WHY YOU NEED A ROUTER PLANE p. 46 | CREATE COOL PHOTOS WITH YOUR CNC p. 60

ISSUE 307 DECEMBER 2025/JANUARY 2026

WOOD®

9 NEW TOOLS FOR YOUR WISH LIST p. 70

GREAT GIFTS!

- Elegant Candlestands p. 26
- Heirloom Blanket Chest p. 50
- Personalized Coin Bank p. 64

Plus! High-Style Dining Table p. 38

TOOL TEST
Cordless Plunge Routers
p. 30

WATT'S UP WITH CORDLESS TOOL POWER RATINGS?
p. 33

The World's *MOST TRUSTED* Woodworking Resource

Grizzly Industrial®

Buy Direct & Save

Our Christmas sale is on now. ENDS 12/31

WHY BUY FROM GRIZZLY?

- We buy direct from factories and sell direct to you
- High-quality, award-winning machines
- Two overseas quality control offices
- 98% of in-stock orders ship same-day
- Over five million parts in stock for instant after-service
- Family-owned and operated since inception

14" 1 HP Bandsaw

Home resawing for custom lumber

- Deluxe extruded aluminum rip fence
- Quick-release blade tension
- 14" x 14" Precision-ground cast-iron table
- Heavy-duty steel stand
- Miter gauge and ⅜" blade
- Footprint: 24½" x 17½"
- Shipping weight: ≈ 207 lbs.

MADE IN AN ISO 9001 FACTORY

G0555 // ONLY $950

$199 FREIGHT

10" 2 HP 120V Hybrid Table Saw

Contractor and cabinet saw features

- Easy-glide fence system with narrow rip attachment
- Front-locking T-shaped fence with T-slots
- Cast-iron tables and trunnions
- Quick-release blade guide assembly
- Table size: 40½" x 27"
- Footprint: 21" x 19½"
- Shipping weight: ≈ 324 lbs.

MADE IN AN ISO 9001 FACTORY

G0771Z // ONLY $1425

$255 FREIGHT

6" x 47" 1 HP Jointer

Produce flawless edges for superior joinery

- 24-Indexable-carbide insert V-helical cutterhead
- Heavy-duty cabinet stand for stability
- Precision-ground cast-iron tables
- Fence stops at 45°, 90°, and 135°
- Built-in mobile base
- Footprint: 13½" x 18"
- Shipping weight: ≈ 260 lbs.

MADE IN AN ISO 9001 FACTORY

G0814X // ONLY $1450

$199 FREIGHT

13" 2 HP Benchtop Planer

Dimension lumber with precision

- 30-Indexable-carbide insert helical cutterhead
- 1"-Thick granite table bed
- Single-speed automatic board feed
- Convenient grab handles
- Top-mounted return rollers
- Footprint: 21½" x 13"
- Shipping weight: ≈ 82 lbs.

MADE IN AN ISO 9001 FACTORY

G0940 // ONLY $995

$59.95 SHIPPING

20" 1¼ HP Floor Drill Press

Drill repeatable holes with confidence

- 210–3020 RPM, 12-speed spindle
- LED light increases visibility for drilling precision
- Laser line guide to ensure accuracy
- Push-button spindle depth stop for repeatability
- Rack-and-pinion vertical table movement
- Footprint: 22½" x 16½"
- Shipping weight: ≈ 257 lbs.

MADE IN AN ISO 9001 FACTORY

T33904 // ONLY $1095

$255 FREIGHT

1½ HP Shaper

Add custom profiles to your woodworking

- ½" & ¾" Diameter spindles
- Precision-ground cast-iron table
- Adjustable cast-iron fence with safety guard
- 7000 & 10,000 RPM spindle speeds
- 2½" Max. cutting height
- Footprint: 17½" x 15½"
- Shipping weight: ≈ 221 lbs.

MADE IN AN ISO 9001 FACTORY

G1035 // ONLY $1150

$199 FREIGHT

6" x 48" Belt/12" Disc Variable-Speed Combo Sander

A versatile sander for your shop

- 14½" Cast-iron platen
- 0–90° Belt tilt
- -45–20° Tilting tables
- Quick-release belt lever
- Dual dust ports
- Footprint: 16½" x 14"
- Shipping weight: ≈ 159 lbs.

G0997 // ONLY $1225

$199 FREIGHT

12" 1½ HP Baby Drum Sander

Professional finishes without the big machine

- 2.5–17.3 FPM variable-speed conveyor
- Gear-driven table elevation ensures perfect control
- Industrial-duty conveyor belt
- Grab-and-go portability
- User-friendly hook-and-loop sanding belts
- Footprint: 22¼" x 12"
- Shipping weight: ≈ 166 lbs.

MADE IN AN ISO 9001 FACTORY

G0459 // ONLY $1225

$199 FREIGHT

1 HP Canister Dust Collector

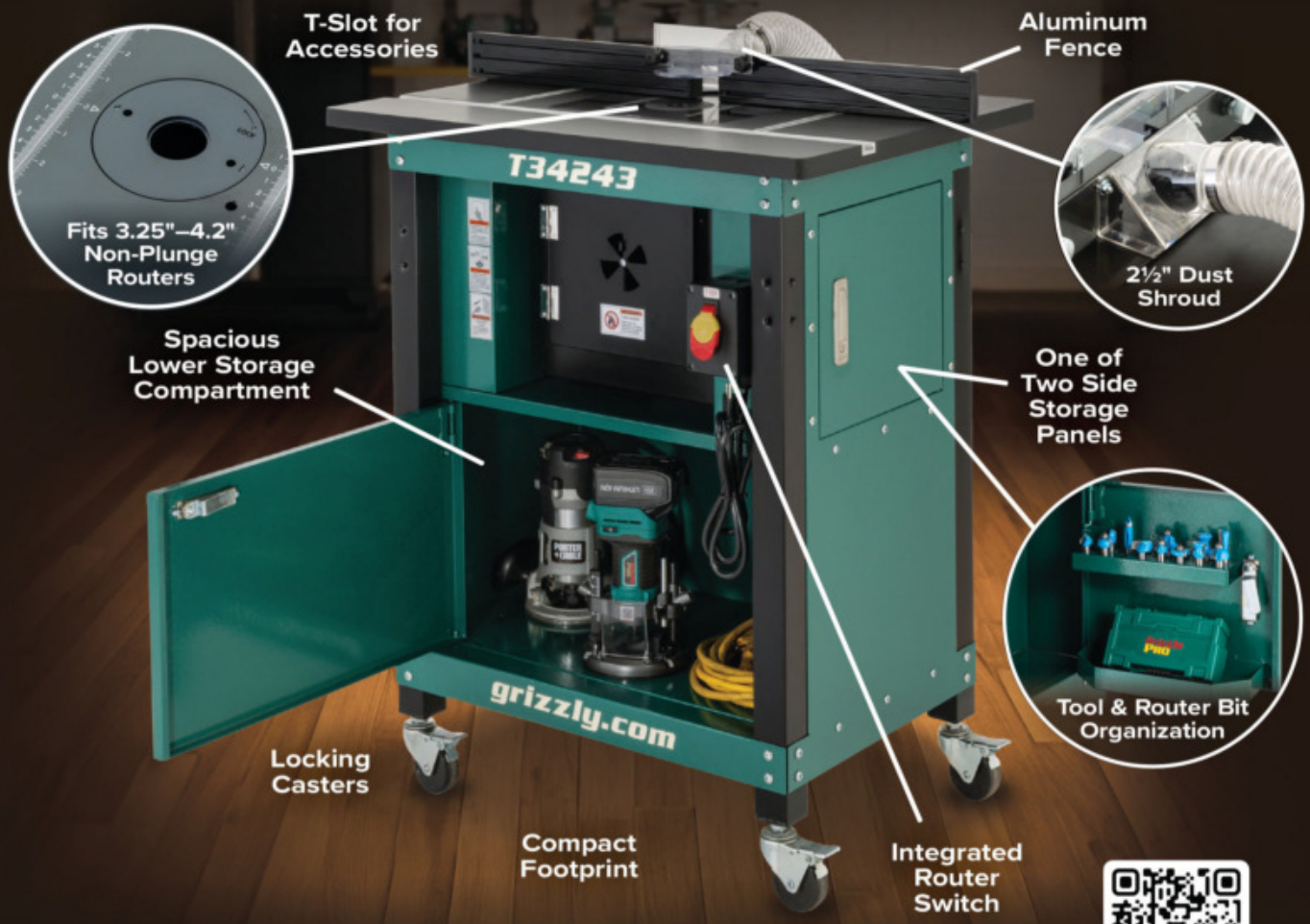
Roll to any machine for instant dust control

- Wire-reinforced pleated paper with 1-micron filtration
- Casters for easy maneuverability
- Paddle brushes dislodge fine dust from filter
- 10" Cast-aluminum impeller
- Heavy-duty steel intake
- Footprint: 26" x 15¼"
- Shipping weight: ≈ 74 lbs.

G0583Z // ONLY $530

$79.95 SHIPPING

INTRODUCING Mobile Router Table Workstation



Flawless Routing & Convenient Mobility

This all-in-one unit offers the options you need for a highly productive workshop - precise routing, accessible storage, and user-friendly portability.

Transform your workspace with features such as a premium aluminum fence and router plate that accepts most popular router brands. Maximize your workspace and efficiency with this practical addition to your shop.

Specifications:

- Floor-to-table height: 38⅜"
- Table size: 31¾" W x 23¾" D
- Insert opening size: 3⅞" (with 1¼" opening)
- Fence length (combined): 32½" – 44"
- Fence faces (x2): 16¼" L x 2¾" H x ¾" Th
- Dust ports: 2½", 4"
- Dust shroud size: 2½"
- Footprint: 26½" x 19"
- Dimensions: 32" W x 27" D x 42½" H
- Approximate shipping weight: 126 lbs.

See the Grizzly router table workstation in action!

T34243

INTRODUCTORY PRICE

$705

$199 FREIGHT

MADE IN AN ISO 9001 FACTORY

grizzly.com®

800-523-4777

#GRIZZLYTOOLS

affirm Monthly Payments | clicklease Business to Business Equipment Financing

FINANCING AVAILABLE

Please visit grizzly.com for up-to-date pricing.

Due to rapidly changing market conditions, our advertised prices may be changed at any time without prior notice.

⚠ **WARNING! †1 : Cancer & Reproductive Harm**

Some products we sell can expose you to chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

23791

Purveyors of Fine Machinery® Since 1983

FORM, FUNCTION, FUN

CONSIDER ALL THREE WHEN YOU CHOOSE YOUR NEXT PROJECT. BUT TAKE MY ADVICE AND LET FUN WIN EVERY ONCE IN A WHILE.

The tension between form and function shows up in a lot of ways in our little niche of publishing. The layout on a spread may feel more balanced without that extra illustration, but we'd be sacrificing reader understanding to exclude it. That turn of the phrase was clever, but not worth its cost in clarity. Amongst our staff, opinions are often mixed on the looks of a particular design even when the practicality is never questioned. Last issue's "Display Cabinet" (November 2025) was particularly contentious.

In this issue, the CNC halftone technique on *page 60* leans into the form side of the debate. A very cool design technique, but we leave it to you to apply it to a functional project.

And the "Heirloom Blanket Chest" on *page 50* doubles down on function with an added drawer, but the Arts and Crafts tradition that inspired it was largely a reaction against overly ornate form, so its spare design may not tickle everyone's fancy.

The holy grail project, then, is the masterpiece that ticks both boxes for you. And of course that's what we strive for.

But sometimes, for me, there's a project like the "Pedestal Table" on *page 38*. It's extremely practical with its solid build and ample surface. But it would never fit in the confines of my humble dining room, so it doesn't tick the function box for me. Its design is also very much on trend. (Keep an eye out for the matching sideboard in an upcoming issue!) Unfortunately, it would clash with the other furniture my household has collected, so it also fails my own personal form test.

And yet, I really want to build it. I want to try out that large-scale curved-form leg and push my bandsaw's capabilities. I want an excuse to do some cove cutting on my tablesaw. I want to play with the stacked trim, mixing and matching them to see what profiles I can come up with.

And so I propose adding a third entrant into the form/function debate: Fun. Consider those projects in which the process trumps the results. And just do it.

What about you? Do you have any bucket list projects that you'd love to build just for the fun of it, but haven't drummed up the function or form reasons that would trigger starting? I'd love to hear what they are. Drop me a note.

Then get out to the shop to build one of them. We'll help.

Lucas

LUCAS PETERS
lucas.peters@woodmagazine.com
@peters.lucas

WOOD®
Issue No. 307 | December 2025/January 2026
Vol. 42, No. 7

To download patterns from this issue, visit
woodmagazine.com/307patterns

Woodpeckers®

MADE IN USA

Woodpeck.com

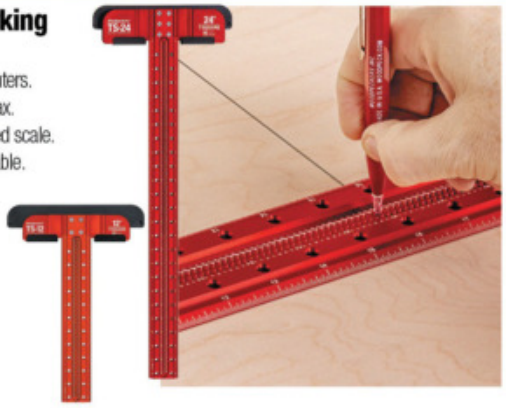
Precision Woodworking Squares

- One-piece central core.
- Stainless model includes scribing guides.
- Lip keeps the square flat on your work.
- Guaranteed perpendicular to ±.0085° for life.
- Available in inch or metric.

Precision Woodworking Square
Includes a wall-mountable Rack-It®
12"....$139.99
12" Stainless Steel....$159.99
Other Sizes Available on ***Woodpeck.com***

Precision Woodworking T-Squares

- Scribing guides on 1/16" centers.
- Beveled edge reduces parallax.
- Tight tolerance laser-engraved scale.
- 600mm metric version available.



Precision T-Square
Includes a wall-mountable Rack-It®
TS-12 12"....$139.99
TS-24 24"....$159.99
TS-32 32"....$189.99

in-DEXABLE® Combination & Double Squares

- Push-button index locks head at any full-inch.
- Laser-cut scribing guides for precision parallel lines.
- Retractable support keeps head aligned to your stock.
- Available in inch or metric.

in-DEXABLE Squares
Includes a wall-mountable Rack-It®
Double 6"....$139.99
Center Finder 6"....$149.99
Combination 12"....$179.99
Protractor 18"....$249.99
Other Sizes Available on ***Woodpeck.com***

Joinery Sled

NEW TOOL

- Half-Laps, Bridle Joints, Sliding Dovetails, Tenons & More!
- Works with table saws & router tables.
- Patented leaf spring miter bar fits all 3/8" x 3/4" miter slots.
- Table adjusts from 44° to 91°.
- Micro-adjuster positions vertical table precisely.

Joinery Sled....$339.99
Includes a wall-mountable Rack-It®

Router not included.

Rout-N-Plane® Benchtop Board Mill

- Perfect for end grain cutting boards.
- Adjusts to work with almost any size or style router.
- Two sizes: 15" and 24" wide. Both work from 3/4" to 3" thick.
- When it won't fit your planer, plane it with Rout-N-Plane!

Rout-N-Plane Benchtop Board Mill
15"....$179.99
24" XL....$239.99

Router Plane

- Includes square & spearpoint blades.
- Blades lapped perfectly flat. Bevels ground and ready for final honing.
- 12 blade positions ensure maximum access & support.
- Fine-thread adjustment with no backlash.
- Ductile iron base with black-nitride treatment.
- Optional fence keeps plane parallel to an edge.

Router Plane
...$279.99
Fence Add-On Kit....$69.99

ULTRA·SHEAR® by Woodpeckers

ULTRA·SHEAR FREE SHIPPING ON ROUTER BITS & SAW BLADES
*US 48 States only. Ultra-Shear brand only. Cannot be combined with other products.

Finger Grip Groove Bits

These bits create a subtle concave recess in the edge of your cutting and serving boards. Bearing controls depth of cut.

Carbide-Tipped, Finger Grip Groove Bits, Round, 2-Flute
1/2" Shank *for 1-1/4" boards*....~~$54.17~~ $46.99
1/4" Shank *for 3/4" boards*....~~$48.05~~ $39.99
1/4" Shank *for 1" boards*....~~$51.93~~ $43.99
More Router Bits are available on ***Woodpeck.com***

Flat Top Grooving Saw Blades

ULTRA·SHEAR® by Woodpeckers

When you need flawless, flat-bottomed cuts, our 40-Tooth Flat Top Grooving Blade delivers. The chisel tooth design yields a perfectly square groove.

10" x 40 Flat Top Grooving Blade, 5/8" Arbor
1/8" Kerf....~~$166.78~~ $129.99
3/16" Kerf....~~$186.83~~ $149.99
1/4" Kerf....~~$196.86~~ $179.99
Other Saw Blade options available on ***Woodpeck.com***

Visit ***Woodpeck.com*** *for hundreds of other American Made Tools!*
Woodpeckers, LLC • Strongsville, Ohio • 800·752·0725
Prices are subject to change without notice.

Also Available at Your Local Woodcraft Store! WOODCRAFT®

WOOD®
Issue No. 307 | Dec 2025/Jan 2026

PLANS

ON THE COVER

'Tis the season to mass-produce presents, and these elegant candlestands are sure to delight the recipient as they light the room. Best of all: They're easy to build.

TOOLS & TECHNIQUES

DEPARTMENTS

CONNECT WITH WOOD

/woodmagazine @woodmagazine @wood @woodmagazine

E-MAIL woodmail@woodmagazine.com

WRITE *WOOD* magazine,
1716 Locust St., LS-273
Des Moines, IA 50309

CALL 800-374-9663, option 2

TEAM CIRC SAW

The humble circular saw often gets dismissed as an imprecise tool, but it should definitely make the cut as a player on your workshop cutting team.

Elevate your game with circular-saw joinery.

- Tips and Techniques for Better Joinery
woodmagazine.com/circsawjoints

- Can You Work Wood Without a Tablesaw?
woodmagazine.com/notablesaw

When you need clutch players, turn to the jigs.

- Slice Sheet Goods With a Circ Saw? You Bet!
woodmagazine.com/circsawedgeguide

- Cut Melamine Without Chip-Out
woodmagazine.com/cutmelamine

- Make a Simple, Speedy Cutoff Jig
woodmagazine.com/cutoffjig

Equip your team with game-winning gear: the right blades.

- Blade Basics for Better Builds
woodmagazine.com/sawbladebasics

- Get Perfect Cuts With a Plywood Blade
woodmagazine.com/bestcircblade

MADE IN THE SHADE

Learn about the circ-saw joinery we used to build this backyard pergola.
woodmagazine.com/circsawjoinery

Purchase the plan for the Made-in-the-Shade Pergola
woodstore.net/shadepergola

Spirituality Meets Artistry

"I never expected it to be so beautiful that it takes your breath away."

— Kaya C., on Stauer Opals

Stauer® Impossible Price Only $59

In a quaint village, nestled between rolling hills, lived a young woman with a deep appreciation for gemstones. Her grandmother gifted her a delicate cross pendant adorned with opals. The opals shimmered with a mesmerizing play of colors, reflecting hues of blues, greens, and fiery oranges. Her grandmother shared the legend of the opals, believed to bring hope, purity, and luck to those who wore them.

Using this story as inspiration, Stauer brings you the **Opal Spirit Cross Pendant.** With over 2 total carats of Kyocera lab-created opals set in .925 sterling silver encased in yellow gold, this pendant is a radiant celebration of beauty and craftsmanship. Each opal captivates with a kaleidoscopic dance of fiery oranges blending into oceanic blues, streaked with flashes of vibrant green that seem to come alive with every movement. The shimmering opals are skillfully arranged to create an enchanting, otherworldly glow, embodying the spirit of hope and harmony.

This breathtaking combination of color and craftsmanship is available as a limited availability of only 930 pieces, making it a rare and treasured addition to your jewelry collection. Plus, when you order today, you'll receive the **gold-finished sterling silver chain—a $69 value—absolutely free!**

Don't miss your chance to own this exclusive tribute to timeless elegance and meaningful symbolism.

Necklace Specifications:

- 2 ½ ctw. Kyocera lab opals and Diamond*Aura*® accents
- Yellow gold-finished .925 sterling silver setting
- 18" gold-clad .925 sterling silver chain

Opal Spirit Cross Pendant *plus* FREE Chain

~~$499~~ **$59* + S & P** ***Save $440***

**Special price only for customers using the offer code.*

1-800-333-2045

Your Insider Offer Code: OCR266-01

Stauer®

14091 Southcross Drive W.
Dept. OCR266-01, Burnsville, MN 55337
www.stauer.com

INSPIRATION BUILDS SUCCESS

I enjoyed your "Dose of Inspiration" from the issue 302 (May 2025) editor's letter and wanted to share one of mine. For the past three years, I've had the pleasure of teaching woodworking to developmentally disabled adults at The Adult Skills Center in Santa Clarita, California. Most of our clients have never worked with wood, hand tools, or power tools, and our program provides those opportunities.

We start with simple projects to build their skills and confidence, then gradually introduce more challenging ones. At a certain point, I begin asking our clients what they'd like to build.

One client mentioned that he had always wanted to learn chess but never had the chance. That simple conversation led us to create chessboards. We even cast our own resin chess pieces.

For years, these individuals have been told they couldn't do certain things, including woodworking. But once they step into our little shop and see what's possible, their ideas and enthusiasm become unstoppable.

Paul Dino
Canyon Country, California

We love to hear stories of the "Aha!" moments when eyes light up and big grins appear after realizing the endless creative potential in woodworking. Your story reminds us that we all have something to contribute to the craft.

Lucas Peters
Editor-In-Chief

DEWAXING SHELLAC

Your answer to Ed Banz's question about shellac in issue 305 (October 2025) is a bit oversimplified. Shellac naturally contains wax, but you don't have to mix your own from flakes to get the dewaxed version. I do it myself by setting the can aside for a week or two, allowing all the wax to settle to the bottom. Then I pour off the dewaxed shellac at the top. Also, shellac deteriorates in the can. Any over two years old should be viewed with suspicion.

Shellac is my favorite finish. The bad press it gets is largely unwarranted. Only clear polyurethane resists moisture better, in my opinion, and the difference isn't large. For other damage, you can recoat over shellac without problems. Try that with poly!

Larry Blanchard
via email

OUT OF JOINT

After reading your jointer review in issue 289 (July 2023), I had to share how I've survived without a jointer. I have been using random-width, random-length (RWRL) lumber for over 30 years. I have a benchtop planer but don't have room for a jointer.

I use a jig for my tablesaw to rip straight edges. When edge-joining two pieces, I butt the boards together, use a straightedge with a circular saw, and cut along the rough joint to create a seamless glue joint every time. I'm exceptionally proud of my workbench made from pine my grandfather cut nearly 100 years ago, all from RWRL lumber.

John Whiting
via email

I suspect there are quite a few woodworkers, including me, who don't own a jointer. Using the tablesaw with a glue-line rip blade is a good way to create straight edges. In my case, I also use a hand plane to clean up the edges before glue-up. Your workbench speaks for itself. Sometimes we just need to learn to work with what we have.

Randy Maxey
Contributing Editor

continued on page 10

TURN RAW INTO AWE

At Penn State Industries we make it easy for you to make beautiful, functional things on a lathe. And with the largest selection of unique, well-engineered woodturning project kits, supplies and tools in the world, you have unlimited possibilities to transform raw materials into something awesome.

PENNSTATEIND.COM | 1-800-377-7297

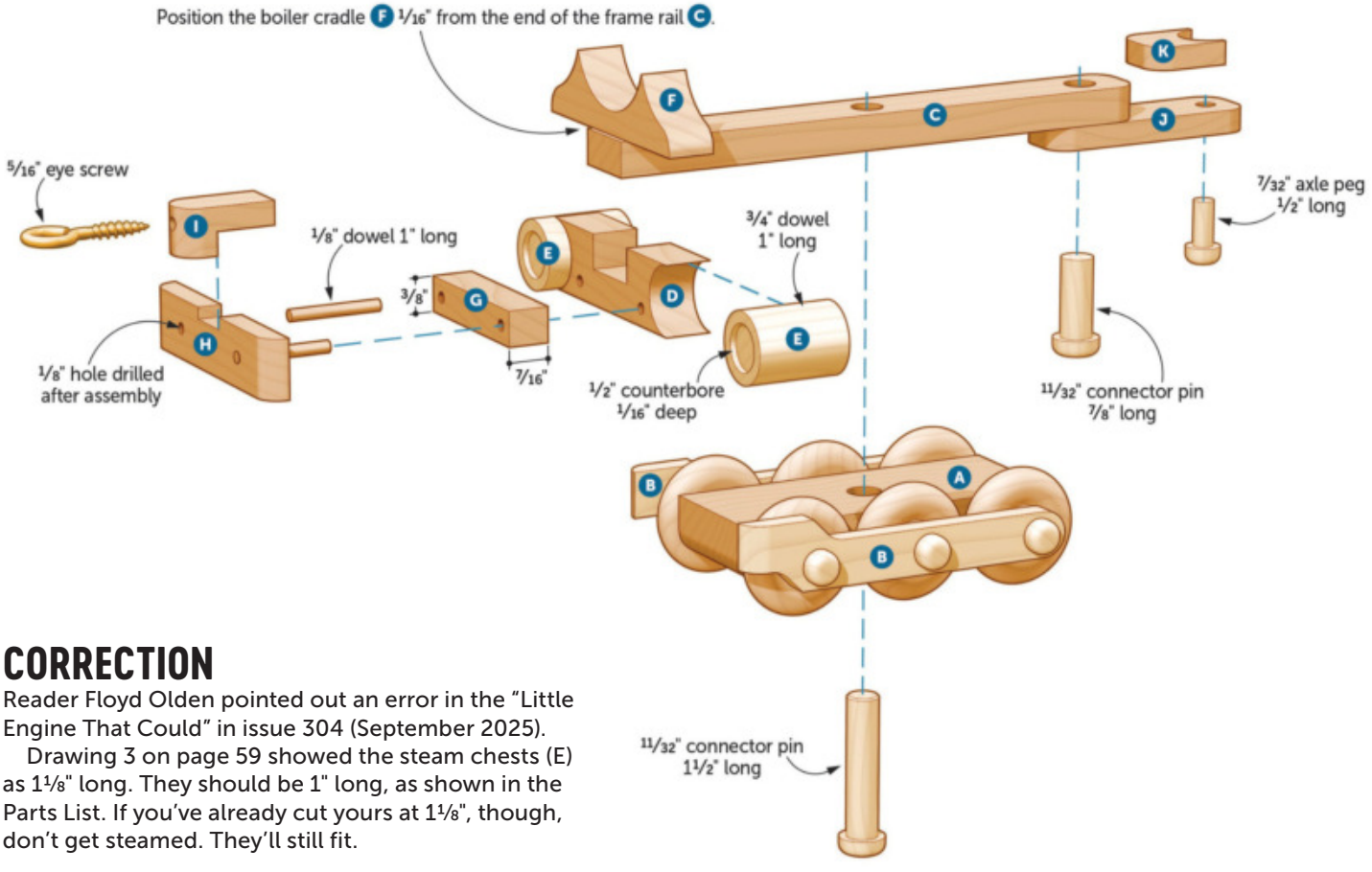
SAFER BUNNIES

I have safety concerns with the project *Happy Hoppy Hares* in issue 304 (September 2025). I recommend softening the corners of the bunny ears to eliminate the sharp points. And make sure the ends of the dowels on the bunnies are rounded over, as noted in the article.

Alan Crowe
via email

There are a couple of toddler hazards with the design. First, little hands might be pinched in the cams, especially if two children play with the toy at the same time. Second, the marble-sized balls attached to dowels look like suckers, so make sure the balls and dowels are secured with glue.

Dave Hofeldt
Oakdale, Minnesota



CORRECTION

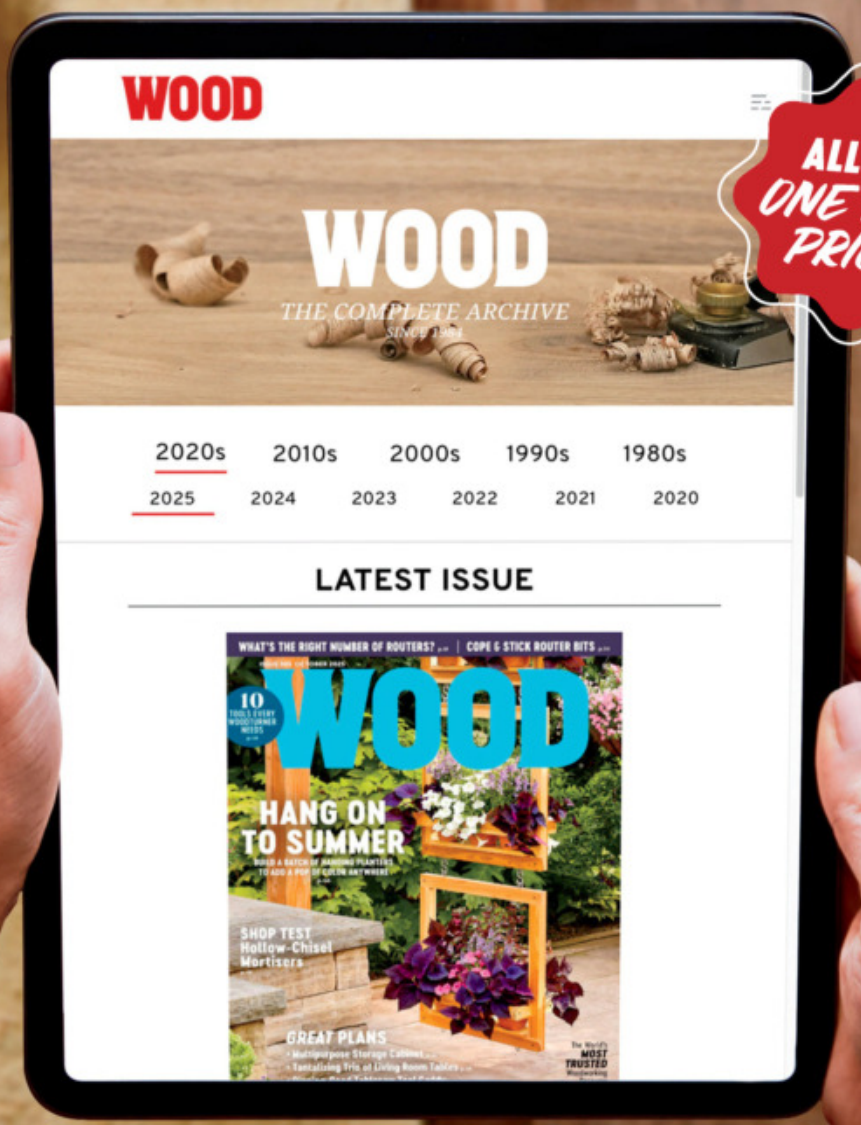
Reader Floyd Olden pointed out an error in the "Little Engine That Could" in issue 304 (September 2025).

