ISSUE 310 JUNE 2026

# WOOD®

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PHOTOGRAPHER: TOMMY MOORE

# CONSTRAINT & CREATIVITY

## MAKING DO WITH LESS IS MORE THAN A VIRTUE; IT'S A SUPERPOWER.

I like to say that woodworking imitates life. And in life, we spend a lot of energy chasing "more." More space, more tools, more options. But more can be noisy. Infinite possibility isn't always liberating. Often, it becomes chaotic, paralyzing pressure.

Constraint, though, has a way of clarifying things–reducing them to their essentials–and often demanding creativity.

Less demands different answers than more. What matters most? What can I do without? What can serve double duty? While those questions sound austere and utilitarian on the surface, they can have a profound psychological effect. They quiet the chatter. They invoke purposefulness. They trade abundance for something better: ingenuity.

That theme, for me, emerged time and again from this issue. The limits we placed on the projects that we asked of our design editors–in size, cost, or complexity–demanded a willful creativity that they delivered on: a vertical planter that packs a profusion of greenery in a small footprint (*page 26*), a cabinet system that multiplies the storage potential of a modest reach-in closet (*page 38*), a compact router table that delivers outsized utility for a small shop (*page 56*). All of these designs embrace limitations in creative ways. They're better for it. They epitomize a honed existence.

That spirit is seen perhaps most vividly in Lee Henke's shop on *page 14*. His workspace is modest in size, but you can't say it's not well-provisioned. It's deliberate, personal, and sufficient. And for Lee, a touring musician, it's "more" in one important way: it's more than just a place to produce things; It's a refuge from the unique strain of living a demanding and public-facing life. If you've ever had a similarly stressful job, I'm sure you can relate. Days filled with deadlines, managers, budgets, and constant demands to produce more can make "less" feel like a relief instead of a restriction, allowing a tired brain to retreat into its creative process, unburdened.

A small shop–any constraints, really–can ask a lot of us, but can also give a lot back: comfort, clarity, and freedom. When the world outside feels like the chaos of "more," sometimes it helps to seek out the creativity of "less."

Now get out to your shop (no matter its size) and make something. We'll help.

*Lucas*

LUCAS PETERS
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WOOD®
Issue No. 310 | June 2026
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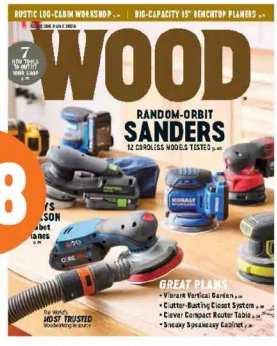
## PLANS




### ON THE COVER




We put a dozen cordless random-orbit sanders through their paces, rating them on 10 major criteria, including aggressiveness, runtime, and comfort. See which models we deem outsanding.

## TOOLS & TECHNIQUES


# DEPARTMENTS





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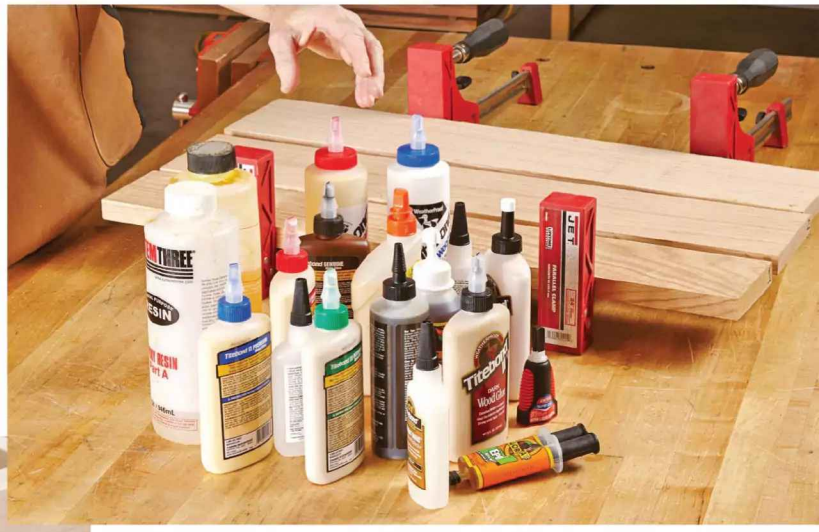
# HOW'S YOUR RESOLVE?

The Times Square confetti is long gone and those stupid 2026 glasses are in the junk drawer. (When do you plan to use those again, anyway?) The start of spring marks a good time to check progress on your New Year's resolutions. Are you keeping your promises? Cutting corners? Or ready to brush it all off?



## I'M STICKING WITH IT

Adhering to your resolutions is admirable. We're proud of you. Here are more ways to keep things together.

- **Which glue is right for what job?**
  woodmagazine.com/chooseglues
- **Solve a variety of clamping conundrums.**
  woodmagazine.com/keepittogether
- **Ensure outdoor projects hold firm, too.**
  woodmagazine.com/outdoorscrews

## THERE HAVE BEEN SETBACKS

Don't give up yet. Success may be just around the corner.

- **Try our techniques for perfect miters.**
  woodmagazine.com/mastermiters
- **Stay sharp to square up corners.**
  woodmagazine.com/cornerchisel
- **Dress up box corners with dovetail keys.**
  woodmagazine.com/keytosuccess

## I'M DONE. LET'S JUST FINISH THE YEAR

Look, you gave it a shot, right? We'll just gloss over this going forward.

- **It's good to know when to stop.**
  woodmagazine.com/stopit
- **Next time, take the easy route. Spray finishing is just the ticket.**
  woodmagazine.com/spray
- **Are you really finished? Maybe not.**
  woodmagazine.com/finishyourfinish

## HEY, THERE'S ALWAYS NEXT YEAR

**Call this a midyear resolution to craft a gathering spot for next New Year's Eve.**
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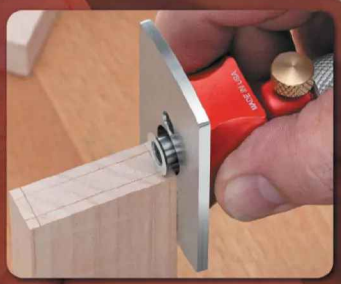

Fence has alternate vertical mounting position.

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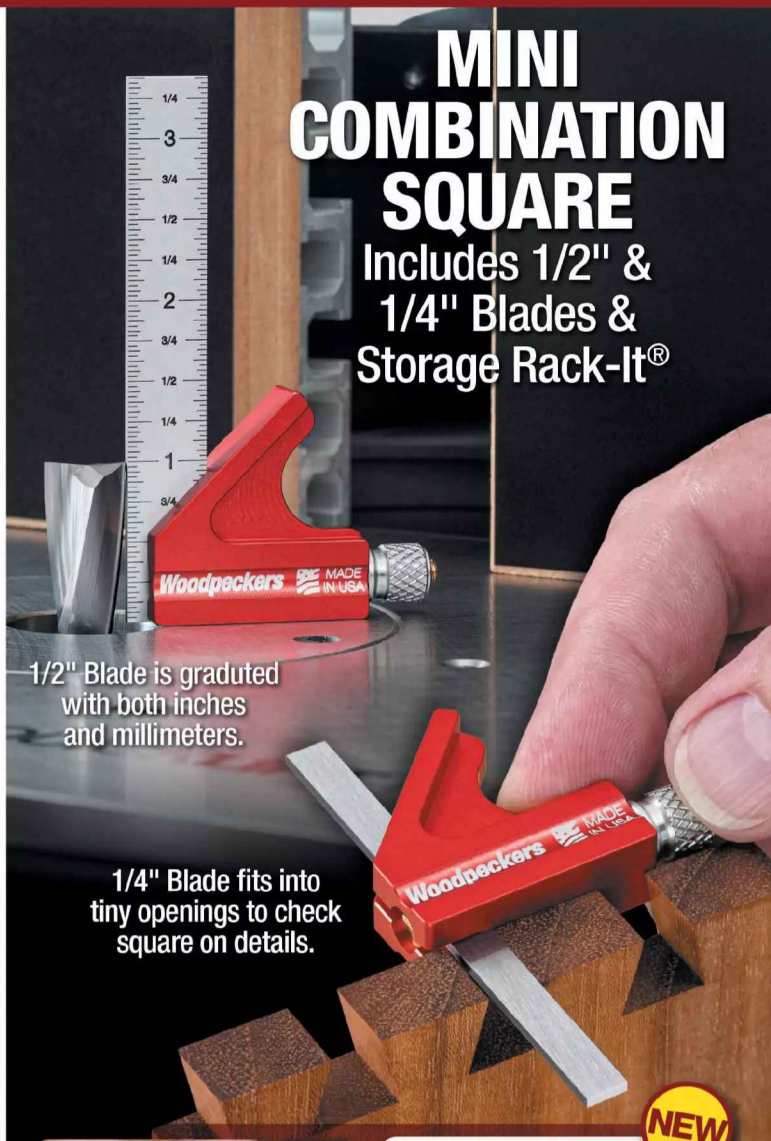


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# GAME ON!

I made this backgammon set as a gift for a friend celebrating his first wedding anniversary. It's based on the plans in issue 209 (December 2011/January 2012). I created mine mostly from solid wood, using Brazilian ipe for the background and box sides. A shop-made jig helped me cut all of the triangles accurately. The exterior is covered in walnut veneer.

***Kit Hollingshead***
Boulder, Colorado

Purchase plans for the backgammon board:
woodstore.net/backgammon

## FANTASY WARDROBE

Inspired by 19th-century wardrobes and linen presses, I built this game-board storage cabinet out of flatsawn sapele mahogany. For a little bit of whimsy, I inlaid a stylized gameboard piece, known as a meeple, into the lower rail.

***Nicholas Vanaria***
Romeoville, Illinois

## FAMILY CHEST

When building this chest for storing games, I turned to very local lumber sources for everything except the maple board squares. The cherry came from trees on my sister's property, and the walnut from a tree I took down in my yard.

***Greg Christensen***
Ellsworth, Wisconsin

Excellent work, Greg! Sourcing local lumber with family ties makes this heirloom even more special.

***Randy Maxey***
Contributing Editor

## 5-DRAWER ELEGANCE

I built the "Stately Stacked Table & Chest" from issue 302 (May 2025) out of walnut, then sealed it with Waterlox finish. Victorian-style brass drawer pulls complete the elegant look.

***Paul Snider***
Pulaski, Virginia

Get plans for the Federal chest:
woodstore.net/tablechest

## TOY BOXES

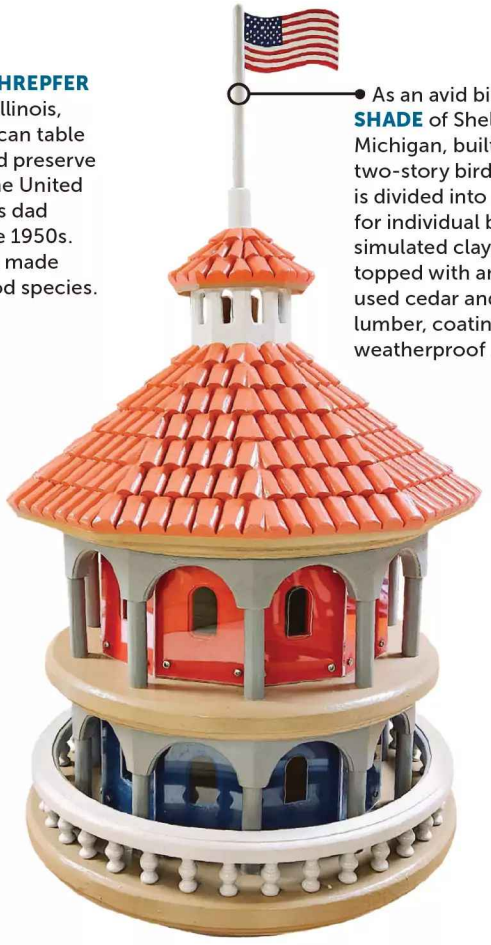
Just a note to thank you for the idea and plans for the "Slide & Swivel Stash Box" in issue 306 (November 2025). I make wood toys to put in a Christmas "shoebox" program. I milled old 2×4s to create 16 boxes. These are my start of 200 to 300 toys for the 2026 program.

***Lynn Eberhardt***
Meridian, Idaho

What a great idea, Lynn! We're thrilled that you are giving your time and resources to make the Christmas holiday more special and joyous for children. We're happy to be a part of your kindheartedness.

***Kevin Boyle***
Senior Design Editor

**ROGER SCHREPFER** of Roanoke, Illinois, made this pecan table to feature and preserve the map of the United States that his dad created in the 1950s. The map was made using 48 wood species.



As an avid birdwatcher, **RON SHADE** of Shelby Township, Michigan, built this 10-sided, two-story birdhouse. Each story is divided into five compartments for individual birds. The roof sports simulated clay tile with a cupola topped with an American flag. Ron used cedar and pressure-treated lumber, coating the exterior with a weatherproof sealant.

**JOHN BOURASSA** of Livermore, California, made this box for his granddaughter from walnut, maple, and cherry with a clear oil finish. He incorporated wooden hinges and a removable tray.

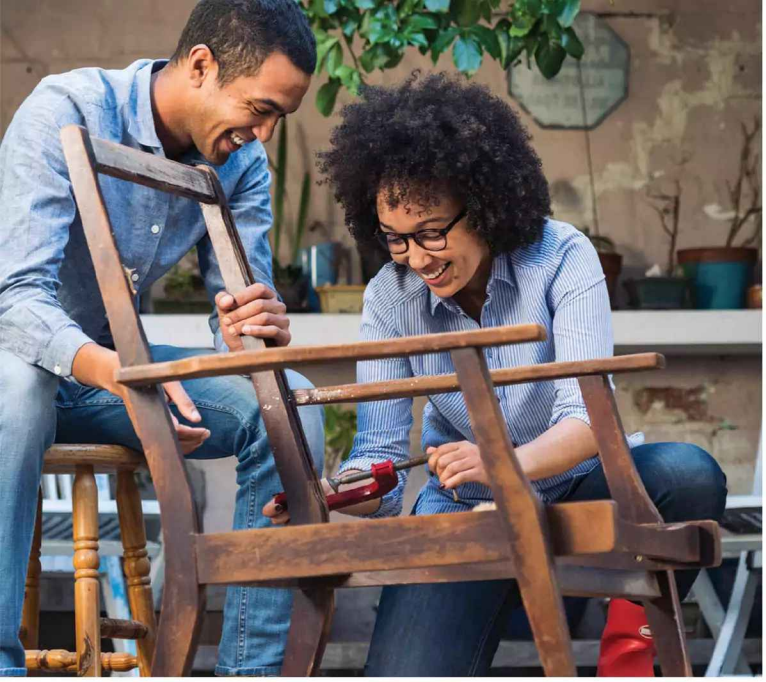
Inspired by the potting shed in Issue 273 (March 2021), **KENNETH KEITH** of Chatsworth, Georgia, built the greenhouse he always wanted.

