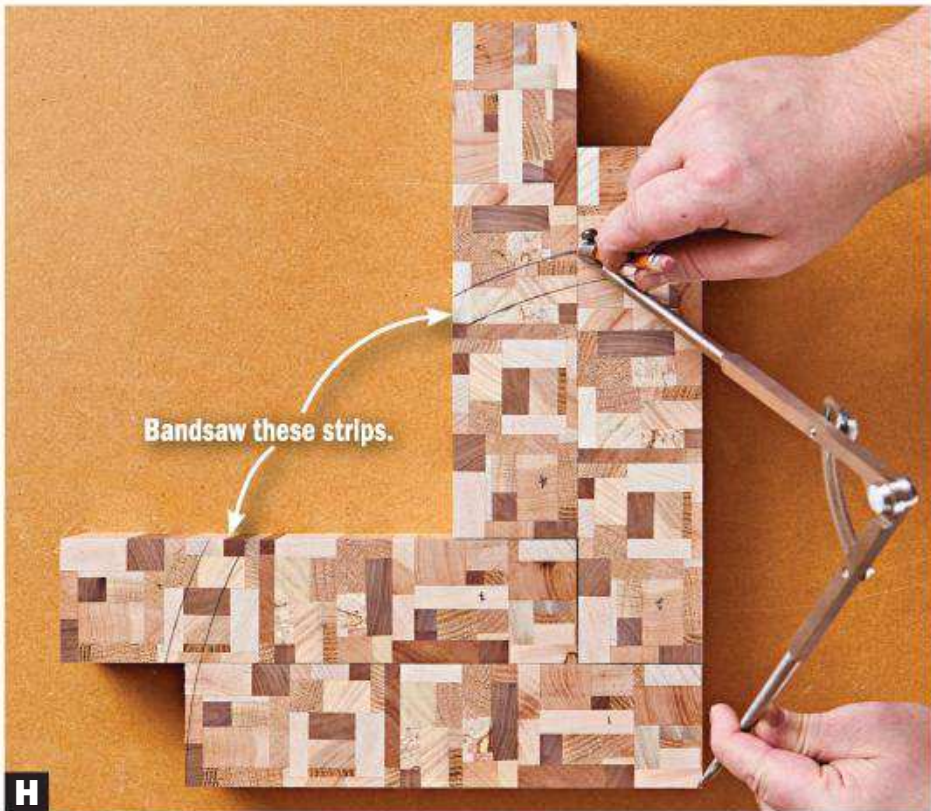


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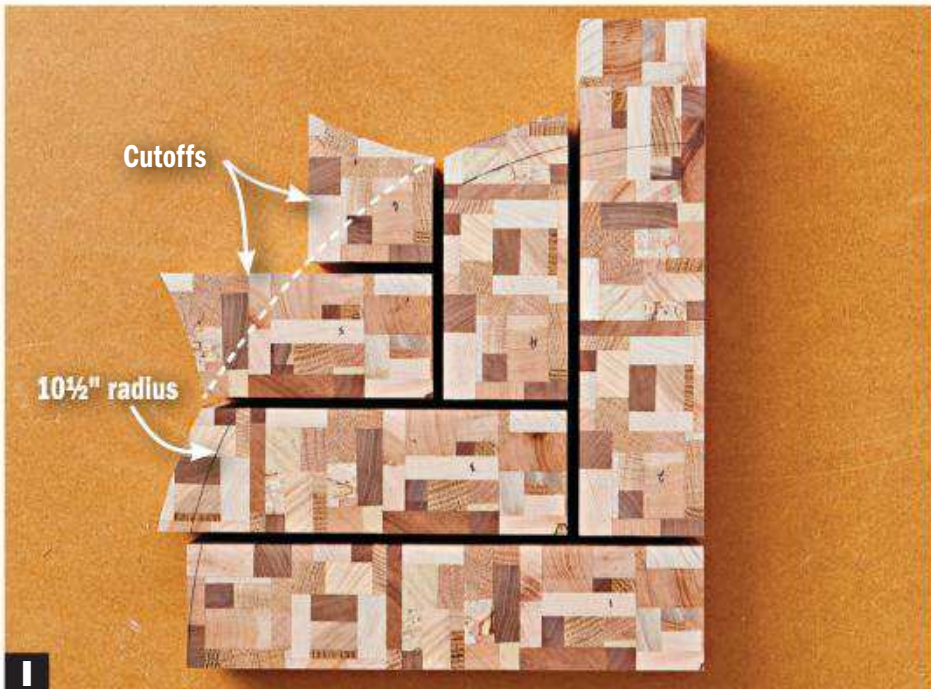
Gluing other scraps alongside the end-joined pieces on the jointed faces reinforces the joint. If you're attaching other end-joined pieces, stagger the joint lines.



G **Arrange the strips in a chevron pattern.** Place parallel strips in the same orientation (indicated by the highlighted section of the pattern).



H **Dry-fit the strips** and mark 10½" and 11" radii on them. Bandsaw along the 11" radius on the two inner strips.



I **Fill in the section with the two cutoffs.** Make sure the cutoffs extend beyond the 10½" radius line. Glue the six pieces together to make a section (E).

4 Glue up the strips to fill out each section (E) [Photos G-I].

Add the finishing touches

1 Position each section (E) on a base (C) and scribe around them to transfer the trim (D) curve to the bottom of each section. Bandsaw and sand to the line.

2 Round over the curved edges of each section [Exploded View]. Drill and countersink ⅜" shank holes through the base/trim (C/D), and ⅛" pilot holes into the sections. Screw the sections in place (no glue).

3 Sand the top flat and smooth. Apply a clear finish. (We used Danish oil topped with lacquer to minimize yellowing the lighter colored woods.) Now start collecting more scraps for your next table. 🌲

Tip! Start with 80 grit to smooth the end grain and work up to 220 grit.

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



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A legs	1½"	5½"	23"	W	4
B stretchers	1½"	3¼"	15⅝"	W	2
C bases	¾"	8½"	8½"	Ply	4
D* base trim	¾"	4¼"	14½"	W	4
E* sections	10¼"	10¼"	2½"	MS	4

*Parts initially cut oversize. See the instructions.

Materials key: W-walnut, Ply-plywood, MS-miscellaneous scrap.

Supplies: #20 biscuits, #8×1½" flathead screws, 1½" fine-thread pocket screws.

Blade and bits: Dado set; ⅝" and ⅛" round-over router bits.

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A Clear Winner

Waterborne finishes overcome old objections

Synthetic brush
(Taklon)

Looking for a crystal-clear finish that's durable, easy to apply, and doesn't fill your shop with fumes? Waterborne (WB) clear wood finish may be the ticket.

Early WB finishes proved troublesome to home woodworkers, often due to their unfamiliarity. But manufacturers kept improving their products to meet users' expectations. Now those old objections—they add moisture to the wood, don't resist water and dampness when dry, mar easily, and impart a hazy tint to the wood—no longer hold water.