Drawing 3 on page 59 showed the steam chests (E) as 1⅛" long. They should be 1" long, as shown in the Parts List. If you've already cut yours at 1⅛", though, don't get steamed. They'll still fit.

continued on page 12

WOOD® ALL ACCESS

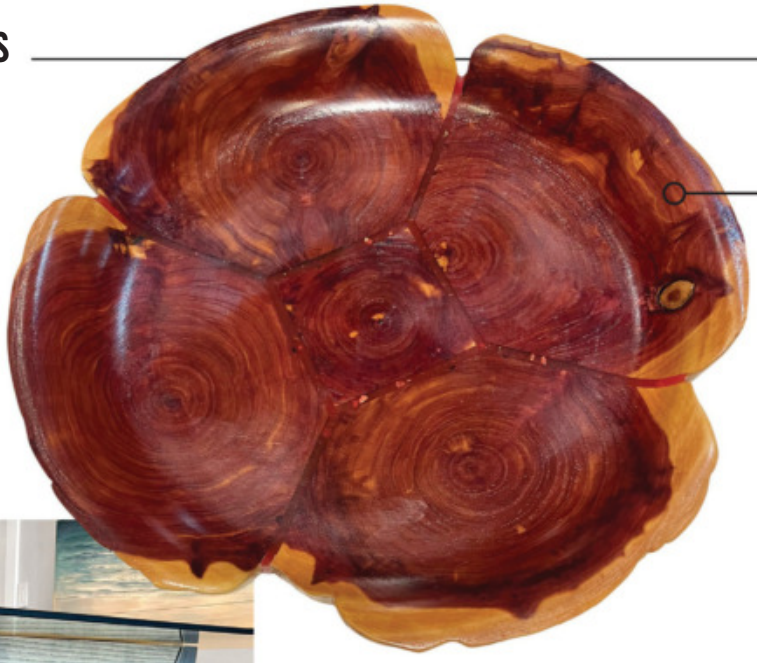
GET **1** ADDED YEAR OF PRINT ISSUES / **300+** ONLINE ISSUES / **40** YEARS OF EXPERTISE



ALL AT ONE LOW PRICE

Upgrade your subscription at

woodmagazine.com/allaccess

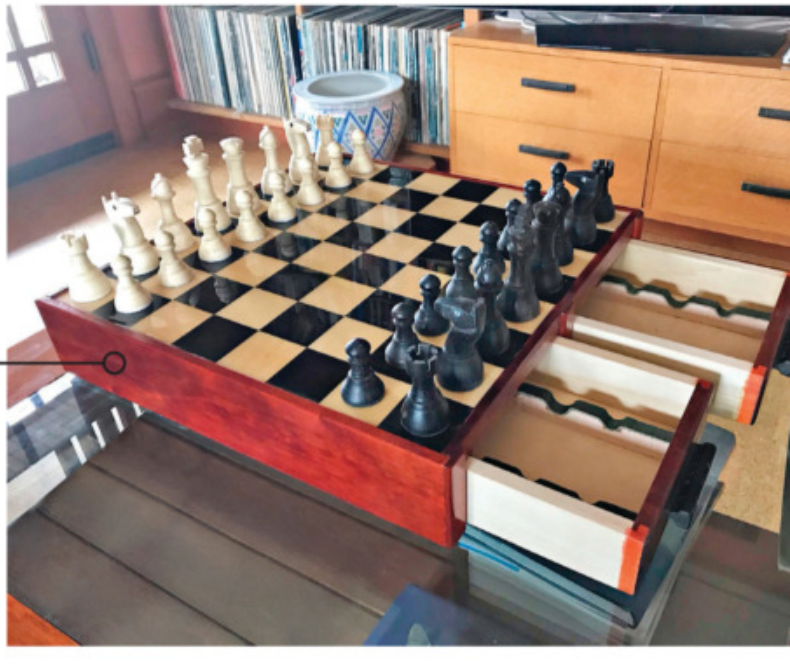


Needing to turn a large, natural-edge cedar bowl, **JAMES BOLERJACK** of Oklahoma City, Oklahoma, had to get creative. Lacking a blank large enough, he joined together four quarter sections and a center core from the tree. He used red epoxy mixed with gold flakes to fill the spaces.

With his wife's idea for an easy-to-clean, counter-height kitchen table, **BRYAN MORAN** of Dublin, Ohio, built this version with a tempered glass top. He made the base from ash and finished it with a weathered gray stain topped with five coats of wipe-on polyurethane, and then polished it with paste wax.

LORI STREIT of Plainfield, Illinois, made these gavels as gifts. She turned the judge's gavel and sound block from purpleheart. Her brother, Steve Streit, created the design for the engraving that Lori cut with her CNC machine. The palm gavel, made for a local mayor, features African blackwood with an inset of chrysocolla formed into a cabochon—a gemstone shaped from polishing—by her husband.

JACK GLOVER of Addison, Maine, made this chessboard using ebony and holly: veneers for the board and solid stock for the chess pieces. Leather-covered rails keep the pieces organized while stored.



SEND US A PHOTO OF YOUR WORK

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

continued on page 14

Meet the Beauty in the Beast

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

For almost a hundred years it lay dormant. Silently building strength. At 10,000 feet high, it was truly a sleeping giant. Until May 18, 1980, when the beast awoke with violent force and revealed its greatest secret. Mount St. Helens erupted, sending up a 80,000-foot column of ash and smoke. From that chaos, something beautiful emerged… our spectacular *Helenite Necklace*.

EXCLUSIVE FREE Helenite Earrings -a $99 value- with purchase of Helenite Necklace

Helenite is produced from the heated volcanic rock of Mount St. Helens and the brilliant green creation has captured the eye of jewelry designers worldwide. Today you can wear this massive 6½-carat stunner for *only $99!*

Make your emeralds jealous. Our *Helenite Necklace* puts the green stone center stage, with a faceted pear-cut set in .925 sterling silver finished in luxurious gold. The explosive origins of the stone are echoed in the flashes of light that radiate as the piece swings gracefully from its 18" luxurious gold-finished sterling silver chain. Today the volcano sits quiet, but this unique piece of American natural history continues to erupt with gorgeous green fire.

Your satisfaction is guaranteed. Bring home the *Helenite Necklace* and see for yourself. If you are not completely blown away by the rare beauty of this exceptional stone, simply return the necklace within 30 days for a full refund of your purchase price.

JEWELRY SPECS:
- 6 ½ ctw Helenite in gold-finished sterling silver setting
- 18" gold-finished sterling silver chain

Limited to the first 600 orders from this ad only

Helenite Necklace (6 ½ ctw)..... Only $99 +S&P
Helenite Stud Earrings (1 ctw) ..... $99 +S&P
Helenite Set ~~$198~~ ..... Call-in price only **$99** +S&P
(Set includes necklace and earrings)

Call now to take advantage of this extremely limited offer.

1-800-333-2045

Promotional Code HNN193-05
Please mention this code when you call.

ACCREDITED BUSINESS BBB
Rating of A+

Stauer® 14091 Southcross Drive W., Dept. HNN193-05, Burnsville, Minnesota 55337 **www.stauer.com**

Necklace enlarged to show luxurious color.

"My wife received more compliments on this stone on the first day she wore it than any other piece of jewelry I've ever given her."

- J. from Orlando, FL
Stauer Client

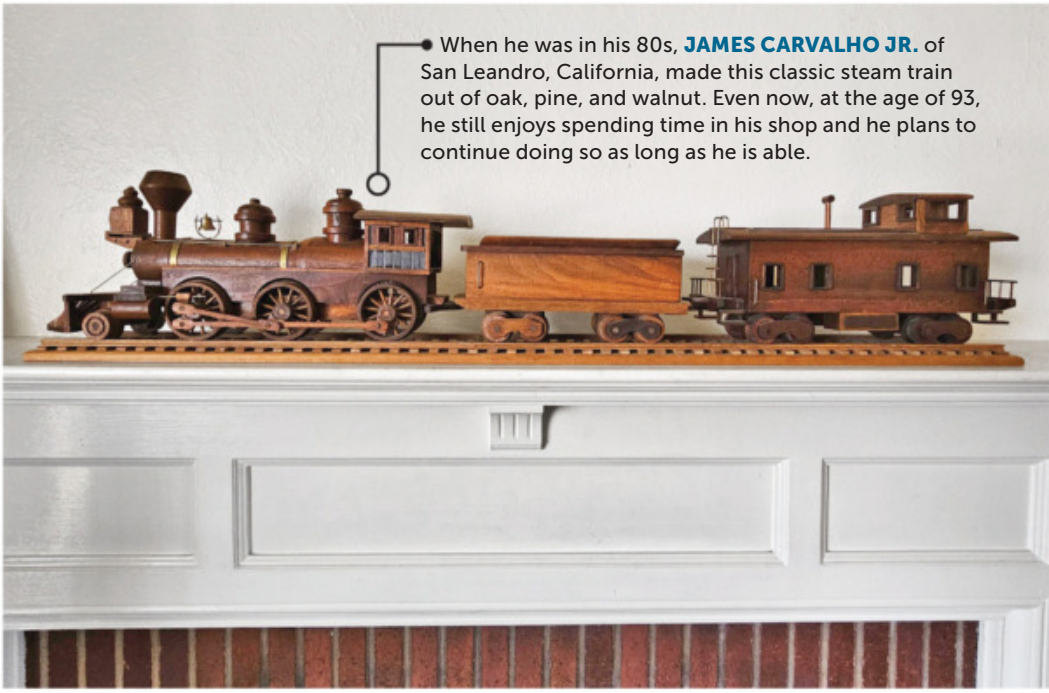
Stauer… *Afford the Extraordinary.*®

YOUR PROJECTS

Holly Stuart's dad, **STEVE NANCE** of Lebanon, Indiana, built this wall hanging based on a photo provided for inspiration. Steve made it from seven species of wood: purpleheart, cedar, white oak, poplar, maple, cocobolo, and birch. Holly says even though her dad is a hobbyist woodworker, he made this piece look like a professional work of art.

Using his own design, **TRACY HOOK** of Urbandale, Iowa, built this keepsake box out of scrap hardwood. He enjoys building unique items that stand out on their own.

When he was in his 80s, **JAMES CARVALHO JR.** of San Leandro, California, made this classic steam train out of oak, pine, and walnut. Even now, at the age of 93, he still enjoys spending time in his shop and he plans to continue doing so as long as he is able.



RECLAIMED SUCCESS

A kitchen remodel supplied the meat to the bones of this post-and-beam workshop building. Cooking up creative projects is the specialty on the menu.

WRITER: RANDY MAXEY

This post-and-beam building originally served as a game room with a pool table and foosball table. Jim's hard work turned it into a fully functional shop and focal point on the property.

The open architecture of the building provides plenty of options for layout and space to maneuver. The glass walls invite the outdoors in, making the space feel expansive.

To convert his southern California game room into a workshop, Jim Bogenreif started by filling it with reclaimed cabinets and fixtures. But that doesn't mean this shop is cobbled together. Jim created a beautiful, inviting space looking out over his property and home where he can share his woodworking passion.

The building's post-and-beam construction created an open floor plan that served as a blank slate for a shop conversion. And speaking of slate, Jim replaced original, uneven slate flooring with Brazilian teak to match the flooring in the house. Redoing the floors gave him the opportunity to route dust-collection ductwork under the floor to service the tablesaw and worksurfaces. His dust collector resides in an exterior lean-to shed attached to the main building.

Wanting an open view, especially facing the house, Jim installed large windows and doors along three walls so he could see the tools and shop from inside the house. All that glass also contributes to the spacious feel while adding plenty of natural lighting throughout the shop.

He took an unusual path when outfitting the shop with worksurfaces and storage. Not many woodworkers have the luxury of remodeling a kitchen, then utilizing most of the old cabinets and granite countertops in their workshop. The cabinets, along with a 10'-long entertainment center from another room in the house, were too nice to discard.

Jim based the layout of his shop on the type, size, and shape of the cabinets. Once the cabinets were installed, Jim set about modifying them by building customized options for storing his tools

PHOTOGRAPHER: JIM BOGENREIF; **ILLUSTRATOR:** ROXANNE LEMOINE

SHOW US YOUR SHOP

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

Recycled kitchen cabinets and granite countertops over teak flooring add classy storage to create an inviting and comfortable shop atmosphere.

Sliding plywood panels on heavy-duty drawer slides make hand tools easily accessible.

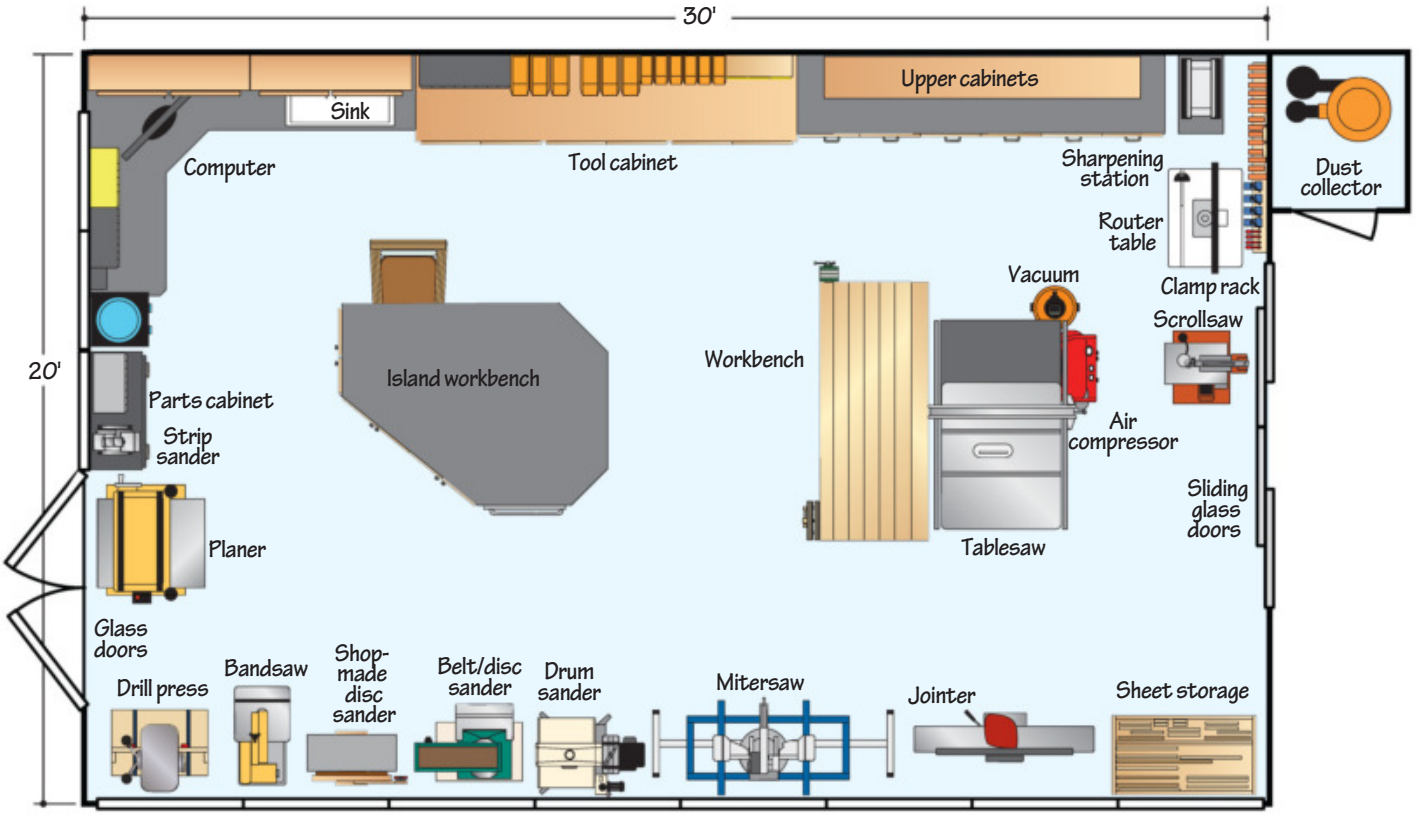
A narrow, pantry-style pullout in the original cabinet keeps finishes handy and neatly organized.

and supplies. He even uses the old warming drawer for storage.

The cabinet for the main workbench was the island in the old kitchen. Its configuration remains largely unmodified. Many parts had to be rebuilt, however, because it was partially destroyed during the remodel and sat out in the weather for a year.

> **ALL MISTAKES CAN BE FIXED, TO SOME EXTENT, AND THE LEARNING THAT COMES FROM MAKING THEM CANNOT BE LEARNED ANYWHERE ELSE.**
>
> ***-JIM BOGENREIF, SHOP OWNER***

Banks of wooden drawers behind flipper doors provide plenty of cubic footage for keeping tools and accessories at hand.



After modifying the remaining cabinets to fit the space, Jim relied on YouTube to learn how to recut and polish the granite tops to fit the new layout. He appreciates the granite's flat and easy-to-clean surface, especially for project assembly.

To power the shop, Jim says they upgraded the house main panel to 400 amps (from 200) to provide enough power to run to the shop. The electrician then installed a 100-amp subpanel in the shop with 18 circuits. A simple pre-plumbed mini-split unit in the back wall heats and cools the shop.

Jim's main focus has been the creation of his shop space, gradually making improvements as he works on other projects. When asked if there is any advice he could give to someone just getting started in woodworking, Jim replied, "Just get started and enjoy the journey!"

Asked about his woodworking journey, Jim shared his story:

When I was in seventh grade, I was blessed to have a retired postman live around the block from me. We called him "Mr. T." I hung out with him every hour I could. He taught me about life and all things mechanical. We spent five years together in his shop and he taught me so much.

As a junior in college, I had an opportunity to teach at a woodshop for blind and deaf children at the Foundation for the Junior Blind. I taught there for ten years, which gave me the opportunity to hone some woodworking skills.

My passion is furnituremaking but I mostly do projects for friends. I open my shop to some older friends that want to learn and work on projects together. I have a Cub Scout pack that comes to complete small one-day projects in the shop.

Jim Bogenreif and his wife started an advertising agency 40 years ago. He is mostly retired now and opens up his shop to teach young and old alike the joys of woodworking.

Sacred Stone of the Southwest is on the Brink of Extinction

Centuries ago, Persians, Tibetans and Mayans considered turquoise a gemstone of the heavens, believing the striking blue stones were sacred pieces of sky. Today, the rarest and most valuable turquoise is found in the American Southwest— but the future of the blue beauty is unclear.

On a recent trip to Tucson, we spoke with fourth generation turquoise traders who explained that less than five percent of turquoise mined worldwide can be set into jewelry and only about twenty mines in the Southwest supply gem-quality turquoise. Once a thriving industry, many Southwest mines have run dry and are now closed.

We found a limited supply of turquoise from Arizona and purchased it for our ***Sedona Turquoise Collection***. Inspired by the work of those ancient craftsmen and designed to showcase the exceptional blue stone, each stabilized vibrant cabochon features a unique, one-of-a-kind matrix surrounded in Bali metalwork. You could drop over $1,200 on a turquoise pendant, or you could secure 26 carats of genuine Arizona turquoise for **just $99**.

Your satisfaction is 100% guaranteed. If you aren't completely happy with your purchase, send it back within 30 days for a complete refund of the item price.

The supply of Arizona turquoise is limited, don't miss your chance to own the Southwest's brilliant blue treasure. Call today!

Jewelry Specifications:

• Arizona turquoise • Silver-finished settings

Sedona Turquoise Collection

A. Pendant (26 cts)	~~$299~~*	$99 +s&p ***Save $200***
B. 18" Bali Naga woven sterling silver chain		$149 +s&p
C. 1½" Earrings (10 ctw)	~~$299~~*	$99 +s&p ***Save $200***
Complete Set**	~~$747~~*	**$249** +s&p ***Save $498***

***Complete set includes pendant, chain and earrings.*

Call now and mention the offer code to receive your collection.

1-800-333-2045

Offer Code STC995-09

You must use the offer code to get our special price.

Special price only for customers using the offer code versus the price on Stauer.com without your offer code.

ACCREDITED BUSINESS BBB Rating of A+

Stauer® 14091 Southcross Drive W., Dept. STC995-09
Burnsville, Minnesota 55337 **www.stauer.com**

Q: BISCUITS: WHEN AND WHY?

I'm contemplating getting a biscuit joiner after seeing you use them in some of your projects. How do you determine when and where to use them? Is there a simple substitute for folks like me who don't own a biscuit joiner?

Mitch Goldstein
Pocatello, Idaho

Note: **Biscuit joiners have been around since the late 1960s, but became popular in the 1990s with the availability of lower-priced versions geared toward the DIY market.**

A: Biscuit joinery isn't quite as popular as it once was, but we still find it useful. A biscuit joiner's fence registers on mating surfaces and lines up with your marks to precisely position and cut slots for football-shaped wafers of compressed wood, called biscuits. This easy-to-pinpoint placement makes biscuit joints a speedy, no-measure aid for alignment during glue-ups, ensuring surfaces are flush and casework parts remain square under clamping pressure.

Additionally, biscuits add glue surface area, which helps prevent joints from pulling apart–such as in mitered frames or the butt-jointed, end-grain-to-long-grain joints of rails and stiles, where they reinforce poor gluing surfaces. But unlike a mortise-and-tenon joint, biscuits offer little lateral strength, so you shouldn't rely upon them for heavy-duty joinery.

Biscuits are one of our go-tos for speedy case construction. We often use them for joining plywood, particleboard, or melamine panels in furniture casework, especially when those cases will be reinforced with a face frame, rigid back, or other structure. This can simplify the case design, allowing you to cut internal members to the case's measurements rather than needing to account for additional length required by dado construction.

And speaking of face frames, we find it convenient to use biscuits when attaching an assembled face frame to a cabinet. Biscuits keep the face frame aligned with the edges of the cabinet while applying the clamps.

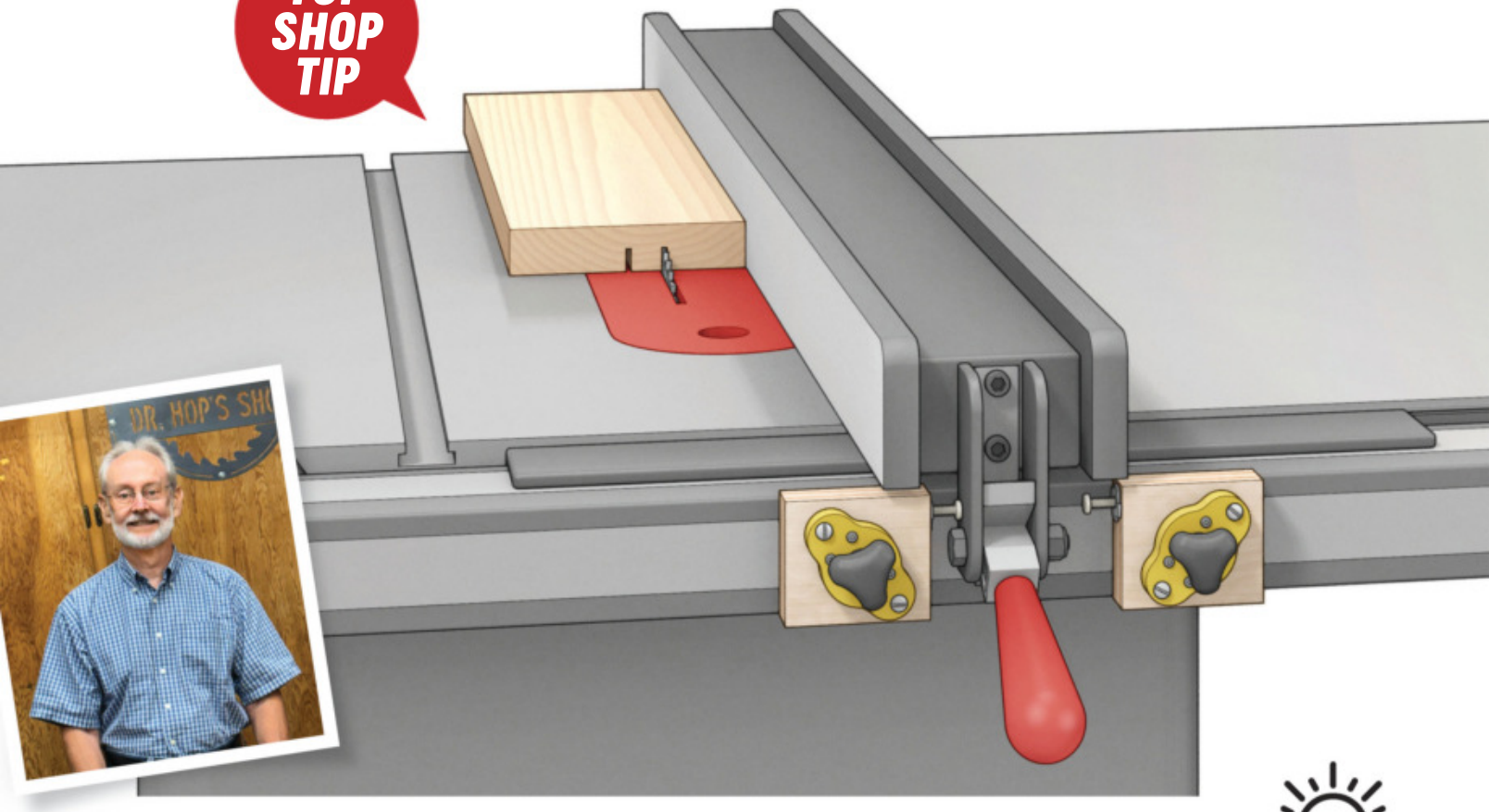
Although they can be helpful for alignment with large-scale glue-ups, we rarely use biscuits when edge-gluing boards to make a panel. In this instance, biscuits don't really add any strength to the joints. Long-grain-to-long-grain glue joints offer plenty of glue surface on their own, resulting in a joint stronger than the wood, even without the biscuits.

While not as fast or convenient as biscuits, other joinery options can serve similar purposes. Dadoes align members of a case assembly, while splines or dowels help with alignment for frame members. More recent innovations, such as pocket screws and Festool's Domino joiner, create stronger joinery than biscuits. But a biscuit joiner costs substantially less than a Domino, which is one reason they maintain a presence in the market.

Discover more ways to use your biscuit joiner.
woodmagazine.com/biscuit-joiner-uses

Have a question? Drop us an e-mail.
askwood@woodmagazine.com

TOP SHOP TIP



MAGIC STOPBLOCKS

These microadjustable stopblocks that I made for my tablesaw rip fence really simplify setups. First, I mounted a pair of Magswitch MagJig 60 switchable magnets (magswitch.com) in small scrapwood blocks. Then I drilled a hole in one edge of each block and installed a ¼"-20 threaded insert to house a ¼"-20 nylon screw. I used a permanent marker to make a dot on the side of each screwhead. This serves as a reference when making adjustments. One complete turn equals 0.05".

With proper spacing, I can make quick dadoes without installing a dado stack. Each stopblock locates the fence to cut each shoulder of the dado.

The stops are also helpful for locking in repeat cuts. If I need to move the fence for another cut (larger or smaller), I can leave one of them in place to return to the original cut dimension.

I've found these microadjustable stopblocks very helpful when sneaking up on a cut. They've proved so handy, I've used them on other machines as well.

Steve Hopkins
Boone, North Carolina

For his tip, Steve wins an 18V ONE+ tool kit from Ryobi worth over $500.

TIPS EARN UP TO $150.

If your tip is the best submission of the issue, it wins Top Shop Tip honors, and you receive a

PRIZE PACKAGE WORTH AT LEAST $300 PLUS A *WOOD* MAGAZINE ARCHIVE

A $150 value!

woodstore.net/archive

Send your tip, photos or drawings, and contact info to **shoptips@woodmagazine.com**

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

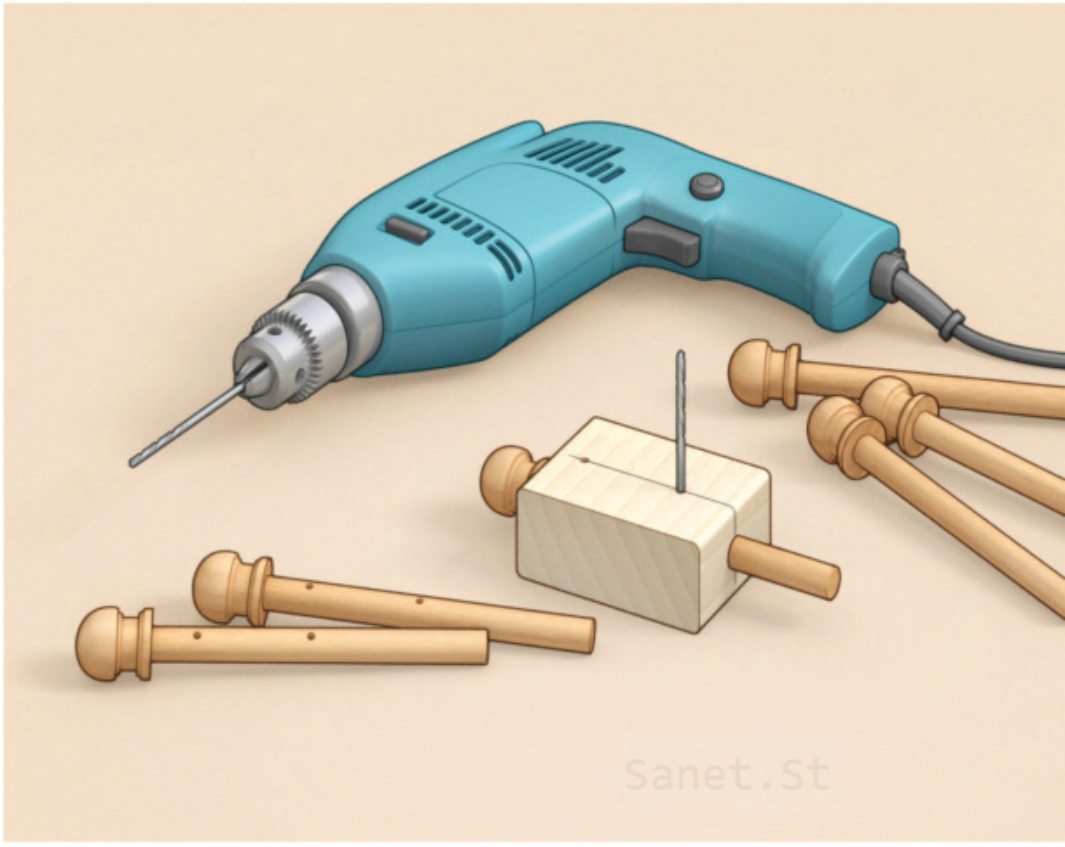
ILLUSTRATOR: CHRISTOPHER MILLS

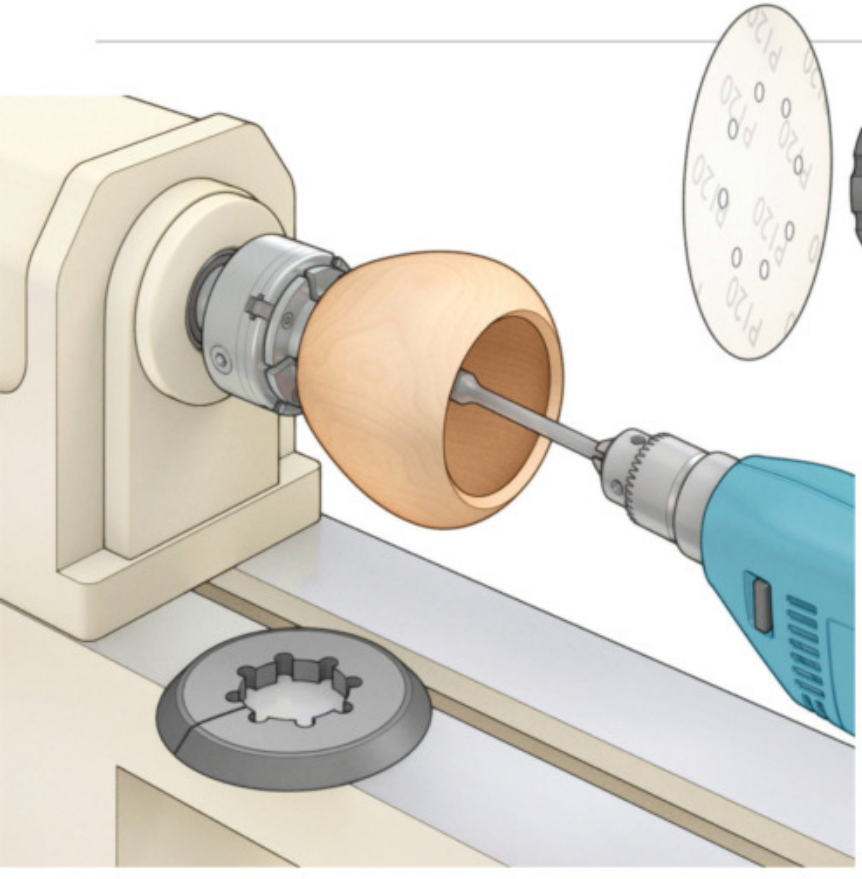
DRILL DA' DOWELS

I needed to drill multiple pins while making guard rail posts for my elevated train setup. A simple drilling jig lets me drill them with consistent spacing on every pin. First, on a small piece of 2×4, I drew a line square across one face and extended it down the edge to define the centerlines for the holes. Then I drilled a through-hole matching the pin's diameter. I also drilled holes along the centerline matching the size, location, and spacing of the desired holes in the pins.