## 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 12*



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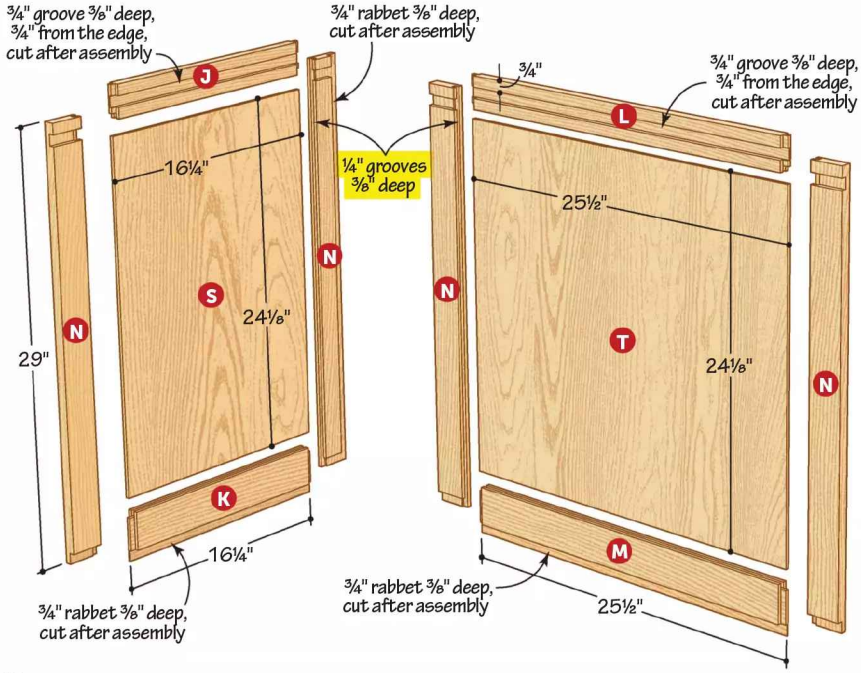
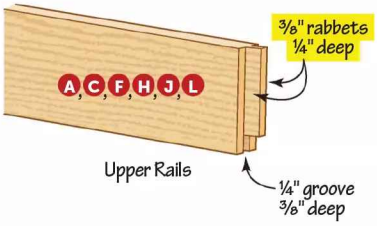
As a gift for his son's graduation from Michigan State University in 2024, **KARL IRWIN** of Glen Ellyn, Illinois, made this small drink table. The green "river" design in the olive wood tabletop represents the Red Cedar River that flows through the campus. The top folds down for easy storage and the leg features the school's Greek key ribbon set in epoxy.

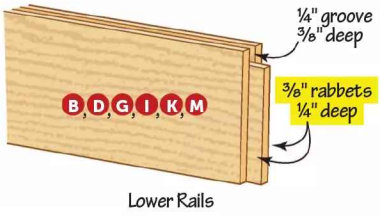
**KENT RICHMOND** of Plover, Wisconsin, designed and made this jewelry box out of rosewood and spalted birch as a Christmas present for his wife.

## CORRECTION

An observant reader noticed the need for a correction to the "Floor-Standing Tool Chest" in issue 301 (March 2025). In Drawing 1, the ¼" grooves should be ⅜" deep. Also the dimensions for rabbets in Drawing 2 are reversed. They should be ⅜" rabbets ¼" deep.

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# CARVING OUT A RETREAT

**Against a picturesque Montana backdrop, this repurposed US Forest Service cabin provides a place to carve out relief from everyday stress.**

**WRITER:** DAVE STONE

Lee Henke's log cabin workshop packs a lot of personality into a small footprint. The room on the end started out as a greenhouse but quickly became a coop for his wife's flock of chickens.

Listen to the band's music and learn more about Lee and his bandmates at **thelastrevel.com**. You'll even find an album titled *Dovetail*.

## SHOW US YOUR SHOP

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

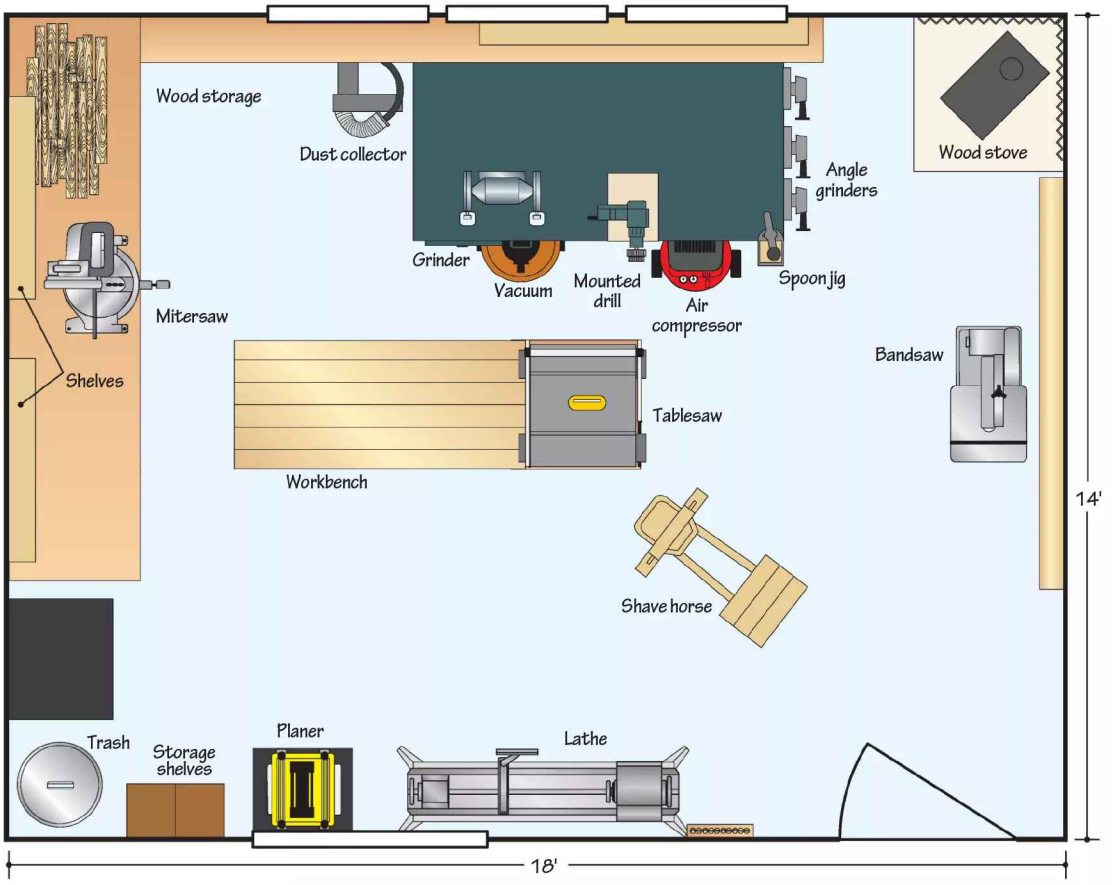
When Lee Henke isn't traveling the country with his band, you can find him on the rural Montana property he shares with his wife, small flocks of sheep and chickens, and a couple of horses. We caught up with this singer, guitarist, and woodworker while he was touring with his Americana band, The Last Revel, to talk about his one-of-a-kind log cabin workshop.

At just 14×18', the shop is small in size but big on character, and it's a big part of what drew him and his wife to the land. The cabin once served the US Forest Service in Yellowstone National Park and was disassembled, relocated, then reassembled in its current location by previous property owners.

"I love my shop!" Lee says. "I've had some pretty makeshift shops over the years, from tarped-off sections of garages to the backs of vans. But when my wife and I bought this house in Montana, I sat on the porch, looked out, and pictured being covered in sawdust and smiling at the view. The building was falling apart when I got it but it still had soul. Every time I make an improvement or fix it up a little bit I feel like the building thanks me. It's a magical space that I thoroughly enjoy being in and getting creative in."

The shop is modestly equipped by some woodworkers' standards, but contains everything Lee needs for tending to the property, building

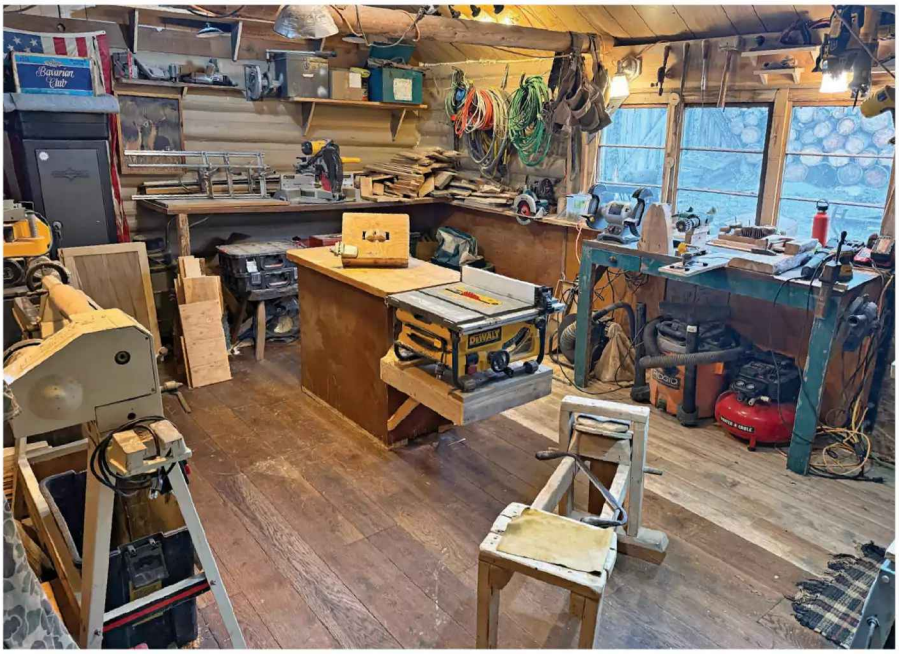
**PHOTOGRAPHERS:** LEE HENKE, TOMMY MOORE; **ILLUSTRATOR:** ROXANNE LEMOINE



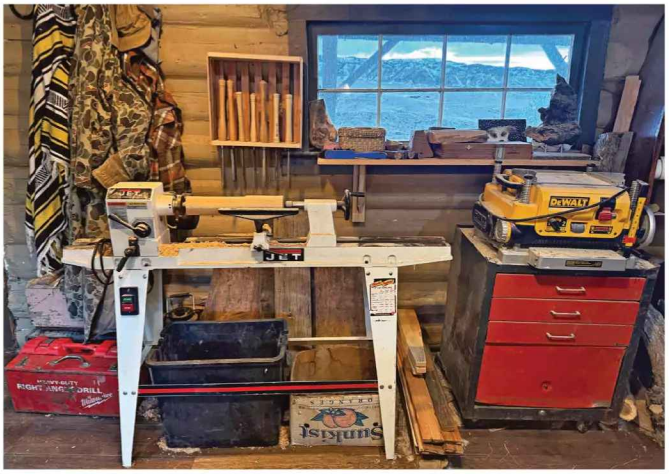

projects, and pursuing his passion for spoon carving. See *A Spoonful of Serenity, next page.*

For now, Lee makes do with a single 20-amp circuit via an extension cord strung from the house near the shop. It provides power for an eclectic collection of fixtures that illuminate the shop's workspaces, as well as for Lee's selection of power tools. A small woodstove in the corner heats the shop in winter, while strong breezes that blow across their land provide summer cooling. Small windows bring in a bit of natural light and frame spectacular views of the surrounding mountains.

Like many shops, this one has a workbench at its center that also serves as a tablesaw outfeed table. But a shave horse, a key tool for creating spoons by hand, also gets prominent center placement. A bandsaw (which Lee acquired in trade for his dirt bike), a benchtop thickness planer, a mitersaw, and a lathe make up the remainder of his larger woodworking machines.



With just 250 square feet of space, Lee Henke limits his selection of tools to those he needs most for carving and building small furniture. A proven footprint helps him work efficiently in the small space.



A full-size lathe and thickness planer come in handy for turning rough stock into chairs. Mountain views through the windows on the shop's front and back walls provide inspiration and relaxation.

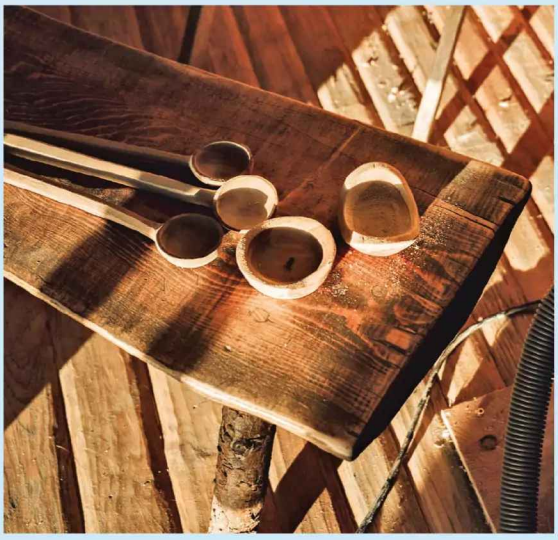
A workcenter along one wall houses tools Lee relies upon for making spoons efficiently. It's outfitted with several angle grinders, each equipped with different attachments, that he uses to shape his spoons. This area also houses a bench-mounted belt sander, a simple jig to hold a spoon as he routs its bowl, and a horizontally mounted drill that accepts differently shaped flap sanders used for refining and smoothing the spoons.

Lee's wife, Allison, also uses the shop in some of her processes for crafting woolen and leather goods that the couple sells on their website, **dollyflock.com**.

Carving out their entrepreneurial life through music and craft means they don't get as much time as they'd like for shop improvements. But they keep it evolving to match the projects at hand, such as the small custom furniture and chairs Lee has been building over the past few years. Clearly, a shop like this one and the views that surround it breed creative inspiration and serve as a peaceful retreat from the demands of a musician's life on the road.

Affectionately known as "kneesy-squeezy" this vise setup works as a laptop shave horse that can be used almost anywhere, including in the seat of a touring musician's van while on the road. ▼

◀ A shop-made shave horse sits front and center in the shop, providing a place to shape raw wood into spoons by hand using a variety of drawknives and other hand tools.



## A SPOONFUL OF SERENITY

Lee Henke grew up around woodworking. His dad was a residential contractor, and Lee followed in his footsteps working various roles in construction and carpentry.

Spoonmaking, though, came from a different place. "I got hooked about a decade ago when someone suggested I try carving to help with the anxiety I struggle with in big crowds—which obviously isn't great for my music career. I went home and carved my first spoon, and within a few weeks, I had several hundred spoons laying around. I started selling them at shows and telling the story about why I enjoyed it and how much it helped me. That opened up some very vulnerable and valuable conversations about mental health and creative outlets." It even led to band fans and friends bringing hunks of wood to him at shows that Lee could carve while on the road.

As demand grew, Lee needed ways to make spoons more efficiently. "When orders started coming in, I quickly had to figure out a less painful way to make a bunch of spoons. My poor forearms were beat." The setup he has now works well, but will continue to evolve. "With woodworking, just like with music, you are never done learning. You get to solve problems in creative ways with a plentiful and renewable resource. What's better than that?"