Note: The water in waterborne finishes evaporates quickly after application; it doesn't soak into the wood, so it doesn't increase moisture content.



Chemistry makes it clear

Waterborne finishes (also referred to as water-based) behave like traditional polyurethanes—a solvent evaporates and leaves a tough film of interlocked resin particles—but the chemistry is more complex with WB finishes because the resins are not dissolved directly into the water.

The finishes work well for interior and furniture finishing, and, generally, equal the durability of traditional products. They resist water, but heat can mar the surface. Some finishes are susceptible to solvents, which are usually specified on the label.

Pluses and minuses

The absence of VOC (volatile organic compounds) fumes leads the list of advantages for WB finishes. Hazardous from health and fire-safety viewpoints, VOCs found in oil-based and lacquer products make finishing risky in home workshops that lack adequate ventilation. WB finishes, on the other hand, prove safer to apply, even in a basement workshop in winter. And you can clean up with soap and water [Photo A].

Generally WB finishes dry more quickly than oil-based polyurethanes and dry as close to crystal clear as any finish available, adding only slight coloration to the wood [Photo B]. That clarity also counts as a drawback: Many woodworkers value the warm amber tone that oil-based finishes create.



A Cleanup instructions on the can label quickly identify WB finishes. Soap and water cleanup indicates a WB finish; mineral spirits, an oil-based product.

Note: Even though there are no VOC fumes, it's still a good idea to provide adequate ventilation when applying WB finishes indoors.

Tip! Add traditional finish amber coloration by applying a coat of shellac before finishing with a clear waterborne product.



B Waterborne finish can impart several looks, shown on beechwood. The unfinished wood at far left and the finished panel next to it (three coats of satin sheen applied with a foam brush) appear similar in color. The third panel shows three coats over super-blond shellac. At the far right, three coats over dark-cherry water-based stain.



C

Always stir WB finish; shaking creates bubbles that take a long time to dissipate. Milky-white appearance is normal in the can; the material dries clear on the wood.



D

Sand between coats to give the surface tooth for the next coat. Sandpaper, sanding sponges, and nylon pads work fine, but do not use steel wool with waterborne finish.

Tip! Even though a larger can may be more economical, buy just enough finish for your project. That way, you won't have to store so much leftover material that may degrade and have to be discarded.

► Before applying waterborne finish over oil-base stain, allow the stain to dry at least 48 hours. A coat of shellac over the stain improves finish adhesion.

Using waterborne finishes

Most dealers carry WB finishes in pints (sometimes half-pints), quarts, gallons, and aerosol sprays, usually in gloss, semigloss, satin, and flat sheens. Expect coverage similar to traditional finishes, about 400 sq. ft. per gallon. Stir it before every use [Photo C]. Strain material to remove dried or clumped finish if the can has been partially used.

Sand and prepare the wood, as for other clear finishes. Some finishers suggest raising the grain by applying water to bare wood first and lightly sanding, but letting the first coat of finish raise any grain works just as well. Then, sand to 220 grit or finer and apply a second coat [Photos D and E]. Sand to 220 grit for subsequent coats.

Apply WB finish with a synthetic-bristle brush; natural bristles tend to absorb the water in the finish and become too limp to brush well. Many finishers prefer bristles made of Taklon, a polyester filament [Opening photo]. Foam brushes work surprisingly well for WB finishes, too, and can be thrown away after use.

Lay on the finish with long, wet brushstrokes along the wood grain, maintaining a wet edge. Minimize brushing: Let the finish sit on the surface rather than try to scrub it

into the wood. If the surface looks rough or uneven right after application, leave it alone. The finish dries quickly once brushed on, so going back over it just makes it look worse. Brush marks disappear and the finish self-levels as it dries.

Sanding and applying another coat will repair any flaws that don't go away with drying. Apply at least three coats to achieve a high-quality finish. (With reapplication time as little as two hours, you can easily put on three coats in a day.)

To apply WB finish over an existing finish of any type, clean and scuff-sand the surface first. A lightly sanded shellac seal coat enhances adhesion.

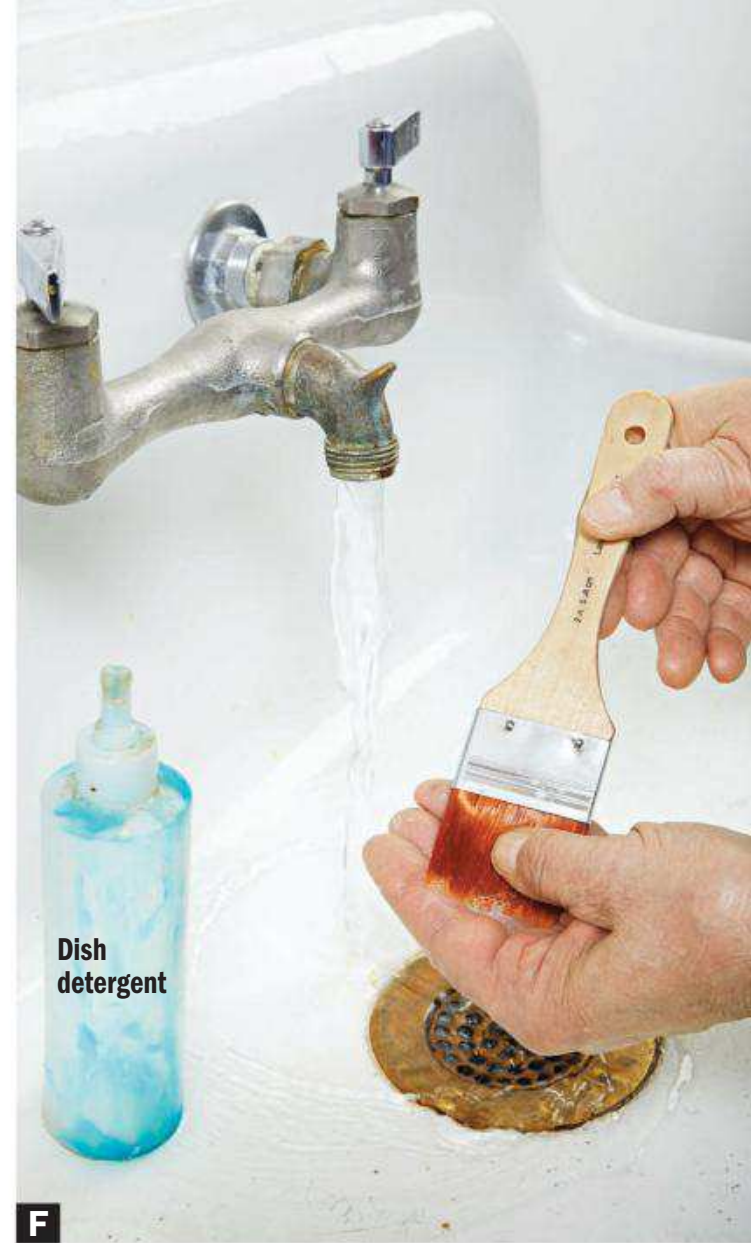
You can also apply WB finishes with a conventional or high-volume, low-pressure (HVLP) spray gun. Most products need no thinning for spraying, although extender (available from a paint dealer) may be required in hot or dry conditions. Check the can label or the manufacturer's website for nozzle and pressure recommendations.