To use the jig, I insert the pin until it bottoms out in the jig. I drill the first hole and insert a drill bit into it to prevent the pin from moving as I drill the second hole. This type of jig works great any time you need to drill repetitive holes in multiple dowels.

Tom Little
Lacey, Washington





SMOOTH TURNING

I like to turn mugs, cups, and bowls on my lathe. Some are 5" to 7" deep, making the inside difficult to sand. I solved the problem using an old hook-and-loop pad from an orbital sander.

I cut a 2" disc out of the center of the sanding pad, cutting through the holes to help the sanding disc form around it. To create a mandrel for the disc, I installed a ¼" bolt through the center of a short hardwood dowel sized to fit the recess on the back of the pad. The threads of the screw extend about 1" to make it easy to insert into a 6" drill bit extension. I fastened the pad to the dowel with cyanoacrylate glue.

With a 120-grit sanding disc attached, I chuck the assembly into my portable drill. While the lathe runs at a low speed with the workpiece still in the chuck, I am able to sand the inside with the drill powered on.

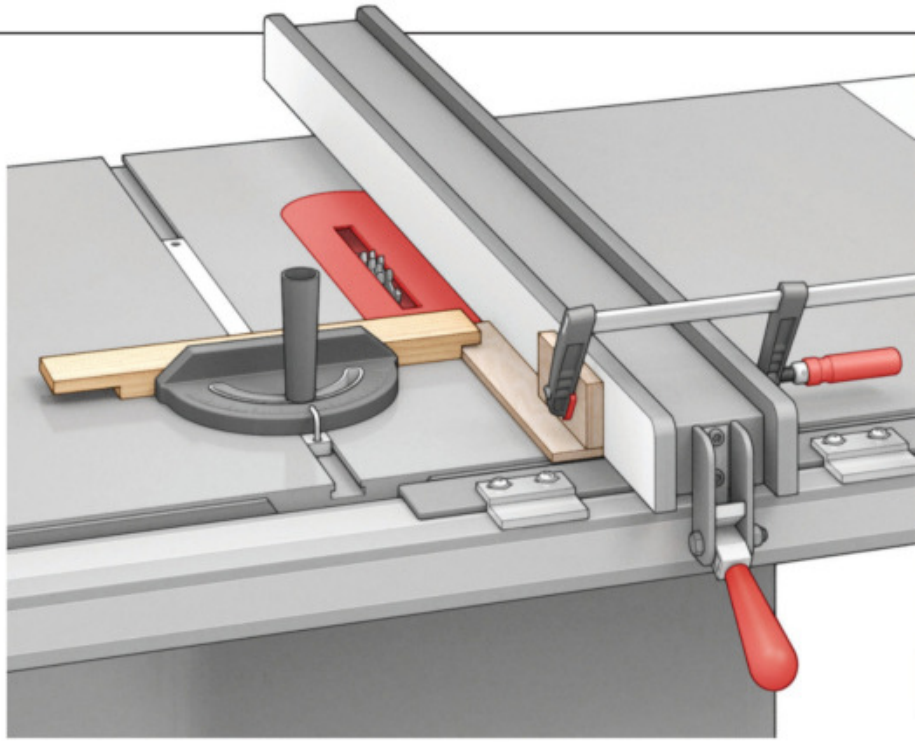
Chuck Friedman
Cedar Rapids, Iowa

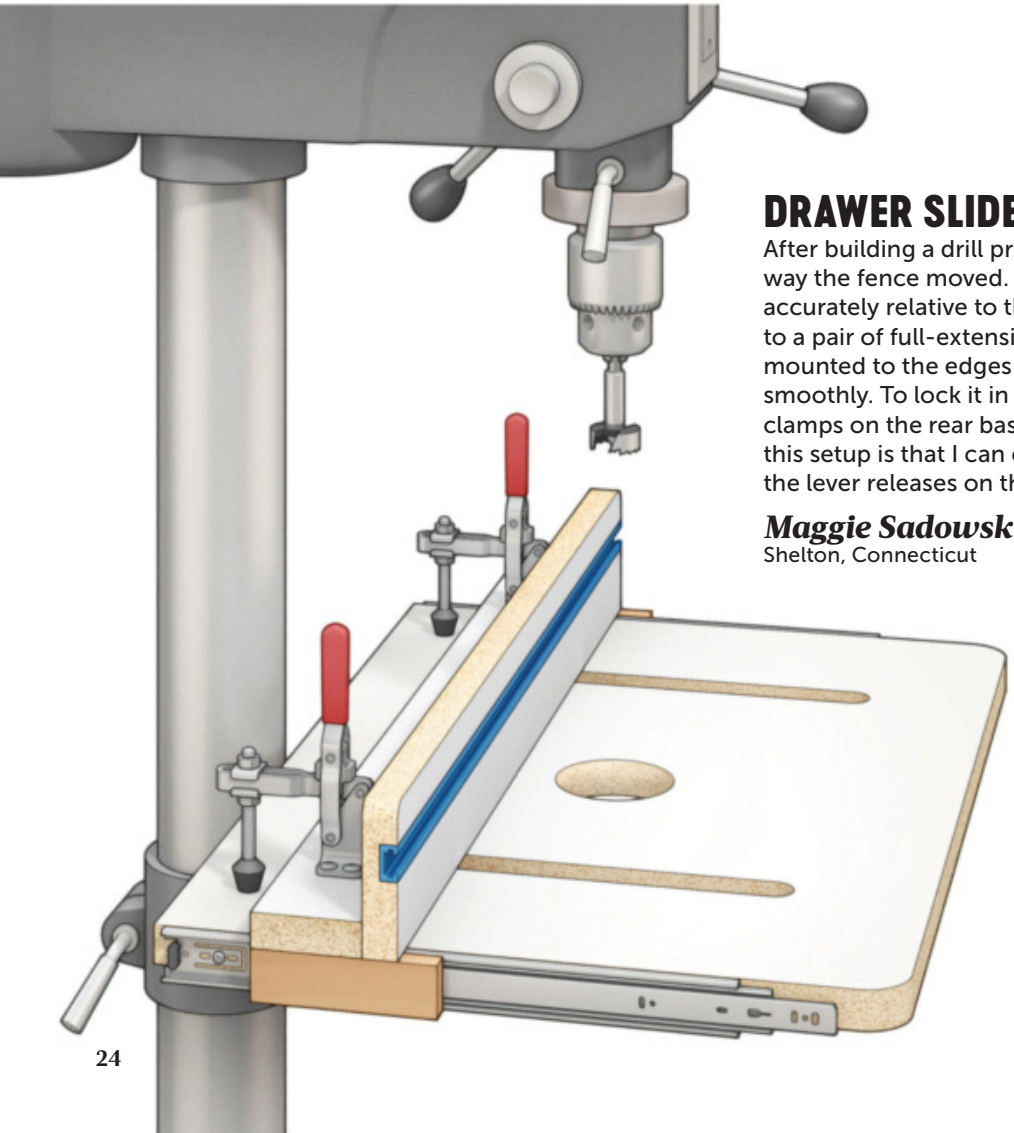
HALF-LAP HELP

Here's an efficient way to consistently cut multiple half-lap joints at the tablesaw without having to line up each cut. I use a dado stack and set the fence distance from the outside of the dado blade to match the width of the workpieces. I then run a piece of wood through the saw to make a spacer that matches the distance from the fence to the inside of the blade. (The thickness of this spacer needs to be less than half the thickness of the workpiece.) I fasten a cleat to the spacer to make it easy to clamp the spacer against the fence.

As I make multiple passes to form the half-lap, I use the spacer to locate the shoulder of the previous cut by sliding the workpiece against it. It saves leaning over the saw to line up the next pass. The tablesaw fence acts as the stop for the final pass, sizing the half-lap perfectly.

Gary Dean
Prince George, British Columbia

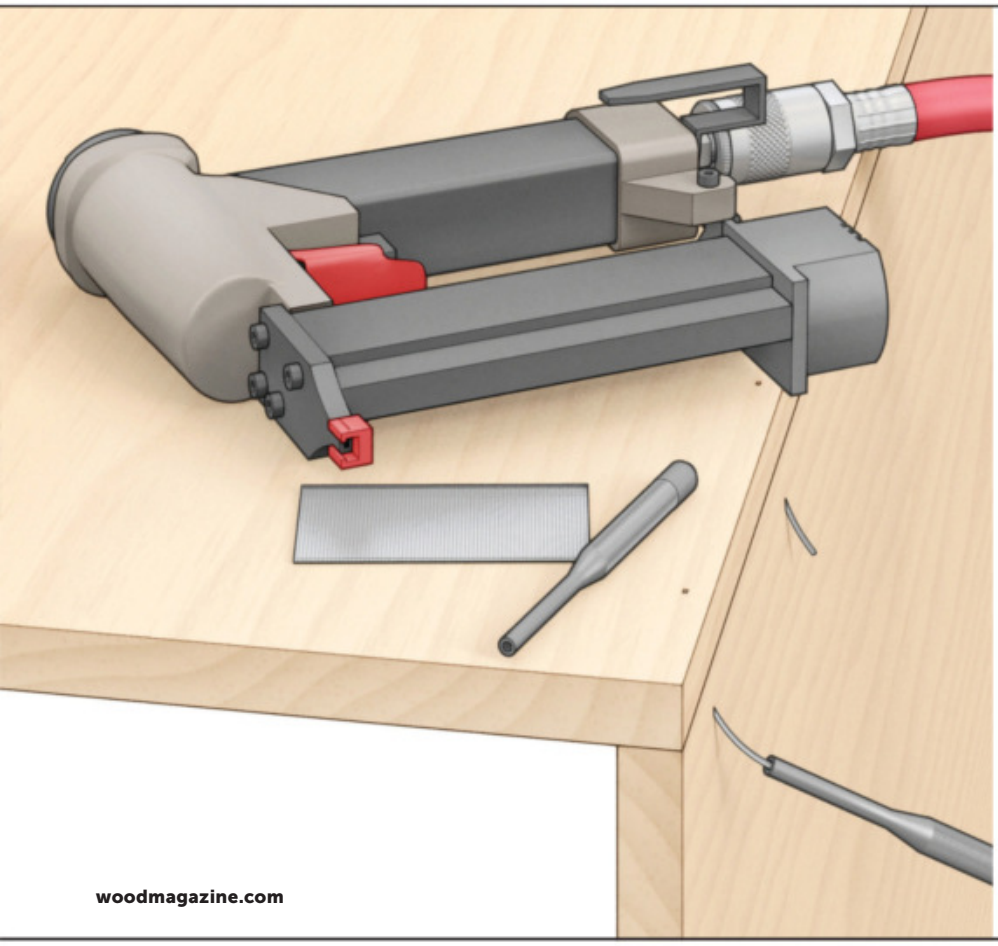




DRAWER SLIDE DRILL FENCE

After building a drill press table, I wasn't happy with the way the fence moved. I found it difficult to position it accurately relative to the drill bit. So I mounted the fence to a pair of full-extension, ball-bearing slides that are mounted to the edges of the table. Now the fence moves smoothly. To lock it in place, I installed two vertical toggle clamps on the rear base of the fence. Another benefit to this setup is that I can easily remove the fence by pressing the lever releases on the drawer slides.

Maggie Sadowski
Shelton, Connecticut



BUSTING OUT

As a new owner of a brad nail gun, I've found I often have to remove nails that miss or curl out of the workpiece. To remove them, I like to drive the nail back out from the sharp end. I've found that a roll-pin punch works great. It's a lot like a nail punch but has a recess at the tip that captures the nail. You can find them online and even in home centers. To use them for removing nails, simply tap the nail until the head is exposed enough to grab with pliers.

Sam Slaughter
Madison, Alabama

CANDLESTAND

Lift up a light to elevate the mood of any room with these handsome table toppers. They're easy to build and won't burn through much wood.

WRITER: CRAIG RUEGSEGGER
DESIGNER/BUILDER: KEVIN BOYLE

OVERALL DIMENSIONS
5"W × 5"D × 9¾"H

The simple construction of this light, airy stand makes it easy to create one (or several) in a weekend as an elegant home accent or a great gift. Joinery consists of just one dado, one groove, and a few dowels. We made ours out of mahogany we dug out of the scrap bin, but most any wood will look great.

STAND AND DELIVER

1 From 1/2" stock, cut the base (A) to size **[Parts List]**. Cut an extra piece from scrap to test your tablesaw setup.

2 Install a 1/4" dado blade in your tablesaw and set its height to 1/4" above the table. Cut a centered groove and dado in the base (A) **[Photo A, Exploded View]**.

3 Reinstall a rip or combination blade in the tablesaw and tilt the blade 6 1/2°. Clamp the base (A) to a rip-fence saddle jig and bevel-cut the base ends and edges **[Photo B]**. Finish-sand the base and set it aside.

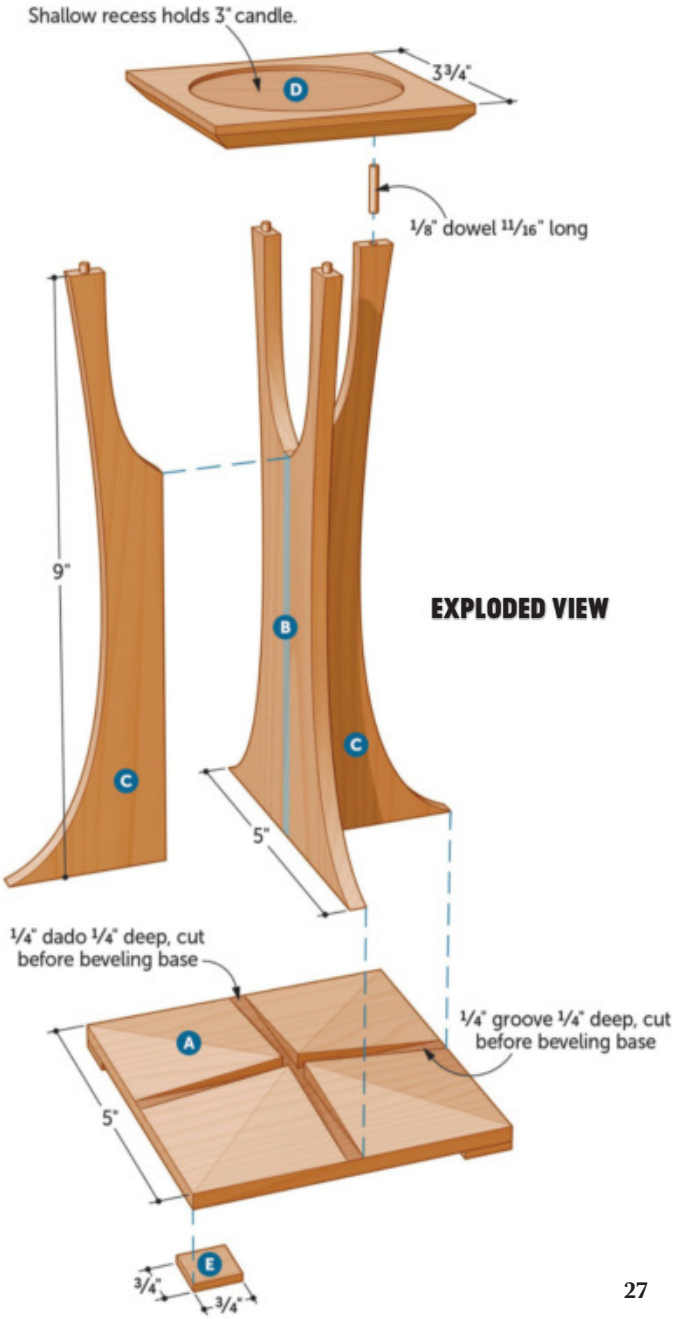
4 For the center stand (B) and side stands (C), plane stock to match the thickness of the dado in the base. Cut the stands to finished length and 1/4" wider than listed **[Parts List]**.

5 Enlarge the center and side stand patterns **[Drawing 2]**. Cut out the enlarged patterns and spray-adhere them to their respective blanks, flush at the bottom and top.

Get a free plan for a saddle jig.
woodmagazine.com/saddlejig

Make test cuts in a scrap the same size as the base to ensure the blade is centered on the workpiece. Then cut a groove and intersecting dado in the base (A).

Position the rip fence so the inside face of the blade just intersects the bottom of the dado along the outside edge of the base (A). Rotate the base 90° between passes to cut the four bevels.

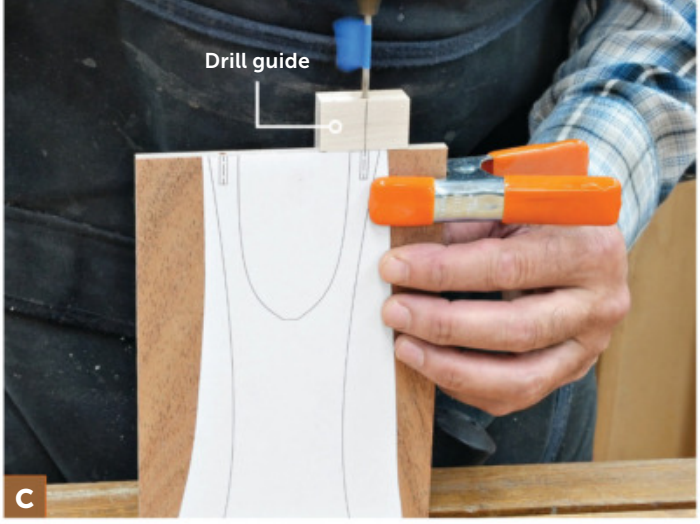


PHOTOGRAPHER: JACOB FOX; ILLUSTRATOR: CHRISTOPHER MILLS

Learn how to enlarge gridded patterns accurately.
woodmagazine.com/griddedpattern

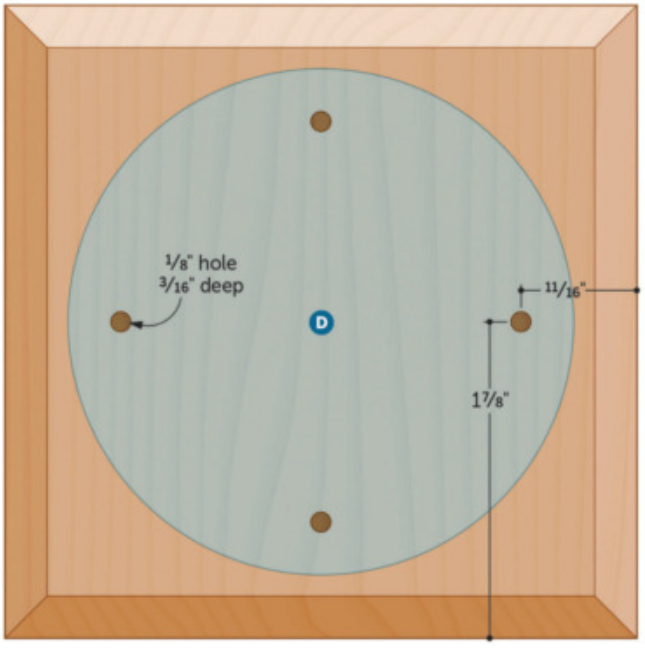
6 Make a drill guide to drill the dowel holes in the stands. To do this, cut a 1×3" piece of 1/4" plywood for a fence and a 1/4×3/4×1" piece of hardwood for the guide. Mark centerlines on the edge of the guide through its width and length. Extend the centerline down one face. At the drill press, drill a 1/8" hole through the edge of the guide at the centerlines' intersection. Glue the fence to the face of the guide. Align the guide with the marks on the pattern and drill the holes in the stands (B, C) **[Photo C]**.

7 Bandsaw or scrollsaw the stands to shape and finish-sand them, taking care to not create a loose fit in the base dado and groove.

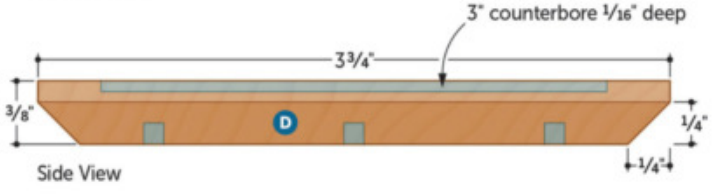


Align the centerline on the guide with the hole centerline on the pattern and clamp the fence to the workpiece. Mark the hole depth with a tape flag 1¼" from the tip of the drill bit, then drill the hole.

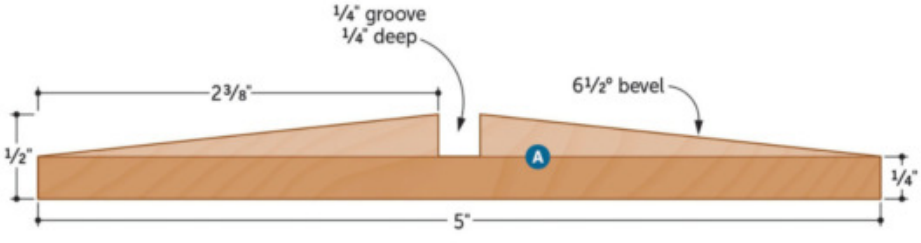
1 TOP & BASE



Bottom View



Side View



TAKE IT TO THE TOP

1 Cut the top (D) to size. Lay out the hole locations on the underside **[Drawing 1]**. Dry-fit the stands (B, C) in the base (A) and double-check the locations of the hole marks.

2 At the drill press, drill the holes in the top (D) 3/16" deep.

3 Refer to **Photo D** to make a circle routing jig by scrollsawing or holesawing a circle in 3/4" plywood. Center the top (D) over the hole in the jig and capture it with 5/16"-thick, 3/8"-wide strips of scrap glued to the jig. Remove the top and let the glue dry.

4 Place the top back in the jig, clamp the assembly to your bench, and rout the recess using a dado clean-out bit **[Photo D]**.

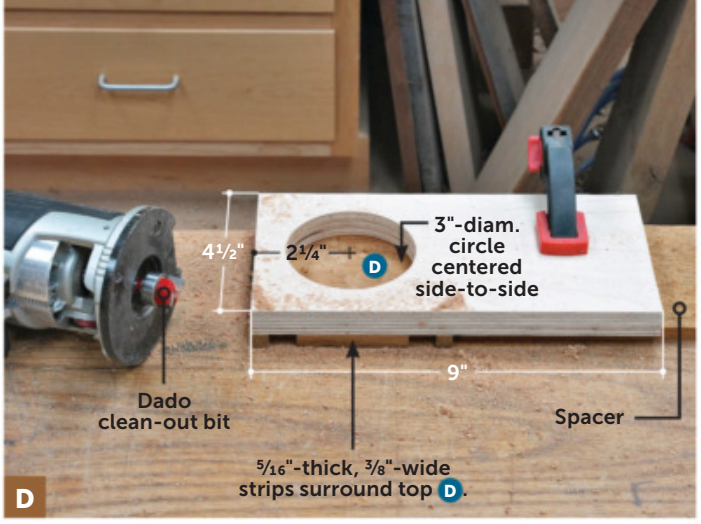
5 Tilt your tablesaw blade to 45° away from the fence and chamfer the bottom face of the top (D) **[Drawing 1]**. Finish-sand the top and set it aside.

Note: **If you want a flat top, rather than one with a recess, skip Steps 3 and 4.**

FIT THE FEET AND FINISH

1 Cut the feet (E) to size. Glue one to each corner of the base (A), flush with the outside edges.

2 Cut four 11/16" lengths of 1/8" dowel. Sand a slight chamfer on the ends, then glue them into the holes in the stands (B, C) **[Exploded View]**.



Place a ⅜"-thick spacer under the jig to steady it, then clamp the assembly to the bench. Set the router bit to rout 1/16" deep into the top (D).

PARTS LIST

PART		FINISHED SIZE T	W	L	Matl.	Qty.
A	BASE	½"	5"	5"	M	1
B*	CENTER STAND	¼"	5"	9"	M	1
C*	SIDE STANDS	¼"	2⅜"	9"	M	2
D	TOP	⅜"	3¾"	3¾"	M	1
E	FEET	⅛"	¾"	¾"	M	4

*Parts initially cut oversize. See the instructions.

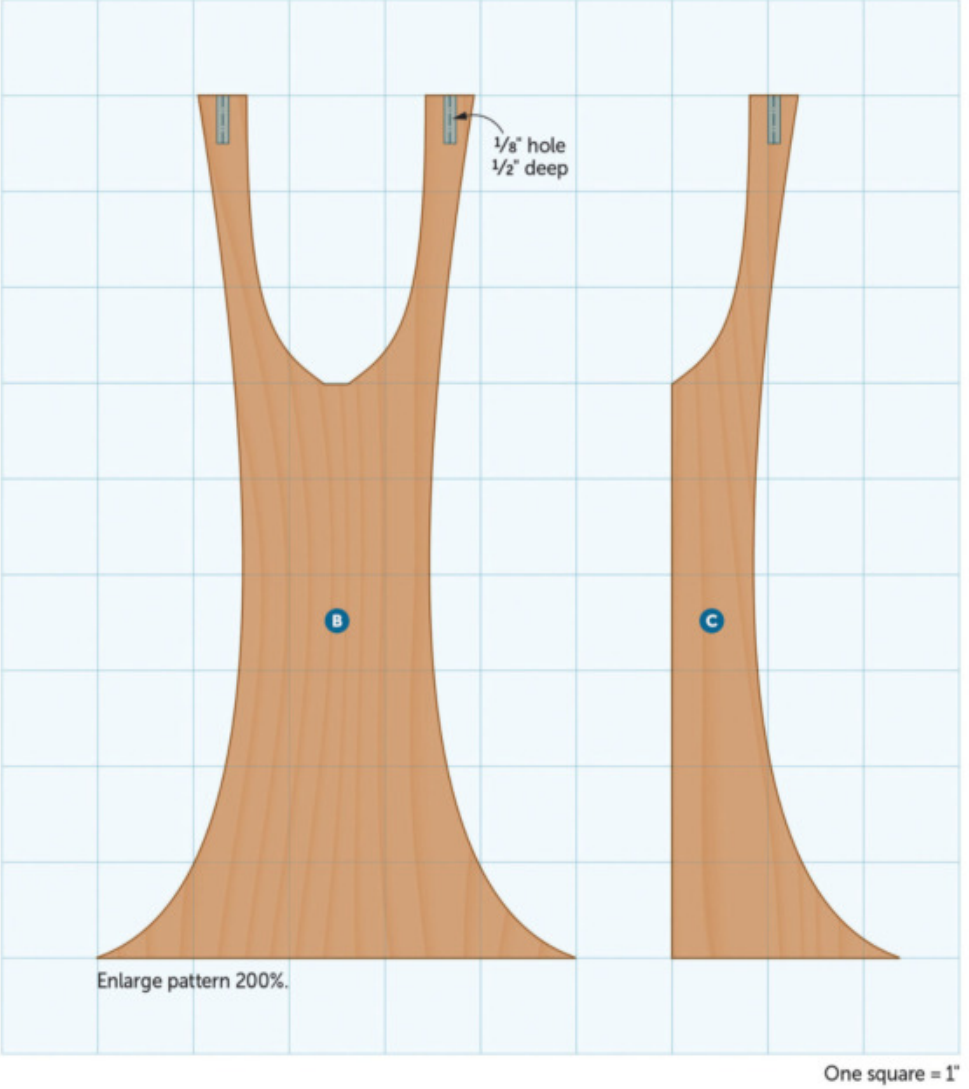
MATERIALS KEY: M–mahogany.
SUPPLIES: ⅛×12" dowel.
BLADE AND BITS: Dado blade, dado clean-out and 45° chamfer router bits, ⅛" brad-point drill bit.
PROJECT COST: It cost us about $5 to build this project using scrapwood. Your cost will vary by region and source.

3 Dry-fit the stands (B, C) to the base and top to check the fit of all pieces. If the dowels don't align with the holes in the top (D), glue a dowel in any misaligned hole and trim it flush. Then redrill the hole in the proper location after the glue dries.

4 Apply glue to the bottoms and long mating edges of the stands (B, C) and glue them into the base and to each other. Put a drop of glue in each hole in the top and press it into place. Scrape away any squeeze-out about 10-15 minutes later.

5 After the glue dries, apply a finish. We sprayed on four coats of aerosol lacquer. After the finish dries, your stands are ready to support a (candle)light load.

2 CENTER & SIDE STAND (HALF-SIZE PATTERN)



• SHOP TESTED •

CORDLESS ROUTERS

Cordless plunge routers are bigger and bolder than ever before. Here's what you need to know before pulling the plug.

WRITER: VINCE ANCONA
TESTER: STEVE FEENEY

PHOTOGRAPHER: JASON DONNELLY

When cordless routers first hit the market, they were marked by underwhelming power and short runtimes. Consequently, the only cordless routers available for a long time were trim routers. But now, four manufacturers—DeWalt, Makita, Metabo HPT, and Milwaukee—offer full-size cordless routers that accept 1/2"- and 1/4"-shank bits and have 2- to 2.25-hp brushless motors and full plunge bases. (The Milwaukee 2838-21 comes with a fixed and a plunge base, *right*, while the others are dedicated plunge routers.)

That combination of capacity, power, and features puts these cordless routers on par, at least theoretically, with corded midsize models that dominate the market today. To find out if theory translates to practice, we ran all four through a battery of real-world tests to evaluate them on their power, performance, and runtime. We also considered features, controls, and ergonomics. You'll find the distilled results in *Plunging Into the Numbers* on *page 37*, but read on for the full story.

The Milwaukee router is sold with a fixed base or as a kit with fixed and plunge bases. Because the other routers in the test are plunge only, we evaluated this router using the plunge base only.

POWER AND VIBRATION

To compare the power of each router, we outfitted each one with a new, 3/4" straight bit and an edge guide. Then we routed a series of progressively deeper grooves (1/8", 1/4", and 1/2") in hardwood, listening and feeling for any strain or vibration from the motor. While admittedly subjective, the test showed noticeable differences in how the routers performed.

The DeWalt router is fitted with two warning lights. One lets you know if your feed rate is too fast. The second one lights up if the router shuts down due to a sudden unexpected movement.

The Makita GPR01Z zipped through all the cuts smoothly without any struggle or noticeable vibration. The DeWalt DCW620B and Metabo M3612DA routers were also able to power through all three cuts, but on the deepest (1/2") cut, we noticed the motors starting to strain. This resulted in a small amount of vibration felt through the handles. The Milwaukee required slowing our feed rate on both the 1/4"- and 1/2"-deep cuts. And the vibration we experienced was enough to rattle the locking knobs on the edge guide loose, ruining the cut.

Vibration and loss of power are both great indicators of router overload, but the DeWalt takes it a step further with an LED that flashes when you're pushing the router too hard (*left*). This warns you to reduce your feed rate before the current overload sensors on the battery shut the router down. We didn't manage to activate the LED in any of our tests, which indicates that we weren't approaching the limit of the router's power.

A second LED on the DeWalt router serves as an anti-rotation warning indicator. The router is equipped with a gyroscope-type device that shuts the motor down in the event of a sudden, unexpected rotational movement, such as kickback. The LED will illuminate when the anti-rotation system is triggered. Restarting the router turns it off.

RUNTIME

Power is important in a router, but so is runtime. To test this, we equipped each router with a fully charged battery, then routed 1/2×1/2" rabbets along the edges of a stack of 2×6 boards until the battery died. We noted the total feet routed with each router, then repeated the test. To level the results, we divided the feet routed by the watt-hour rating of each battery, yielding the feet per watt-hour (see *Watt's Up With Battery Ratings, next page*). The results are shown in the chart on *page 37*.

We found the results surprising. The top performer (Makita) routed nearly twice as many feet as the bottom performers (DeWalt and Metabo). But unless you're doing something like flattening a slab or routing out a bowl, where the router is in constant use for long periods of time, runtime is unlikely to be an issue with any of these routers.

One noteworthy feature: Metabo offers an AC adapter as an optional accessory, giving you corded capability if needed.

NOISE LEVEL

Routers are notoriously loud, and cordless models are no exception. With a bit installed and the router running at full speed, we took several decibel readings of each router at benchtop height and averaged the results. Our impressions matched the readings—the Milwaukee was the quietest at 93 average dB, the Makita the loudest at 114 dB, and the DeWalt and Metabo fell in between. You'll want to wear hearing protection with any of them.