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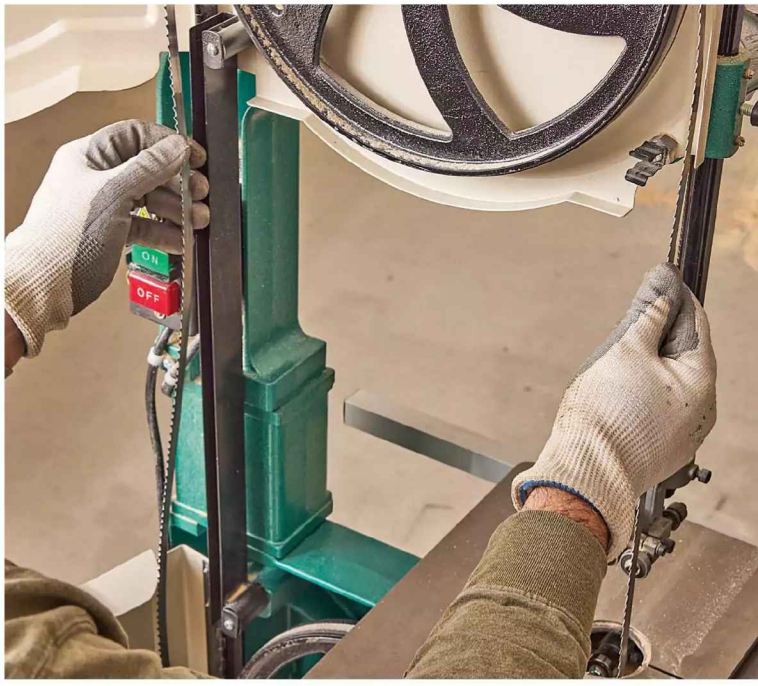
# Q: NO LOVE FOR WORKSHOP GLOVES?

I get a lot of splinters when I'm woodworking so I've started wearing gloves to protect my hands. But I've heard some woodworkers say this is a no-no. What's the real story here? Are gloves safe to wear in a woodworking shop?

***Chad Lundgren***
Owatonna, Minnesota




**A:** Unlike safety glasses or hearing protection, there are times when gloves are appropriate and times when they're not. As a general rule, you shouldn't wear gloves when working with power tools that spin or rotate because the tool may catch the glove and pull your fingers or hand into the spinning blade, bit, or workpiece. So this rules out wearing gloves when operating most stationary woodworking machinery, such as tablesaws, lathes, grinders, router tables, drill presses, jointers, and planers.

When using handheld power tools like sanders or drills, wearing gloves doesn't pose the same amount of a risk because your hand remains on the tool most of the time. If you opt to wear gloves when using these tools, choose tight-fitting gloves that are less likely to snag on a workpiece or the tool.

Wearing gloves when using hand tools doesn't cause any increased risk of injury. But the loss of tactile sensation may make it more difficult to use the tools, especially for fine work. For most handwork, developing callouses is preferable to wearing gloves. One exception is in carving. Carvers often wear a cut-resistant glove on the hand they use to hold a workpiece while carving.

All this being said, there are times when wearing gloves is acceptable or even recommended. Wear Kevlar or leather gloves when changing saw blades or router bits, installing planer or jointer knives, or folding bandsaw blades for storage. Many woodworkers wear gloves when sharpening hand tools such as chisels and plane irons. And for loading or handling lumber, gloves provide protection against splinters.

Some shop chemicals are easily absorbed through the skin, so wearing disposable nitrile gloves when staining or finishing protects you from these materials and makes cleanup easier. And if your fingers and hands tingle when using a random-orbit sander for long stretches, a pair of padded, anti-vibration gloves can be a game changer.

> **"I'VE LEARNED TO ACCEPT THE FACT THAT SPLINTERS ARE AN UNAVOIDABLE PART OF WOODWORKING."**
> ***-KEVIN BOYLE, SENIOR DESIGN EDITOR***

Gloves aren't the only thing that can get caught by a spinning blade or bit. Make it a practice to roll up long shirt sleeves and remove rings before you turn on any power equipment. If you have long hair, tie it back or wear a cap. And tie your shop apron behind your back so the strings don't get in the way. But be sure to drop a good pair of tweezers into the pocket, first.

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

# Our Bone-ified Best Blade

## *This knife says you're no one to mess with*


★★★★★

*"It's a beautiful knife with a great blade and a sure grip"*

— William B. Wilmington, NC

My friend Sergio is a mixed martial arts fighter. His shoulders are broad. His muscles have muscles. He's not the kind of person you want to be on the wrong side of.

This manly man has a saying about being tough: You should either know how to fight or look like you do.

The message is simple enough. People spoiling for a fight usually don't pick the biggest guy in the bar. If you look like someone who shouldn't be messed with, you likely won't be. With our Blue Bone Bowie Knife on your hip, that's exactly the message you'll send.

As beautiful as it is functional, this knife is 10" overall and features a high-quality 420 surgical stainless steel blade with a serrated spine. The handle is constructed of genuine natural bone with redwood spacers. On the handle you'll find design work that's carved by hand, a testament to its craftsmanship.

This knife is stick tang, meaning it won't wimp out when you need it. This knife also features brass hand guards and brass spacers with file work, so you won't lose your grip. For easy carrying, it comes with a genuine tooled leather sheath. **CALL NOW!** If you're one of the first ~~700~~ 587 callers for this ad, we'll throw in a pair of ***Stauer HD Pocket Binoculars*** — a $99 value — **ABSOLUTELY FREE!**

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**Knife Specifications:**

- 10" overall length
- 420 surgical stainless steel and stick tang construction
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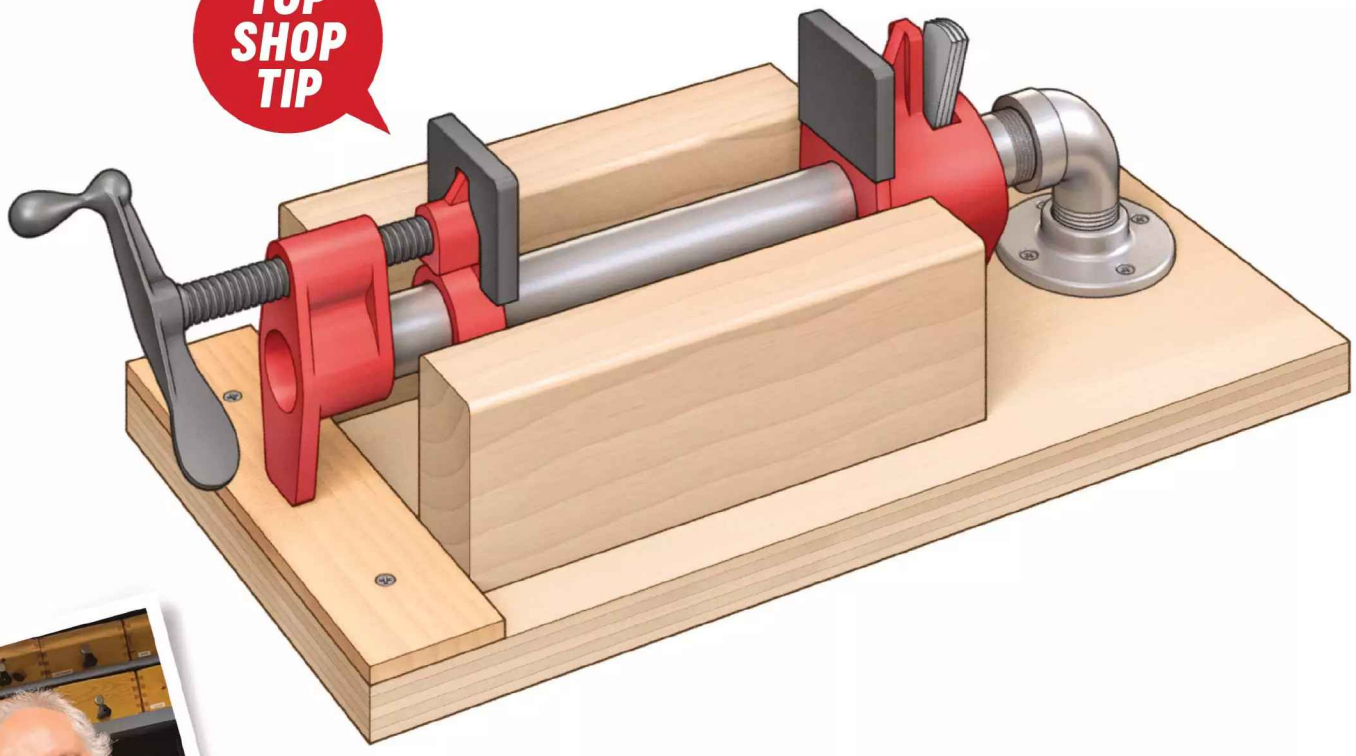
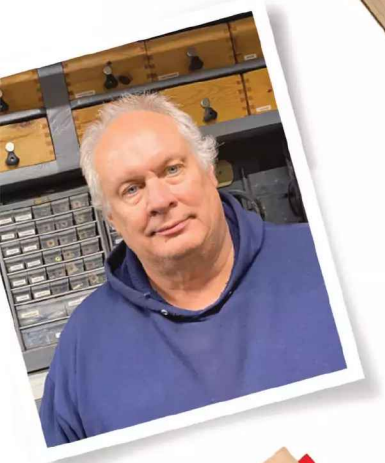
TOP SHOP TIP





# LEVELED-UP CLAMP AID

I devised this simple jig to both secure my pipe clamps and provide a stable resting place for small glue-ups. As a bonus it makes a decent portable vise when clamped to a worksurface.

To a plywood base, I fastened a pipe flange, screwed in a street elbow, then threaded the pipe clamp into the elbow. At the opposite end of the base, I fastened a spacer to fit under the foot of the clamp to keep the pipe level. Risers on each side of the clamp position the workpiece just above the metal pipe.

***Glen Wohlers***
Cottage Grove, Wisconsin


For his tip, Glen wins a Woodpeckers Joinery Sled worth $340.

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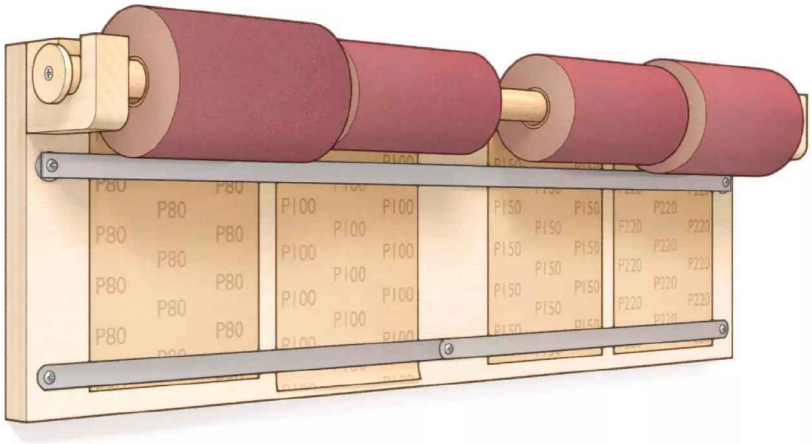
Because we try to publish original tips, please send yours only to *WOOD*® magazine.

**ILLUSTRATOR:** CHRISTOPHER MILLS

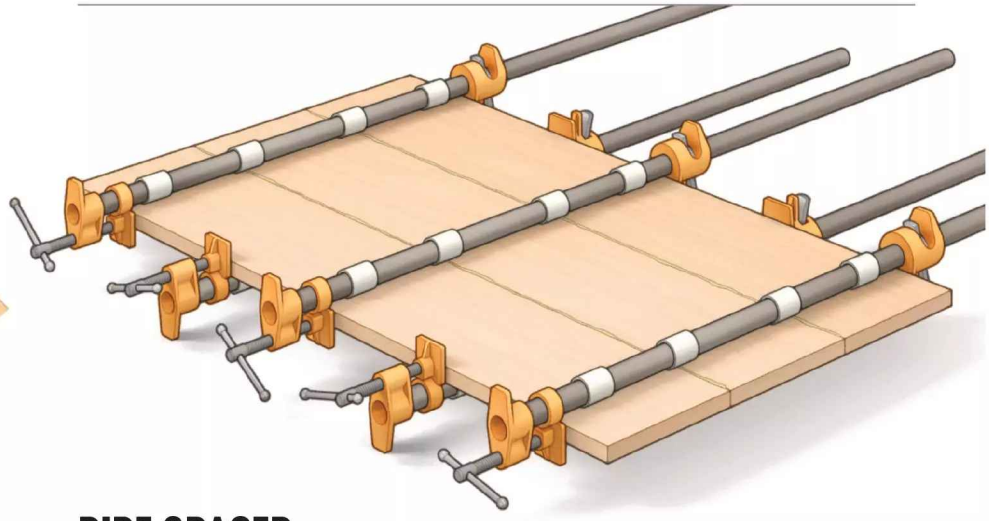



## ON A ROLL

My bench-mounted holder keeps adhesive-backed sandpaper rolls organized and facilitates easy cutting. I mounted a pair of U-shaped hardwood blocks to a plywood back to hold a ¾" dowel. Below that, I attached a strip of metal to act as a hold-down and gauge for marking the size of sheet I need from the roll. My sander takes 5½" sheets, so I measured from the bottom of the steel strip and mounted old hacksaw blades with the teeth facing downward at the 5½" mark.

Now, when I need a new sheet, I mark along the bottom of the steel strip with a pencil, pull the sandpaper down until the mark aligns with the sawblade teeth, then rip the sandpaper off.

***Brett Matzke***
Gridley, California



## PIPE SPACER

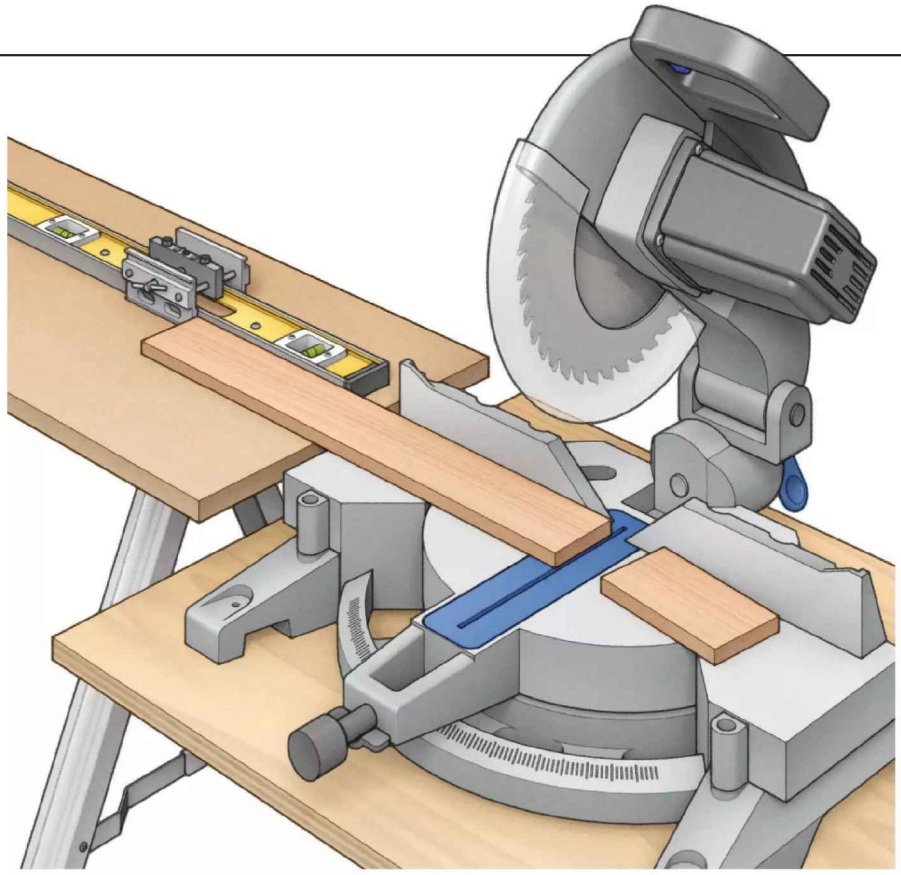
I learned the hard way that gluing up panels using pipe clamps can cause stains where the glue joints contact the pipes. I bought a short section of ¾" inside-diameter PVC pipe and cut it into short sections to slip over the pipes between the jaws. They make perfect standoffs to elevate the wood yet move easily to accommodate any size assembly.