Clean brushes or spray equipment with soap and water [Photo F]. Rags used during finishing and cleanup pose no fire hazard and can be thrown in the trash—another advantage over oil finishes.



E

Thoroughly clean off sanding dust to ensure a smooth finish. Rely on a tack cloth or damp rag to pick up the particles rather than just spread them around.



F

Clean brushes with dish detergent and water. Work the suds into the bristles, rinse the brush thoroughly with running water, and pat it dry with paper towels.

Storage and disposal

Store finish in its original can or a tightly lidded glass or plastic container marked to show its contents. Keep the product from freezing. If it does freeze, put some drops on a piece of glass or metal to see if the finish dries within an hour or so. If it doesn't, discard the finish. Discard finish that's stringy, gummy, or smells sour.

Dispose of empty, dried cans in household trash. If a small amount remains in a can, leave the lid off to let the contents dry; or spread the leftover finish on newspaper or cardboard and let it dry. Check with local waste disposal authorities about disposing of larger undried quantities. 🌱

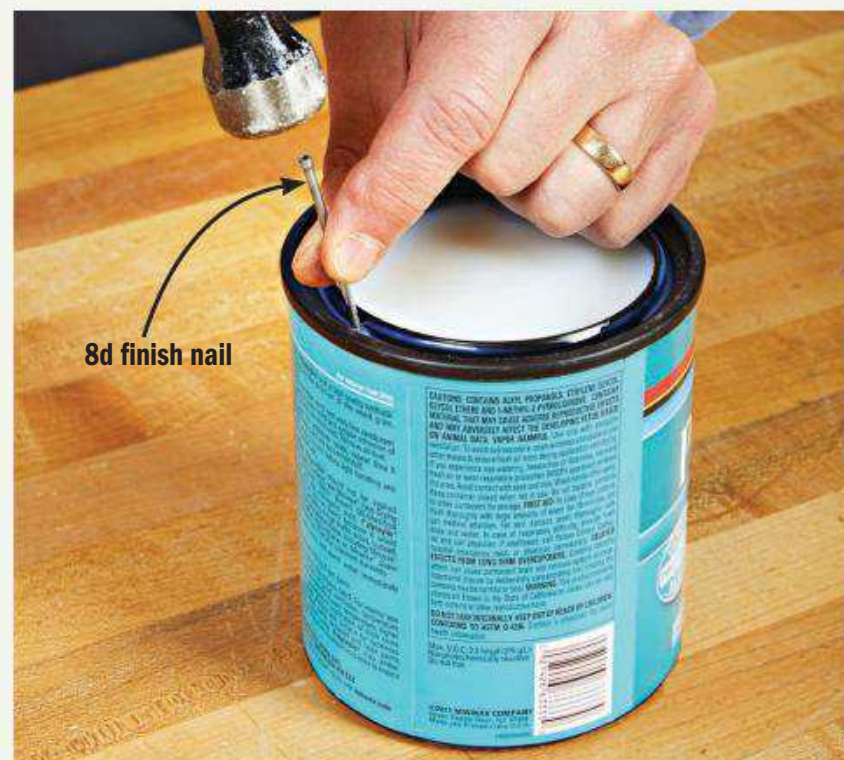
Produced by **Larry Johnston**



SHOP TIP

Punch the can rim to avoid a mess later

When you open a new can of finish, punch three or four equally spaced holes in the bottom of the lid groove with a finish nail (plastic cans only; metal ones will rust). This allows material to flow back into the can rather than collect in the groove.



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12" DOUBLE-BEVEL SLIDING COMPOUND MITER SAW
Customer Rating ★★★★★
• Laser guide
Blade sold separately.

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COMPARE TO \$249 RYOBI MODEL: TSS120L **SAVE \$119** ITEM 61970/69684 61969 shown

24862006

LIMIT 5 - Coupon valid through 12/14/18*

PITTSBURGH #1 SELLING JACKS IN AMERICA **SUPER COUPON**

RAPID PUMP® 3 TON STEEL HEAVY DUTY LOW PROFILE FLOOR JACK
Customer Rating ★★★★★
• Weighs 73 lbs.
ITEM 62326/61282/61253 shown

NOW \$199.99
~~\$279.99~~

COMPARE TO TEQ \$149.99 MODEL: TEQ0702 **SAVE \$70**

24084706

LIMIT 4 - Coupon valid through 12/14/18*

SUPER COUPON

FREE WITH ANY PURCHASE

PITTSBURGH LIFETIME WARRANTY

1" x 25 FT. TAPE MEASURE
COMPARE TO KOMELON \$6.98 MODEL: L4825HV

• Thumb Lock
• Rubber Wrapped Case

ITEM 69080/69030/69031 shown

24078976

Cannot be used with other discounts or price purchases. Original coupon must be presented. Valid through 12/14/18 while supplies last. Limit 1 FREE GIFT per customer per day.

SUPER COUPON

20% OFF ANY SINGLE ITEM

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HARDY **SUPER COUPON**

MECHANIC'S GLOVES
Customer Rating ★★★★★

NOW \$3.99
~~\$5.99~~

SAVE 63%
COMPARE TO VALEO \$11.02 MODEL: 25521

ITEM 62434, 62426, 62433, 64178, 64179, 62432, 62429, 62428 shown

24097773

LIMIT 5 - Coupon valid through 12/14/18*

CENTRAL MACHINERY **SUPER COUPON**

2 HP, 5 MICRON INDUSTRIAL DUST COLLECTOR
Customer Rating ★★★★★
• 70 gallon capacity

NOW \$169.99
~~\$109.99~~

SAVE \$155
COMPARE TO SHOP FOX \$324.99 MODEL: W1685

ITEM 61790/97869 shown

24099355

LIMIT 3 - Coupon valid through 12/14/18*

drillmaster **SUPER COUPON**

1500 WATT DUAL TEMPERATURE HEAT GUN (572°/1112°)
Customer Rating ★★★★★

NOW \$8.99
~~\$14.99~~

SAVE 67%
COMPARE TO BLACK & DECKER \$28.06 MODEL: H51300

ITEM 62340/62546 63104/96289 shown

24099582

LIMIT 8 - Coupon valid through 12/14/18*

Bauer **SUPER COUPON**

15 AMP, 12-1/2" PORTABLE THICKNESS PLANNER
Customer Rating ★★★★★

NOW \$249.99
~~\$299.99~~

COMPARE TO \$399 DEWALT MODEL: DW724 **SAVE \$149**

ITEM 63445

24107058

LIMIT 3 - Coupon valid through 12/14/18*

drillmaster **SUPER COUPON**

1/4" TRIM ROUTER
Customer Rating ★★★★★

NOW \$19.99
~~\$29.99~~

SAVE \$79
COMPARE TO MAKITA \$99 MODEL: RT0701C

ITEM 61626/62659 44914 shown

24109258

LIMIT 5 - Coupon valid through 12/14/18*

Bauer **SUPER COUPON**

20 VOLT LITHIUM CORDLESS 1/2" COMPACT DRILL/DRIVER KIT
Customer Rating ★★★★★
• 450 in. lbs. of torque
• 1.5 amp hour battery
• Weighs 3.4 lbs.