PLUNGE ACTION

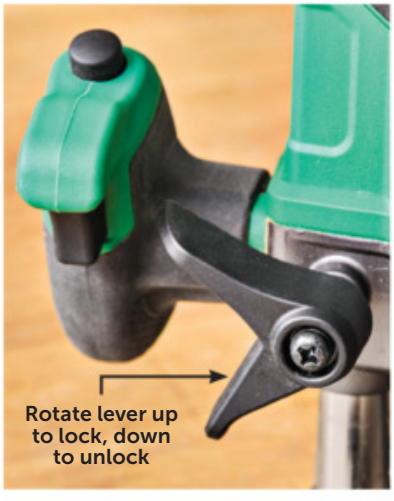
We found the plunge action on all four routers to be smooth, although the springs on the Milwaukee and DeWalt routers felt stiffer than the other two, requiring more force to lower the bit. But the biggest difference between the routers was in the plunge lock mechanism, *below*. Because it's used so frequently, the control that engages and disengages the plunge mechanism deserves close consideration.

The Milwaukee uses a spring-loaded lever that you hold down to release the plunge lock. As soon as you take your thumb off the lever, it springs back and locks. We prefer this style of lock because it's intuitive and requires an intentional effort to plunge.

The Makita works in reverse. It freely slides up and down on its posts until you engage the lever to lock it in position. To release the lever, simply lift up and a spring returns it to the unlocked position. This system is also intuitive to use.

The Metabo uses a simple clamp to lock the plunge. There's no spring-assist with this plunge lever; you manually engage and disengage it. The Metabo is also the only router in the bunch that positions the plunge lock on the right handle, requiring you to manipulate the lever and the power switch with the same hand.

We found the lock on the DeWalt router to be the least intuitive of the group. It uses two controls: a tab that you press to lock the height of the router and a lever that you press to release the tab. The controls are next to each other, making it easy to press the wrong one if you're not familiar with the system.



The spring-loaded lever on the Milwaukee router (*left*) was the easiest to use. A simple clamp on the Metabo (*center*) was less convenient. And two controls on the DeWalt (*right*) proved confusing.

WATT'S UP WITH BATTERY RATINGS?

Manufacturers typically use amp-hours (Ah) as a measure of a battery's capacity—a useful metric if you're comparing batteries of the same voltage. In theory, an 18v, 4.0 Ah battery will run twice as long as an 18v, 2.0 Ah battery.

But when comparing batteries of different voltages (such as in this tool test), watt-hours (Wh) are a better metric to use. While amp-hours indicate how much current can be supplied for a given period, watt-hours represent the total power a battery can store and deliver. Watt-hours take voltage into account, giving you a true apples-to-apples comparison of capacity between batteries of different voltage ratings.

To determine the Wh rating of a battery, multiply the voltage by the amp-hours. Or check the label on the battery. Most batteries have the Wh rating printed or stamped on the label (*above*).

ERGONOMICS

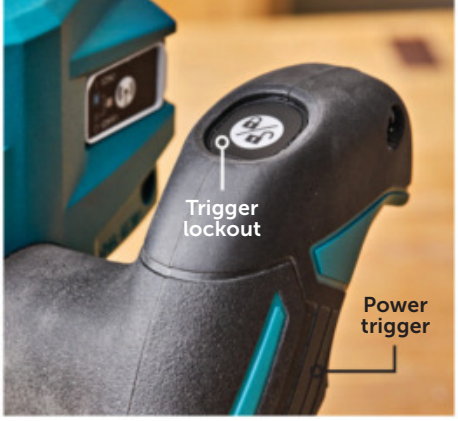
Judging the way a tool feels in the hand can be subjective, but we observed a few details that are worth noting in terms of ergonomics and the positioning of switches and controls.

All of the routers have ergonomically designed handles that are comfortable to grip and offer good control of the tool. The only difference we noted was when using the routers with edges guides. With the Milwaukee router, the orientation of the handles is opposite that of the others, *right*. Additionally, the Milwaukee is the only one of the group that has a round base, *below*.

The Milwaukee router places the handles parallel with the edge guide face, which felt awkward in use. The DeWalt, Makita, and Metabo routers orient the handles 90° to the edge guide.

The Metabo, DeWalt, and Makita routers feature bases with a flat edge, allowing you to rout closer to an obstruction. The Milwaukee has a standard round base, which is better for following a fence or template.

The DeWalt router incorporates the trigger, trigger safety release, and lock-on button into the right handle, making it easy to control the power function of the router.



The Makita incorporates a button in the handle as its safety lockout. Pressing the button unlocks the power trigger until you press it a second time.

The power switch for the Milwaukee router is located high up on the motor housing, which often means taking your hand off the handle to switch the router on and off.

The DeWalt, Makita, and Metabo routers have the power trigger and safety locks within easy reach of each other in the right handle, *above left and center.* And power-on locks allow you to rout continuously without holding the trigger down. Because the Milwaukee router comes with both plunge and fixed bases, a basic on/off sliding switch is located less conveniently on the motor housing, *above right.*

All the routers have top-mounted batteries, making them easy to remove for charging. But it also can make the routers feel top-heavy, particularly with the taller profiles of the Milwaukee and DeWalt models. The compact design of the Makita router felt the most stable in use, *below left*, with the Metabo coming in a close second.

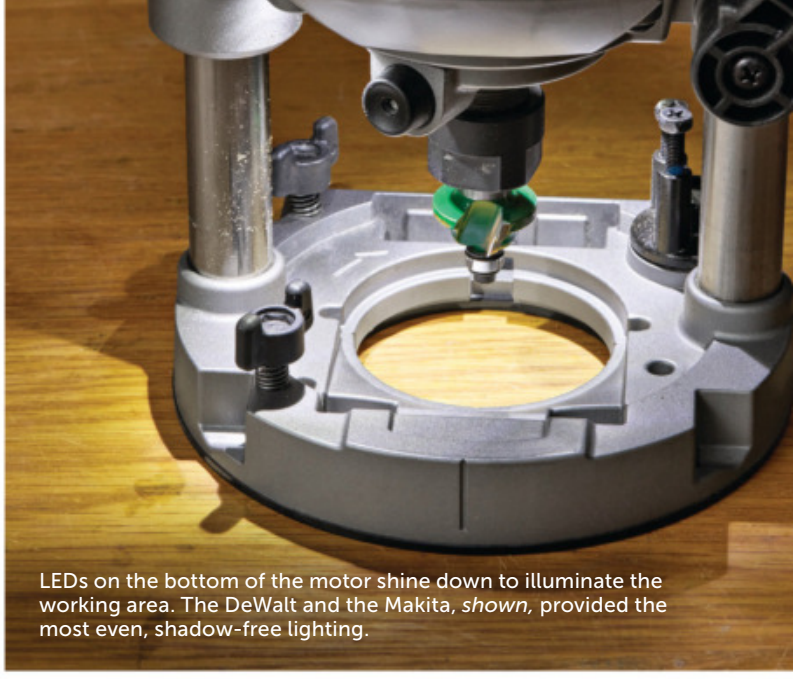
Every router in our test features a spindle lock for bit changes, allowing you to lock the spindle with the press of a button and loosen the collet with a single wrench, *below right*. The Milwaukee router also gives you the option of using a pair of wrenches to change bits, which we prefer. However, its dust shroud gets in the way when changing bits, requiring you to partially remove it.

A tall, top-heavy design makes the Milwaukee router (*left*) slightly less stable in use. By contrast, the smaller Makita (*right*) was easier to control and maneuver.

To change the bit on any of the routers, remove the battery first, then hold in the spindle lock button while loosening the collet with a wrench.

All four routers are equipped with a pair of LEDs that come on automatically when you start the router, *right*. We found the LEDs on the DeWalt router did the best job of lighting up the working area evenly, without shadows.

> **WITH FIXED DEPTH STOPS, THERE'S NOTHING TO ADJUST AND NO CONCERN WITH THE STOP SCREW WORKING LOOSE.**
>
> ***-STEVE FEENEY, TOOL TESTER***



LEDs on the bottom of the motor shine down to illuminate the working area. The DeWalt and the Makita, *shown,* provided the most even, shadow-free lighting.

DEPTH STOPS

For accurate results, the plunge depth stop is just as important as the locking mechanism. The stop usually consists of a rod mounted on the motor that contacts a stop in the base of the router. All four routers have rotating turrets with multiple stops, allowing you to rout dadoes, grooves, or decorative profiles in a series of progressively deeper steps to avoid chip-out or overtaxing the router, *below left*.

The turrets on the DeWalt, Makita, and Metabo routers have two or three adjustable screw stops. The turret on the Milwaukee router isn't adjustable. Instead, it has six fixed steps in 1/8" increments.

A micro-adjust control paired with a scale allows you to make fine adjustments to the depth of the cut, *below center and right*. We found the scales on the Milwaukee and DeWalt routers to be the easiest to read. The scales and pointers on the Metabo and Makita routers were harder to see clearly, making them less likely to be used.

To test the repeatability of the depth stop, we equipped each router with a 1/2" spiral bit and adjusted the stop to make a 1"-deep plunge cut. Then we routed 20 holes and measured the depth of each. The Milwaukee and Metabo routers showed the least variance.

Turrets with screw stops (like those on the Metabo, *shown*, Makita, and DeWalt routers) allow you adjust the stop height. But it's difficult to access the screws and they can work loose inadvertently.

The scale and pointer on the DeWalt router, *left*, are clear and easy to read. The imperial scale on the Metabo router, *right*, is partially obscured by the depth rod.

Dust shrouds that mount to the base of the router, like those on the Makita, *shown*, Milwaukee, and Metabo routers, allow for convenient connection to a shop vacuum or dust extractor.

With a vacuum hose connected to the top of the column, the DeWalt router felt a bit top-heavy and awkward to use. And it didn't seem to perform any better than routers that used a shroud on the base.

DUST COLLECTION

Routers are notorious for the amount of debris they create. So effective dust collection is important, and all of these routers incorporate dust-collection capabilities. The Makita, Metabo, and Milwaukee routers all include a plastic dust shroud that attaches to the base, *above*. The DeWalt evacuates the dust through one of the columns, *above right*.

With all of the routers, the dust collection worked well when making plunge cuts, but fell off dramatically when edge routing, particularly during heavy cuts. Of the four, the Makita's dust collection was the best.

We had a difficult time finding adapters or hoses that fit the DeWalt and Metabo routers. The port on the DeWalt seemed designed to fit its own proprietary quick connector, but not much else. And having the hose connected to the top of the column felt awkward and difficult to use.

The Makita and DeWalt routers can be wirelessly paired with compatible shop vacuums, allowing the vacuum to start automatically when you switch the router on, *right*.

The Makita router accepts a wireless transmitter (sold separately) that will automatically trigger a compatible shop vacuum when you switch the router on. The DeWalt router has a similar feature.

Variable speed control allows you to increase or decrease the speed to prevent burning or tear-out. Select slower speeds for larger diameter bits.

SPEED CONTROL

All four routers feature variable-speed motors, with a numbered thumbwheel, *left*, controlling the speed. (See the chart, *next page*, for speed ranges.) All but the Metabo's manual provide a chart of the numbers' approximate corresponding rpm. We tested the accuracy of the speed controls by running a bit in the router with no load while taking readings with a photo tachometer at different speed settings. The speed varied the most from the manuals' listings at the high end, with 300–1,800 rpm differences.

PLUNGING INTO THE NUMBERS

MODEL	PERFORMANCE RATINGS (1)											SPEED RANGE (MIN.-MAX.), RPM × 1,000	PEAK HORSEPOWER	NUMBER OF TURRET STOPS	STATED VOLTAGE	BATTERY AMP-HOUR RATING	FEET ROUTED ON FULL CHARGE (AVERAGE)	FEET ROUTED PER WATT-HOUR	PLUNGE DEPTH CAPACITY	NOISE LEVEL IN dB (2)	WEIGHT WITH BATTERY (LBS)	INCLUDED ACCESSORIES (3)	PRICE (4)
	OBSERVED POWER	ABSENCE OF VIBRATION	RUNTIME	PLUNGE SMOOTHNESS	EASE OF USING PLUNGE LEVER	EASE OF USING ON/OFF SWITCH	EASE OF READING DEPTH SCALE	EASE OF USING MICRO-ADJUST ROD	REPEATABILITY OF DEPTH STOP	DUST COLLECTION	EASE OF CHANGING BITS													
DEWALT DCW620B	A-	A-	B	A-	B-	A-	A-	A-	B+	B-	A	11–23	2.25	3	20	6.0	143.5	1.2	2 1/2"	102	10.7	A,C,CC,D,G,W	$369
MAKITA GPR01Z	A	A	A	A	A-	A	B+	A	B	B+	A	8–25	2.25	3	40	4.0	282.5	2.0	2 3/8"	114	9.3	C,CS,D,W	$379
METABO HPT M3612DA	A-	A-	B	A	B+	A-	B-	B+	A-	B+	A	11–25	2	3	36	4.0	148.5	1.0	1 31/32"	101	8.8	A,B,C,D,E,G,W	$279
MILWAUKEE 2838-21	B+	B+	A	A-	A	B	A-	A	A	B+	B+	12–25	2.25	6	18	6.0	204	1.9	2 1/2"	93	11.5	A,B,C,D,E,W	$649*

1. A Excellent
   B Good
   C Fair
   D Poor
   N/A Not applicable
2. Measured at maximum rpm with no load
3. (A) Subbase adapter for guide bushings
   (B) Storage bag
   (C) ½" and ¼" collets
   (CC) Centering cone
   (CS) ⅜" collet sleeve
   (D) Dust-collection shroud
   (E) Edge guide
   (G) Guide bushings
   (W) Wrench(es)
4. Prices current at time of article production and do not include shipping, where applicable.
   (*) Sold as a kit only, including battery, charger, and fixed and plunge bases.

WINNERS

With only four routers to choose from, picking a winner would seem like an easy task. But all of the routers performed well, making the decision more of a challenge. In the end, we awarded the Top Tool honors to the Makita GPR01Z. Ample power and a long runtime, combined with smooth, easy-to-use controls, made this router our favorite.

We chose the Metabo M3612DA as Top Value. It held its own against the competition in most areas, but with a price tag about $100 lower than the others. That's money that can go toward router bits.

Makita
GPR01Z

Metabo
M3612DA

·2026· WOOD TOP TOOL CORDLESS ROUTERS

·2026· WOOD TOP VALUE CORDLESS ROUTERS

PEDESTAL TABLE

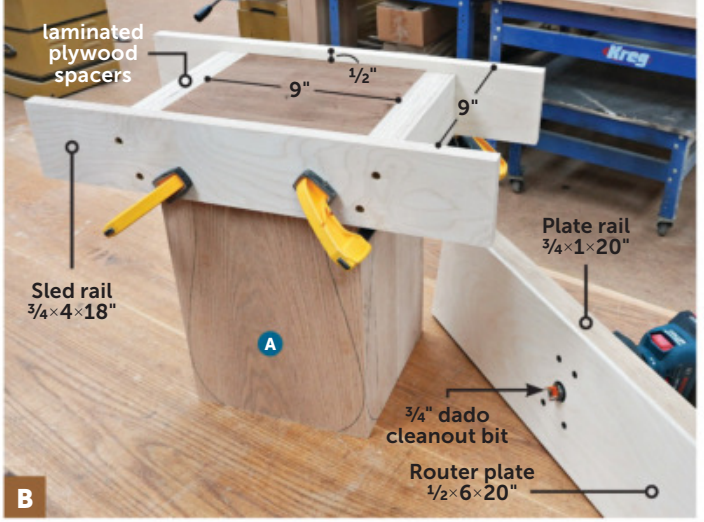
Rock-solid pedestals built with stacking layers give this table the beauty of fine furniture along with the heft to hold up a family feast.

WRITER: KERRY GIBSON
DESIGNER: KEVIN BOYLE
BUILDER: BRIAN BERGSTROM

OVERALL DIMENSIONS
90"L x 40"W x 30¼"H

PHOTOGRAPHER: JACOB FOX; **ILLUSTRATOR:** CHRISTOPHER MILLS

Glue up column block (A) layers in pairs, clamping the stock in all directions to keep the sides and ends flush. Then repeat the glue-up process to create the six-layer column blocks.



Build a scrapwood router sled to fit the column block (A). Attach a long plate to your router that will span the sled rails. Clamp the sled to the column block, then use the sled setup to trim the ends flat.

Note: **You'll need a bandsaw with at least 9" of cutting capacity to shape the pedestals.**

Don't be offended if your dinner guests compliment this table more than the meal you serve on it. At 40×90", The thick top offers ample space for up to eight people. A look underneath, though, reveals this project's main course: the pedestals **[Exploded View]**. The main section of each one is cut on the bandsaw, while stacked layers complete them.

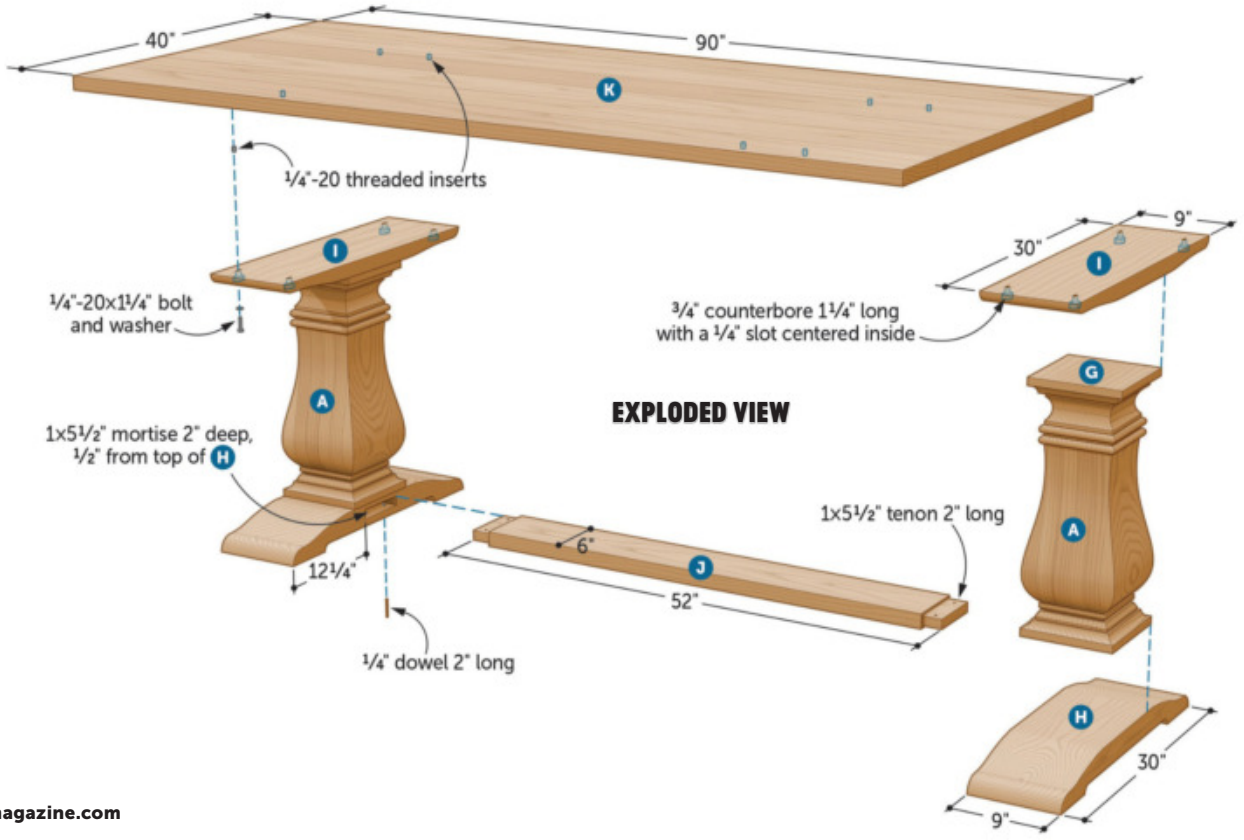
The solid-wood top mounts using bolts through elongated slots that allow seasonal expansion and contraction. Threaded inserts ensure the top stays solidly attached, but removes easily for moving.

SHAPE THE COLUMN BLOCKS

1 Cut six 1½"-thick pieces to 9×15¼" for each column (A). Glue and clamp the column layers in three pairs **[Photo A]**, then glue and clamp the pairs together to create two six-layer column blanks. After the glue dries, scrape off any squeeze-out. Then create a full-sized template of the column profile **[Drawing 2]** and trace the template shape onto the column blanks.

2 To ensure the column ends are perfectly flat, use a router sled to skim just a bit off of each end of both column blanks **[Photo B]**.

Learn how to easily enlarge gridded patterns to full size.
woodmagazine.com/griddedpattern

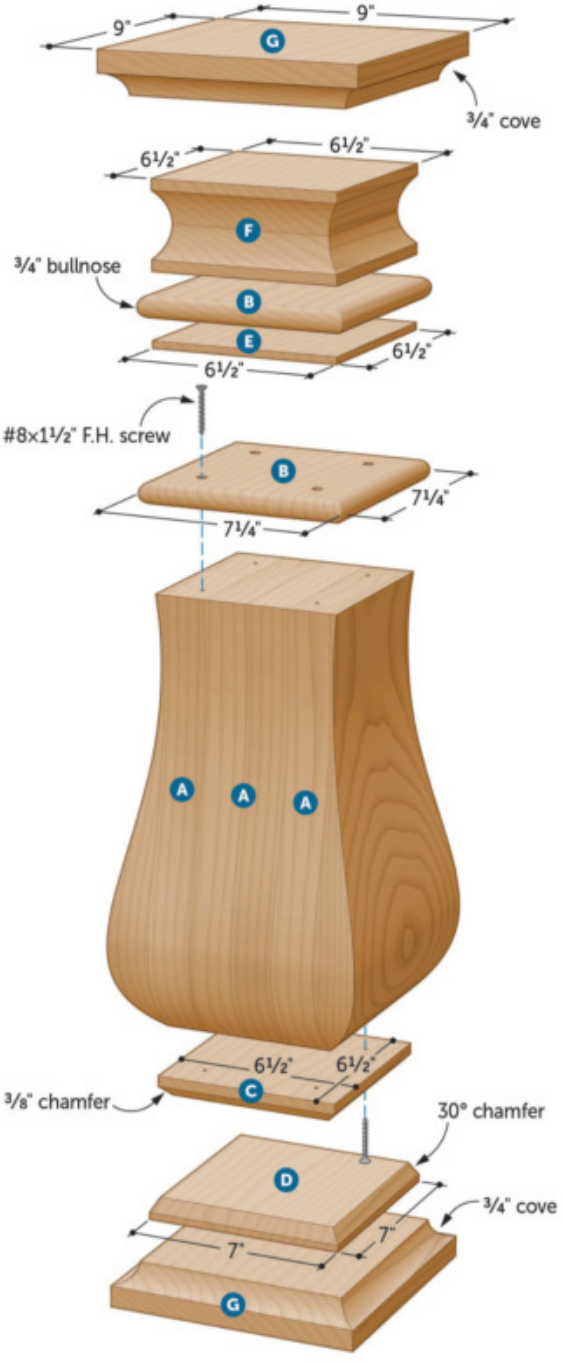


Consider adding a riser block for more bandsaw capacity. woodmagazine.com/riserblock

3 At the bandsaw, cut two faces of the columns to shape [Photo C], saving the cutoffs. Then tape the cutoffs back onto the columns by wrapping painter's tape over the ends of the column. This creates flat surfaces for the column to ride on as you cut the two remaining faces [Photo D].

4 Smooth the profiled faces of the columns using a scraper or a random-orbit sander with 80-grit paper, then finish-sand the columns.

1 PEDESTAL ASSEMBLY

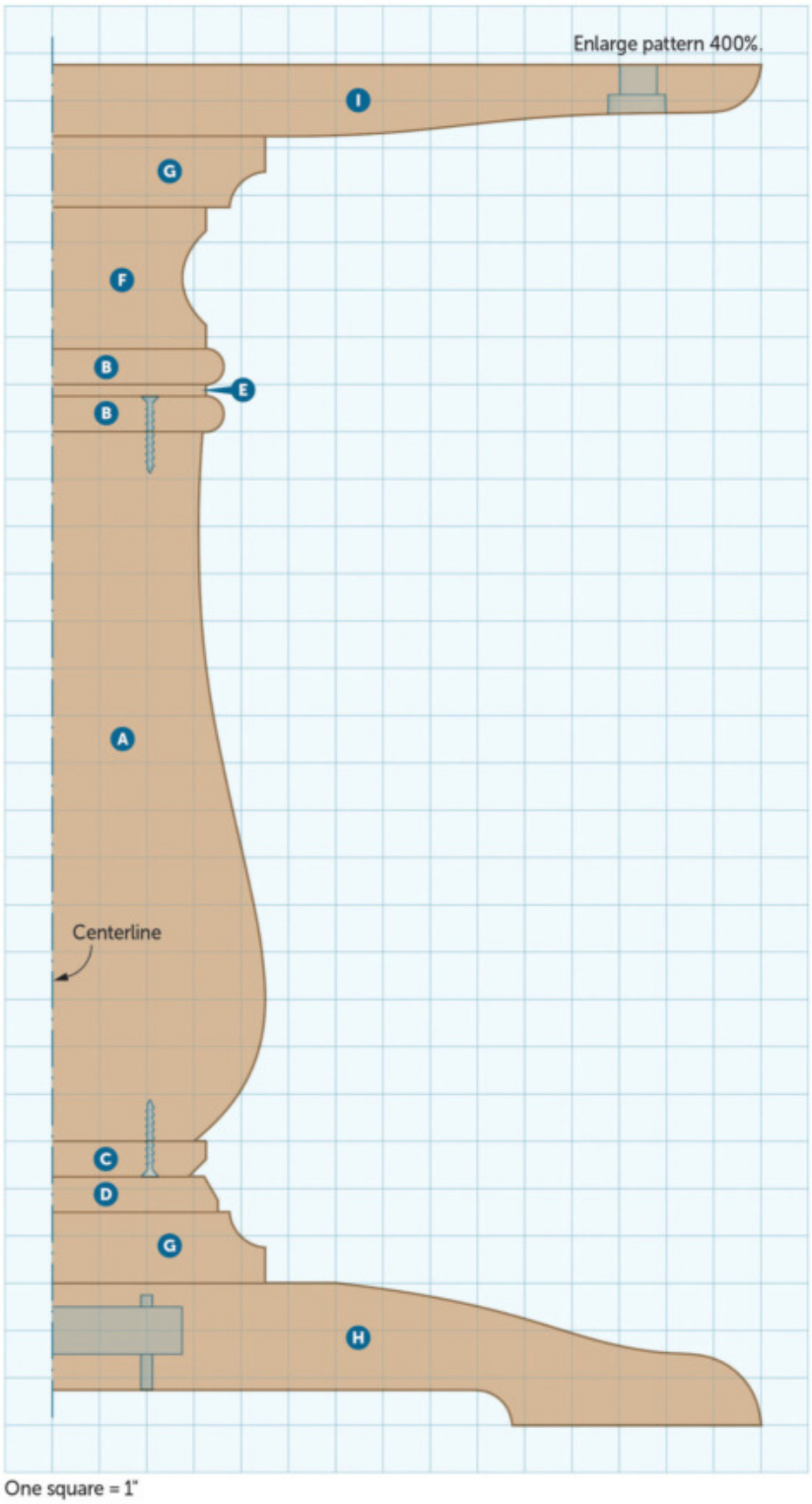


Install a ½" resaw blade on the bandsaw and slowly feed the column (A) to cut the profile on both edges of the blank. Label the cutoffs so you can reattach them to their original locations.

Tape the cutoffs back onto the column (A), flip the column so the reattached cutoffs face up and down, then cut the profiles on the two remaining faces of each column.

> **"IF YOU'VE NEVER CUT BIG PIECES LIKE THE PEDESTAL COLUMNS TO SHAPE ON THE BANDSAW, GLUE UP A BLANK FROM AN ORDINARY PINE 2×10 AND PRACTICE ON IT."**
>
> ***-KEVIN BOYLE, SENIOR DESIGN EDITOR***

2 QUARTER-SIZE PATTERN



One square = 1"

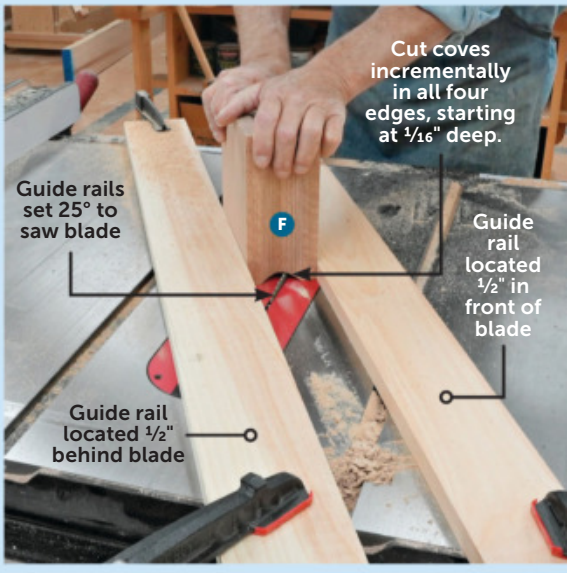
TABLESAWN COVES

Cutting coves on the tablesaw seems convoluted, but it's easy. The trick is passing the workpiece over the blade at an angle, held steady by a pair of guides, and making multiple shallow passes to nibble away a small amount of wood at a time. The angle of the guides and height of the blade determine the shape of the cove.

To create the ½"-deep, 2"-wide cove in the cove blocks (F), first raise the blade to ½". Measure from a tooth on the infeed side, at table level, ½" directly in front of the blade. This will establish ½" flat on one side of the cove. Clamp a long guide board at this position at a 25° angle to the blade, *below*. Use the cove blocks as spacers to position a rear guide rail parallel to the first, and clamp it in place.

Now cut a cove in each face making slow passes that remove no more than 1/16" of material on each pass, *below*.

See tablesaw cove cutting in action with this video.
woodmagazine.com/tablesawncoves



Set the blade height 1/16" above the table to make a first pass on each edge of the block. Make repeated cuts in 1/16" increments until just shy of the ½" depth before making a final 1/32" smoothing pass.

CUT THE STACKING BLOCKS

Blocks in several sizes and thicknesses stack above and below the column to complete the pedestals. You'll rout most of the profiles, cut one on the tablesaw, and use the tablesaw to cut large coves on the last.

1 Cut four bullnose blocks (B) to size **[Parts List]**. Install a 3/8" round-over bit in a table-mounted router and set the fence flush with the bit's bearing. Rout all four edges then flip the piece over and rout again to form a 3/4" bullnose **[Drawing 3]**.

2 Cut the small chamfer blocks (C) to size. Install a 45° chamfer bit in your router table and raise it to make a 3/8"-deep cut. Position the fence flush with the bit bearing and rout all four edges.

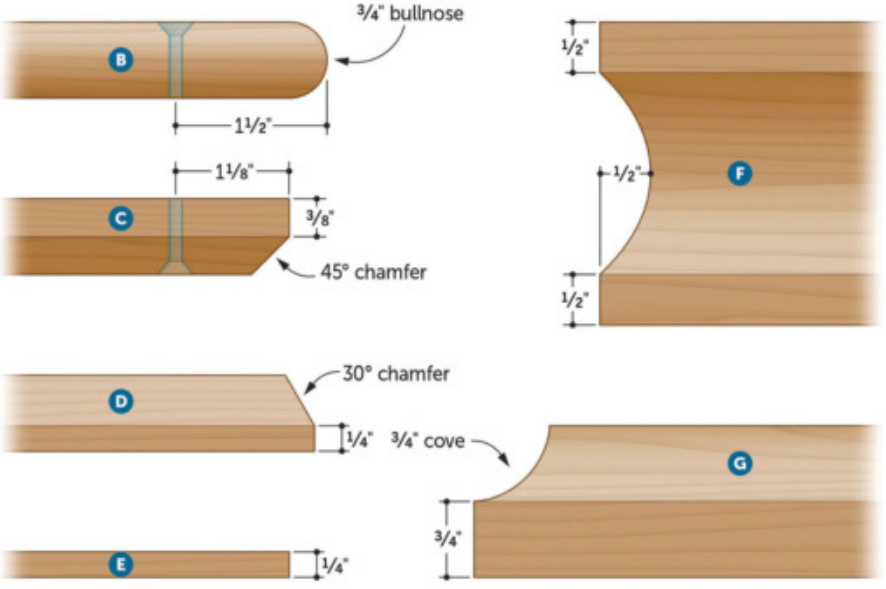
3 Cut the large chamfer blocks (D) to size. Instead of routing, tilt your tablesaw blade to 30°, position the rip fence, and cut chamfers on all four edges.