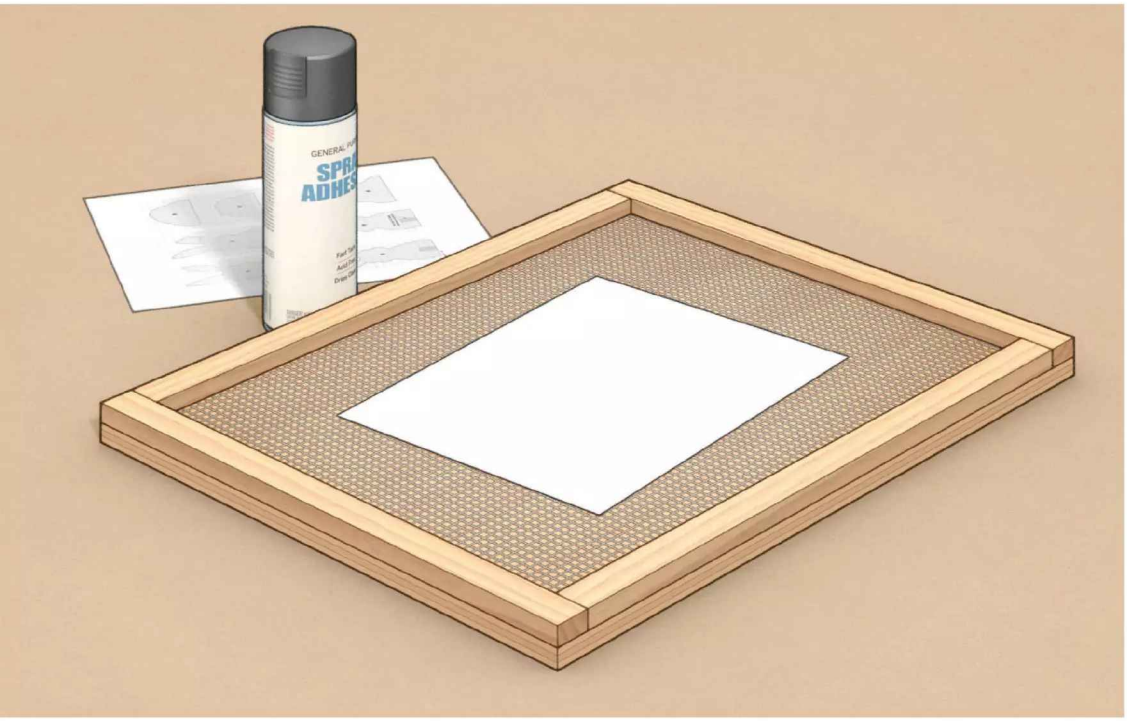
***Keith Mealy***
Oregonia, Ohio

## STRAIGHT AND LEVEL

Working on location, I needed a reliably straight mitersaw fence and a stop system. First, I topped a sawhorse with plywood and positioned it level with the saw, providing a good side table. Then I screwed my 4' level into place, using another level to align it with the saw fence. For a stop, I grabbed my doweling jig. It spans the level and locks into place securely.

***Vince Montefusco***
Spring Hill, Florida





## NONSTICK SPRAY TRAY

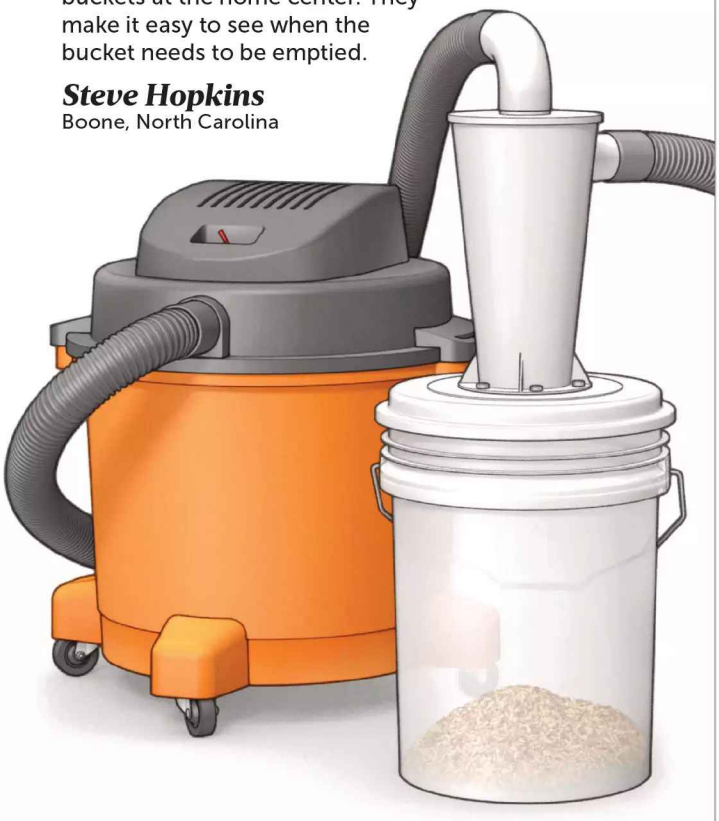
My scrollsaw projects use a lot of paper project patterns that I adhere using spray adhesive. I was tired of the mess and waste that came from laying the patterns on scraps of cardboard as I sprayed. So, I made this simple tray by laying ¼" hardware cloth on a piece of scrap plywood, then tacking on a narrow frame to hold the cloth in place. The patterns are easier to pick up off the cloth, and I've already used the tray many times over.

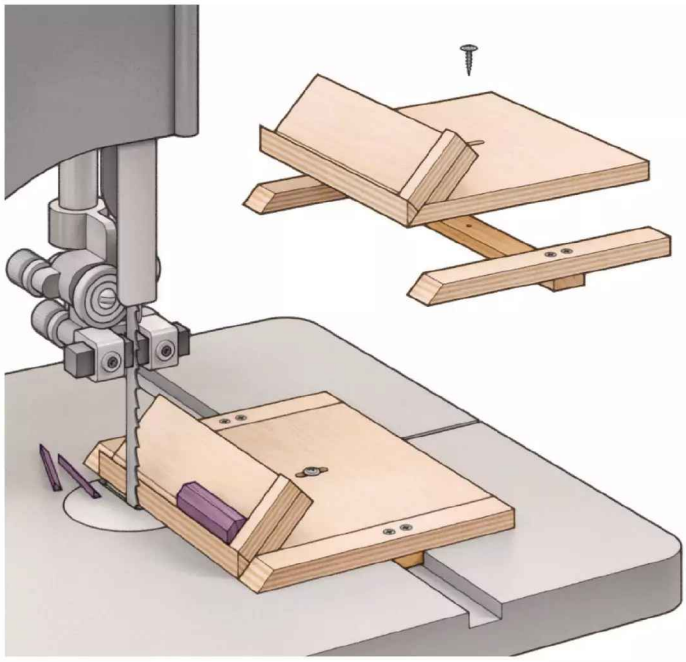
***Steve Jones***
Hastings, Minnesota

## BUCKET BENEFITS

I love my bucket-topper dust separator, especially since I found translucent, 5-gallon mixing buckets at the home center. They make it easy to see when the bucket needs to be emptied.

***Steve Hopkins***
Boone, North Carolina





## CORNERS BE GONE

I use this bandsaw sled to trim the corners off of pen blanks before I mount them in the lathe for turning.

I started with a wide plywood base and glued up a cradle along one edge to hold the pen blank at 45°. The base is flanked by guides and is screwed to a runner through a slot, allowing me to adjust it to trim just the corner of the blank as the runner rides through the miter slot.

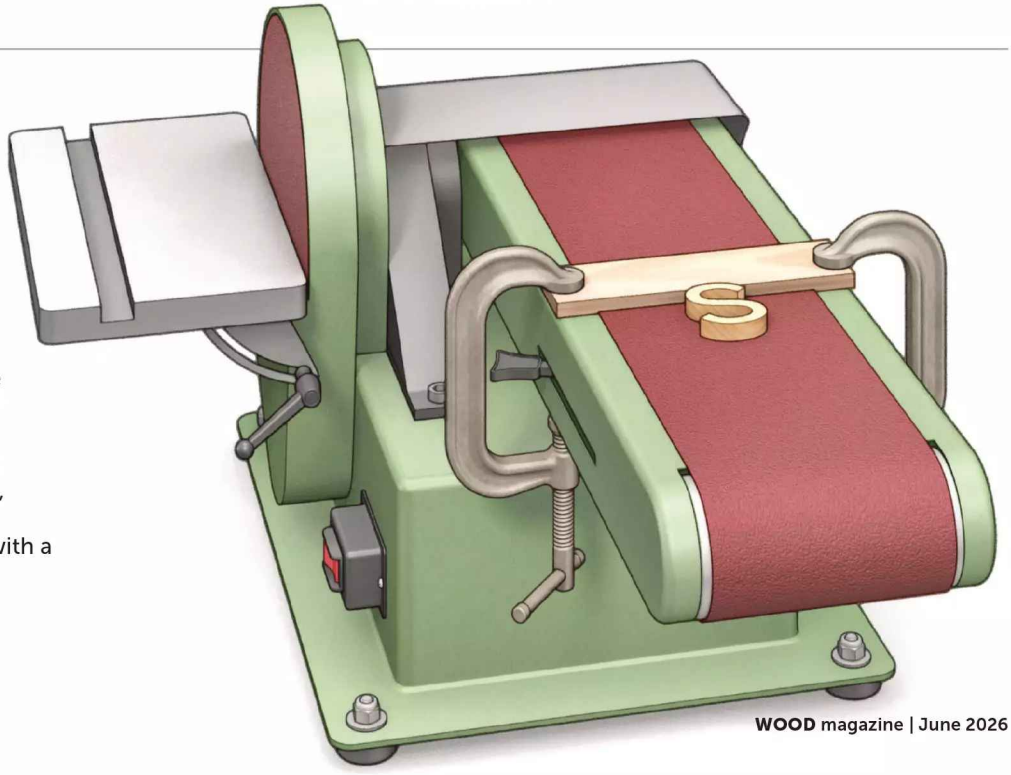
***Phil Stoick***
Roseville, Minnesota

## BELT BRIDGE

Thin workpieces, like sign letters and decorations, slip under my belt sander's fence. So I devised this thin bridge that I use in place of the fence to help hold workpieces while sanding.

It's made from ¼" plywood 1" wide and the same length as the width of the sander's bed. I hold the plywood on the moving sanding belt until it removes the material in contact with the belt, leaving a foot on each end that allows me to attach the bridge with a pair of C-clamps.

***Paul Fiebich***
Derby, Kansas



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# SPACE-SAVING VERTICAL GARDEN

Pack a lot of green space into a small footprint with this planter that takes your herbs, flowers, or ornamentals to new heights.

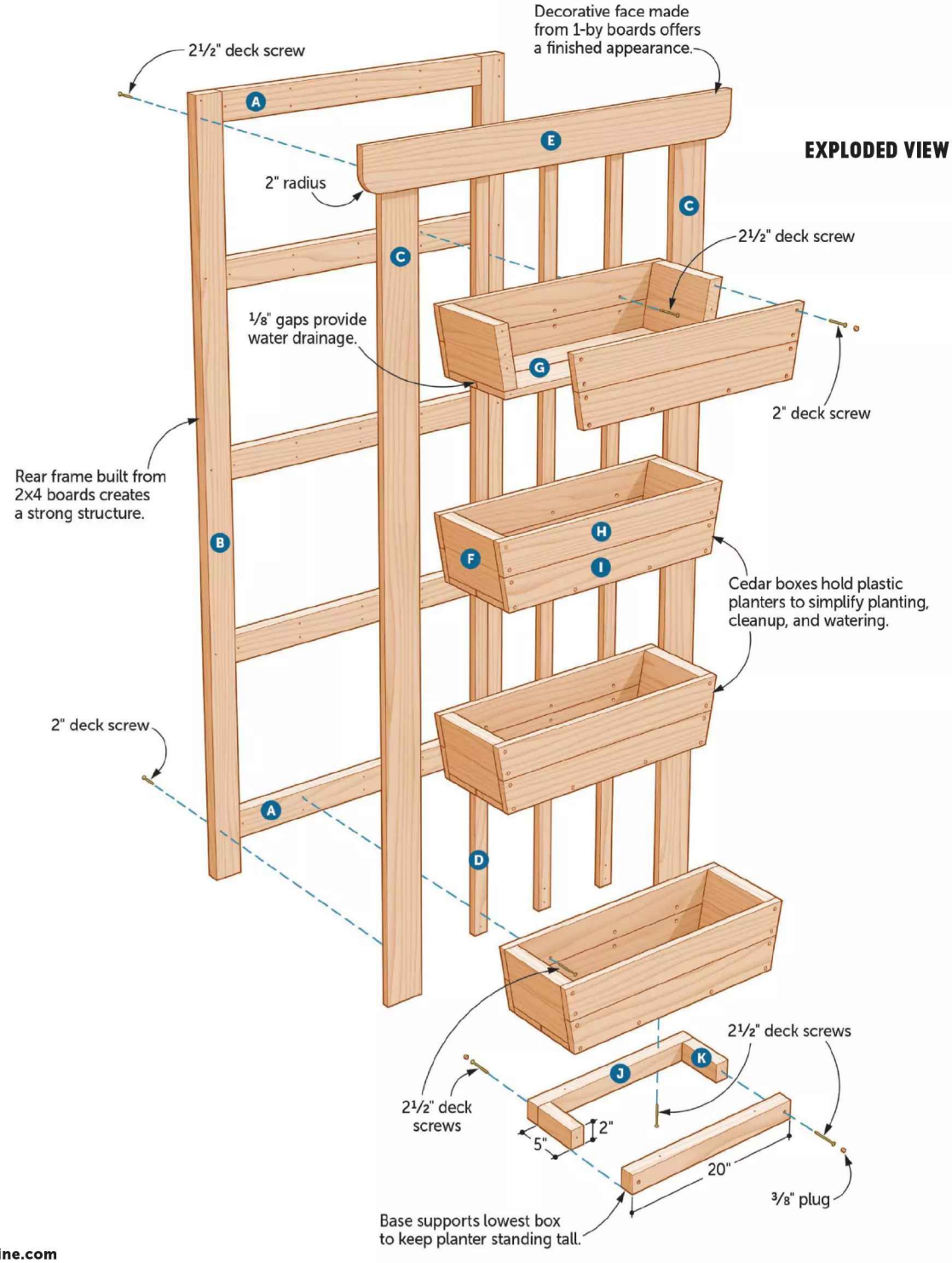
**WRITER:** KERRY GIBSON
**DESIGNER/BUILDER:** JOHN OLSON

**OVERALL DIMENSIONS**
43½"W × 11⅞"D × 84¾"H

**PHOTOGRAPHER:** JASON DONNELLY; **ILLUSTRATOR:** CHRISTOPHER MILLS

You don't need a big backyard to have a great garden. With this planter, you don't even need a yard at all. It stacks four boxes in a footprint less than 12" deep—quadruple the capacity of a windowsill planter. Dress up a wall or secure it against a deck rail as a handsome privacy screen.

Made from great-looking cedar, this vertical garden withstands the weather and keeps your plants away from chemically treated wood. The shapely boxes hold rectangular plastic planters **[Sources]** that keep the soil from staining the wood but pop out easily to simplify plant maintenance.