NOW \$59.99
~~\$69.99~~

SAVE \$39
COMPARE TO RYOBI \$99 MODEL: P1811

ITEM 63531

26051704

LIMIT 8 - Coupon valid through 12/14/18*

CENTRAL MACHINERY **SUPER COUPON**

8", 5 SPEED BENCHTOP DRILL PRESS
Customer Rating ★★★★★

NOW \$49.99
~~\$64.99~~

SAVE \$60
COMPARE TO BUFFALO BLACK \$110.95 MODEL: DPSUL

ITEM 62520/60238 shown

24119384

LIMIT 5 - Coupon valid through 12/14/18*

HaulMaster **SUPER COUPON**

72" x 80" MOVING BLANKET
Customer Rating ★★★★★

NOW \$5.99
~~\$8.99~~

COMPARE TO BLUE HAWK \$19.99 MODEL: 77280 **SAVE 70%**

ITEM 69505/62418/66537 shown

24121592

LIMIT 5 - Coupon valid through 12/14/18*

CENTRAL MACHINERY **SUPER COUPON**

UNIVERSAL TOOL STAND
Customer Rating ★★★★★
• 500 lb. capacity

NOW \$299.99
~~\$399.99~~

SAVE 28%
COMPARE TO \$419.99 CRAFTSMAN MODEL: 22305

ITEM 69805

24123375

LIMIT 5 - Coupon valid through 12/14/18*

CENTRAL MACHINERY **SUPER COUPON**

4" x 36" BELT/6" DISC SANDER
Customer Rating ★★★★★

NOW \$59.99
~~\$74.99~~

SAVE \$61
COMPARE TO GENERAL INTERNATIONAL \$121 MODEL: 807004

ITEM 62502/97181 shown

24132623

LIMIT 4 - Coupon valid through 12/14/18*

CHICAGO ELECTRIC POWER TOOLS **SUPER COUPON**

RECIPROCATING SAW WITH ROTATING HANDLE
Customer Rating ★★★★★

NOW \$19.99
~~\$27.99~~

SAVE 66%
COMPARE TO PORTER-CABLE \$59.98 MODEL: PCE360

ITEM 61884 65570 62370 shown

Blade sold separately.