4 From 1/4" stock, cut the two flat blocks (E) to size.

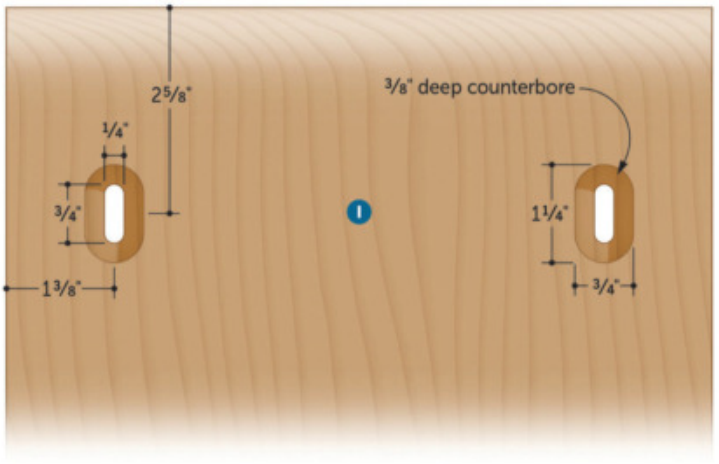
5 Laminate two pieces of 1 1/2" stock for the cove blocks (F), then trim them to size. Cut a cove in all four edges of each block using the technique detailed in *Tablesawn Coves, page 41.*

6 From 1 1/2" stock, cut the fillet blocks (G) to size. Use a 3/4" cove bit in the router table to cut a cove in all four edges of each block. Finish-sand the edges of all the blocks (B-G).

3 PEDESTAL BLOCKS



4 TABLETOP MOUNTING HOLES



Spread glue on one face of a flat block (E), center it on a bullnose block (B). Use a pin nailer or wire brads to fasten the pieces together. Repeat the steps for the remaining flat and bullnose blocks.

Glue the additional layers—the cove blocks (F), the large chamfer blocks (D), and fillet blocks (G)—to the pedestal assembly. Keep glue about ⅛" from the edges of each block to minimize squeeze-out.

LAY UP THE PEDESTAL LAYERS

To strengthen the bond between the end grain of the columns and the chamfer blocks, those joints are bolstered by screws while the remaining blocks only require glue and a few brads. For each, be sure to orient the grain in the same direction.

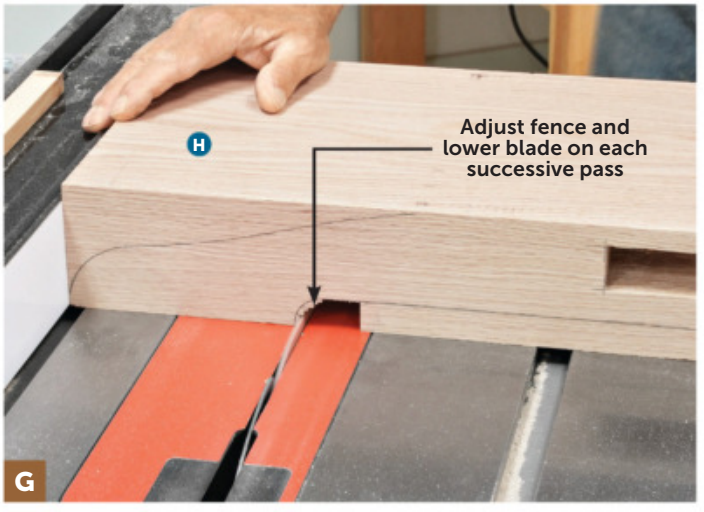
1 Glue and screw a chamfer block (C) to the bottom of each column (A) **[Drawing 1]**. Then glue and screw one of the bullnose blocks (B) to the top of each column.

2 Attach a flat block (E) to each of the remaining bullnose blocks (B) **[Photo E]**. Glue and clamp the bullnose/flat assembly (B/E) to the top of the column block assembly (A/B), making sure it's centered.

3 Now glue and clamp the remaining blocks to the pedestal assembly **[Photo F]**. When the glue skins over, scrape away any squeeze-out.

TIP!

Reduce misalignment due to slippage during glue-up by letting the spread glue sit for a few minutes to get tacky before attaching each block.



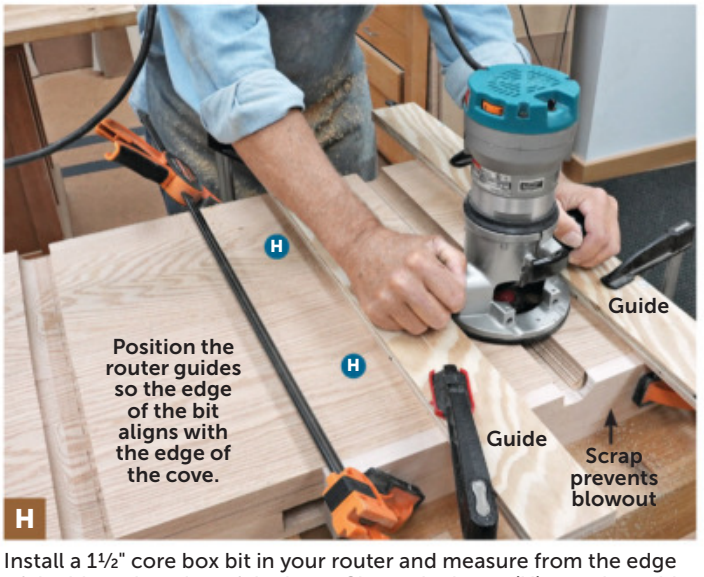
Set the tablesaw blade height to match the flat portion of the base (H). Set the fence as a guide and nibble away stock, flipping the bases end for end before adjusting the fence and blade height.

ADD THE BASES AND WINGS

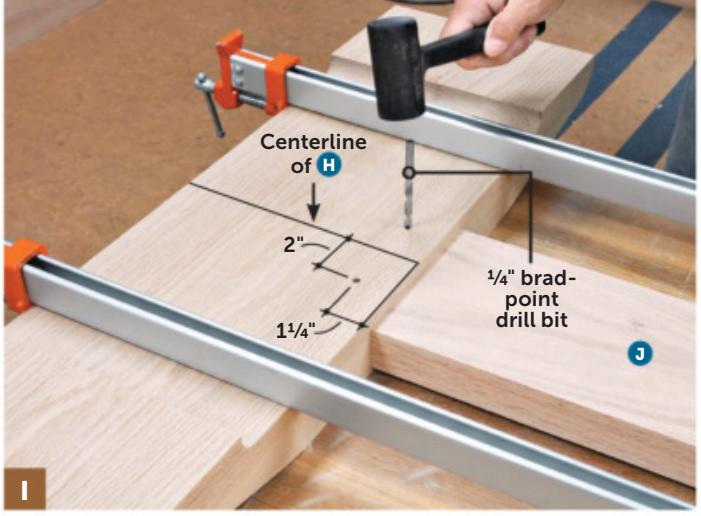
1 Laminate stock to 3" thickness for the pedestal bases (H) and cut them to size **[Exploded View, Parts List]**. Enlarge the pattern **[Drawing 2]** for the base and trace it onto the edge of each workpiece, laying out both the profile and mortise location.

2 Drill overlapping holes with a 1" Forstner bit to rough out the mortise, then square up the mortise with a chisel.

3 To form the cove on the underside of the base, we used the tablesaw to remove most of the material at the ends **[Photo G]**, then routed the ends smooth **[Photo H]**. After that, bandsaw the bases to final shape and sand them smooth.



Install a 1½" core box bit in your router and measure from the edge of the bit to the edge of the base. Clamp the bases (H) together with scrap on each edge, then clamp guides in place and rout the cove.



Drill two ¼" holes 2" deep in the underside of the bases (H), stopping short of the top face. Insert the stretcher (J) and tap a ¼" brad-point bit into each hole to mark the center of the hole on the tenon.

To create the slightly offset drawbore holes, mark a new centerline 1/32" closer to the shoulder than the hole centers marked by the brad-point bit. Drill ¼" holes through the newly marked centerlines.

4 From 1½" stock, cut the wings (I) to size **[Exploded View, Parts List]**. Using the pattern **[Drawing 2]** lay out the profile on the edge of each wing, then cut the profile to shape on the bandsaw. Sand the wings smooth.

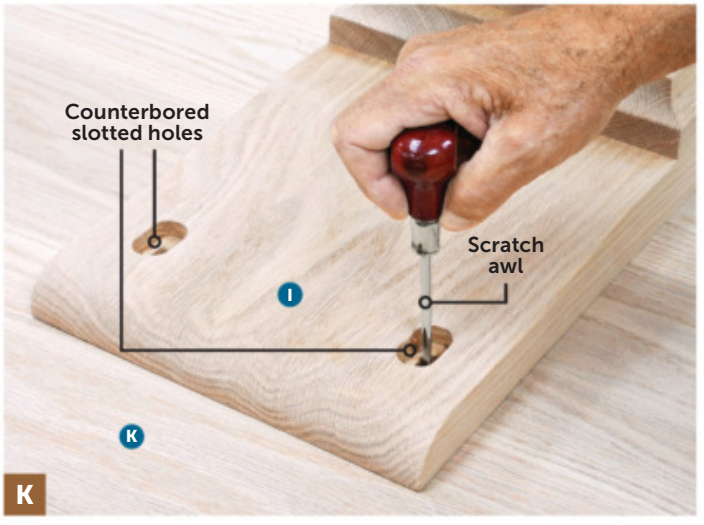
5 From 1½" stock, cut the stretcher (J) to size. Form tenons on each end to fit the mortises in the bases (H).

6 Drill two ¼" holes in the underside of each base intersecting the mortise. Insert the stretcher into the mortises in the bases and mark the hole locations on the tenons **[Photo I]**. Remove the stretcher and mark offset hole locations **[Photo J]**. Drill ¼" holes in the tenon through the new centerpoints to create drawbore holes that will draw the stretcher tightly into the mortises when you drive dowels into the holes.

7 Lay out and drill the slotted counterbores and holes in the wings (I) where shown **[Exploded View, Drawing 4]**.

8 Lay the bases (H) and wings (I) on edge and the pedestal assemblies (A–G) on their sides with the face grain facing up. Glue and clamp the bases and wings to the pedestal, keeping their centerlines aligned.

9 Turn the base assemblies (A–I) upside down, spread glue on the stretcher (J) tenons and inside the base (H) mortises, and clamp the assembly together. Sand a slight chamfer on one end of short ¼" dowels. Apply glue and drive them into the holes in the bases, chamfered end first, to draw the tenons tight. When the glue dries, trim off any excess dowel, sand them flush, and touch up any needed finish-sanding.



With the pedestal assembly centered on the top (K), use a scratch awl to mark the center of the slotted holes in the wings (I). The slotted holes allow the top to expand and contract with the seasons.

> **A SOLID-WOOD TABLETOP THIS LARGE SHRINKS AND EXPANDS IN WIDTH SIGNIFICANTLY WITH SEASONAL HUMIDITY CHANGES. SLOTTED ATTACHMENT HOLES ACCOMMODATE THIS MOVEMENT WITHOUT BINDING OR CRACKING.**
>
> ***-KEVIN BOYLE, SENIOR DESIGN EDITOR***

Watch a video on gluing up a flat panel, step-by-step.
woodmagazine.com/flattops

TOP IT ALL OFF

1 Edge-glue sufficient 1½" stock for the tabletop (K) and trim it to size [Exploded View]. We assembled the top in three sections, which allowed us to run each section through the thickness planer before the final glue-up.

2 Place the top on your workbench with the best face down. Center the pedestal assembly on the top and mark the center of each mounting hole with an awl [Photo K].

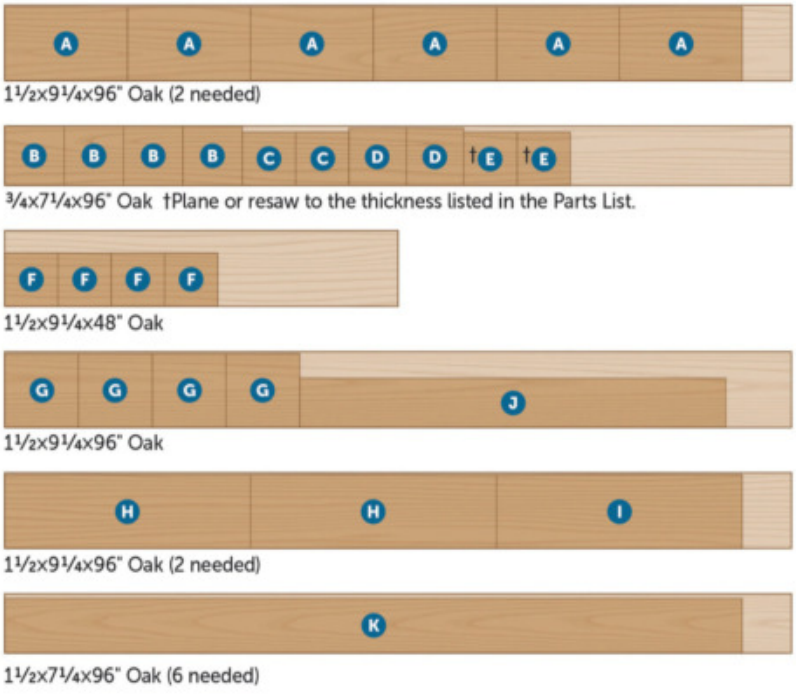
3 Drill a ½" counterbore 1/16" deep at each mounting hole location. Then drill 23/64" pilot holes 5/8" deep for the threaded inserts. Install the inserts, then finish-sand the top.

4 Apply the stain and finish of your choice. We used Pure Color Silver Nickel stain. Because the stain is water-based, we sanded lightly with a 400-grit sanding sponge after staining to knock down any raised grain. Then we applied two coats of satin polyurethane.

5 Move the base into position in your dining room, then install the top. Round up some chairs, invite family or friends over, set the table, and lay out the feast!

CUTTING DIAGRAM

We purchased 132 board feet of 8/4 red oak and 5 board feet of 4/4 red oak. Before cutting parts to size, we planed them to the thicknesses shown in these example boards.



PARTS LIST

PART		FINISHED SIZE T	W	L	Matl.	Qty.
A*	COLUMNS	9"	9"	15"	LO	2
B	BULLNOSE BLOCKS	¾"	7¼"	7¼"	O	4
C	SMALL CHAMFER BLOCKS	¾"	6½"	6½"	O	2
D	LG. CHAMFER BLOCKS	¾"	7"	7"	O	2
E	FLAT BLOCKS	¼"	6½"	6½"	O	2
F	COVE BLOCKS	3"	6½"	6½"	LO	2
G	FILLET BLOCKS	1½"	9"	9"	O	4
H	PEDESTAL BASES	3"	9"	30"	LO	2
I	PEDESTAL WINGS	1½"	9"	30"	O	2
J	STRETCHER	1½"	6"	52"	O	1
K	TABLETOP	1½"	40"	90"	EGO	1

*Parts initially cut oversize. See the instructions.

MATERIALS KEY: O–red oak, LO–laminated red oak, EGO–edge-glued red oak.
SUPPLIES: , #8x1½" flathead screws, ¼" dowel, ¼"-20 threaded inserts, ¼"-20 bolts and washers.
BLADE AND BITS: ½" bandsaw resaw blade; 45° chamfer, ⅜" round-over, ¾" cove, and 1½" core-box router bits; ½", ¾" and 1" Forstner drill bits, ¼" and 23/64" brad-point drill bits.
PROJECT COST: It cost us about $900 to build this project. Your cost will vary by region and source.

ROUTER PLANES

Combining accuracy with finesse, these simple hand tools prove the perfect choice for fine-tuning joinery, creating recesses for inlays and hardware, and other tasks that require intricate material removal.

WRITER: VINCE ANCONA WITH JOHN OLSON

Most router planes allow you to reverse the position of the cutter, which is ideal for routing stopped dadoes and grooves.

PHOTOGRAPHER: JACOB FOX

Long before electric routers, woodworkers relied on router planes for cutting dadoes, grooves, and shallow recesses. Similar to a router, the cutter of a router plane extends below the base of the tool. But instead of a rotating bit, the router plane uses a fixed cutter that you push through the wood to take fine shavings. This approach gives you a great deal of control over the cut, allowing you to shave away material with extreme accuracy for a perfect fit. The design of the tool also allows you to work into tight, confined areas that are typically accessible only with a chisel.

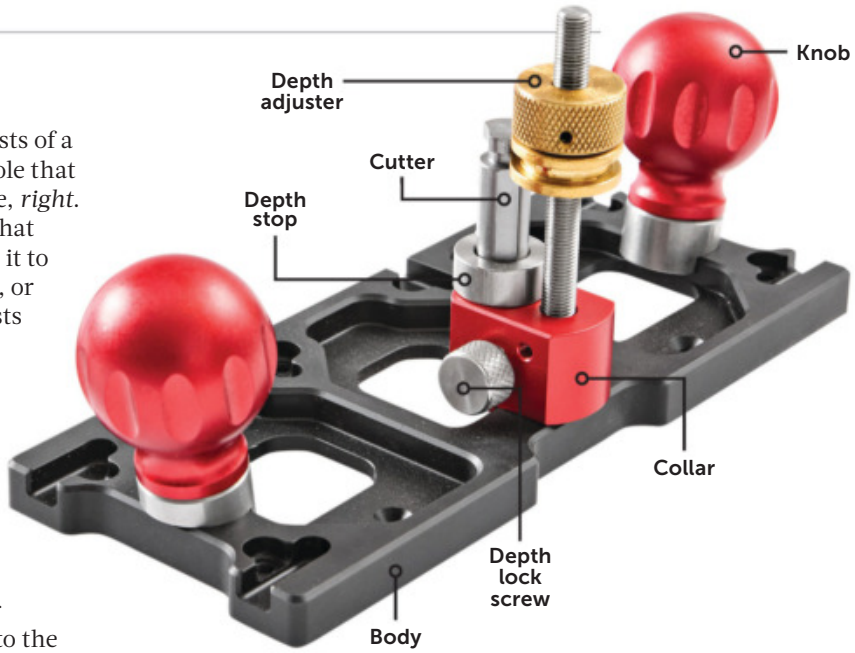
In recent years, router planes have staged a comeback as more woodworkers discover just how useful they are.

Router planes have been around in one form or another for hundreds of years. Early router planes consisted of a wooden body equipped with a simple steel cutter, usually held with a wedge. In the late 19th century, Stanley introduced an iron-bodied version that eventually incorporated improvements such as a threaded depth adjuster, a depth stop, and a fence. This design serves as the basis for most router planes made today.

ROUTER PLANE ANATOMY

A typical modern router plane consists of a cast-iron body with a smooth, flat sole that rides on the surface of the workpiece, *right*. The body holds an L-shaped cutter that projects below the surface, allowing it to reach the bottom of grooves, dadoes, or recesses. A knurled thumb nut adjusts the height of the cutter, depending upon the depth of the recess you're working. Tightening a thumbscrew or knurled knob locks the cutter in place. A pair of knobs allows you to grip the plane and guide it through cuts.

Most router planes also have a depth stop to limit how far you can lower the cutter—a useful feature for planing multiple dadoes or grooves to the same depth. Some also include a fence that attaches to the bottom of the plane for routing a groove parallel with the edge of a straight or curved workpiece.



Router planes are usually equipped with three cutters—1/4" and 1/2" straight cutters and a spear-point or V-cutter. The straight cutters are generally used for dadoes and grooves. The V-cutter is useful for finishing cuts when creating smooth surfaces or for working into tight corners. Veritas offers an expanded selection of cutters for its router plane, from 1/16" up to 3/4", as well as metric widths.

Router planes come in two basic styles—open throat and closed throat, *left*. On the open-throat version, the body casting is arched in front of the blade for greater visibility. Closed-throat versions don't have this arch and instead feature a simple opening for the cutter to project through. The downside to this design is that chips may get caught under the leading edge of the plane. Some open-throat versions include a detachable shoe to close the throat opening when working with narrow stock.

Vintage router planes, like these open- and closed-throat versions from Stanley, offer the same functionality as modern planes, but typically lack the refined adjustment and locking features of newer planes.

GETTING STARTED

Compared to bench planes, using a router plane is fairly simple. Start by inserting your cutter of choice in the plane, engaging the depth adjuster nut with the slot in the cutter. Adjust the cutter height so it projects below the sole and just contacts the surface of the area you wish to plane, then tighten the clamp. Push the plane forward to take a test shaving and then raise or lower the cutter as needed.

For the initial passes, set the cutter to take a shaving from 1/32" to 1/16". Hold the plane firmly on the surface of the workpiece and take short strokes to quickly remove chips from the bottom of the groove, dado, or recess. (Depending on the grain direction, sometimes pulling the plane toward you works better.)

After planing the entire groove or recess, lower the cutter slightly and repeat the process, until you begin to approach your final depth. For the final pass, a shallow cut yields a smoother finish. You can also try skewing the plane slightly for a shearing cut, which usually leaves a smoother surface.

ROUTER PLANE USES

Unlike some specialized tools that perform only one function, a router plane has multiple uses. Here are a few common ways to put one to use in your shop.

Dadoes and grooves. To create a dado or groove, start by defining the edges with a handsaw. Although you can use the router plane to remove the waste in between the cuts, it's often quicker and more effective to remove the bulk of the wood with a chisel first. Then use the router plane to smooth the bottom and bring the dado or groove to final depth, *right*.

Even if you typically cut dadoes and grooves on the tablesaw, using a router plane to smooth the surface improves the accuracy and quality of your joinery. Stack dado blades leave ridges and grooves at the bottom of the cut. And it's not uncommon for the depth of the groove or dado to be inconsistent due to a warped or cupped workpiece. A router plane takes care of both of these issues by simultaneously leveling and smoothing the surface of the dado or groove. Simply adjust the height of your dado blade to cut 1/32" to 1/16" shy of the final depth and use the router plane to remove the last layer of material.

When cutting dadoes with a router plane, work from both ends of the dado toward the center to avoid tear-out. Pull the plane toward you to work the far end of the dado.

To smooth the face of a half-lap, straddle the joint, holding one end of the router plane steady on the workpiece. Swing the opposite end of the plane, taking small, arcing cuts across the surface of the joint.

Sizing joinery. A router plane shines at sizing half-laps and tenons. Cut the half-lap (or tenon) slightly oversize in thickness, then use a router plane to smooth and pare the cheek to thickness, *left*. Smooth one cheek first, then without changing the depth setting of the plane, repeat the process on the mating half-lap or opposite face of the tenon and check the fit of the joint. Lower the cutter to remove material until you arrive at a good fit. When working large tenons, butt a piece of scrapwood the same thickness as your workpiece against the end of the tenon to support the free end of router plane and allow it to bridge the tenon.

Because they remove material one shaving at a time, router planes are ideal for delicate tasks, such as creating shallow mortises for hinges or inlaying hardware.

Shallow mortises or recesses. A router plane makes quick work of creating shallow mortises for hinges or other hardware, *above*. Using a marking knife, trace around the leaf of the hinge, scoring the wood deeply. Set the router-plane cutter to take a shallow ($^1/_{32}$" or less) cut and remove the waste within the layout lines. Check the fit of the hinge and increase the depth of the mortise if necessary by lowering the cutter.

Router planes can also be used for creating larger recesses for Dutchman patches, medallion inlays, or dovetail keys. If the task calls for a recess larger than the sole of your plane can span, screw or tape a thin wood auxiliary base to the sole.

When fitted with a fence, a router plane makes quick work of cutting narrow grooves for stringing or inlays. The fence (*inset*) is reversible for straight or curved edges.

Add inlays or stringing. To inlay banding or stringing, *above*, attach a fence to the sole of the router plane. (Fences are optional accessories for most router planes.) Adjust the fence to cut a groove parallel with the edge of the workpiece. Increase the depth of the cutter until the inlay fits perfectly flush with the surface of the board.

Router planes are available in a range of sizes. Larger planes are most useful for furniture joinery. Smaller planes often lack adjuster knobs or depth stops, but are useful for routing mortises for hinges or other hardware.

SHARPENING CUTTERS

Due to their shape and small size, sharpening the cutters of a router plane can prove challenging. Some router plane cutters have a two-piece design, allowing you to remove the cutter blade from the shank for sharpening. For one-piece cutters, start by honing the flat (bottom) face on a sharpening stone. Then, with your sharpening stone placed along the edge of your workbench, flip the cutter over so the shaft points down and lightly hone the bevel to remove the burr.

If you have trouble holding the cutter steady while honing the bevel, try gripping it between the jaws of a handscrew clamp and use a flat diamond hone or small sharpening stone to remove the burr, *right*. A few strokes should be all you need.

HEIRLOOM BLANKET CHEST

Highlight your craftsmanship by building this Arts & Crafts-inspired chest that packs in as much style as it does storage—and that's a lot.

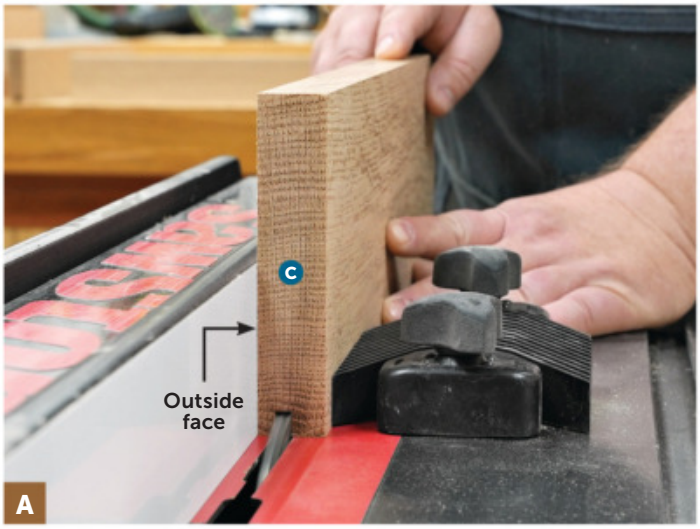
WRITER: ZACH BROWN
DESIGNER: KEVIN BOYLE
BUILDER: JOHN OLSON

OVERALL DIMENSIONS
48½"W × 24⅝"D × 23¼"H

PHOTOGRAPHER: JACOB FOX; **ILLUSTRATOR:** CHRISTOPHER MILLS

Whether you build this chest for yourself or as a special gift, it's sure to attain treasured status. For starters, this chest easily stores bulky items in its large compartment and drawer **[Exploded View]**. It also has a classic style inspired by Arts & Crafts furnituremaker Charles Rohlfs. Finally, this chest is built from sturdy, stunning white oak.

To achieve strong joinery without unreasonable weight, we coupled thick frame members with thinner panels. This requires joinery that is offset in some parts' thickness. After cutting them to size, mark the outside face of each part to help track positioning.

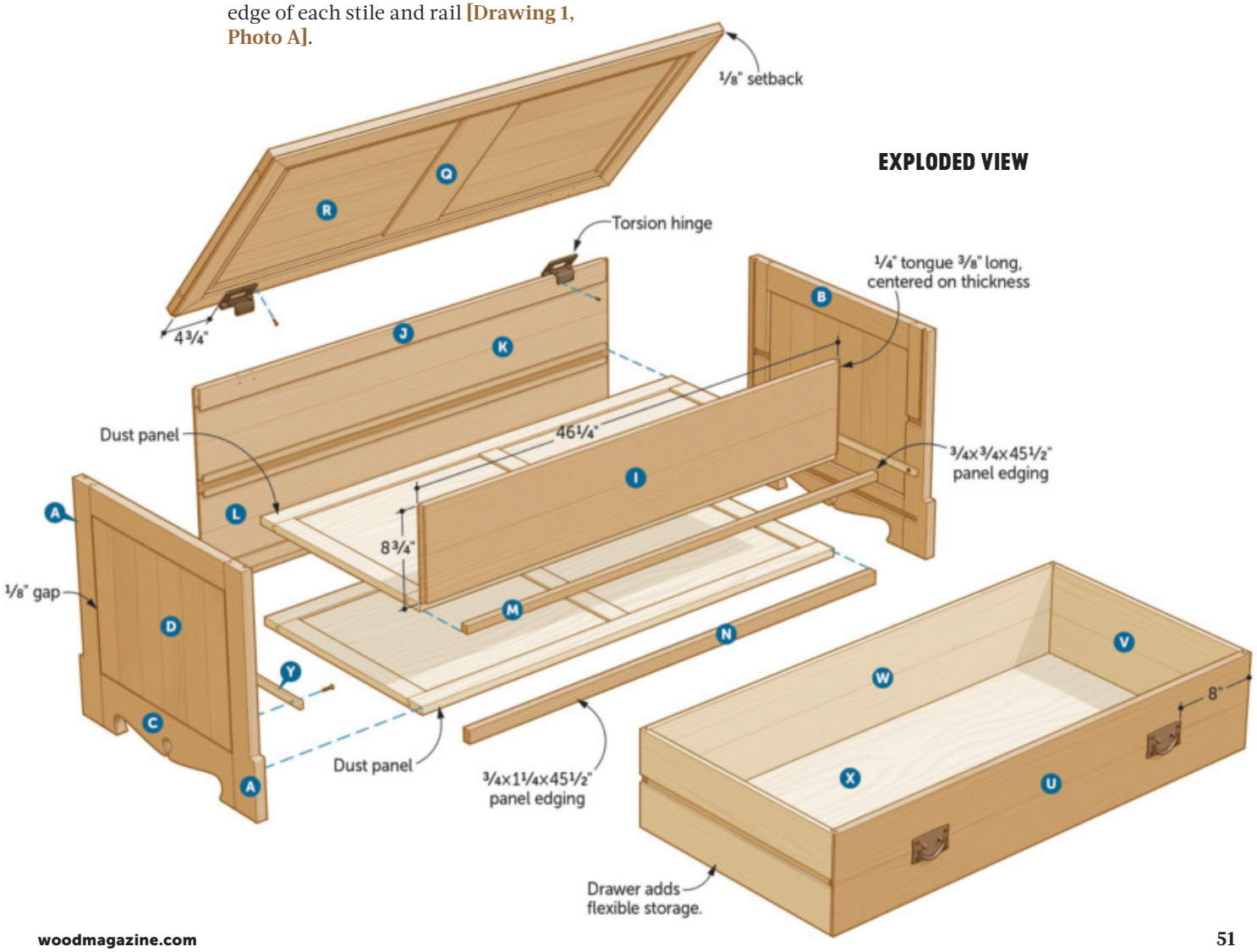


Set the blade height to 3/8" and position the rip fence 1/4" from the blade. With the outside face against the fence, cut an offset groove in the inside edge of each stile (A) and rail (B, C).

START WITH THE SIDES

1 From 1" quartersawn white oak, cut the side stiles (A) and rails (B, C) to size **[Parts List]**. Also cut a scrap piece of the same thickness to test your tablesaw setups. Install a 1/4" dado stack in your tablesaw and cut the groove on the inside edge of each stile and rail **[Drawing 1, Photo A]**.

EXPLODED VIEW

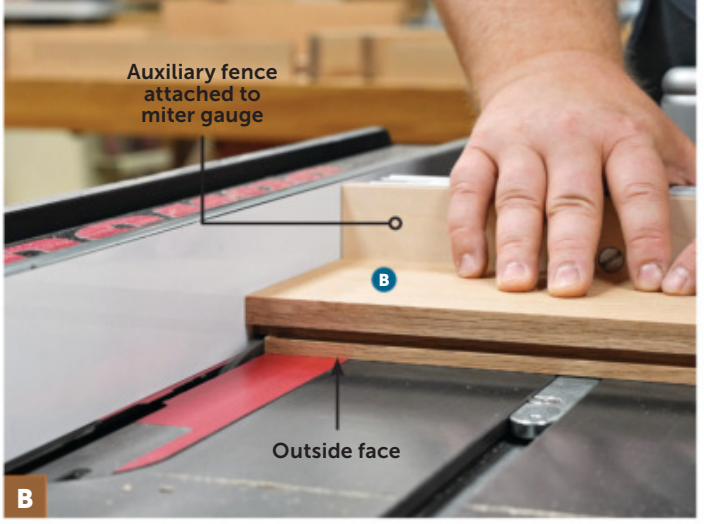


2 Add a long auxiliary fence to your miter gauge and position the rip fence 3/8" from an outer tooth of the blade. Lower the blade to 1/4" and cut a tenon cheek on one face of your test piece. Make sure it aligns with the inside cheek on a stile (A). Then cut the tenon cheek on the outside face of each rail (B, C) **[Photo B]**. Raise the blade to 1/2" and complete the opposite tenon cheek on your test piece before completing the offset tenons on each rail.