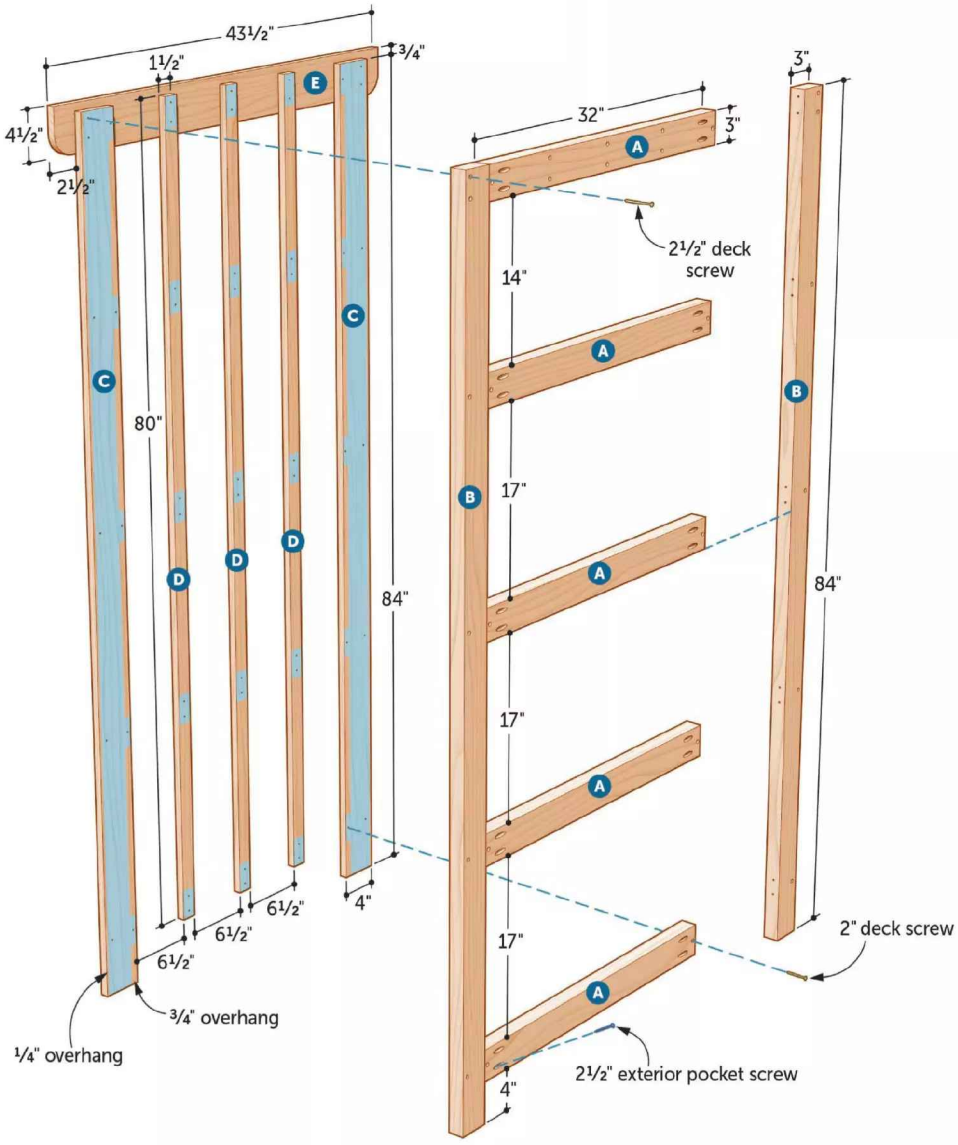
## DIG INTO A STURDY FRAME

Start construction with the two-layer frame. The rear layer made from 2-by boards gives strength, while a 1-by face layer provides a finished, latticed look [Exploded View].

**1** From 2-by stock, cut the rear frame rails (A) and stiles (B) to size [Drawing 1, Parts List]. Drill two pocket-screw holes at each end of each rail.

**2** Lay out the locations of the rails, spread waterproof glue on their ends, and clamp the rails between the stiles while you drive in exterior pocket screws [Drawing 1]. Finish-sand the frame.

**1 FRAME ASSEMBLY**




> **MY FAVORITE PERENNIAL HERBS IN MY CONTAINER GARDEN ARE FLAT-LEAF PARSLEY, TRICOLOR SAGE, BLUE ROSEMARY, AND CARAWAY THYME.**
>
> *-JOHN OLSON, DESIGN EDITOR*

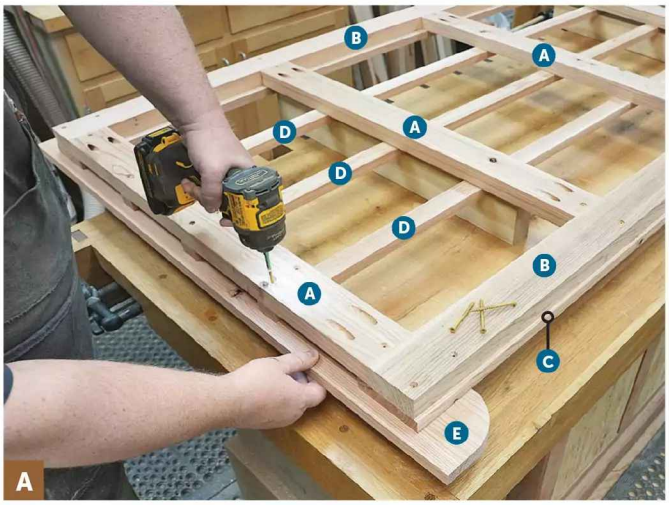
## ADD A DECORATIVE FACE

**1** From 1-by stock, cut the face stiles (C), slats (D), and face rail (E) to size **[Drawing 1, Parts List]**.

**2** Mark a 2" radius on the bottom corners of the face rail (E) and cut each arc to shape with a jigsaw or bandsaw, staying just outside the layout lines. Then sand the cut edges smooth. Finish-sand the face parts and slats.

**3** Glue and clamp the face stiles (C) to the frame assembly (A/B) flush at the top ends and overhanging the outside edges of the frame stiles (B) by 1/4" **[Drawing 1]**. Space the slats (D) between the face stiles with equal gaps, then glue them to the frame rails (A). Then, glue and clamp the face rail (E) into place.

**4** When the glue dries, flip the assembly (A–E) face down and screw the parts together to reinforce the joints **[Drawing 1, Photo A]**.




Drill countersunk holes, taking care to not drill too deep, then drive 2" deck screws through the frame stiles (B) into the face stiles (C). Along the top, use 2½" screws to reach into the face rail (E).


Tilt the tablesaw blade 10° and set the fence to bevel-rip the box ends (F) without reducing their width. Cut one edge, flip the stock over, and bevel-rip the other edge, ensuring the angles are parallel.

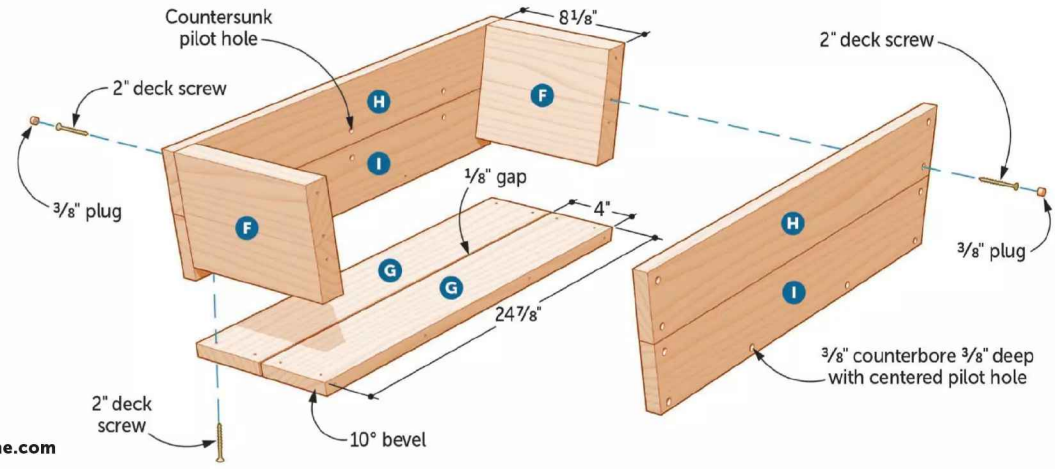
## BUILD OUT THE BOXES

We sized the planter boxes to hold rectangular planters we found at a home center. If you use different liners, adjust your planter box dimensions to fit.

**1** Square the edges of 2×4 stock and glue up eight blanks for the box ends (F) **[Drawings 2 and 3, Parts List]**. Crosscut the box ends to length and ripcut them to width. Then bevel-rip the top and bottom edges **[Photo B]**.

**2** From 1-by stock, cut the box bottoms (G) to size and bevel-cut the ends at 10° **[Drawing 2]**. Drill countersunk pilot holes in the bottoms, then glue and screw them to the ends (F), leaving a 1/8" gap between the box bottoms.

**2 BOX ASSEMBLY**

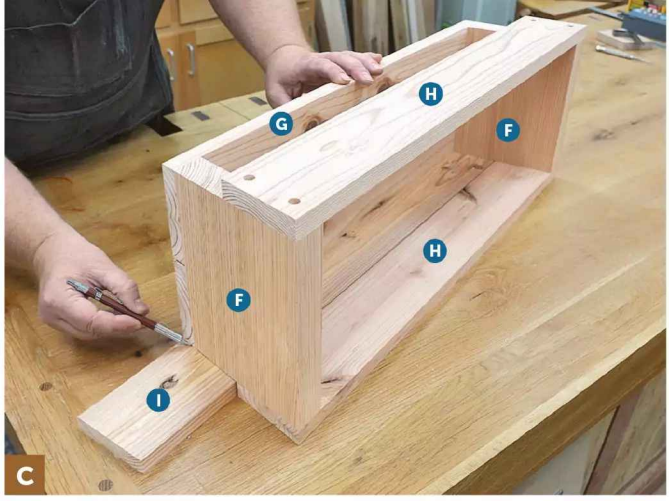


Here's how to drill counterbores and make plugs to disguise them.
woodmagazine.com/counterbores

**3** To fit the upper and lower box sides (H, I) to the bottom/end assemblies (F/G), we cut slightly overlength parts **[Drawing 3]**, then scribed and miter-cut them to fit **[Photo C]**. Attach the sides with glue and screws in counterbored pilot holes, starting with the upper box sides (H), then the lower box sides (I).

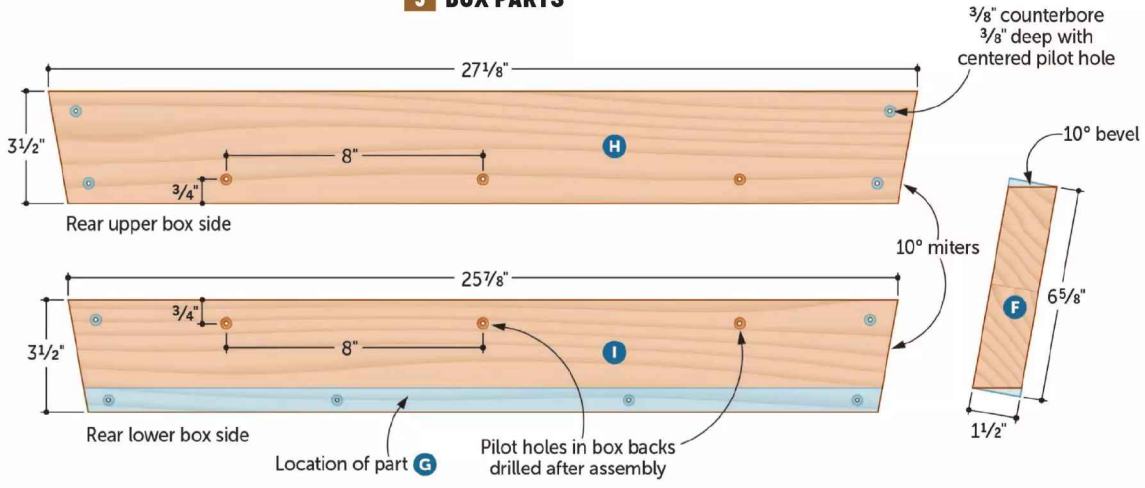
**4** Use a plug cutter to cut enough face grain plugs to fill the counterbores in the box sides **[Photo D]**. Glue the plugs in the counterbores, matching the grain direction. Trim and sand the plugs flush with the sides. Finish-sand the boxes.

**5** From 2-by stock, cut the base front/back (J) and base ends (K) to size **[Exploded View, Parts List]**. Glue and screw the base together and then finish-sand.




Lay the box assembly (F/G) on an overlength box side (H or I) with the edges aligned. There will be a slight gap between the box sides. Scribe the side, then cut it to length. Glue and screw it into place.

**3 BOX PARTS**




## SECURE IT AND SOW SEEDS

The base beneath the lowest box provides stability when installing and using the planter. Mount the planter boxes and install the planter by screwing through the boxes, hiding the screws for a clean look.

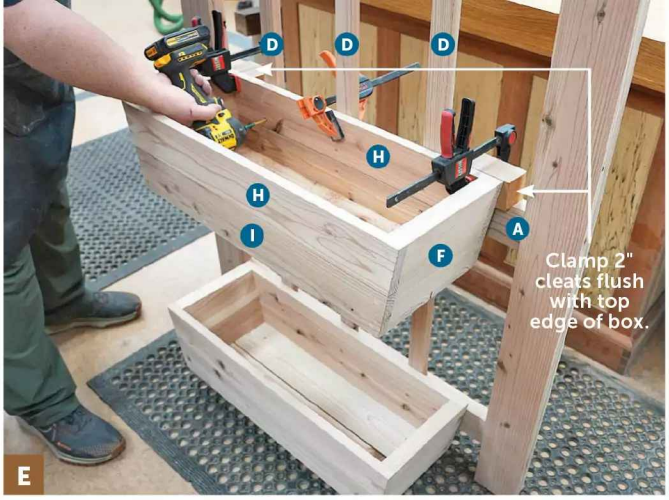
**1** Position the base (J/K) centered on the underside of one box assembly (F–I) and flush with the back edge. Attach the base with glue and screws **[Exploded View]**. Center the box/base assembly (F–K) side to side on the frame assembly (A–E), flush with the lower end, and clamp it in place. Drill countersunk pilot holes in the box sides (H, I) at the intersection of the slats (D) and the frame rails (A) **[Drawing 3]**. Drive screws to secure the box and base.

**2** Use scrapwood cleats to position the next box up on the frame assembly while you drill pilot holes and screw the box to the frame **[Exploded View, Photo E]**. Repeat to attach the third and fourth boxes. Leave the planter

**TIP!**

**Use a right-angle drill attachment for drill-bit access inside the narrow box assemblies.**

Use a 3/8" plug cutter to cut face-grain plugs in offcuts from the box upper and lower sides (H, I). Masking tape holds the plugs in place as you cut them free from the blank using a bandsaw.