24133805

LIMIT 5 - Coupon valid through 12/14/18*

CENTRAL MACHINERY **SUPER COUPON**

12" x 33-3/8" WOOD LATHE WITH REVERSIBLE HEAD
Customer Rating ★★★★★

NOW \$279.99
~~\$329.99~~

SAVE \$640
COMPARE TO \$919.99 JET MODEL: 708352

ITEM 34706

24141010

LIMIT 3 - Coupon valid through 12/14/18*

WINDSOR DESIGN **SUPER COUPON**

DOVETAIL JIG
Customer Rating ★★★★★

NOW \$27.99
~~\$34.99~~

COMPARE TO \$46.99 GENERAL TOOLS MODEL: 861 **SAVE 40%**

ITEM 34102

24143788

LIMIT 4 - Coupon valid through 12/14/18*

PITTSBURGH AUTOMOTIVE **SUPER COUPON**

PNEUMATIC ADJUSTABLE ROLLER SEAT
Customer Rating ★★★★★
• 300 lb. capacity

NOW \$19.99
~~\$26.99~~

SAVE 69%
COMPARE TO DURALAST \$64.99 MODEL: TR6201C

ITEM 61160/61896 63456/46319 shown

24147316

LIMIT 5 - Coupon valid through 12/14/18*

HYDROSTAR **SUPER COUPON**

50 FT. ELECTRIC DRAIN CLEANER
Customer Rating ★★★★★

NOW \$199.99
~~\$259.99~~

COMPARE TO \$398.95 COBRA MODEL: 90041 **SAVE \$198**

ITEM 61856 68285 shown

24149392

LIMIT 5 - Coupon valid through 12/14/18*

CENTECH **SUPER COUPON**

2/10/50 AMP, 12 VOLT BATTERY CHARGER/ENGINE STARTER
Customer Rating ★★★★★

NOW \$29.99
~~\$44.99~~

SAVE 50%
COMPARE TO SCHUMACHER ELECTRIC \$59.99 MODEL: SE-1250

ITEM 60581 60653 shown

24153533

LIMIT 3 - Coupon valid through 12/14/18*

YUKON **SUPER COUPON**

NEW 46" MOBILE WORKBENCH WITH SOLID WOOD TOP

Customer Rating ★★★★★

• 15,704 cu. in. of storage
• 1200 lb. capacity

COMPARE TO \$269.10 **SAVE \$39**

NOW \$229.99

~~\$249.99~~

ITEM 64023/64012 shown

24154312

LIMIT 5 - Coupon valid through 12/14/18*

drillmaster **SUPER COUPON**

Customer Rating ★★★★★

4-1/2" ANGLE GRINDER

COMPARE TO \$28.99 **SAVE \$14.99**

NOW \$9.99

ITEM 69645/60625 shown

24154803

LIMIT 7 - Coupon valid through 12/14/18*

CENTRAL PNEUMATIC **SUPER COUPON**

21 GALLON, 2.5 HP, 125 PSI VERTICAL OIL-LUBE AIR COMPRESSOR

Customer Rating ★★★★★

• Air delivery:
5.8 CFM @ 40 PSI
4.7 CFM @ 90 PSI

COMPARE TO \$229 **SAVE \$79**

NOW \$149.99

~~\$169.99~~

ITEM 69091/61454
62803/63635/67847 shown

24164717

LIMIT 3 - Coupon valid through 12/14/18*

PREDATOR **SUPER COUPON**

2000 WATT SUPER QUIET INVERTER GENERATOR

Customer Rating ★★★★★

• 4.7 hours run-time

COMPARE TO \$999 **SAVE \$569**

NOW \$429.99

~~\$499.99~~

ITEM 62523

24869890

LIMIT 5 - Coupon valid through 12/14/18*

WARRIOR **SUPER COUPON**

29 PIECE TITANIUM DRILL BIT SET

Customer Rating ★★★★★

COMPARE TO \$64.99 **SAVE 84%**

NOW \$9.99

~~\$17.99~~

ITEM 62281
61637 shown

24169544

LIMIT 9 - Coupon valid through 12/14/18*

CENTRAL MACHINERY **SUPER COUPON**

14" OSCILLATING SPINDLE SANDER

Customer Rating ★★★★★

COMPARE TO \$165.71 **SAVE \$65**

NOW \$99.99

~~\$139.99~~

ITEM 62146
69257 shown

24187627

LIMIT 5 - Coupon valid through 12/14/18*

HaulMaster **SUPER COUPON**

• 1000 lb. capacity

18" x 12" MOVER'S DOLLY

Customer Rating ★★★★★

COMPARE TO \$17.65 **SAVE 54%**

NOW \$7.99

~~\$10.99~~

ITEM 61899/63095/63096
63098/63097/93888 shown

24190971

LIMIT 7 - Coupon valid through 12/14/18*

PITTSBURGH **SUPER COUPON**

CLICK-TYPE TORQUE WRENCHES

Customer Rating ★★★★★

• Reversible

LIFETIME WARRANTY

DRIVE	ITEM
1/4"	2696/61277/63881
3/8"	807/61276/63880
1/2"	62431/239/63882

COMPARE TO \$84.97 **SAVE 88%**

YOUR CHOICE \$9.99

~~\$19.99~~

ITEM 239 shown

24204598

LIMIT 6 - Coupon valid through 12/14/18*

BADLAND **Battle Tested** **SUPER COUPON**

2500 LB. ELECTRIC WINCH WITH WIRELESS REMOTE CONTROL

Customer Rating ★★★★★

• Weighs 14.3 lbs.
• 11-1/8" L x 4-1/2" H

COMPARE TO \$189.99 **SAVE \$140**

NOW \$49.99

~~\$69.99~~

Voted Best Winches

ITEM 61840/61297/63476/61258 shown

24207850

LIMIT 5 - Coupon valid through 12/14/18*

HaulMaster **SUPER COUPON**

STEP STOOL/WORKING PLATFORM

Customer Rating ★★★★★

• 350 lb. capacity

COMPARE TO \$51.45 **SAVE 61%**

NOW \$19.99

~~\$29.99~~

ITEM 62515/66911 shown

24219978

LIMIT 4 - Coupon valid through 12/14/18*

THUNDERBOLT solar **SUPER COUPON**

100 WATT SOLAR PANEL KIT

Customer Rating ★★★★★

RENEWABLE ENERGY ANYWHERE

2X MORE POWER

SAVE \$207

COMPARE TO \$357.19 **SAVE \$199.99**

NOW \$149.99

ITEM 64335
63585 shown

24228518

LIMIT 5 - Coupon valid through 12/14/18*

CHICAGO ELECTRIC POWER TOOLS **SUPER COUPON**

4" BISCUIT PLATE JOINER

Customer Rating ★★★★★

COMPARE TO \$179 **SAVE \$134**

NOW \$44.99

~~\$62.99~~

ITEM 68987

24230718

LIMIT 3 - Coupon valid through 12/14/18*

CHICAGO ELECTRIC WELDING **SUPER COUPON**

MIG/FLUX WELDING CART

Customer Rating ★★★★★

COMPARE TO \$104.19 **SAVE \$74**

NOW \$29.99

~~\$39.99~~

Welder and accessories sold separately

ITEM 60790/61316/69340 shown

24231433

LIMIT 4 - Coupon valid through 12/14/18*

CENTRAL PNEUMATIC **SUPER COUPON**

2-IN-1 FLOORING NAILER/STAPLER

Customer Rating ★★★★★

WE CARRY A FULL LINE OF NAILS

COMPARE TO \$199 **SAVE \$99**

NOW \$99.99

~~\$129.99~~

ITEM 97586/69703/61689 shown

24233522

LIMIT 5 - Coupon valid through 12/14/18*

PITTSBURGH **SUPER COUPON**

50" CLAMP AND CUT EDGE GUIDE

Customer Rating ★★★★★

COMPARE TO \$39.98 **SAVE 62%**

NOW \$14.99

~~\$22.99~~

ITEM 66581

24236258

LIMIT 4 - Coupon valid through 12/14/18*

KRAUSE & BECKER **SUPER COUPON**

AIRLESS PAINT SPRAYER KIT

Customer Rating ★★★★★

COMPARE TO \$299 **SAVE \$129**

NOW \$169.99

~~\$214.99~~

ITEM 62915/60600 shown

24237131

LIMIT 3 - Coupon valid through 12/14/18*

PITTSBURGH **SUPER COUPON**

4 PIECE WOOD CHISEL SET WITH CLEAR PVC HANDLES

Customer Rating ★★★★★

COMPARE TO \$29.97 **SAVE 83%**

NOW \$4.99

~~\$7.99~~

ITEM 42429/69471 shown

24237929

LIMIT 9 - Coupon valid through 12/14/18*

HaulMaster **SUPER COUPON**

1000 LB. CAPACITY SWING-BACK TRAILER JACK

Customer Rating ★★★★★

• Height range:
12-1/2" to 24"

COMPARE TO \$45.99 **SAVE 60%**

NOW \$17.99

~~\$25.99~~

ITEM 69780
41005 shown

24241852

LIMIT 5 - Coupon valid through 12/14/18*

Lynxx **SUPER COUPON**

40 VOLT LITHIUM CORDLESS BRUSHLESS BLOWER

Customer Rating ★★★★★

COMPARE TO \$199 **SAVE \$79**

NOW \$119.99

~~\$139.99~~

ITEM 64716
64481/63284 shown

24243076

LIMIT 5 - Coupon valid through 12/14/18*

Lifetime CARBIDE **SUPER COUPON**

ALUMINUM OXIDE SANDING SPONGES PACK OF 10

Customer Rating ★★★★★

COARSE
ITEM 46751
63918

MEDIUM
ITEM 46752
63915

FINE
ITEM 46753
63912

Item 46751 shown

COMPARE TO \$4.99 **SAVE 20%**

YOUR CHOICE \$3.99

24250213

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TOOLS & MATERIALS

SHOP-TESTED

All charged up and ready to cut

In addition to the 10" sliding mitersaws reviewed on *page 44*, we put every other battery-powered mitersaw to the test. With blades ranging from 6½" to 12" and requiring one battery pack or two, these saws proved more capable than expected. They have the power to crosscut dense hardwoods, and the runtime to last a week or more in a woodshop, or a half day of heavy use.