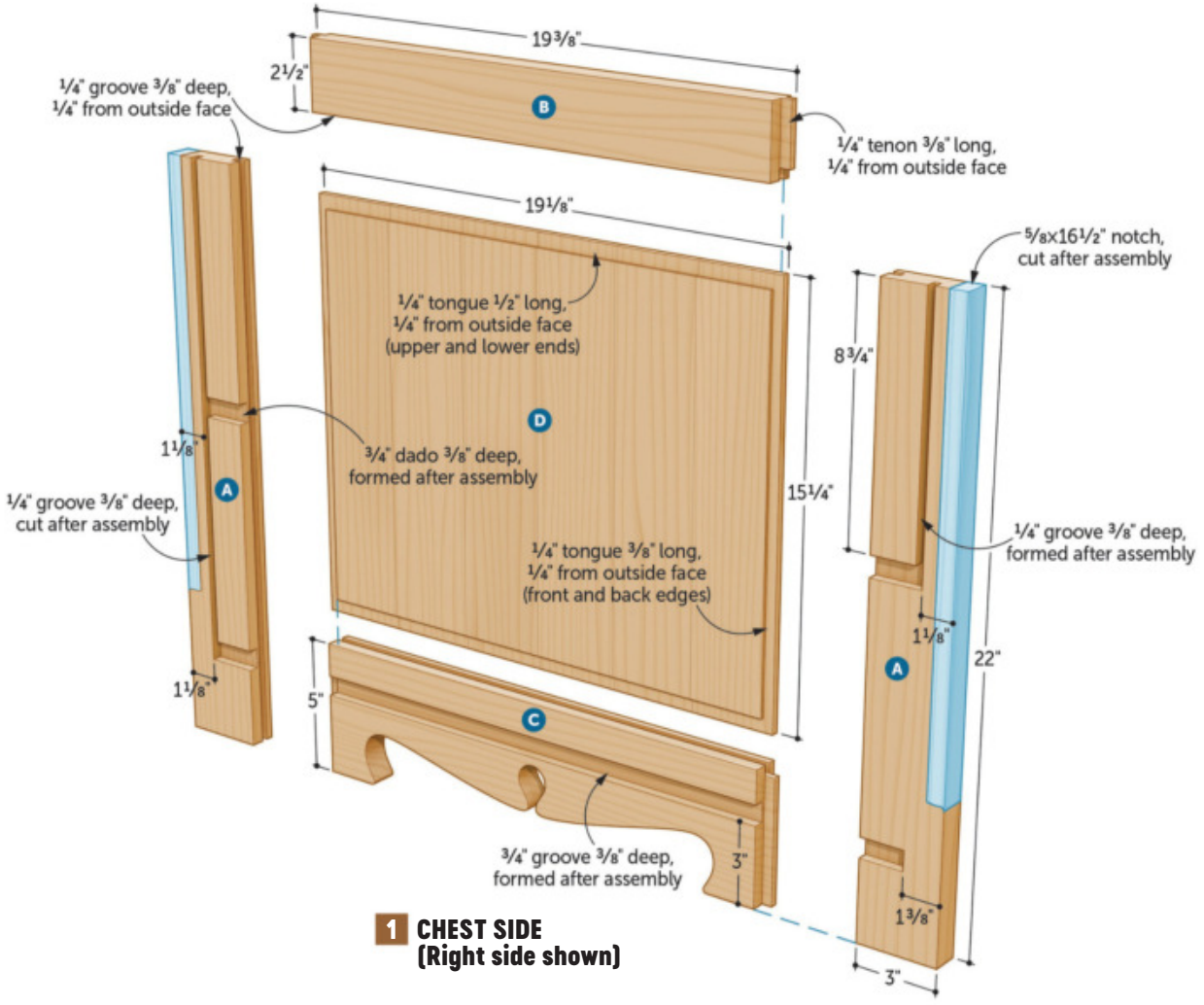
3 Enlarge the half-size pattern **[Drawing 2]** and trace its shape onto the lower rails (C). Bandsaw and sand the lower rails to shape.

4 From 5/8" stock, glue up the side panels (D) and cut them to size. Routed rabbets form the offset tongues **[Drawing 1]**. First, install a 1" straight bit in your router table and adjust the height to 1/8". Position the fence to expose 3/8" of the bit, and cut the tongue cheek on the front and rear edge on the inside face of each panel. Adjust the fence to expose 1/2" of the bit and cut the cheek on the top and bottom end of the same panel face. Flip each panel over, raise the bit to 1/4", and repeat the fence positioning to complete the offset tongues.

Note: **Varying depths and widths require returning the fence to its previous position after a bit depth change. Mark each fence position on your router table to ensure consistent tongue length on both panel faces.**

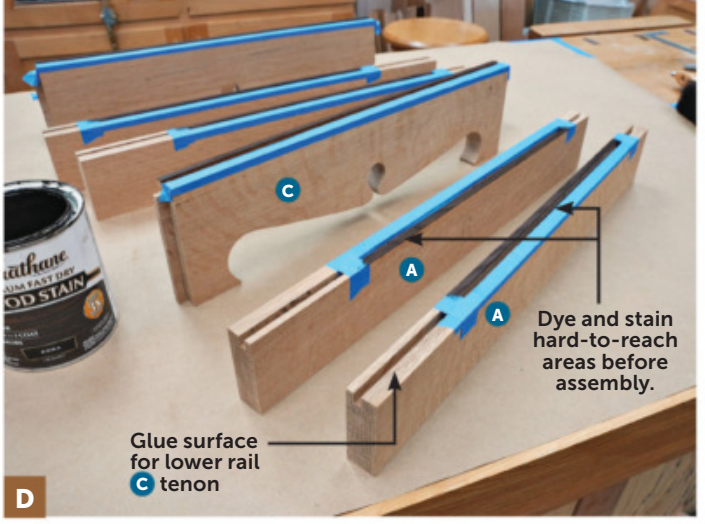


Cut the shoulder on the outside face of the tenon using the fence as a stop. Make a second cut to complete the tenon cheek. Raise the blade to 1/2" and repeat for the inside cheek of each rail tenon.



1 CHEST SIDE (Right side shown)

We dyed the outside of our chest with a coat of WD Lockwood #144 Early American Maple followed by Varathane Kona stain. Be sure to apply finish to the tongues, because a portion of them is exposed.

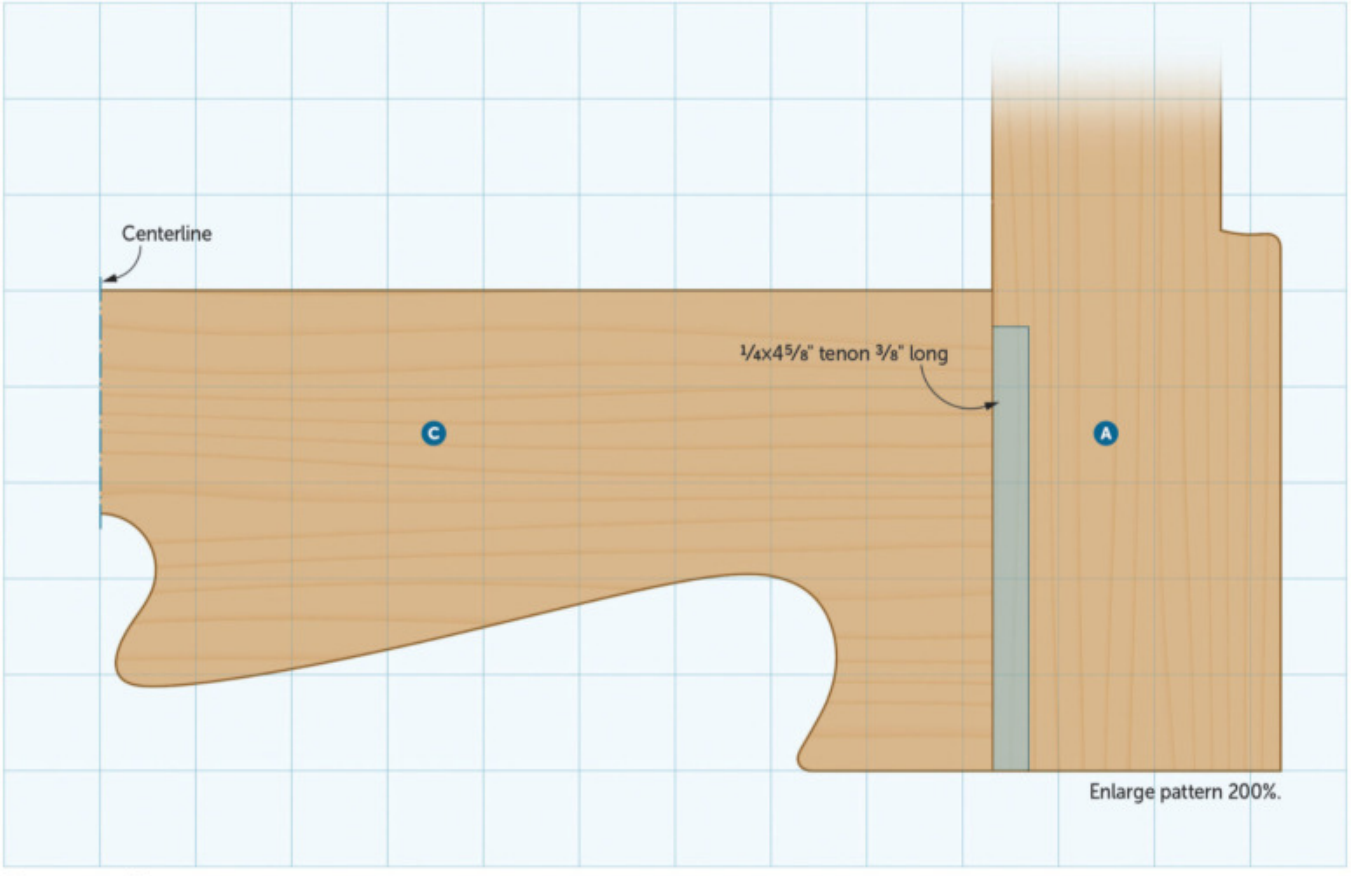


To coordinate with the light interior maple panels, we did not add color coats to the inside surfaces of the chest, taping off those sections of the rails and stiles before applying the dye and stain.

5 Before gluing up the chest sides, Finish-sand the parts and then dry-fit the assemblies (A-D). Note the areas of the stiles and rails (A, C) that face the interior. Disassemble each end assembly and mask off those areas.

Apply dye and stain to the panels [Photo C] as well as to the exterior stile and rail edges that surround them [Photo D]. Avoid getting dye or stain on the inside surfaces. They'll receive a clear finish after final assembly.

2 CHEST SIDE RAIL & STILE HALF-SIZE PATTERNS



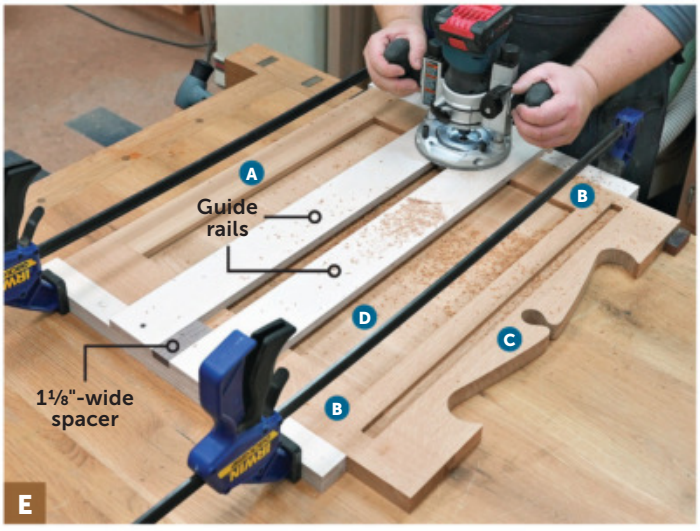
One square = 1"

Note: The ¼" groove connects the top of the stile (A) with the lower dust panel dado in the rear, but stops at the upper dust panel dado in the front stile.

6 Apply glue to the rail (B, C) tenons and to the mating areas on the stiles (A), clamp each assembly (A-D) together, taking care to not get glue on the panel tongues.

7 To form the stopped dadoes on the inside face of each assembly, we installed a 1/4" spiral bit and 5/8" guide bushing in our plunge router and routed the dadoes using a shop-made jig **[Photo E]**. Then remove the guide bushing, install an edge guide, and rout the 1/4" groove in each side stile (A) **[Drawing 1]**. Square up the corners with a chisel.

8 Shape the decorative feet in the side assemblies by cutting the notch in each side stile (A) **[Drawings 1, 2]**. We cut as much as we could at the tablesaw before finishing the subtle curves with a coping saw and files. Sand the cut edges smooth.



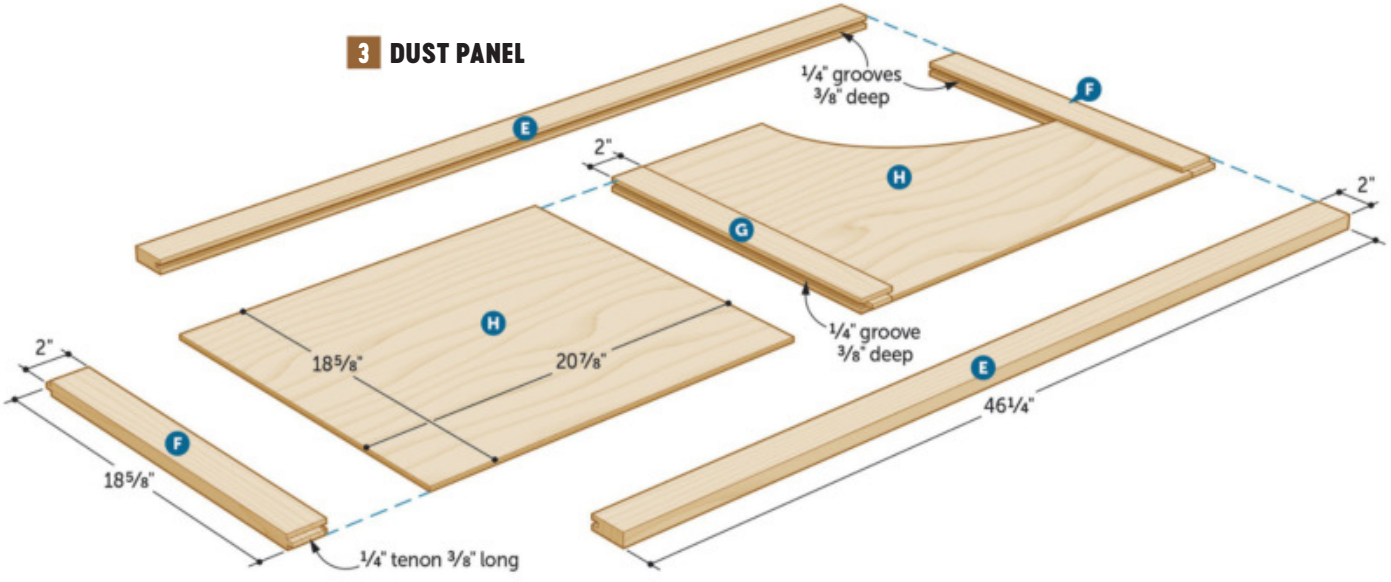
To rout the ¾"-wide dadoes using a ¼" bit and ⅝" bushing, space the routing jig guide rails 1⅛" apart. Set the bit's depth to rout a ⅜"-deep dado, or just touching the face of the panel (D).

DUST OFF THE INNER PANELS

Note: From here on, all of the tenons and grooves are centered and any panel joinery consists of a rabbet on only one face.

1 From 3/4" maple, cut the dust panel stiles and rails (E-G) to size **[Parts List, Drawing 3]**. Use a 1/4" dado stack to cut the centered groove on the inside edge of each stile (E) and end rail (F), and both edges of each center rail (G). Form the tenon on both ends of each rail to fit the 1/4" groove in the stiles.

2 Dry-fit both dust panel frames (E-G) and measure for the dust panels (H). Cut them to size from 1/4" maple plywood. Finish-sand the parts and glue the assemblies together. Because these panels (H) are made of plywood, they won't expand and contract like solid wood, so you can glue them in.



MOVE TO THE FRONT & BACK

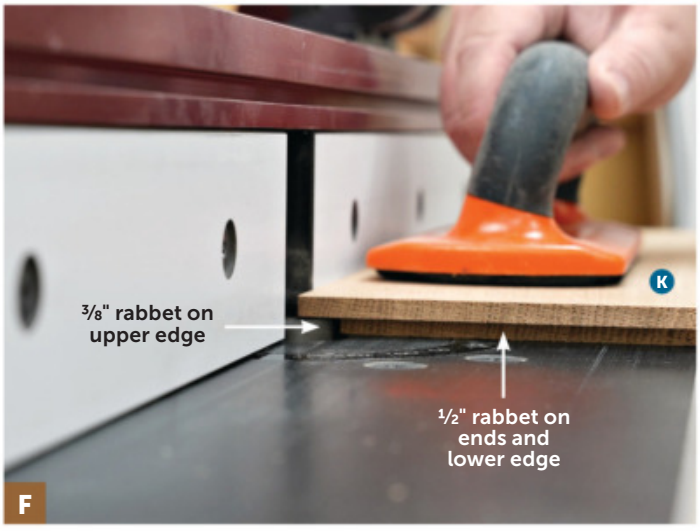
1 Glue up the front apron (I), then cut it and the back rails (J) to size [Exploded View, Drawing 4]. Cut a 1/4" groove centered on one edge of the upper and lower rails, and on both edges of the middle rail. Form the tenon on both ends of each rail and the front apron.

2 Use a 3/4" dado stack to cut the centered groove on the middle rail and the rabbet on the lower rail.

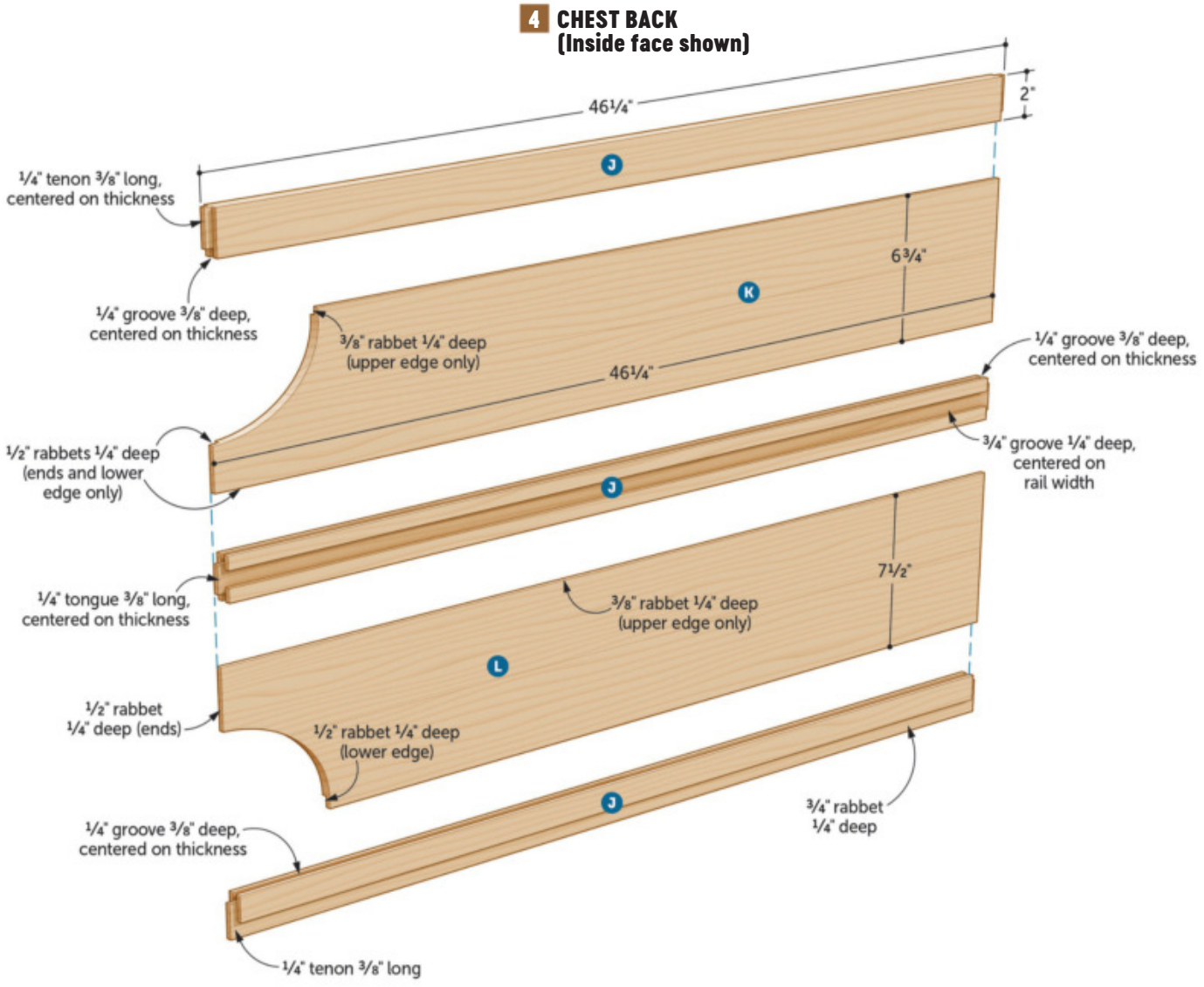
3 From 1/2" white oak, glue up and cut the back panels (K, L) to size. Rabbet the edges, noting that the rabbet on the upper edge is narrower than those on the ends and lower edge [Photo F, Drawing 4].

4 Finish-sand and apply the same dye/stain finish to the outside face of the back panels (K, L) and the outside section of the back rail (J) edges.

Note: **Shorter tongues on the top edge of the back panels (K, L) provide a gap in the rail grooves to allow seasonal wood movement.**



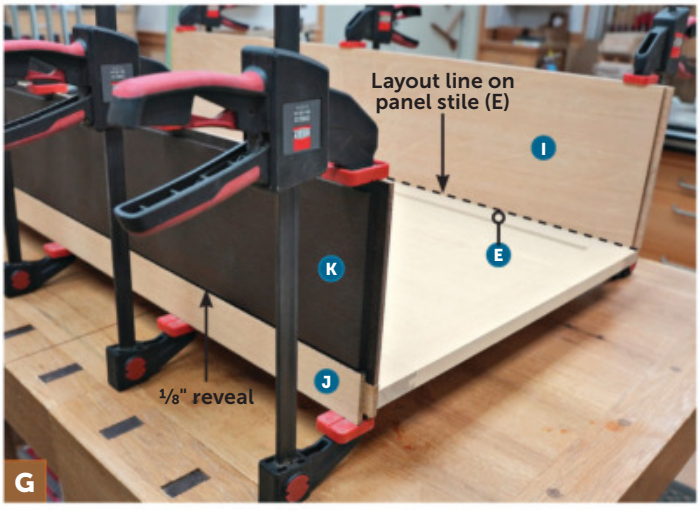
Install a straight router bit and adjust the height to 1/4". Rout a 1/2" rabbet on the lower edge and on both ends of each back panel (K, L). Reset the fence and rout a 3/8" rabbet on each upper edge.



PUT TOGETHER A CASE

1 To begin assembling the chest case, glue and clamp a dust panel assembly (E-H) into the groove in the center back rail (J), flush with the ends of the tenons **[Exploded View]**. Check that the dust panel is square to the face of the rail. Then glue the remaining dust panel assembly into the rabbet on the lower back rail.

2 Dry-fit the center dust panel assembly and front apron (I) between the side assemblies. Scribe the location of the rear face of the apron onto the dust panel stile (E). Measure between the side assemblies for the length of the panel edging (M, N).



Glue and clamp the upper back panel (K) into the groove in the center back rail (J). Glue the front apron (I) to the panel stile (E) and edging (M), aligning the back face with your layout line. Check that both are square to the face of the dust panel.

> **DON'T BE INTIMIDATED BY THE OFFSET JOINERY IN SOME OF THE CHEST PARTS. IT'S EASY IF YOU MARK YOUR PIECES, TAKE YOUR TIME, AND VERIFY SETUPS.**
>
> ***-JOHN OLSON, DESIGN EDITOR***

3 Cut the panel edging to size and glue the pieces to the front edge of each dust panel, centered and flush with the top face of the panel stile (E). Add the upper back panel (K) and front apron (I) to the upper dust panel assembly **[Photo G]**. Then glue the lower back panel (L) into the groove on the lower back rail (J).

4 Now bring together the subassemblies to form the case. First, apply glue to the side assembly dadoes, to the lower third of the tongues on the front apron (I), and to each back rail (J). Then clamp both dust panel assemblies as well as the upper back rail between the side assemblies.

Spread a strap clamp on your workbench around the lid trim (S, T), glue up the miters, then align them as you tighten the strap clamp. Use a pair of bar clamps to assist in bringing the joints together.

PUT A LID ON IT

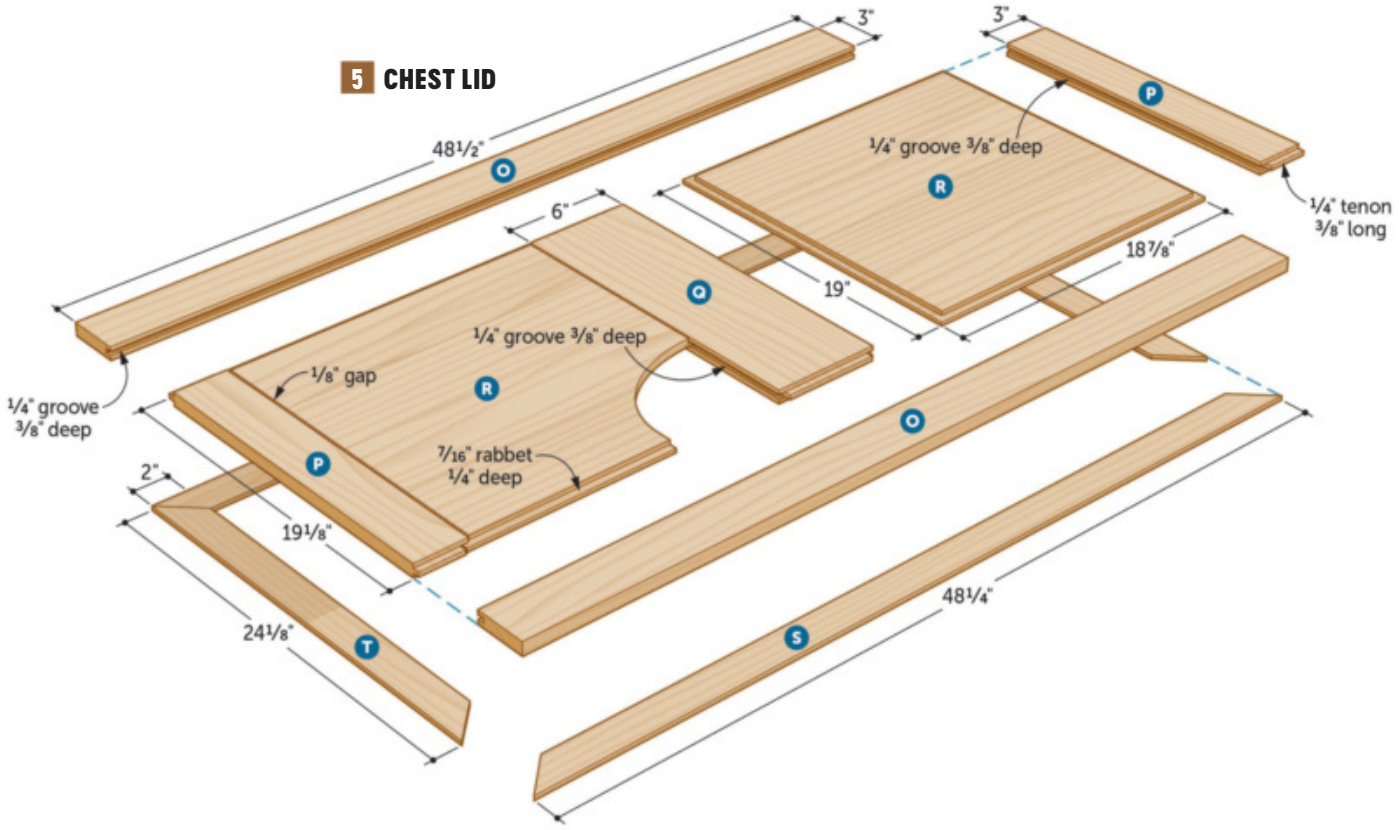
1 Cut the lid stiles and rails (O-Q) to size **[Parts List, Drawing 5]**. Cut a centered 1/4" groove on the inside edge of each part, and both edges of the center rail (Q). Form a tenon on each end of the rails (P, Q) to fit the grooves in the stiles.

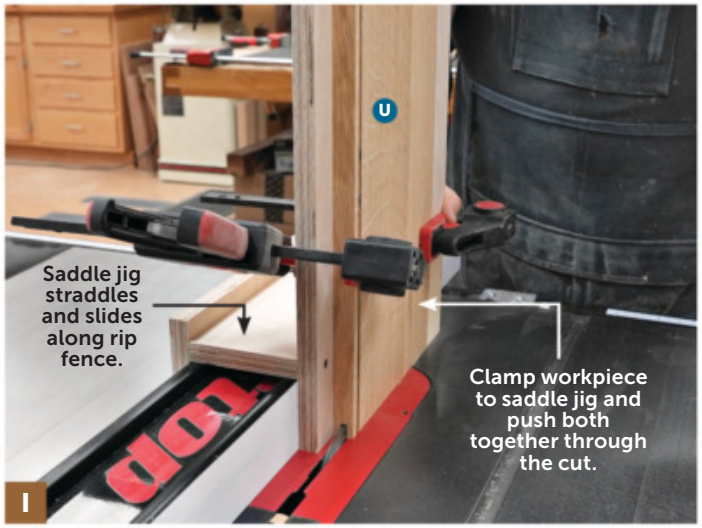
2 From 1/2" stock, glue up and cut to size two lid panels (R). Rout a 7/16" rabbet around the perimeter of each panel on the top face.

3 Cut 2"-wide overlength blanks for the lid trim (S, T) **[Drawing 5]**. Miter-cut the trim to length and glue up the frame **[Photo H]**.

4 As you've done on the other frame and panel assemblies, finish-sand then dye and stain the outside face and rabbets of each panel, and the outside portion of the grooved edge on each stile and rail. Also dye and stain the exposed face and edges of the lid trim frame, keeping the upper face clear for glue.

5 Apply glue to the rail tenons and mating groove areas then clamp together the lid assembly (O-R). After the glue dries, glue and clamp the trim frame (S, T) to the bottom of the lid, centered.





Raise the ¼" dado blade to ½" and cut a centered groove using a tall saddle jig to support the workpiece through the cut.

SLIDE IN A DRAWER

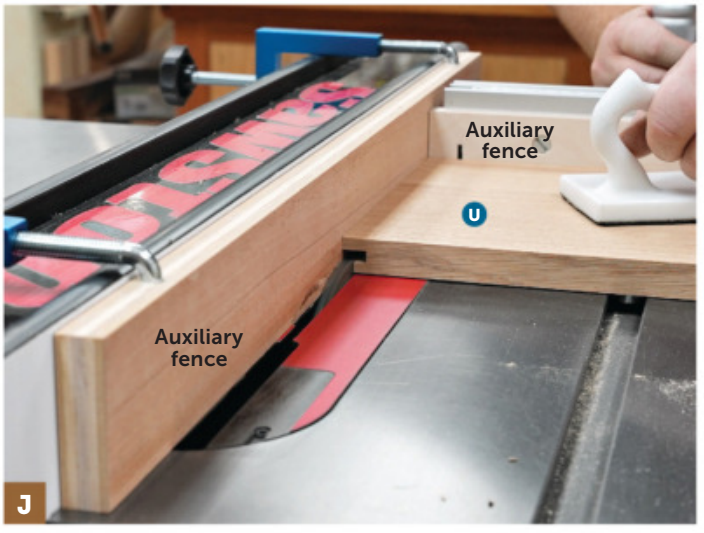
1 Glue up and plane white oak to thickness for the drawer front (U), as well as maple for the sides and back (V, W). Cut the parts to size **[Parts List, Drawing 6]**. Install a ¼" dado stack in your tablesaw and cut a groove on the inside face of each part for the drawer bottom (X).