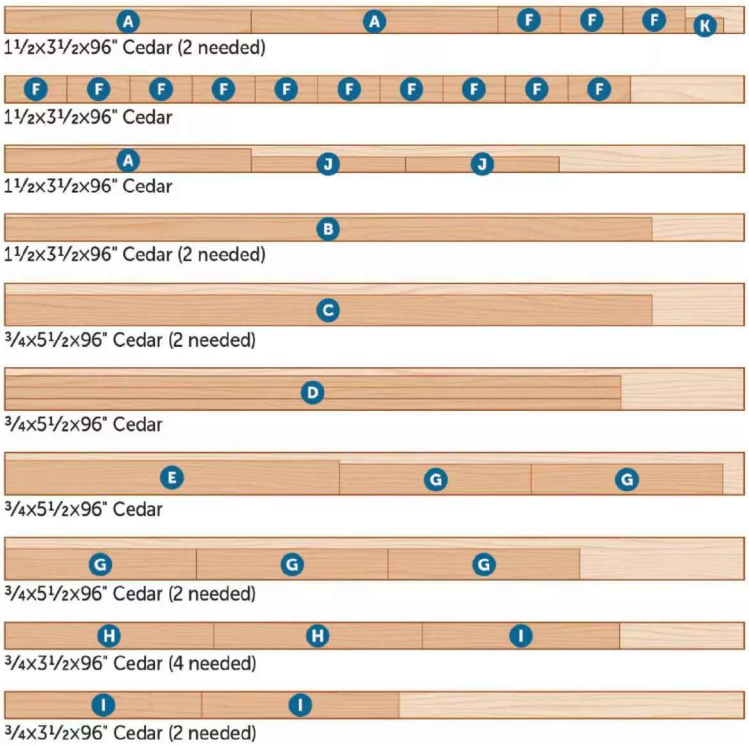

2" cleats resting on the frame rail (A) act as spacers to position the box while you clamp it to a slat (D). Drill countersunk pilot holes where the slats intersect the rails (A). Then screw the box in place.

bare to weather naturally, as we did, or apply an exterior finish of your choice to all of the assemblies.

**3** To install the planter, position it in place and drill pilot holes through the inside of one or more of the planter boxes where screws will hit wall studs, deck railing, or fence posts, as appropriate. Drive ledger board screws [Sources] to secure the planter. Then fill the plastic liners with your favorite annuals, herbs, or flowers, set them in the planter boxes, and take in the vertical view!

## CUTTING DIAGRAM

We purchased six cedar 2×4s, six cedar 1×6s, and six cedar 1×4s, then cut them as shown in these example boards.




## PARTS LIST

| PART | | FINISHED SIZE T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|
| A | FRAME RAILS | 1½" | 3" | 32" | C | 5 |
| B | FRAME STILES | 1½" | 3" | 84" | C | 2 |
| C | FACE STILES | ¾" | 4" | 84" | C | 2 |
| D | SLATS | ¾" | 1½" | 80" | C | 3 |
| E | FACE RAIL | ¾" | 4½" | 43½" | C | 1 |
| F* | BOX ENDS | 1½" | 6⅝" | 8⅛" | EC | 8 |
| G | BOX BOTTOMS | ¾" | 4" | 24⅞" | C | 8 |
| H* | UPPER BOX SIDES | ¾" | 3½" | 27⅛" | C | 8 |
| I* | LOWER BOX SIDES | ¾" | 3½" | 25⅞" | C | 8 |
| J | BASE FRONT/BACK | 1½" | 2" | 20" | C | 2 |
| K | BASE ENDS | 1½" | 2" | 5" | C | 2 |

*Parts initially cut oversize. See the instructions.

**MATERIALS KEY:** C–cedar, EC–edge-glued cedar.
**SUPPLIES:** #8×2½" exterior pocket-hole screws, 2" and 2½" deck screws, waterproof wood glue.
**BITS:** #8 countersink drill bit, 3/8" plug cutter.
**SOURCES:** Plastic indoor/outdoor window box (4) no. 5974832, $12 each, 5" ledger board screws (12-pack) no. 105537, $25, lowes.com.
**PROJECT COST:** It cost us about $220 to build this project. Your cost will vary by region and source.

# GET A JUMP-START ON RABBET PLANES

Learn how to use this practical hand plane to create crisp, precise joinery for cabinets and furniture.

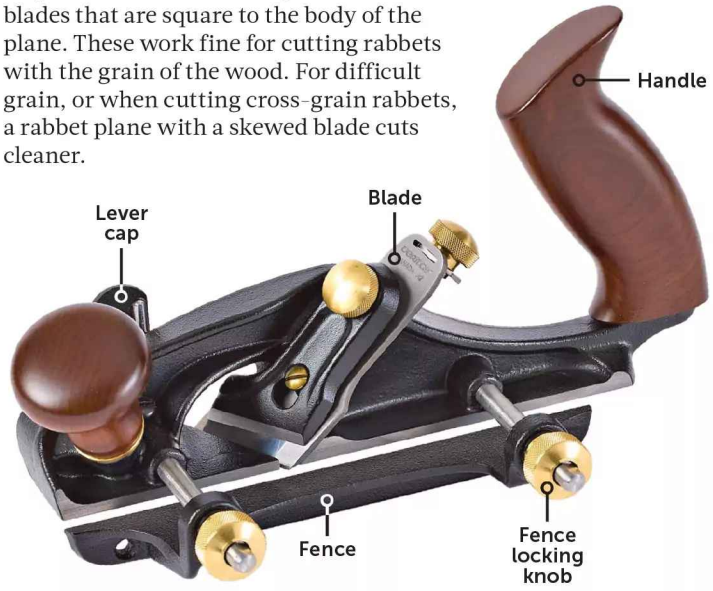
**WRITER:** VINCE ANCONA

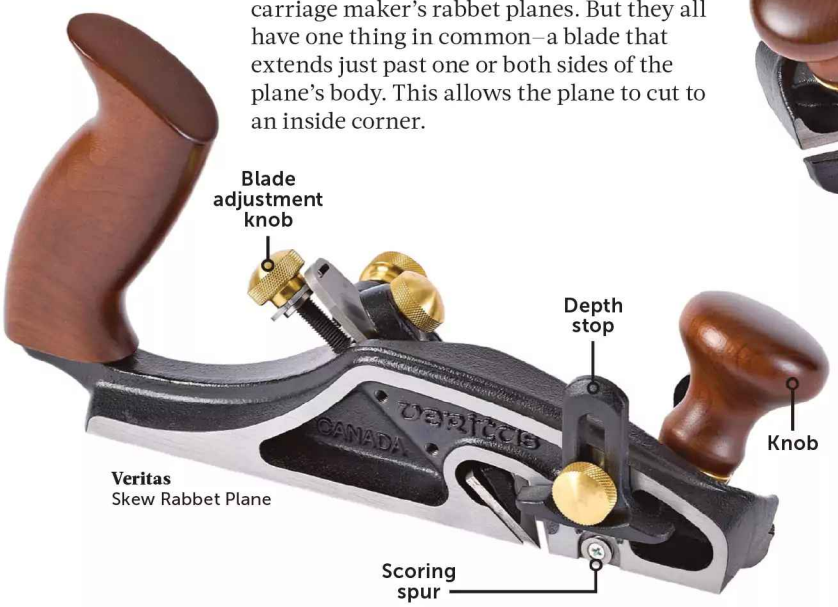
When it comes to hand planes, most woodworkers start off with a block plane or a bench plane. These work great for trimming and smoothing surfaces. But some of the most enjoyable planes to use are those designed for creating joinery.

In less time than it takes to set up your router table or install a dado stack on your tablesaw, you can cut an accurate rabbet with a rabbet plane. And you won't have to deal with the noise or dust. That's because unlike bench planes that flatten, square, and smooth wood surfaces, rabbet planes are engineered for one basic task–creating perfect, L-shaped rabbets.

Rabbet planes have evolved to include several varieties (see *Going Down the Rabbet Hole, page 34*). In addition to general-purpose rabbet planes, you'll find specialized versions such as shoulder planes, rabbeting block planes, and carriage maker's rabbet planes. But they all have one thing in common–a blade that extends just past one or both sides of the plane's body. This allows the plane to cut to an inside corner.

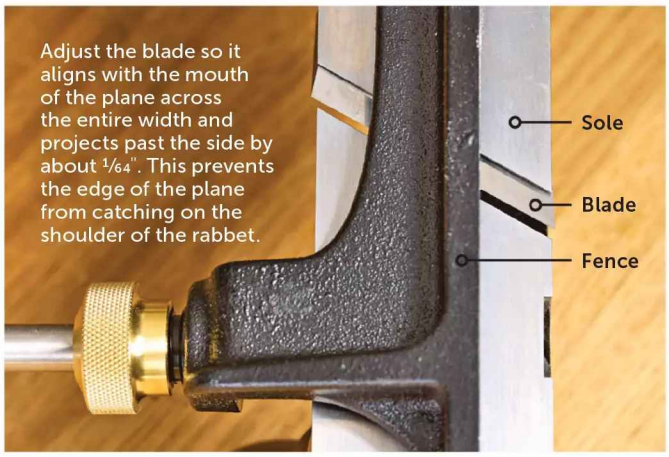
Some rabbet planes include an adjustable fence that rides against the workpiece to control the rabbet's width, *below*. A vertically adjustable stop controls the depth, *below left*. When making cross-grain rabbets, a nicker, or spur, scores the wood fibers ahead of the cut to prevent chip-out. Standard rabbet planes have blades that are square to the body of the plane. These work fine for cutting rabbets with the grain of the wood. For difficult grain, or when cutting cross-grain rabbets, a rabbet plane with a skewed blade cuts cleaner.




**Veritas**
Skew Rabbet Plane

> **BEFORE THE RISE OF ELECTRIC ROUTERS, ALMOST EVERY SHOP HAD AT LEAST ONE RABBET PLANE.**
>
> **-JOHN OLSON, DESIGN EDITOR**




PHOTOGRAPHER: BRIE PASSANO

## CUTTING A RABBET

Cutting a rabbet with a rabbet plane is a straightforward process. Start by setting the depth and lateral position of the blade. Rabbet planes are designed to remove material quickly, so set the blade to take as thick a shaving as the wood will allow. To ensure a square rabbet, check that the blade projects through the mouth of the plane evenly across its width. The blade should extend past the side of the plane by a tiny amount to provide clearance for the body of the plane, *left*. If it doesn't, the plane will gradually push itself farther and farther away from the shoulder, resulting in a stepped rabbet.

**TIP!**

The fence of some rabbet planes can be installed on either side. This allows you to plane in the opposite direction when encountering difficult grain.

If your plane is equipped with a fence, use a ruler or setup blocks to set the distance from the fence to the edge of the plane to correspond to the desired width of your rabbet, *right*. Make sure you account for the projection of the blade past the side set earlier. If you're using a depth stop, set that as well.

To start the rabbet, place the plane a few inches back from the far end of the board and take a couple of passes, making sure that the fence contacts the edge of the board, *next page, left*. Then back the plane up a few more inches and take a couple more passes, all the way through to the end of the board, *next page, right*. Taking progressively longer strokes allows the plane to track in the cut until you reach the full length.

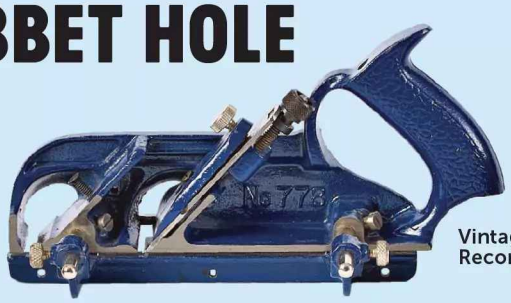
Measuring from the edge of the sole, set the fence to establish the rabbet width. Check the fence at both ends to ensure it's parallel with the plane body before tightening it down.

# GOING DOWN THE RABBET HOLE

The earliest rabbet planes were made of wood and resemble molding planes. They're nothing more than a square (or sometimes skewed) blade held in a wooden body with a wedge. Some woodworkers still prefer wooden rabbet planes for their simplicity and light weight. But modern, cast iron rabbet planes have added features such as fences, depth stops, and blade adjusters that make them easier to control, especially for first-time users.

In 1885, Stanley introduced the No. 78 duplex rabbet plane, which soon became the standard that most other metal rabbet planes have been based upon. This plane features two positions for the blade—a rear position for normal usage and a forward position for working into corners. The cutter, or blade, is held in place with a lever cap but no cap iron. Planes manufactured after 1925 also have an adjustment lever to control the blade depth.

Stanley made thousands of these planes and other manufacturers copied the design, so finding a used one isn't difficult. If you prefer to buy new, a modern, import version of the Stanley 78 is still in production. And Veritas makes a similar style of rabbet plane with upgraded features and a skewed blade.



Vintage Record 778

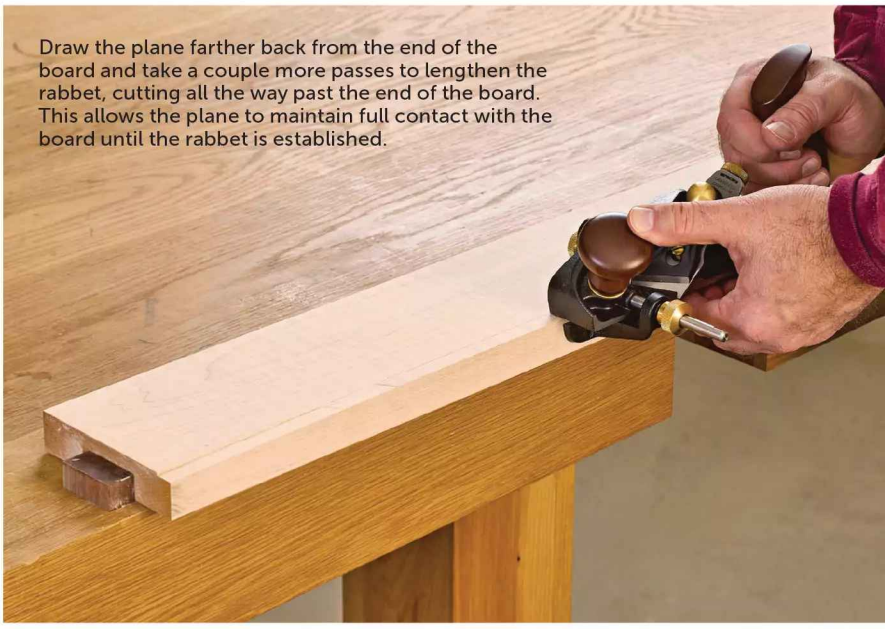
Vintage wooden skew rabbet plane

Vintage Stanley 192

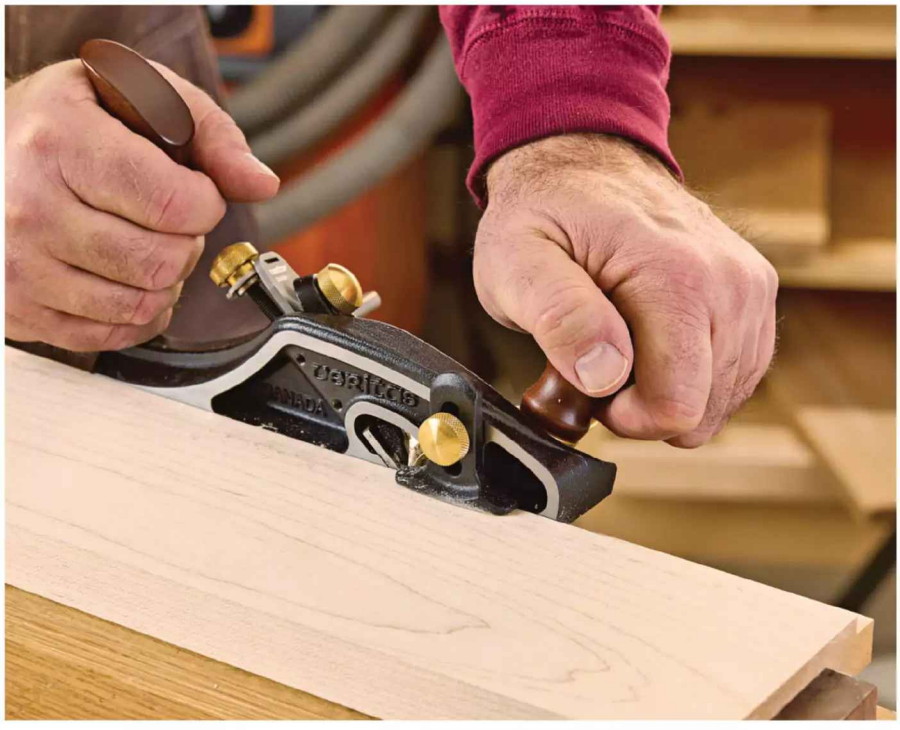
Modern Stanley 78

Bench Dog rabbeting block plane

Set the plane about 6" back from the far end and take a couple of passes to start the rabbet. Use the fingers of your left hand to hold the fence against the edge of the board.