DeWalt DCS361M1 7¼" compound sliding mitersaw, \$400

- ▶ 2x4 crosscuts per charge: 187
- ▶ Why buy: LED cutline indicator, easy adjustments
- ▶ Includes one 20-volt 5.0 amp-hour battery pack and charger
- ▶ Without charger or battery (DCS361B), \$270

800-433-9258, dewalt.com



DeWalt DHS716AT2 12" dual-compound mitersaw, \$650

- ▶ 2x4 crosscuts per charge: 365
- ▶ Why buy: large cut capacities, long runtime, LED cutline indicator, easy adjustments, electric adapter included
- ▶ Includes two 60-volt 6.0 amp-hour battery packs and dual-port charger
- ▶ Without charger or battery (DHS716AB), \$450

800-433-9258, dewalt.com



DeWalt DHS790AT2 12" dual-compound sliding mitersaw, \$800

- ▶ 2x4 crosscuts per charge: 335
- ▶ Why buy: largest cut capacities, long runtime, LED cutline indicator, easy adjustments, electric adapter included
- ▶ Includes two 60-volt 6.0 amp-hour battery packs and dual-port charger
- ▶ Without charger or battery (DHS790AB), \$600

800-433-9258, dewalt.com



Makita XSL02Z 7½" dual-compound sliding mitersaw, \$540 (without charger or battery)

- ▶ 2x4 crosscuts per charge: 474
- ▶ Why buy: compact, lightweight (27 lbs), longest runtime, best blade, easy adjustments
- ▶ Two 18-volt 5.0 amp-hour battery packs and dual-port charger, \$260

800-462-5482, makitatools.com

Makita XSL05Z 6½" compound mitersaw, \$500 (without charger or battery)

- ▶ 2x4 crosscuts per charge: 312
- ▶ Why buy: compact and lightweight (14 lbs), best for small trim boards
- ▶ One 18-volt 5.0 amp-hour battery pack and dual-port charger, \$160

800-462-5482, makitatools.com



Milwaukee 2733-21 7¼" dual-compound sliding mitersaw, \$500

- ▶ 2x4 crosscuts per charge: 333
- ▶ Why buy: long runtime, LED cutline indicator, easy adjustments
- ▶ Includes one 18-volt 5.0 amp-hour battery pack and charger
- ▶ Without charger or battery (2733-20), \$400

800-729-3878, milwaukeetool.com



Ridgid R48607K 7¼" dual-compound sliding mitersaw, \$400

- ▶ 2x4 crosscuts per charge: 338
- ▶ Why buy: lowest-priced slider, long runtime
- ▶ Includes one 18-volt 5.0 amp-hour battery pack and charger

866-539-1710, ridgidpowertools.com



Ryobi P552 7¼" compound mitersaw, \$100 (without charger or battery)

- ▶ 2x4 crosscuts per charge: 176
- ▶ Why buy: good performer for the lowest price
- ▶ One 18-volt 4.0 amp-hour battery pack (P108), \$99; charger (P117), \$40

800-525-2579, ryobitools.com



▶ Read more in-depth reviews of these mitersaws and other tools.
woodmagazine.com/mitersawreviews

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mlcswoodworking.com

Two new router lifts raise routing to new heights

—Tested by Tom Brumbach

All-inclusive lift proves versatile and exceptional

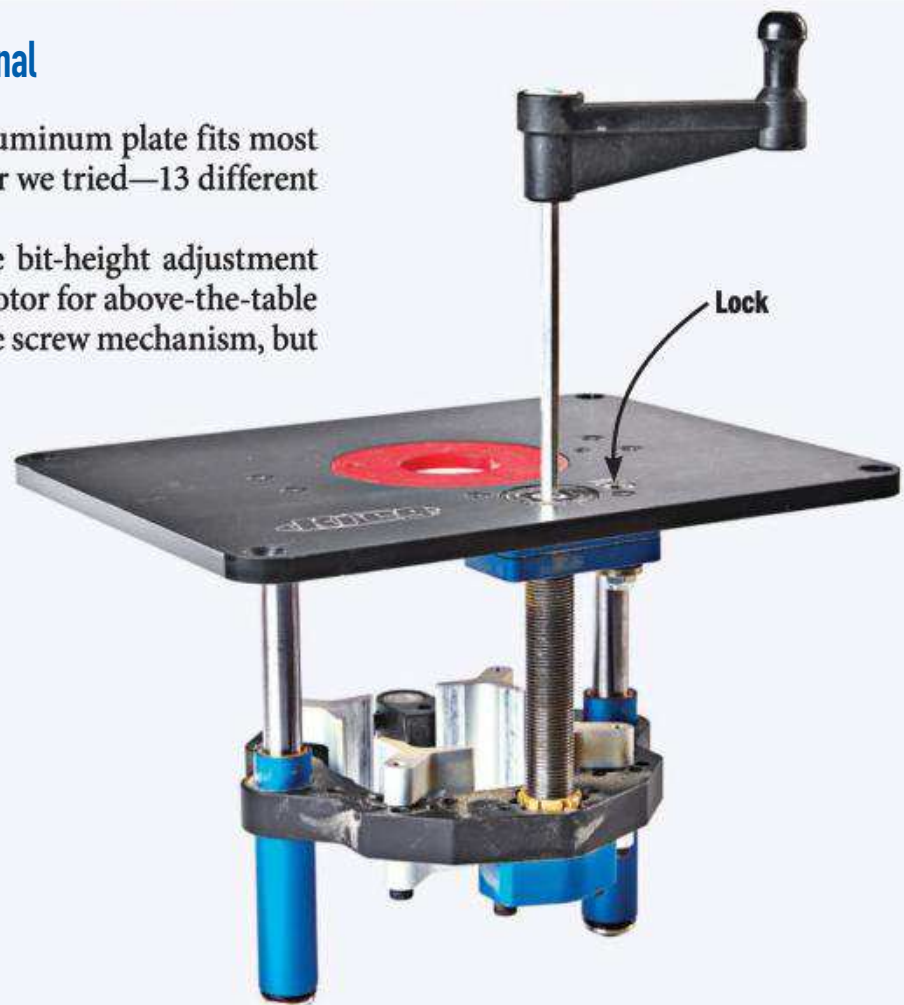
Precision Router Lift, no. PRS5000, \$300

Kreg really hit a home run with this lift. For starters, its 9¼×11¾" aluminum plate fits most router tables on the market. And it accommodates every router motor we tried—13 different models—without having to buy extra adapters.

The 16-threads-per-inch (tpi) leadscrew enables smooth and fine bit-height adjustment (¼" per turn) yet doesn't take an annoyingly long time to raise the motor for above-the-table bit changes. Out of the box, it demonstrated almost no backlash in the screw mechanism, but has an adjuster to counter backlash should it occur. You lock the lift in position from above the table with the same wrench you use for height adjustments. And the adjuster ring can be zeroed for micro-adjustments as fine as .001".

Still, I wish the plate had leveling screws built into it, as well as "snugger" pins to make it fit tightly in the plate opening. It comes with three bit-opening reducing rings and wrench, and a starter pin.