2 Cut a groove in the ends of the drawer front (U) **[Drawing 6a, Photo I]**, then notch the inside face to finish shaping the joint **[Photo J]**. Cut the rabbet on each end of the rear face of the drawer back (W).

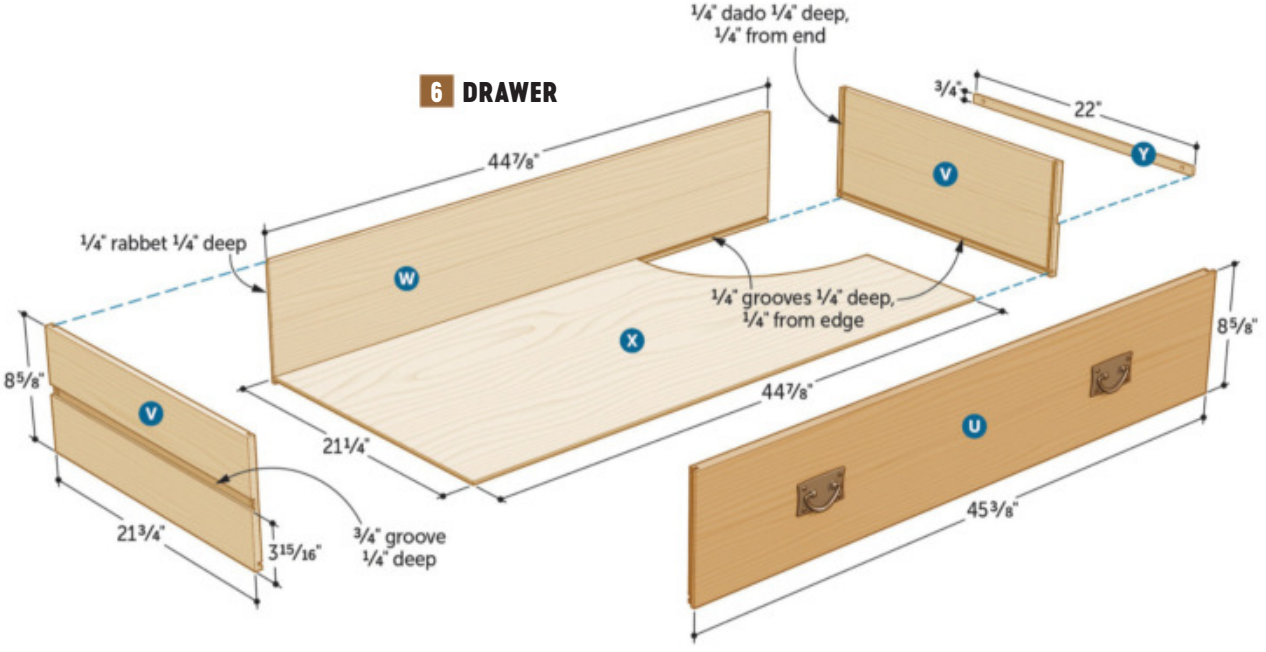
3 Cut the dadoes in the drawer sides (V) to fit the front and back, and form the groove on the outside faces for the drawer guides.

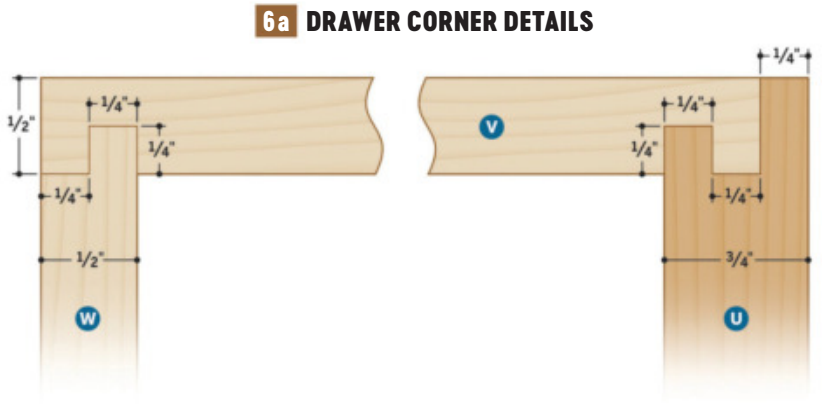
4 Dry-fit the drawer assembly, then measure and cut the drawer bottom (X) to size. Finish-sand the drawer pieces (U-X). Apply glue to the corner joints, then clamp the drawer together, checking for square.

5 From 1/4" maple, cut the drawer guides (Y) to fit the grooves in the drawer. They should slide easily, but with little play. Measure from the bottom edge of the drawer side to the lower edge of the groove for the drawer guide. Add 1/16". Inside the chest, position each drawer guide at that distance above the bottom dust panel end rail (F). Screw the guides to the side stiles (A), flush against the back panel. Check the fit of the drawer and make adjustments with a hand plane as needed.



Attach an auxiliary fence to the rip fence and position it to just touch the blade. Lower the blade to 1/4" and, backing the cut with an auxiliary miter-gauge fence, trim the cheek of the groove.





FINISH UP THE FINISHING

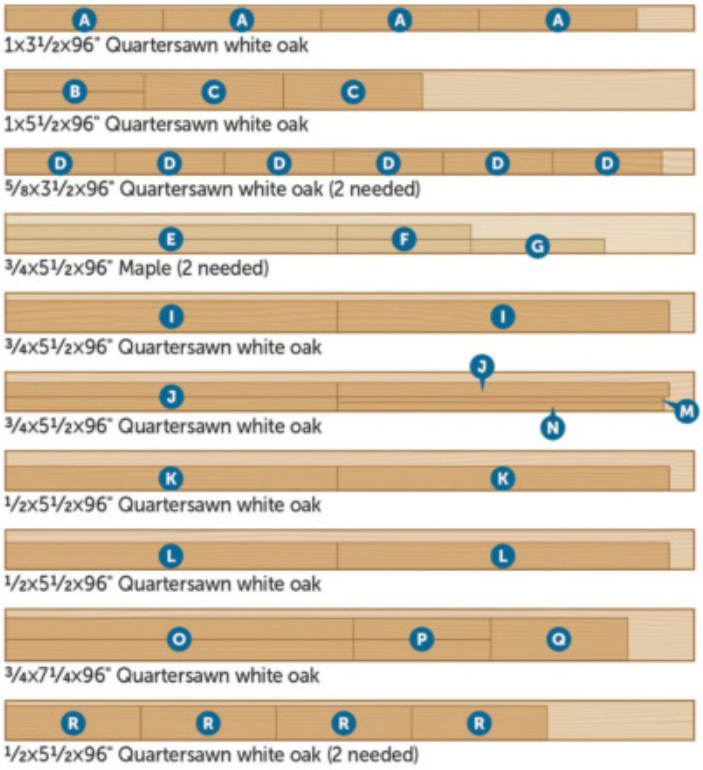
1 Complete any remaining finish-sanding on the chest, lid, and drawer, and ease any sharp edges. Then complete the dye/stain combination on the exterior surfaces. We applied a coat of shellac over the entire chest: exterior, interior, lid, and drawer. After the shellac dried, we sprayed three coats of lacquer on the exterior surfaces, buffing between coats with fine steel wool.

2 When the finish cures, install the drawer pulls and torsion hinges [Sources]. Then give this heirloom chest to its lucky recipient, or put it to work in your home storing blankets and more.

> **A HEAVY LID DEMANDS THE RIGHT HARDWARE. TORSION HINGES SUPPORT THE WEIGHT.**
>
> ***-KEVIN BOYLE, SENIOR DESIGN EDITOR***

CUTTING DIAGRAM

We purchased 10 board feet of 6/4 and 43 board feet of 4/4 quartersawn white oak, plus 16 board feet of 4/4 maple. Before cutting parts to size, we planed them to the thicknesses shown in these example boards.

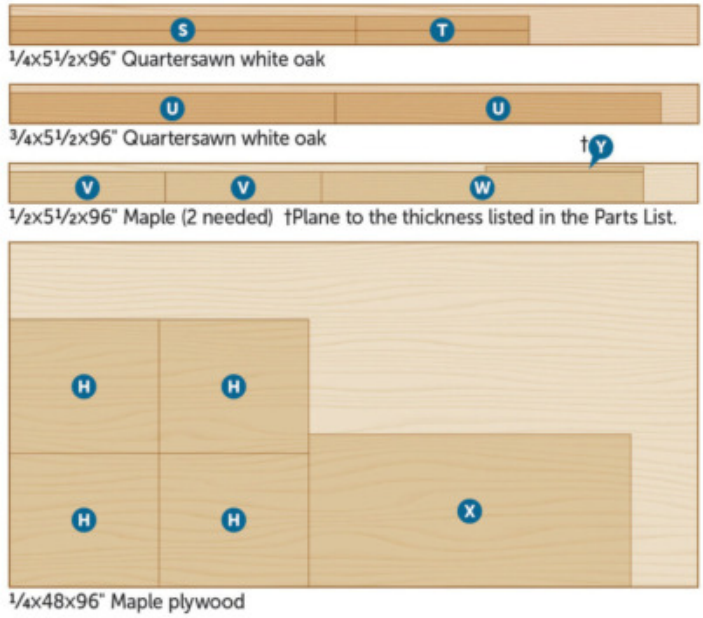


PARTS LIST

PART		FINISHED SIZE T	W	L	Matl.	Qty.
A	SIDE STILES	1"	3"	22"	QW	4
B	SIDE RAILS	1"	2½"	19⅜"	QW	2
C	LOWER SIDE RAILS	1"	5"	19⅜"	QW	2
D	SIDE PANELS	⅝"	19⅛"	15¼"	EGQW	2
E	DUST PANEL STILES	¾"	2"	46¼"	M	4
F	DUST PANEL END RAILS	¾"	2"	18⅝"	M	4
G	DUST PANEL CNTR. RAILS	¾"	2"	18⅝"	M	2
H	DUST PANELS	¼"	18⅝"	20⅞"	MP	4
I	FRONT APRON	¾"	8¾"	46¼"	EGQW	1
J	BACK RAILS	¾"	2"	46¼"	QW	3
K	UPPER BACK PANEL	½"	6¾"	46¼"	EGQW	1
L	LOWER BACK PANEL	½"	7½"	46¼"	EGQW	1
M	CENTER EDGING	¾"	¾"	45½"	QW	1
N	LOWER EDGING	¾"	1¼"	45½"	QW	1
O	LID STILES	¾"	3"	48½"	QW	2
P	LID END RAILS	¾"	3"	19⅛"	QW	2
Q	LID CENTER RAIL	¾"	6"	19⅛"	QW	1
R	LID PANELS	½"	19"	18⅞"	EGQW	2
S*	LID FRONT/BACK TRIM	¼"	2"	48¼"	QW	2
T*	LID SIDE TRIM	¼"	2"	24⅛"	QW	2
U	DRAWER FRONT	¾"	8⅝"	45⅜"	EGQW	1
V	DRAWER SIDES	½"	8⅝"	21¾"	EGM	2
W	DRAWER BACK	½"	8⅝"	44⅞"	EGM	1
X	DRAWER BOTTOM	¼"	21¼"	44⅞"	MP	1
Y	DRAWER GUIDES	¼"	¾"	22"	M	2

*Parts initially cut oversize. See the instructions.

MATERIALS KEY: QW–quartersawn white oak, EGQW–edge-glued quartersawn white oak, M–maple, EGM–edge-glued maple, MP–maple plywood.
BLADE AND BITS: Dado set, 1" straight and ¼" spiral router bits, ⅝" guide bushing.
SOURCES: Lid-stay torsion lid supports pair no. 36275, $70, rockler.com; Bungalow-style cast horizontal pull no. C350C4 (2), $26 each, craftsmenhardware.com.
PROJECT COST: It cost us about $1,100 to build this project. Your cost will vary by region and source.



CNC HALFTONE POP ART

Transform your favorite photographs into eye-catching modern art using this fun and easy CNC V-carving technique.

WRITER: LUCAS PETERS

At arm's length, the magazine you hold in your hands is full of colorful images and crisp text. Zoom in, however, and you'll find those elements are actually composed of an ordered pattern of tiny overlapping dots of varying size–an effect resulting from the process known as halftone printing.

That process was the inspiration for artist Roy Lichtenstein's famous pop art paintings. It's your turn to follow in his footsteps and create your own pop art playfully inspired by print. It's easy on the CNC. Use it to make stand-alone pieces, as we show here, or incorporate the technique into your next project.

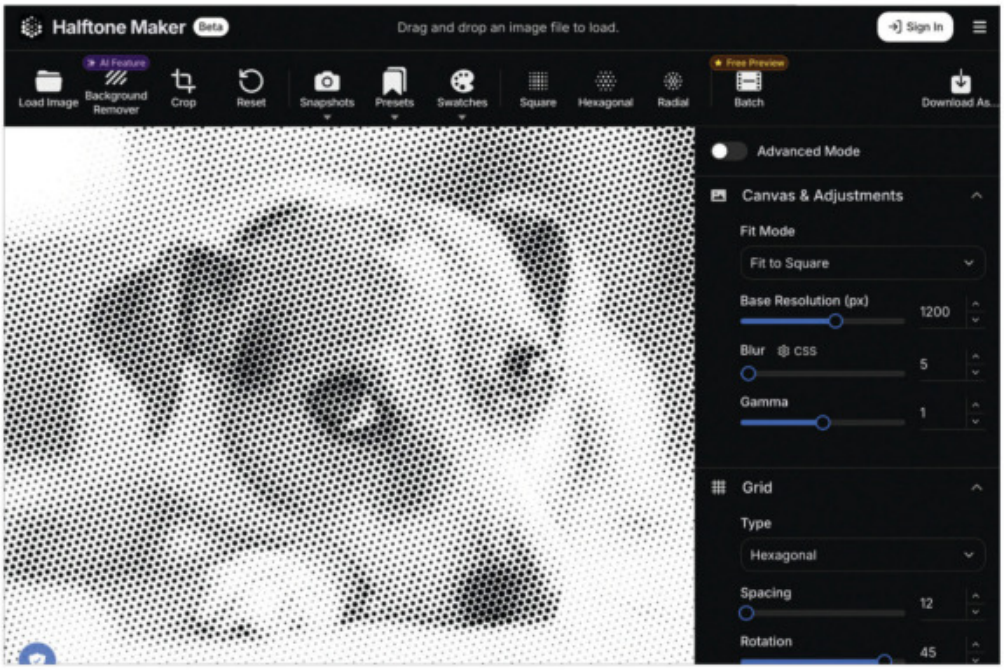
PICK THE PERFECT PICTURE

Try out Halftone Maker for free. Subscribe to export.
woodmagazine.com/halftonemaker

Unlike the tiny, multicolored, overlapping dots that blend together on white paper to form the colorful images in this magazine, for the CNC router we'll be sticking to large single-colored dots–basically, black dots on a white field.

Choosing a suitable photo ensures the best results. Avoid photos with excessively high contrast. Images consisting of dark shadows and blown-out highlights result in fields of overlapping dots or no dots once converted to halftone, ruining the intended effect. Instead, look for a photo with recognizable details made up of a range of midtones.

Also avoid photos with tiny details, too much clutter, or too many subjects. Converting an image to halftone, in effect, reduces its resolution, making those types of elements unrecognizable. Images that contain a close-up or medium shot of a single subject work best. If you view the image from a distance or as a thumbnail and the subject is still recognizable, it will probably work well as a halftone image.



After adjusting the halftone image to your liking with the controls in the panel, click "Download As..." and output the image as an SVG file that you can import into your CNC design software.

CONVERT IT FOR CARVING

We converted our digital images to halftone using a website dedicated to that purpose (halftonemaker.com, $4/month), *above*. It offers a number of controls to fine-tune the halftone output and exports to a CNC-friendly file format.

Choose "Inverse Luminance" as the sampling channel for black dots on a white field. (Choose "Luminance" for the opposite.) Then play with the resolution, spacing, dot size, and other controls until you have a recognizable image mostly composed of distinct (non overlapping) dots. When you're happy, download the image as an SVG file, and import it into your CNC design software.

TIP!

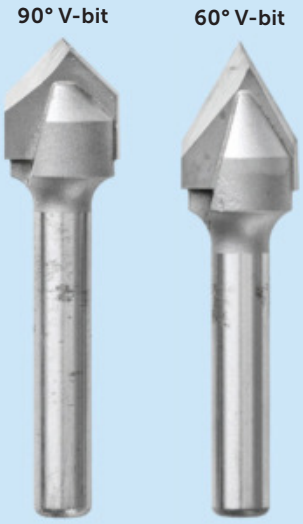
If you don't see circular vectors upon import into your CNC software, you may have to first open the file in vector graphics software to delete the bounding box.

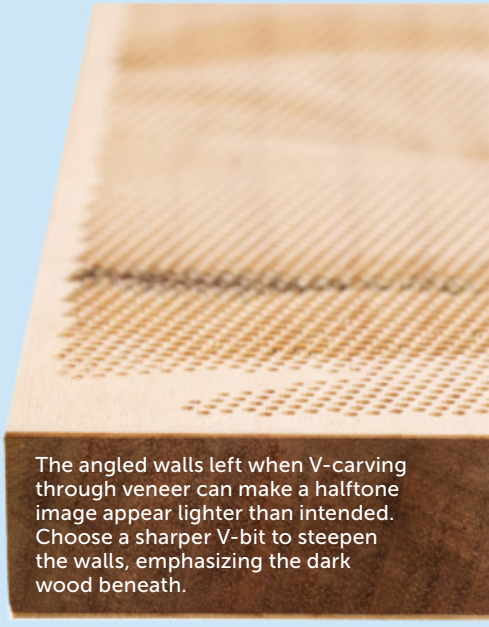
PHOTOGRAPHER: JACOB FOX

A BIT ABOUT BITS

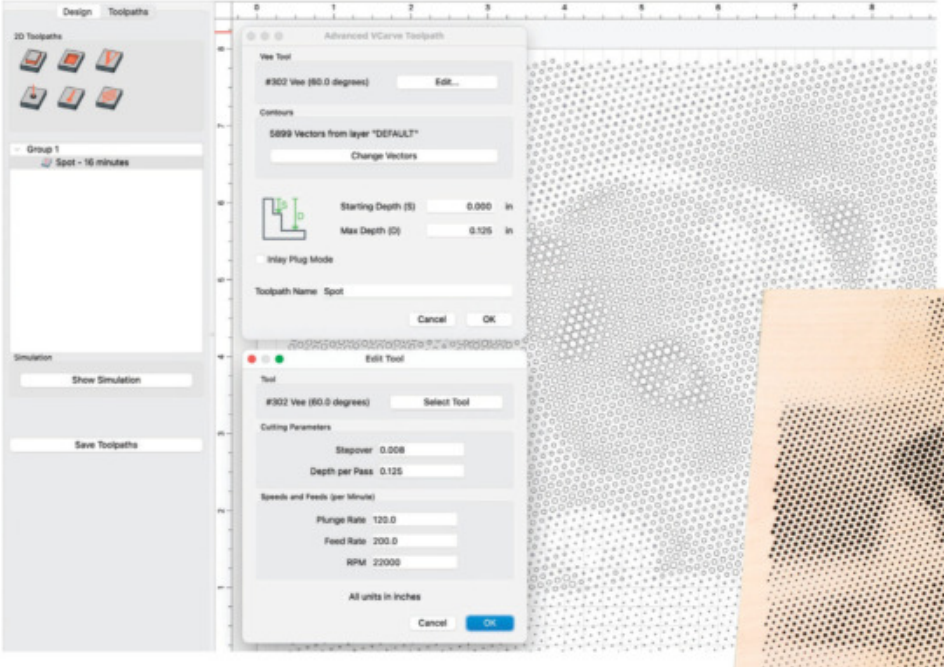
For best image results, match the geometry of the V-bit you select to the materials that you'll be using. In V-carving, the width of the pass a bit can make is determined by the depth it plunges into the wood. At any given depth, a 90° V-bit carves a wider path—or dot in the case of our halftone project—than a 60° bit. This makes quick work of projects using paint on wood.

However, veneer is many times thicker than a paint finish, and, no matter the depth, the V-bit will always leave a visible angled wall of the lighter veneer, potentially diminishing your image. The steeper walls carved by a 60° (or sharper) V-bit minimize that visible effect. Just be sure to set a maximum depth for your toolpath that's short of your material's overall thickness.





The angled walls left when V-carving through veneer can make a halftone image appear lighter than intended. Choose a sharper V-bit to steepen the walls, emphasizing the dark wood beneath.



The bit spends most of the machining time raising, moving, and lowering. If possible, increasing the rapid traverse (slew) and plunge rates is the most effective way to decrease machining time.

Light of color and tight of grain, maple carves cleanly and holds crisp detail. Seal with shellac, carve, seal again, then spray-paint the entire surface black before sanding away the paint to reveal the image.

Set your Z-axis zero at the top face of the stock. Select all of the vectors and set them up as a V-carve toolpath. Choose a V-bit with an angle appropriate for the material you are using. (See *A Bit About Bits, top.*) Regardless of the bit chosen, be sure to limit the maximum depth to less than the material's thickness.

Unlike other V-carving projects you've done in which the bit plows through the wood to carve a trough, halftone carving mainly sees the bit plunging straight in and out of the wood to form small conical divots that appear on the surface as circles. Facing potentially thousands of dots in an image, shorten the run time by adjusting your speeds and feeds settings, *above left*. If your software allows, minimize the bit's Z-retract height to reduce unnecessary up-and-down motion.

PICK AND PREP MATERIALS

The contrast between the dark dots and light-colored field is the key to making your halftone image pop. If you're starting with solid, light-colored wood, you'll need to spray-paint the workpiece after carving, then sand the paint from the surface, leaving the dots. Maple works well, *previous page*, holding a crisp image with little tear-out or paint bleeding. For softer, more open-pore woods or plywoods, adding a layer of stencil film, *left*, before carving reduces chip-out and paint bleed (but requires fussy cleanup to remove bits of film).

For the opposite approach–carving through a light-colored layer to reveal dark material–MDF makes a very clean carving substrate. Either paint the surface white and carve through it or start with a light-colored, MDF-core melamine product, *right top*.

However, if you'd prefer an all-wood look, *page 60*, try adding a light-colored veneer to a dark wood, such as maple on walnut, *below*. To reduce the veneer's tendency to chip, choose lighter images that maintain spacing between the dots. A clearcoat of shellac before carving can help reinforce fibers. (See *A Friendly Finish: Shellac, right bottom*.) Finish-sand; then add another coat of shellac to really make it pop (art).

Oramask, *amazon.com*
813 Stencil Film, 12⅛"×25' roll
no. B078T4G97R, $30

Glue walnut between maple veneer, sandwich these between waxed paper and MDF cauls, then add plenty of clamps to spread the pressure across the entire glue-up.

Light-colored melamine on a darker MDF substrate makes an inexpensive, zero-prep material for testing or even for final carvings. We found this material at the home center sold as whiteboard panels.

A FRIENDLY FINISH: SHELLAC

Aerosol shellac makes a convenient and versatile finish at several stages of this V-carving process. Add a couple of coats to wooden surfaces before carving to reinforce fibers, reducing chip-out.

Shellac layers well with most other finishes, so it can be used under—or over—a coat of paint. Spray on a couple of coats from multiple directions after you carve. This ensures that the paint coat that you spray on next doesn't bleed into the grain inside of the carved dots, distorting your image.

INITIAL INVESTMENT

With a see-through front and monogrammed back, this savings bank will generate plenty of interest.

WRITER: VINCE ANCONA
DESIGNER/BUILDER: KEVIN BOYLE

OVERALL DIMENSIONS
13"W x 3"D x 12"H

PHOTOGRAPHER: JACOB FOX; **ILLUSTRATOR:** CHRISTOPHER MILLS

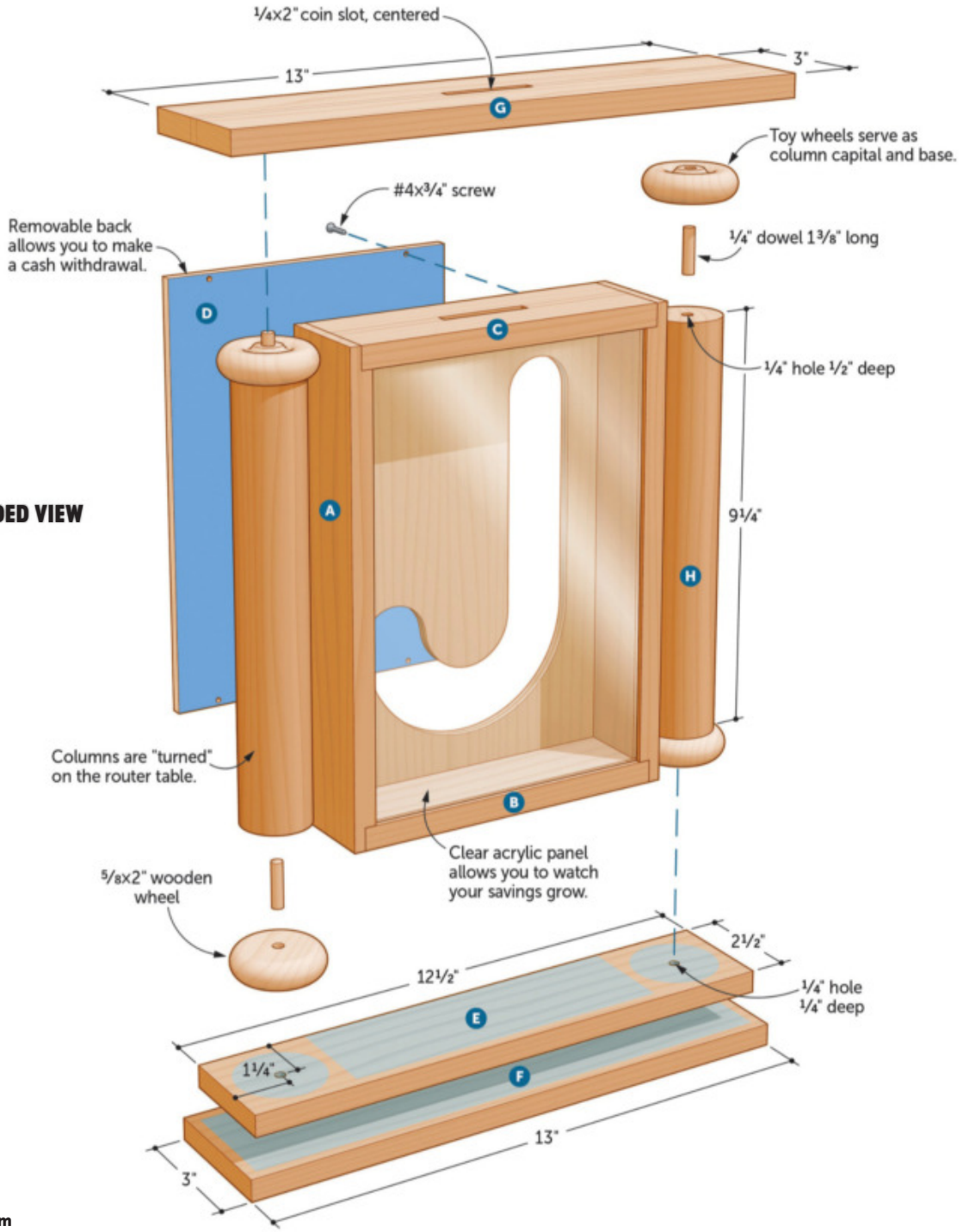
Even though we live in an age of debit cards and digital transactions, kids still get excited over dropping coins into their own bank, especially when they can watch the coins fall to the bottom and accumulate over time. The large window in the front of this bank makes that possible. And the monogrammed initial incorporated into the back panel **[Exploded View]** allows you to personalize the project for the special little saver on your list.

BUILD A SAFE DEPOSIT BOX

1 Cut the sides (A) and bottom (B) to size **[Parts List, Drawing 1]**.

2 Making the top (C) requires ripping short, narrow pieces, a task that's easy with the right precautions. See *Ripping Tips for Short Strips, page 68*. Starting with a 2½×7" blank, rip-cut a 1" wide strip, then rip a ¼" strip from the remaining blank. This should leave a final 1" strip. Crosscut two 2½"-long pieces from the ¼" strip and glue them between the 1" strips, leaving a coin slot in the center **[Drawing 2]**.

EXPLODED VIEW



3 Install a 1/2" dado stack in your saw and raise it for a 1/4"-deep cut. Attach an auxiliary fence to the rip fence and position it so the blade just brushes against it. Then rabbet the ends of the sides (A) **[Drawing 1, Photo A]**.

4 Using the same tablesaw setup, cut a rabbet along the inside back edge of the sides (A), bottom (B), and top (C).

5 Install a single blade in your saw and cut a groove in the sides, bottom, and top for the acrylic panel. Finish-sand all the parts.

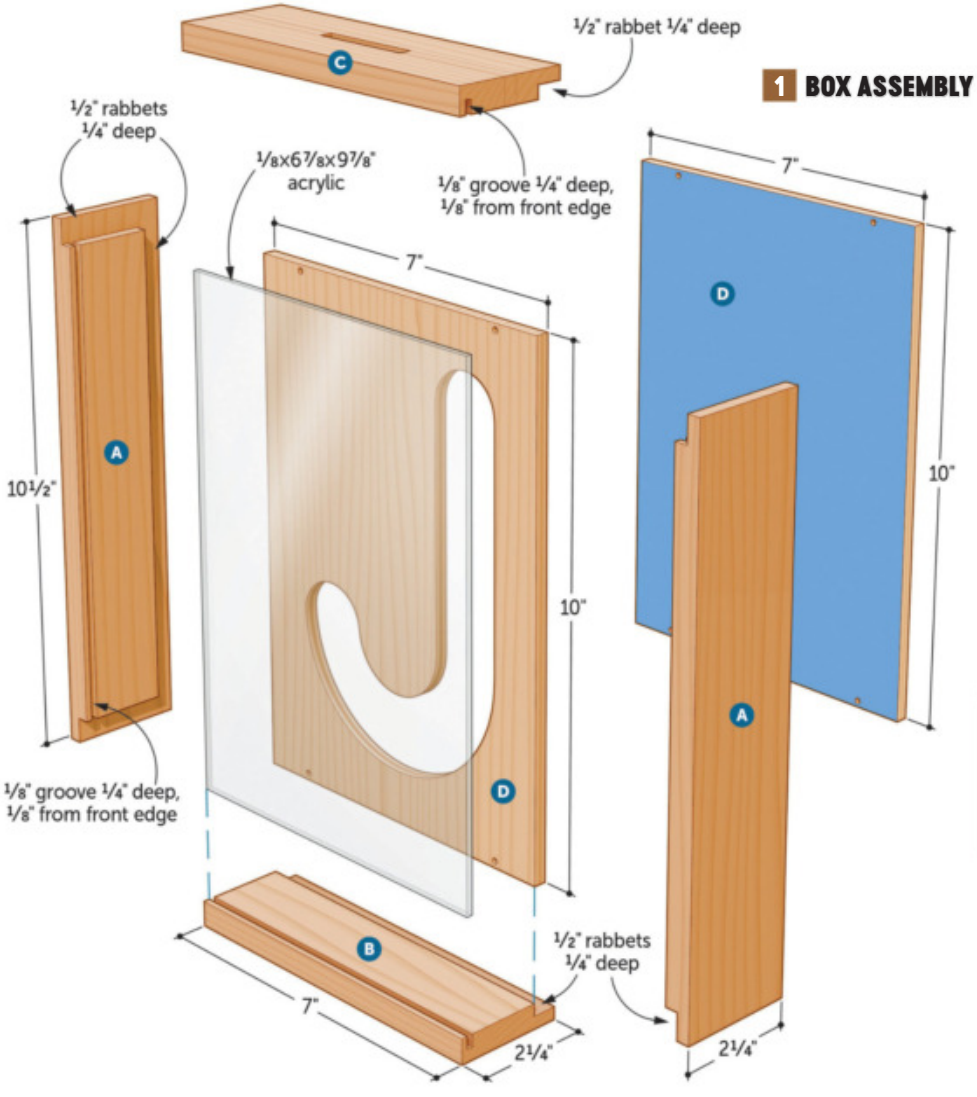
6 Cut a piece of acrylic to size. Peel off the protective coating and dry-assemble the parts to measure the opening for the back panels. Cut the back panels (D) to size.