Draw the plane farther back from the end of the board and take a couple more passes to lengthen the rabbet, cutting all the way past the end of the board. This allows the plane to maintain full contact with the board until the rabbet is established.



Once the depth stop contacts the board, the plane automatically stops cutting. The depth stop is useful when cutting multiple rabbets to an identical depth.

Once the plane is taking a full-length shaving, check the width of the cut and adjust the fence if necessary. Take additional passes to deepen the rabbet, checking your progress along the way to make sure the rabbet is square. An out-of-square rabbet can be caused by a misaligned blade or by allowing the plane to lean in one direction or the other, so hold it upright. Continue planing until the depth stop contacts the board, *above*.

# SPLITTING HARES:
## RABBET PLANES VS. SHOULDER PLANES

You'll sometimes see the terms rabbet plane and shoulder plane used interchangeably. Technically speaking, shoulder planes *are* rabbet planes. But the geometry and intended purpose of a shoulder plane differ greatly from those of a standard rabbet plane. The blade setup of a rabbet plane, *below left*, is similar to a bench plane. The bevel faces down and the bed angle is typically around 45°. The wide mouth opening allows the plane to take heavy shavings. Most rabbet planes also have a fairly wide blade (1" or more).

By contrast, shoulder planes, *below right*, have narrow mouth openings for taking fine shavings. The narrower, bevel-up blade is bedded at a low angle, making them better-suited to trimming end grain. Most shoulder planes also lack a fence or depth stop. If you're looking for a plane to fine-tune the fit of a rabbet or shoulder that you've already cut on a tablesaw or by some other method, a shoulder plane is a good choice. But for cutting rabbets entirely with hand tools, stick with a true rabbeting plane.



Set the spur so that it projects below the sole of the plane by approximately 1/32". Lightly drawing the plane backward across the workpiece before planing will score the shoulder.

The procedure for cutting a rabbet on the end of a workpiece is identical, but before you start, rotate the spur, or nicker, so that it extends below the sole of the plane. The spur scores the wood fibers ahead of the cut to prevent them from tearing out, *left*. The spur will cut in either direction, and you may find it easiest to lightly draw the plane backward over the board to score the fibers before making your first pass.

> **SHH...ONE OF MY FAVORITE THINGS ABOUT WABBET PLANES IS THAT THEY'RE VEWY, VEWY QUIET.**
>
> ***-ELMER J. FUDD, HUNTER AND ASPIRING WOODWORKER***

If your rabbet plane doesn't have a fence, you have a couple of options. The easiest is to clamp or tack a hardwood batten along the layout line of your rabbet to serve as a fence, *right*. You need to use the batten for only the first few passes. Once you've started the rabbet, you can remove the batten and the plane will track in the rabbet.

Another option is to guide the plane by hand. This takes a little more skill but isn't a difficult technique to master. Start by using a marking gauge or marking knife to score a line along the shoulder of the rabbet. Then tilt the plane slightly and set the corner of the blade into the scored layout line to cut a shallow furrow, *below left*.

Keeping your left hand cupped around the plane, use your fingers as a fence to guide the plane as you take additional passes, gradually bringing the plane to an upright position, *below center*. Once you've cut 1/16" to 1/8" deep, the plane will track in the rabbet with little assistance. Without a depth stop, though, you'll have to cut to a layout line on the end of the board or periodically check your progress with a ruler.

Attach a batten to the workpiece with brads or clamps to serve as a fence. Repositioning the batten and making overlapping cuts allows you to create extra-wide rabbets.

In addition to cutting rabbets, there are other uses for a rabbet plane. Most rabbet planes are ground square on both faces, allowing you to lay the plane on its side to trim the vertical wall of a rabbet to widen it, *below right*. In a pinch, you can even use a rabbet plane to trim the shoulders of a tenon.

With the plane slightly tilted, place the corner of the blade in the scribed layout line and cut a narrow furrow along the shoulder of the rabbet for the plane to ride in.

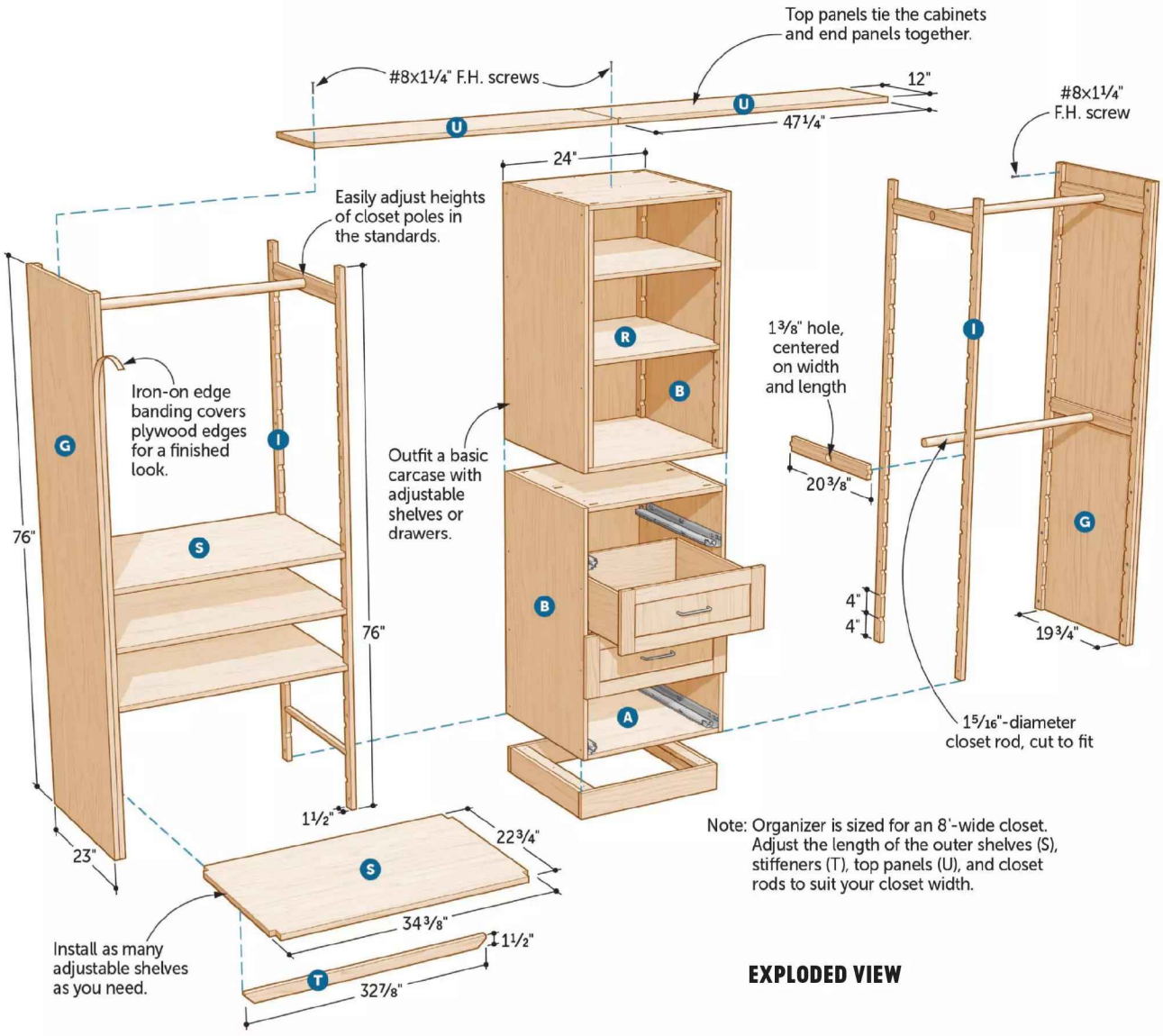
Widen the cut by taking additional passes, gradually returning the plane to an upright position. Use your fingers as a fence to help regulate the rabbet's width.

Place the plane on its side to trim the shoulder of a rabbet. Most rabbet planes can be used from either direction, depending upon the grain direction.

# CLUTTER-CUTTING CLOSET SYSTEM

**Hung up on how to best organize a bedroom closet? Build this simple system with shelves, smooth-sliding drawers, and plenty of customizable hanging space.**

**WRITER:** CRAIG RUEGSEGGER
**DESIGNER:** KEVIN BOYLE
**BUILDER:** BRIAN BERGSTROM




Note: Organizer is sized for an 8'-wide closet. Adjust the length of the outer shelves (S), stiffeners (T), top panels (U), and closet rods to suit your closet width.

**EXPLODED VIEW**

**PHOTOGRAPHER:** CARSON DOWNING; **ILLUSTRATOR:** CHRISTOPHER MILLS

**OVERALL DIMENSIONS**
94½"W × 24¾"D × 80¾"H

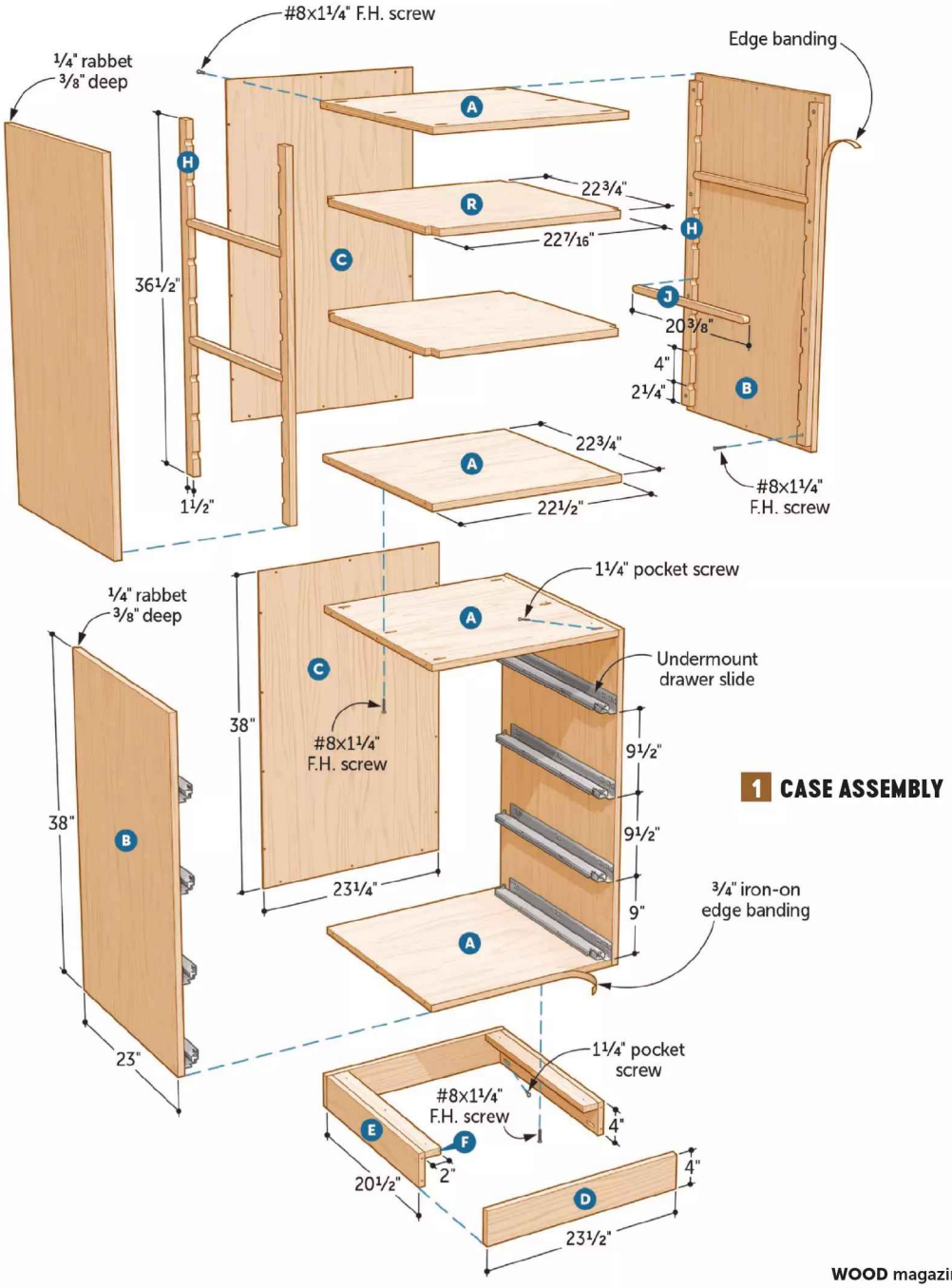
Update any closet to maximize storage and provide exactly the options that suit your needs. With this set of components, you can reposition or remove adjustable shelves to provide space for hanging long items. Place closet rods high and low to double the space for shirts and blouses. Build the center cabinets as shown, or make both with only shelves. And installation couldn't be easier–simply screw the cabinets and end panels to wall studs.

## BUILD THE BASIC BOXES

Two plywood carcases, assembled with pocket screws positioned where they won't show, accept adjustable shelves or drawers.

**1** From ¾" maple plywood, cut the case tops and bottoms (A) and sides (B) to size **[Drawing 1, Parts List]**.

**2** Cut strips of iron-on maple edge banding **[Sources]** 1" longer than the panels. Apply the banding to the front edges, then trim the ends and edges flush (*Strike Up the Banding, next page*).




**1 CASE ASSEMBLY**

**3** Drill pocket holes in the outside faces of the tops and bottoms (A) **[Drawing 1]**. Rabbet the rear edges of the sides (B). Finish-sand the panels, then assemble the carcases with glue and pocket screws, keeping the front edges flush.

**4** Measure the carcases (A/B) for the backs (C) and cut them to size. Set the backs aside for now.

**5** From 3/4" maple, cut the base front/back (D), sides (E), and cleats (F) to size **[Drawing 1]**. Glue and pocket-screw the sides between the front and back. Then glue the cleats flush with the top edge of the sides.