Kreg Tool Co.
800-447-8638, kregtool.com



Innovative features deserve a tip of the cap

Pro Lift router lift, no. 52429, \$370

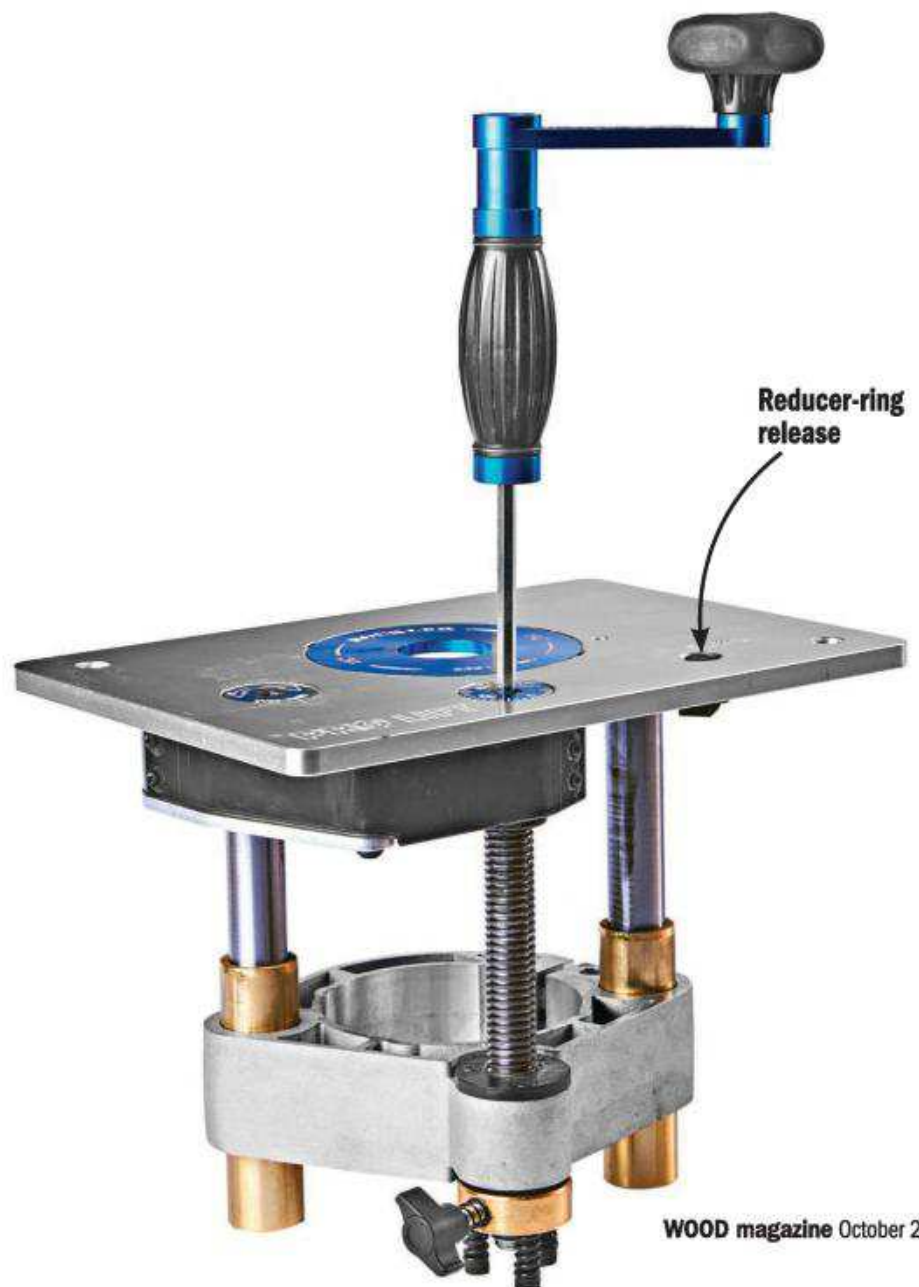
This Rockler lift has a pair of really cool features. First, the Pro Lift uses two separate mechanisms to raise and lower the carriage: The Quick Gear makes coarse adjustments quickly for changing bits or setting an approximate bit height, and the leadscrew fine-tunes the bit height. Both operate with the same wrench. And the second feature: pop-out reducer rings. Simply push a button to pop the aluminum ring out, and it snaps in place just as easily. Nice!

But a few low points make you work (and think) a little harder. The fine-adjust leadscrew raises or lowers the bit ⅛" with each turn (8 tpi). Given the ability of the Quick Gear to mark large adjustments, we'd prefer a finer leadscrew (such as 16 tpi) for better microadjusting. You still have to reach beneath the table to lock the carriage in place, an inconvenience. And tweaking the backlash adjuster to minimize backlash made it difficult to operate the Quick Gear. Like the Kreg lift, it lacks leveling screws and snuggers.

The Pro Lift fits only one router out of the box (the 3-hp Porter-Cable 7518, a \$350 router). But \$10 adapter rings fit the following router motors: Bosch 1617EVS, Craftsman 27680 and 27683, DeWalt DW616 and DW618, Hitachi MV12VC, Makita RF1101, and Porter-Cable 690 and 890. Other router motors we tried did not fit.

The Pro Lift comes on an 8¼×11¾" aluminum plate, which fits Rockler tables. Rockler plans to sell a version with a 9¼×11¾" plate to fit other tables.

Rockler Woodworking & Hardware
800-279-4441, rockler.com



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Bobby S.

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Milwaukee launches first 18-volt cordless tablesaw

8¼" tablesaw, no. 2736-21HD (with battery), \$549

This saw uses a brushless motor and single 18-volt battery pack to power the blade. It comes with Milwaukee's new 12 amp-hour pack, which the company says helps the saw cut 600 linear feet of ½" oriented-strand board (OSB). (You can also use smaller Milwaukee 18-volt battery packs, according to the company, but with less runtime.) The saw has 24½" of rip capacity with a rack-and-pinion rip fence. And it has Milwaukee's One-Key feature that lets you monitor the saw's location and its performance via a smartphone app. (A bare-tool option without battery and charger will be available in January 2019.)