7 Glue the sides, bottom, and top, together capturing the acrylic panel in the grooves **[Photo B]**.

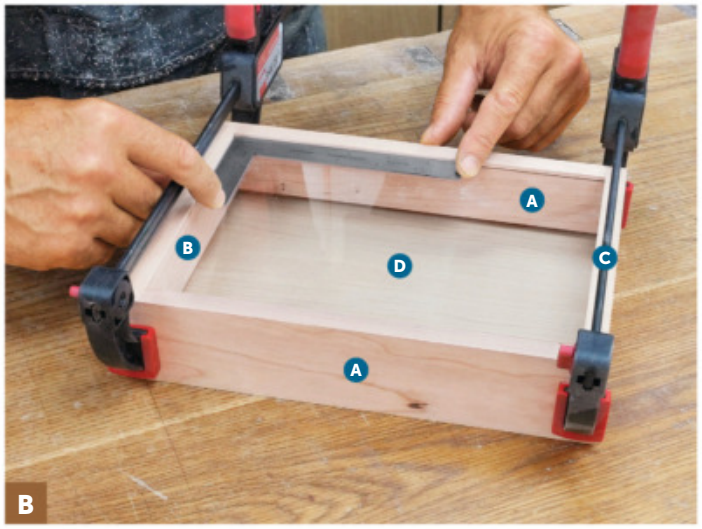
TIP!

To avoid scuffing or scratching the acrylic, leave the protective plastic coating in place while cutting.

Using a dado blade and auxiliary rip fence, rabbet the ends of the sides (A). An auxiliary fence attached to the miter gauge backs up the cut to prevent tear-out.

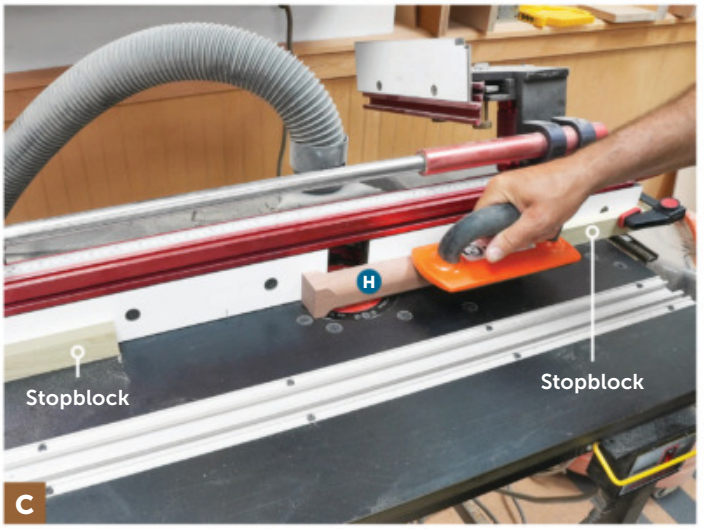


Download letter patterns for your bank.
woodmagazine.com/307patterns



B

Set one of the back panels (D) temporarily in place to help hold the box square while gluing it around the acrylic panel. Apply clamps and check for square, adjusting the clamps if needed.



C

Clamp a pair of stopblocks to the router-table fence to define the starting and stopping points. Pivot the workpiece into the spinning bit, then push the column blank forward until it hits the stopblock.

ADD PILLARS OF FINANCE

1 Cut the subbase (E) and base (F) to size. For the cap (G), cut a 3¼"-wide blank to length **[Drawing 2]**. Create a slot using the same technique you used for the top (C). On the ¼" strip, measure from each end and crosscut a section from the middle. Glue the cut pieces between the 1" strips in their original orientation for grain match **[Drawing 2]**.

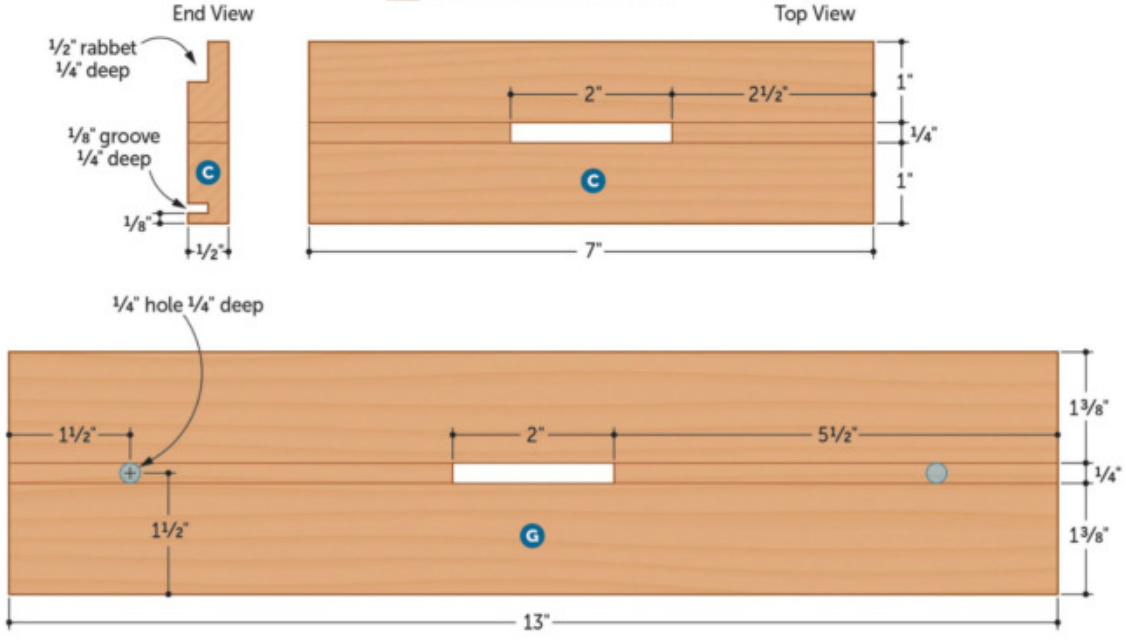
2 Lay out the dowel locations in the cap (G) **[Drawing 2]** and subbase (E) **[Exploded View]**. Drill the stopped holes.

3 From 1½" stock, cut two square blanks 13" long for the columns (H). Using a ¾" round-over bit, round over all four edges of each blank at the router table **[Photo C]**.

4 Clamp the box (A–C) between the cap and subbase. Stack two wheels together and set them on the subbase, then measure between the cap and the stacked wheels to determine the column length. (If the hubs of the wheels are thicker than the rims, sand them flush.)

Learn how to make your own dowels.
woodmagazine.com/shopmadedowels

2 TOP AND CAP DETAILS



RIPPING TIPS FOR SHORT STRIPS

Cutting short, narrow strips on the tablesaw, like those used for the top (C), can be a nerve-racking experience. Even when correctly cutting the thin strip on the outboard side of the blade using a proper pushblock, *below, bottom*, if the strip is too short, it may move past the infeed edge of the blade before reaching the riving knife, *below, top*. That can cause kickback.

To minimize this danger, raise the blade just high enough for the teeth to clear the workpiece. This reduces the distance between the front of the blade and the riving knife, so the workpiece reaches the riving knife before being cut through completely, *below, middle*.

If your workpiece is too short to cut with the blade low, rip the strip from an overlength blank and then crosscut the needed piece to length.

5 Cut one end of each column (H). Using a miter gauge and stopblock, cut the columns to final length **[Photo D]**.

6 Use a centerfinder to lay out the centerpoints on the ends of the columns **[Photo E]**. Drill a hole in each end of both columns. Cut four 1/4" dowels 1 3/8" long and glue them into the holes. Glue a wheel to each end of the columns **[Exploded View]**. Glue the base to the subbase with an even reveal all around.

Learn how to drill a centered hole on the end of a dowel
woodmagazine.com/enddrillingdowels

NAME YOUR BANK

1 Retrieve both backs (D) and drill the screw holes **[Drawing 1]**. Using the online patterns, print the letter you wish to make and attach the pattern to one of the backs with spray adhesive. Cut out the letter using a scrollsaw or jigsaw. (If your letter has any interior trapped areas, save those pieces.) Sand the edges smooth.

2 Spray paint the inside face of the remaining back. After the paint dries, stack the cut-out back on top and glue any trapped waste pieces from your letter into place, using cyanoacrylate glue.

3 Mask the acrylic with painter's tape and paper. Finish the exterior and interior of the bank, and the rear face of the painted back. We used three coats of spray lacquer, sanding between coats with a 400-grit sanding sponge.

4 When the finish dries, screw the backs into place. Add a little spare change as seed money and give the bank to your young saver.

PARTS LIST

PART		FINISHED SIZE T	W	L	Matl.	Qty.
A	SIDES	½"	2¼"	10½"	C	2
B	BOTTOM	½"	2¼"	7"	C	1
C*	TOP	½"	2¼"	7"	C	1
D	BACKS	¼"	7"	10"	MP	2
E	SUBBASE	½"	2½"	12½"	C	1
F	BASE	½"	3"	13"	C	1
G*	CAP	½"	3"	13"	C	1
H*	COLUMNS	1½"-diam.		9¼"	C	2

*Parts initially cut oversize. See the instructions.

MATERIALS KEY: C–cherry, MP–maple plywood.
SUPPLIES: #4x¾" flathead screws, ¼" hardwood dowel, ⅛" acrylic, spray paint.
BLADE AND BITS: Dado blade, ¾" round-over bit, ¼" brad-point bit.
SOURCES: 2" classic wheels with ¼" hole no. TW2001 (12-pack), $6, craftparts.com; 1½" machinist centerfinder square no. 469508, $12, taytools.com.
PROJECT COST: It cost us about $60 to build this project. Your cost will vary by region and source.

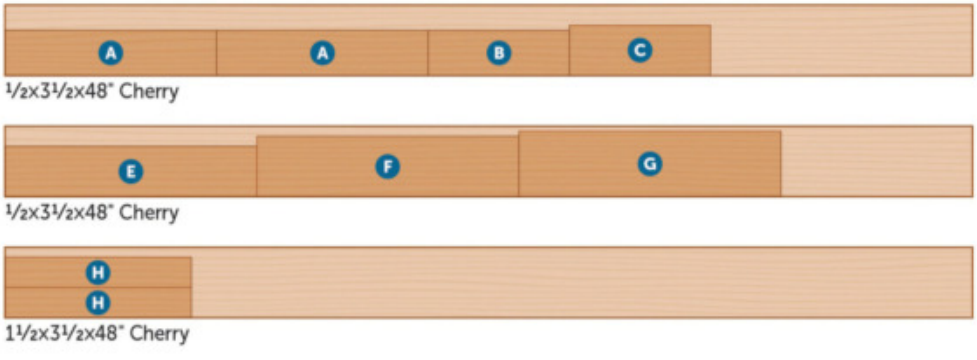
Clamp the columns (H) to the miter gauge fence before cutting them to length to prevent them from shifting. A stopblock ensures that you cut both columns to the same length.

Using a shop-made (pictured) or commercial centerfinder **[Sources]**, lay out the centerpoint on the ends of each column. Then mark the centerpoints with an awl before drilling holes for dowels.

> **HAVE YOUR KIDS LOOK UNDER COUCH CUSHIONS FOR LOST CHANGE TO START THEIR SAVINGS JOURNEY. ANY M&M'S OR JELLY BEANS THEY FIND ARE A BONUS.**
>
> ***-KEVIN BOYLE, SENIOR DESIGN EDITOR***

CUTTING DIAGRAM

We purchased 4 board feet of 4/4 cherry and 3 board feet of 8/4 cherry. Before cutting parts to size, we planed them to the thicknesses shown in these example boards.



TOOLS OF A DIFFERENT TRADITION

Japanese hand tools are relatively well known among western woodworkers, but traditional Chinese versions remain obscure. A company called Zen-Wu Toolworks (zenwutoolworks.com) hopes to change that with its cutting, striking, and sharpening tools that blend traditional Chinese form with modern metallurgy. Contributing Craftsman Jim Heavey put a few to the test.

Chisel set arrives ready for work

A recent project presented the perfect time to try out a set of Zen-Wu Y-1 chisels. Made from "white-paper" (Shirogami) carbon steel, these chisels were exceptionally sharp out of the box with a mirror-like surface on the 30° bevel and on the back, which was honed dead flat. The turned hardwood handles fit comfortably in my hand, and the two-piece blade and ferrule connection to the handle felt very robust, showing no ill effects from repeated mallet blows.

Working in hard maple, I was able to cut mortises free of tear-out using all five chisels in the set that includes ⅛", ¼", ⅜", ⅝", and 1" widths. I'll continue to use my old chisels for roughing out, and I'll reserve the Y-1s for finer work.

Y-1 Chisel Set no. Zen-Wu Y-1, $319

Diamond cards are a sharpener's best friend

Every chisel-sharpening technique I've used has a benefit and downside. With the Zen-Wu ZenSharp system of diamond-coated metal cards, I think I've found a happy medium. The system includes cards from coarse to ultra fine, along with a kangaroo-leather strop, that attach magnetically to a robust base that holds the thin cards at .0001" flatness.

Zen-Wu recommends using water or Windex as a lubricant, which makes use and cleanup very easy. The sharpening progress went so smoothly and quickly that I sharpened all my chisels in addition to the beat-up chisel I selected for the test. My chisels now have a mirror-like edge that easily passes the hair shaving test.

ZenSharp Pro Kit no. Pro Kit, $199

This layout tool makes a lasting mark

I've used (and even made) many types of marking knives, but none with the elegance and practicality of the PalmBlade by Zen-Wu Toolworks. The dead-flat back follows a straight edge perfectly and has dual cutting edges that are nicely sharpened and honed to a mirror-like finish. The knife fits comfortably in hand. The artfully fused blade edge is paired with a blade body that's gracefully grooved and topped with a hardwood cap. The knife comes in a large but heavy-duty leather holster with a belt loop and clip. Yes, it's just a marking knife but it's destined to become a shop heirloom.

PalmBlade no. Titanium + Magnacut, $227

PHOTOGRAPHERS: CARSON DOWNING, JIM HEAVEY

continued on page 72

LX30 SAWMILL
Starting at $2,895*

PORTABLE SAWMILLS
17 MODELS

MB100 SLABMIZER
SLAB FLATTENING MILL
Starting at $9,995*

SLAB FLATTENING MILLS
2 MODELS

MP180 JOINTER
PLANER MOULDER
Starting at $6,995*

PLANER/MOULDERS
6 MODELS

PUT THE FIR IN FURNITURE

AND SOME MAPLE IN A TABLE

Andrew Koessler used locally sourced red cedar, Douglas fir and maple sawn on his Wood-Mizer LT40 Hydraulic sawmill to build this cozy guest cabin in Canada.

LIVE the wood life®

Proven in workshops throughout the world, Wood-Mizer equipment is quality-built and backed by legendary service so you can successfully take your woodworking dreams *From Forest to Final Form.*®

woodmizer.com
800.553.0182
Financing Available!

Wood-Mizer
from forest to final form®

SHOP-TESTED

TINY SQUARES PUT LAYOUT ACCURACY IN YOUR POCKET

Tester: Jim Heavey

Bridge City Tool Works often leaves me impressed by the precision and craftsmanship of their tools, and the Mini Miter squares were no exception. Their size makes them great for checking angles on small projects where standard-size squares just won't fit. They excel at laying out tenon and mortise locations on small or narrow stock.

The kit includes a 2" 45/90° square and a 3" 30/60/90° square. Each has an etched rule on one edge in both inches and millimeters. The squares also feature a rotating "foot" that can hook over the edge or end of a workpiece to hold and align them on any stock. The measuring scales, though, are not calibrated when using the foot. For the fashion-conscious woodworker, the squares are available in three colors: black, sapphire blue, and burnt caramel. These squares are small enough to fit in your pocket and very handy to boot.

Bridge City Tool Works, *bridgecitytools.com*
Mini Miter Square Kit no. mms-kit jet black, $49

SHOP-TESTED

FLIP-TOP TOOL STAND SAVES SHOP SPACE

Tester: Dave Stone

Powertec's new flip-top tool stand houses two benchtop tools in the space of one. The stand supports 300 lbs and accommodates tools up to 23" tall on a 1×20×25" melamine-covered MDF top.

I mounted a 13" thickness planer weighing 75 lbs on one face by drilling holes and bolting through the tabletop. To test screw-holding, I mounted a lighter belt/spindle sander to the other side using #12 screws. Both tools felt solid, though I'd follow the manufacturer recommendations to through-bolt any tool for peace of mind. The rotating mechanism worked smoothly but there's no dampener to check rotational momentum. Grip the tool firmly and keep your fingers away from the table edges as you rotate the top. I like that the top clicks temporarily into position as soon as you level it, then locks with a lever.

The rest of the stand is made from heavy-gauge steel with a thick finish. Fixed casters support one end, while the other rests on adjustable rubber feet until you depress a foot lever that lowers a single swivel caster. I was able to roll the stand easily on smooth floors, but the rigid plastic casters tended to catch on rough and cracked floors.

Powertec, *powertecproducts.com*
Flip-Top Tool Stand With Caster Wheels no. UT1012, $287

SHOP-TESTED

REFRESHED GUIDE OFFERS MULTIPLE TOOL MOUNTING OPTIONS

Tester: Dave Stone

Kreg's Rip-Cut has always provided an easy way to make edge-guided circular saw cuts for breaking down sheet goods. But securing the saw accurately proved challenging. The latest generation impressed me with a redesigned sled that holds the saw much more securely, plus adjusts to accept more tools, such as a jigsaw, trim router, or compact circular saw. Installing, removing, and swapping between any of those tools is fast and tool-free, making this guide potentially much more versatile. The new version also improves the lock that holds the sled in the position you select on its 24" scale. Finally, my aging eyes appreciate the new white-on-anodized-black scale that's easier to read than the black print on silver of previous versions.

Kreg, *kregtool.com*
Rip-Cut no. KMA2400, $50

continued on page 74

Survival of the Sharpest

*When it's you against nature, there's only one tool you need: the tempered steel Stag Hunter from Stauer—now **ONLY $59!***

That first crack of thunder sounded like a bomb just fell on Ramshorn Peak. Black clouds rolled in and the wind shook the trees. I had ventured off the trail on my own, gambled with the weather and now I was trapped in the forest. Miles from camp. Surrounded by wilderness and watching eyes. I knew that if I was going to make it through the night I needed to find shelter and build a fire... fast. As the first raindrops fell, I reached for my ***Stag Hunter Knife***.

Forget about smartphones and GPS, because when it comes to taking on Mother Nature, there's only one tool you really need. Our stunning ***Stag Hunter*** is the ultimate sidekick for surviving and thriving in the great outdoors. Priced at $149, the ***Stag Hunter*** can be yours today for an unbelievable **$59!** Call now and we'll include a bonus leather sheath!

A legend in steel. The talented knifemakers of Trophy Stag Cutlery have done it again by crafting a fixed-blade beauty that's sharp in every sense of the word. The ***Stag Hunter*** sports an impressive 5⅓" tempered German stainless steel blade with a genuine deer stag horn and stained Pakkawood™ handle, brass hand guard and polished pommel. You get the best in 21st-century construction with a classic look inspired by legendary American pioneers.

But we don't stop there. While supplies last, we'll include a pair of $99 30x60 HD pocket binoculars *and* a genuine leather sheath **FREE** when you purchase the Stag Hunter Knife.

Your satisfaction is 100% guaranteed. Feel the knife in your hands, wear it on your hip, inspect the craftsmanship. If you're not completely impressed, send it back within 30 days for a complete refund of the item price. But we believe that once you wrap your fingers around the ***Stag Hunter's*** handle, you'll be ready to carve your own niche into the wild frontier.

EXCLUSIVE FREE Stauer 30x60 HD Pocket Binoculars -a $99 value- with your purchase of the Stag Hunter Knife

BONUS! Call today and you'll also receive this genuine leather sheath!

Not shown actual size.

★★★★★
"This knife is beautiful!"
— J., La Crescent, MN

★★★★★
"The feel of this knife is unbelievable... this an incredibly fine instrument."
— H., Arvada, CO

Stag Hunter Knife ~~$149~~*

Offer Code Price Only $59 + S&P Save $90

TAKE 60% OFF INSTANTLY! When you use your INSIDER OFFER CODE

1-800-333-2045

Your Insider Offer Code: SHK383-10

You must use the insider offer code to get our special price.

Stauer® 14091 Southcross Drive W., Dept. SHK383-10 Burnsville, Minnesota 55337 www.stauer.com

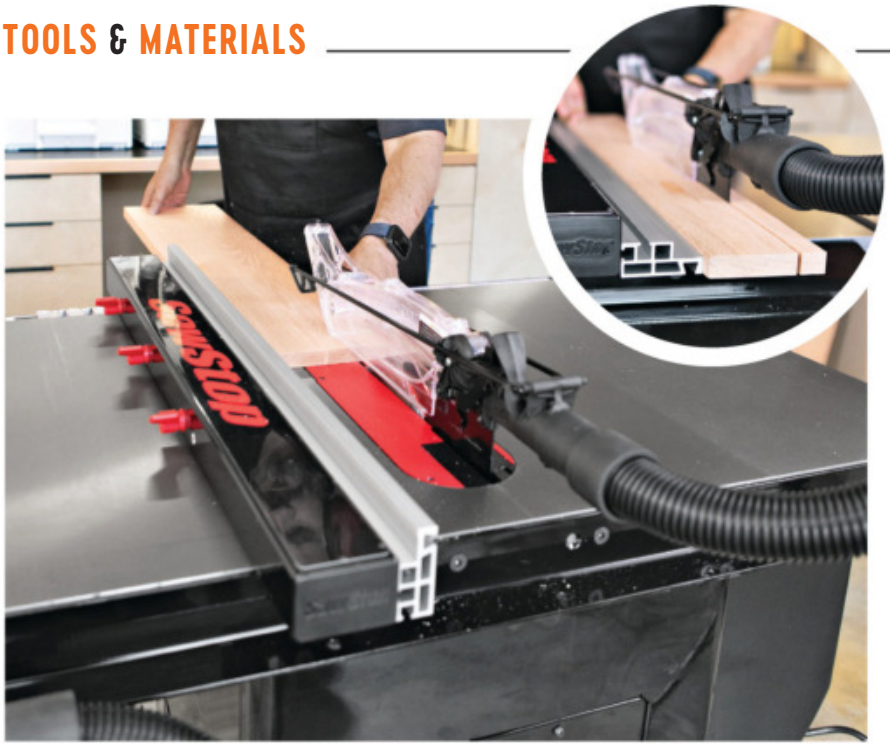
*Discount is only for customers who use the offer code versus the listed original Stauer.com price.

BBB ACCREDITED BUSINESS Rating of A+

CONSUMER AFFAIRS ACCREDITED

• 5 1/3" fixed German stainless steel blade (9 3/4" total length) • Stag horn and Pakkawood™ handle • Includes leather sheath

Stauer... *Afford the Extraordinary.*®



SHOP-TESTED

TABLESAW FENCE WORKS IN TWO POSITIONS

Tester: WOOD staff

SawStop's new T-Glide Advance rip fence features a repositionable aluminum fence face. Much like the old Delta Unifence, the T-Glide face can also mount in a low position that lets you cut narrow stock while still using the blade guard. Invert the L-shaped fence and secure a guide to the top of your workpiece to cut a straight edge on rough-sawn wood. With the motor off, we were able to set the fence within ⅛" of the blade (far closer than we'd use for cutting) without triggering the saw's warning light. The face also moves fore and aft, allowing you to position it ahead of the infeed side of the blade as a stop. The dovetail slot on the face accepts an auxiliary fence or featherboards, and the fence ships with two sliding dovetail wedges to incorporate into your own jigs. The fence is available as an upgrade on new SawStop Professional and Industrial saw models, and fits current models.

SawStop, *sawstop.com*
T-Glide Advance Rip Fence no. ATGP-FA, $349; no. ATGI-FA, $399

NEW & UNTESTED

LIGHTWEIGHT MITERSAW

If you don't have space for a dedicated mitersaw station but you're not up for hefting an awkward, heavy saw from storage to the benchtop, the new 10" mitersaw from Metabo HPT might be for you. At just 24 lbs, it's a relative featherweight. But despite that, the saw offers a 15-amp, 110-volt motor. It boasts miter range of 52° left and right, and tilts left to cut a 45° bevel. The saw can cut a 2×6 at 90° and a 2×4 at 45°. It comes equipped with a 40-tooth carbide-tipped blade. At $179, the price isn't too big to lift, either.

Metabo HPT, *metabo-hpt.com*
10" Single-Bevel Compound Miter Saw
no. C10FCG2, $179

NEW & UNTESTED

BENCHTOP DRUM SANDER

Grizzly's new benchtop sander handles boards up to 22" wide and 3" thick using a 5"-diameter open-ended drum. That drum oscillates side to side to minimize heat and sandpaper clogging. It can be set to rotate only. A 1-hp, 110-volt motor drives the drum. The conveyor speed is adjustable from 0-15' per minute. At 87 lbs, it's not something you'll want to heft up and down from your bench, but it still offers wide sanding capacity without taking excess floorspace.

Grizzly, *grizzly.com*
11" Benchtop Oscillating Drum Sander
no. G0404, $1,150

Statement of Ownership, Management, and Circulation
(Requester Publications Only)
1. Publication Title: Wood **2.** Publication Number: 724890 **3.** Filing Date: October 1, 2025 **4.** Issue Frequency: Seven times a year in March, May, July, September, October, November, and December **5.** Number of Issues Published Annually: 7 **6.** Annual Subscription Price: $29.99 **7.** Complete Mailing Address of Known Office of Publication: 1716 Locust St., Des Moines, IA 50309 **8.** Complete Mailing Address of Headquarters or General Business Office of Publisher: 1716 Locust St., Des Moines, IA 50309 **9.** Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher: Marty Wolske, 1716 Locust St., Des Moines, IA 50309; Editor: Lucas Peters, 1716 Locust St., Des Moines, IA 50309; Managing Editor: Dave Stone, 1716 Locust St., Des Moines, IA 50309. **10.** Owner: Meredith Operations Corporation, 1716 Locust St., Des Moines, IA 50309.
11. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or more of Total Amount of Bonds, Mortgages, or Other Securities: Meredith Holdings Corporation, 1716 Locust St., Des Moines, IA 50309. **12.** Tax Status (For completion by nonprofit organizations authorized to mail at nonprofit rates). Check one: The purpose, function, and nonprofit status of this organization and the exempt status for federal income tax purposes: __ Has Not Changed During Preceding 12 Months __ Has Changed During Preceding 12 Months (Publisher must submit explanation of change with this statement) Not applicable.
13. Publication Title: Wood
14. Issue Date for Circulation Data Below: December 2025
15. Extent and Nature of Circulation
Average No. Copies Each Issue During Preceding 12 Months:
a. Total number of copies (Net press run): 184,027
b. Legitimate Paid and/or Requested Distribution (By Mail and Outside the Mail):
(1) Outside-County Paid/Requested Mail Subscriptions Stated on PS Form 3541: 157,562
(2) In-County Paid/Requested Subscriptions Stated on PS Form 3541: 0
(3) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS: 4,112
(4) Requested Copies Distributed by Other Mail Classes Through the USPS: 0
c. Total Paid and/or Requested Circulation: 161,674
d. Nonrequested Distribution (By Mail and Outside the Mail):
(1) Outside-County Nonrequested Copies Stated on PS Form 3541: 3,655
(2) In-County Nonrequested Copies Included on PS Form 3541: 0
(3) Nonrequested Copies Distributed Through the USPS by Other Classes of Mail: 0
(4) Nonrequested Copies Distributed Outside the Mail: 298
e. Total Nonrequested Distribution: 3,953
f. Total Distribution: 165,627
g. Copies not Distributed: 18,401
h. Total: 184,028
i. Percent Paid and/or Requested Circulation: 97.61%
No. Copies of Single Issue Published Nearest to Filing Date:
a. Total Number of Copies (Net press run): 160,000
b. Legitimate Paid and/or Requested Distribution (By Mail and Outside the Mail):
(1) Outside-County Paid/Requested Mail Subscriptions Stated on PS Form 3541: 137,531
(2) In-County Paid/Requested Subscriptions Stated on PS Form 3541: 0
(3) Sales Through Dealers and Carriers, Street Vendors, Counter Sales, and Other Paid Distribution Outside USPS: 3,400
(4) Requested Copies Distributed by Other Mail Classes Through the USPS: 0
c. Total Paid and/or Requested Circulation: 140,931
d. Nonrequested Distribution (By Mail and Outside the Mail):
(1) Outside-County Nonrequested Copies Stated on PS Form 3541: 3,638
(2) In-County Nonrequested Copies Included on PS Form 3541: 0
(3) Nonrequested Copies Distributed Through the USPS by Other Classes of Mail: 0
(4) Nonrequested Copies Distributed Outside the Mail: 296
e. Total Nonrequested Distribution: 3,934
f. Total Distribution: 144,865
g. Copies not Distributed: 15,135
h. Total: 160,000
i. Percent Paid and/or Requested Circulation: 97.28%
16. Not applicable
17. Publication of Statement of Ownership for a Requester Publication is required and will be printed in the December 2025 issue of this publication.
18. Signature and Title of Editor, Publisher, Business Manager, or Owner: Chris Susil, VP/Planning & Analysis. Date: September 20, 2025. I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

A GLIMPSE INSIDE THE MARCH ISSUE (ON SALE JANUARY 16)

CUSTOM SHOP CABINETS
Tweak these two basic box designs—an upper and a lower—to outfit your entire shop with handy storage.

PATIO SERVER
Upgrade your backyard grilling spot to a four-star kitchen with mobile storage and stainless prep space.

MODERN SHOP LIGHTING
With easy installation, state-of-the-art form factors, and customizable color temperature, the future of your shop's lighting has never looked brighter.

CASSEROLE CARRIER
Add some handles to your hot dish when you serve up this delicious dining room helper that you can whip up in your workshop.

Better Homes & Gardens® WOOD® magazine (ISSN-0743-894X); Dec 2025/Jan 2026, Volume 42, no. 7, is published 7 times a year in March, May, July, Sept, Oct, Nov, Dec/Jan by Meredith Operations Corporation, 1716 Locust St., Des Moines, IA 50309. Periodicals postage paid at Des Moines, IA, and at additional mailing offices. Subscription prices: $29.99 per year in the U.S.; $69.99 (U.S. dollars) in Canada. Your bank may provide updates to the card information we have on file. You may opt out of this service at any time. POSTMASTER: Send all UAA to CFS. (See DMM 507.1.5.2); NON-POSTAL AND MILITARY FACILITIES: Send address corrections to Better Homes & Gardens WOOD, PO Box 37508, Boone, IA 50037-0508. In Canada: mailed under Publications Mail Sales Product Agreement No. 40069223; Canadian BN 12348 2887 RT. If the Post Office alerts us that your magazine is undeliverable, we have no further obligation unless corrected delivery information is received within two years.

Oneida Air Systems
The Industry Leader in Dust Collection

Some Jobs Are Monsters All On Their Own.

Dust collection doesn't have to be one of them.

Dust Gorilla Pro SMART Boost Dust Collectors

The Last Dust Collector You'll Ever Need

Reach up to double the CFM and suction power of traditional, fixed RPM collectors with the Dust Gorilla Pro. Its unique Smart Boost technology ensures the motor is always working at full capacity, with a constant amp draw, by increasing fan speed as needed. Truly revolutionary!

Nana L. Verified Buyer
★★★★★

Worth the upgrade. I've been using the unit for about 3 months now and I can say that this is definitely a case of you get what you pay for. This unit is pulling more air through a 4" line than my previous system was pulling through a 6" line. I strongly recommend getting a unit with the SmartBoost, it makes a huge difference.

SEE HOW

MADE IN USA

Contact us today for your FREE dust collector consultation. **800.732.4065**

oneida-air.com

THE COMPLETE WOODWORKING SOLUTION.

ONE BRAND. EVERY JOB.

INCREDIBLY STRONG
GORILLA
100% TOUGH

FOR THE TOUGHEST JOBS ON PLANET EARTH®

GORILLATOUGH.COM