Milwaukee Tool
800-729-3878, milwaukeetool.com

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Bora Portamate
866-588-0395, portamate.com



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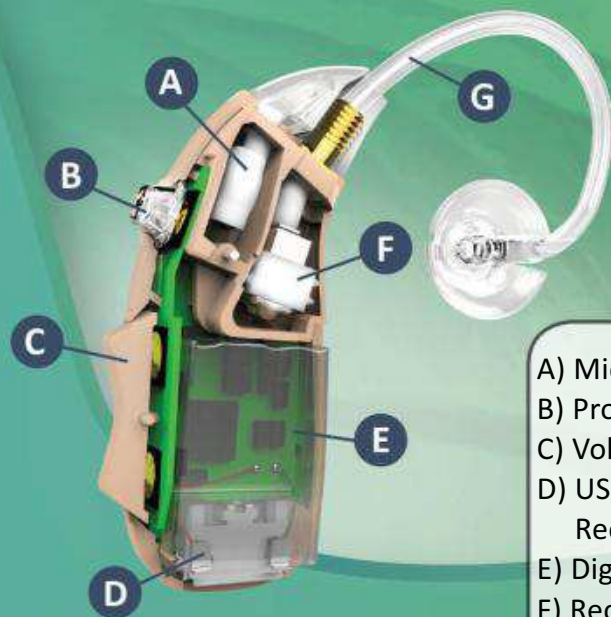


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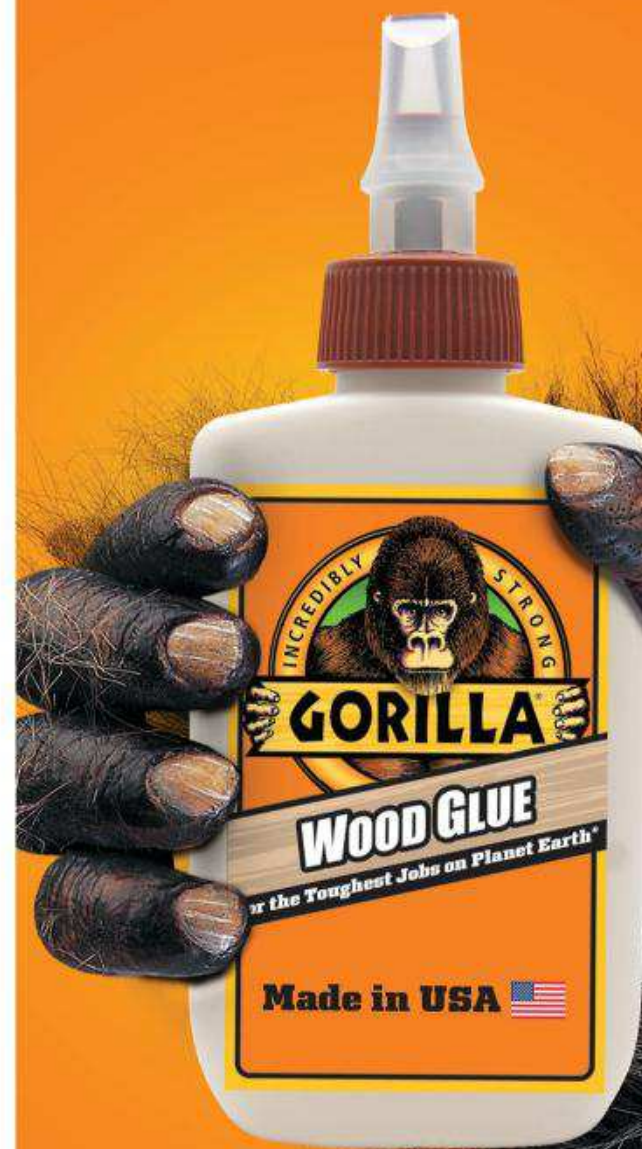
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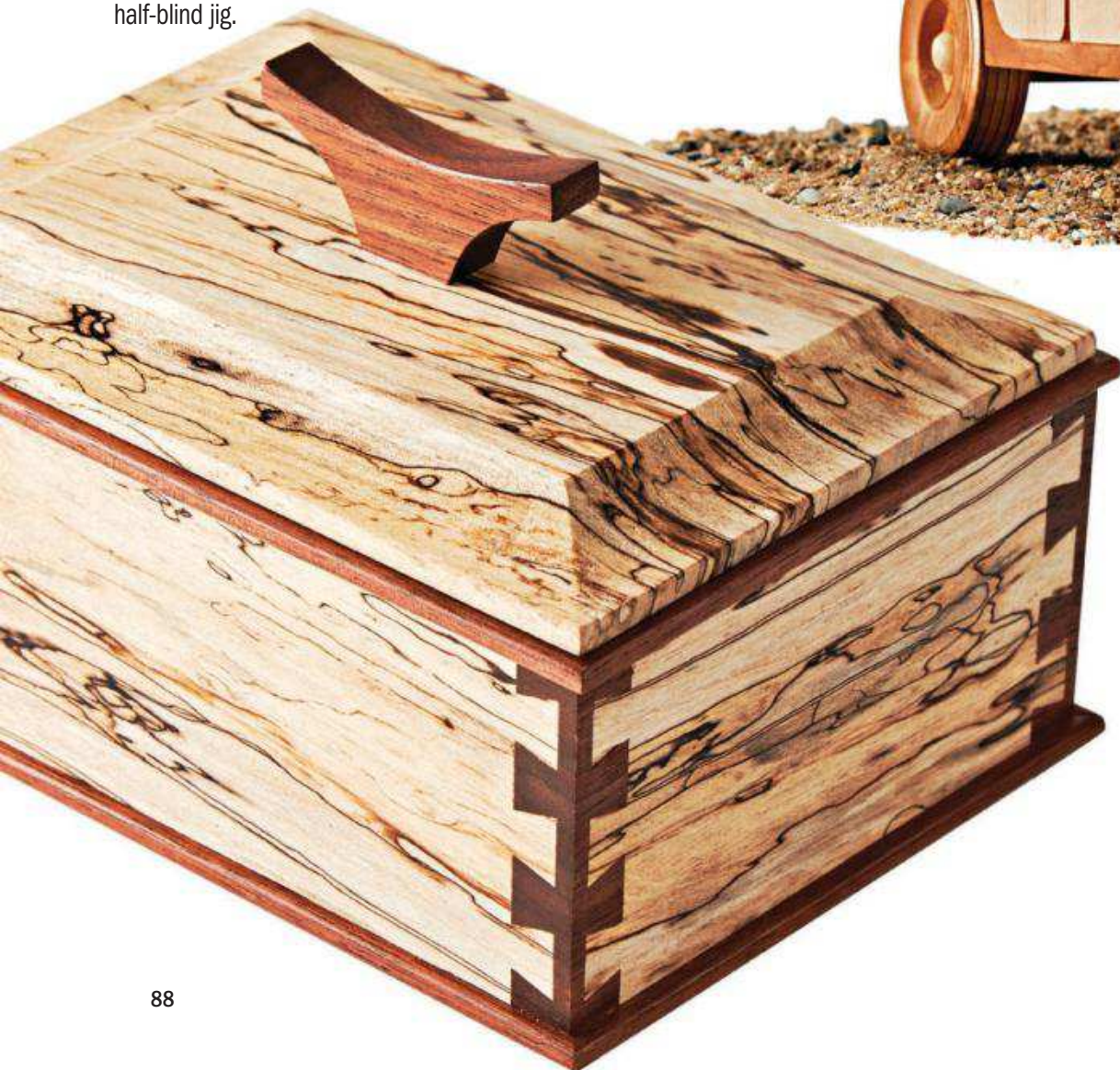


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