> **"IT'S GREAT TO HAVE DRAWERS AND OPEN SHELVES RIGHT AT YOUR FINGERTIPS WHEN YOU OPEN THE CLOSET DOOR."**
>
> **-KEVIN BOYLE, SENIOR DESIGN EDITOR**

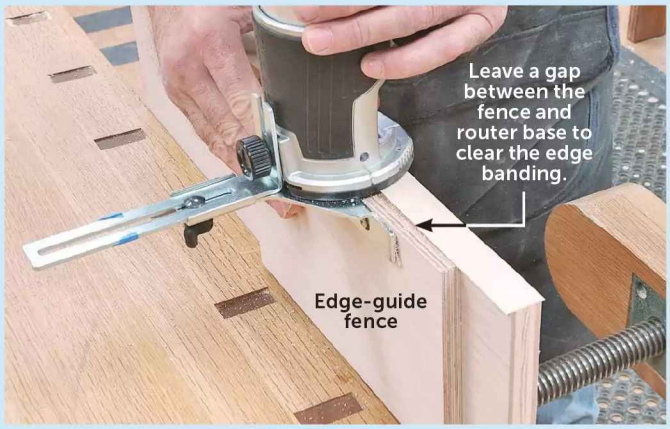
# STRIKE UP THE BANDING

Plywood makes it easy to cut panels to size quickly, but the exposed edges need dressing up. Iron-on edge banding **[Sources]** hides the plies and provides a real wood surface that finishes much like the plywood. Banding comes in species to match whatever type of plywood your project calls for, and the heat-activated adhesive cures in a matter of minutes.

To apply heat-activated edge banding, use an old clothes iron. You may get adhesive residue on the iron, so we don't recommend one you use on your clothes. Follow these steps to apply the banding (*right*) and trim it flush with the plywood ends (*below left*) and faces (*below right*). A light sanding removes any exposed adhesive and eases the sharp edges.

Heat a dry iron to its highest setting. Apply moderate pressure and move the iron slowly across the edge banding to melt and activate the adhesive. Allow the banding to overhang both faces and the ends of the panel. Let the adhesive cool for a few minutes.

Trim the ends of the banding first. An end trimmer **[Sources]** makes clean cuts without chip-out. Or place the panel, banded edge down, on a scrap and make light cuts from the back side with a razor knife. Work from both edges toward the middle to prevent chip-out.




To trim the edging flush with the panel faces, add a wide fence to your trim-router edge guide. Cut a window in the fence for the flush-trim bit and mount the fence to clear the edging. Rout the edging flush. Clean adhesive from the bit and bearing with mineral spirits.

## RAISE YOUR STANDARDS

Closet rods provide hanging storage on each side of the cabinets. Shelf standards attached to the cabinets and end panels accept cleats that capture the closet rods and support shelves.

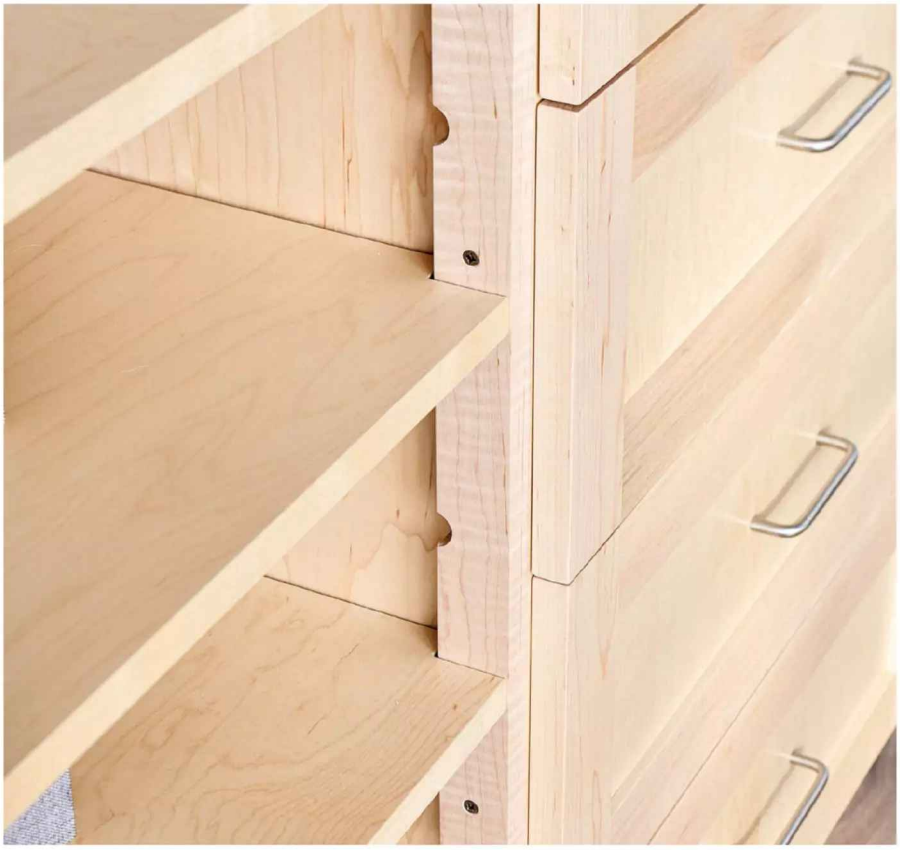
**1** Cut the end panels (G) to size **[Exploded View]** and edge-band their front edges.

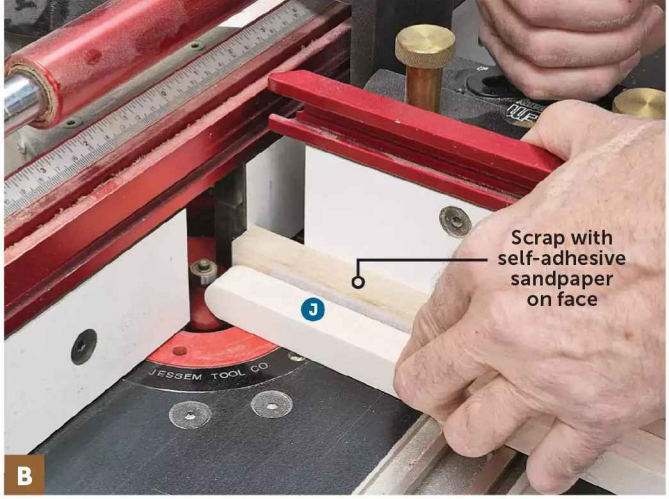
**2** To make the shelf standards (H, I), cut two $^{3}/_{4}\times3^{1}/_{8}\times36^{1}/_{2}$" maple blanks and four $^{3}/_{4}\times3^{1}/_{8}\times76$" maple blanks. Lay out the centerpoints for $^{3}/_{4}$"-diameter holes centered on the blanks' widths **[Drawing 2]** and drill the holes. Ripcut the blanks in half **[Photo A]**, then finish-sand them.

**3** Inside one carcase (A/B), glue and screw two center standards (H) flush with the front edges of the carcase **[Drawing 1]**. Attach the rear standards flush with the rabbet shoulder. Attach two outer standards (I) to each end panel (G) so the front standard fits flush with the panel edge, and the rear standard is inset $^{1}/_{4}$" from the edge **[Exploded View]**. Set the remaining outer standards aside.

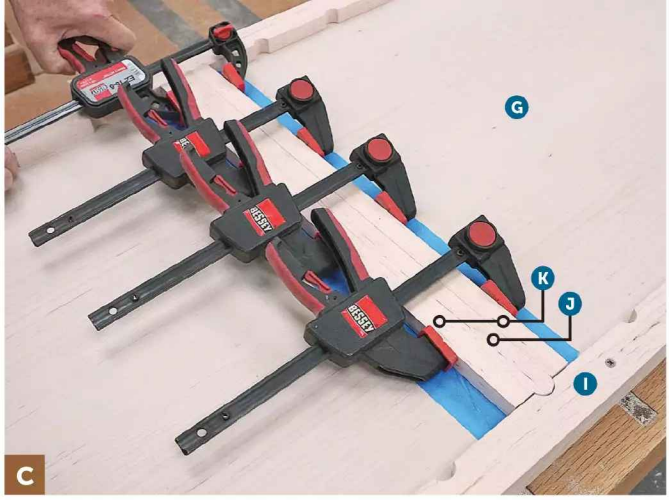

After drilling the holes in the shelf standard (H, I) blanks, rip the blanks in half to create the semicircular notches that accept the ends of the shelf cleats (J).

**4** Cut the shelf cleats (J) to size from $^{3}/_{4}$" maple. Mount a $^{3}/_{8}$" round-over bit in your router table. Position the table fence flush with the bearing and the bottom of the bit profile flush with the tabletop. Round the ends of the cleats to fit the recesses in the shelf standards (H, I) **[Drawing 2a, Photo B]**.






Back up the cleat (J) with a scrap. Start with the cleat away from the fence. Take 2–3 passes, moving the cleat toward the fence to round over one edge. Flip the piece over and repeat on the other edge.

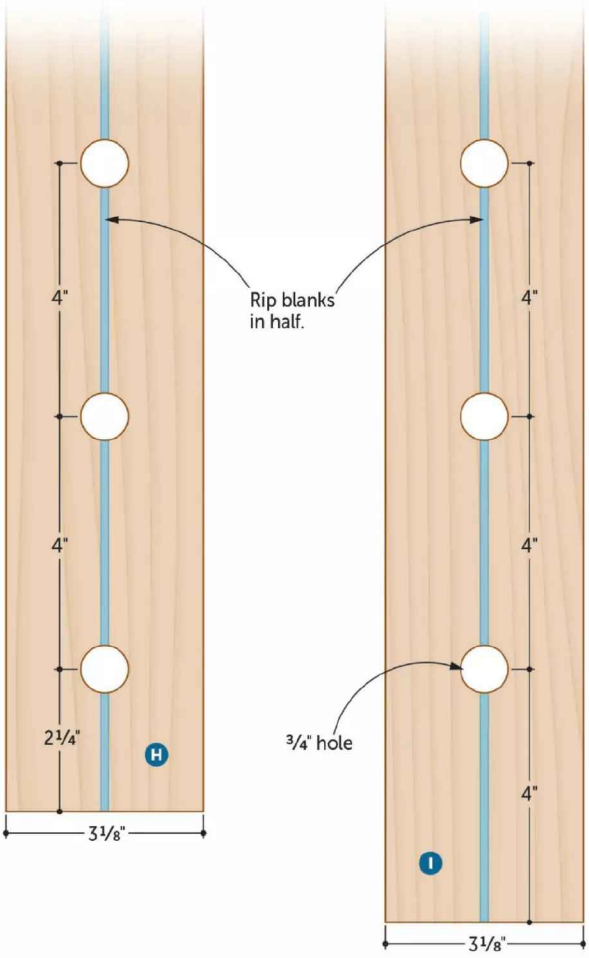



Cover an area between the shelf standards (I) with blue tape to catch any glue squeeze-out. Place a shelf cleat (J) in the standards, then glue and clamp a closet rod stiffener (K) on each side.

**5** Cut the closet rod stiffeners (K) to size. Using an end panel (G/I) to help position the parts, glue a shelf cleat (J) between two closet rod stiffeners to create a closet rod cleat [Photo C, Drawing 2b]. Remove the cleat assembly from the end panel after clamping, then assemble the remaining closet rod cleats in the same way.

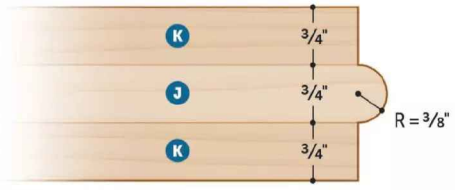
**6** After the glue dries on the closet rod cleats (J/K), drill a centered 1 3/8" hole through the face of each one [Exploded View].

## 2 SHELF STANDARDS




## 2a SHELF CLEAT


## 2b CLOSET ROD CLEAT



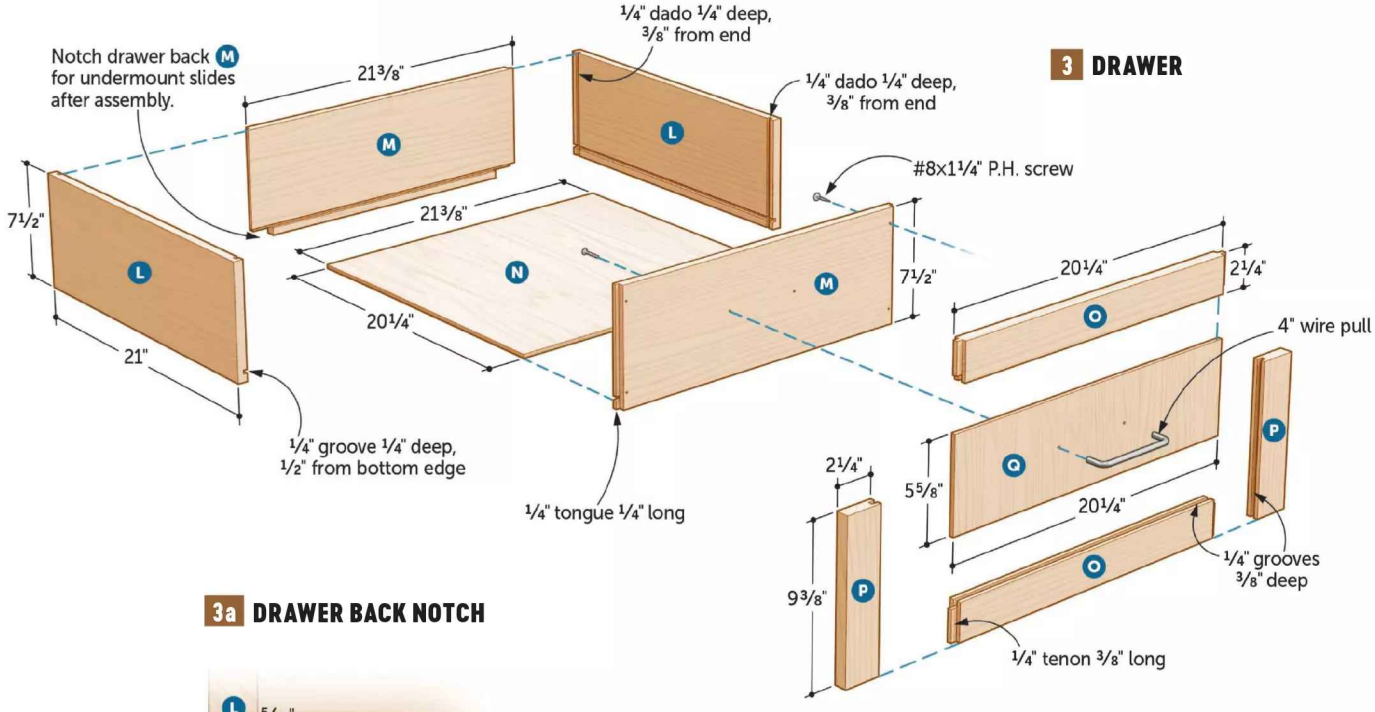
## BUILD THE DRAWERS

**1** From 5/8"-thick maple, cut the drawer sides (L) and fronts/backs (M) to size [Drawing 3], along with a test piece of the same thickness.

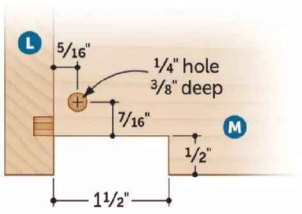
**2** Install a 1/4" dado stack in your tablesaw and cut the dadoes near each end of the sides (L). Add an auxiliary face to the rip fence and adjust the fence so the dado blade just brushes against the face. Cut rabbets on a test piece to create a tongue that fits snug in the dadoes in the drawer sides. Then rabbet the ends of the drawer fronts and backs (M).

**3** Remove the auxiliary face and position the rip fence 1/2" from the blade. Cut grooves in the sides, fronts, and backs to accept the plywood for the drawer bottoms (N).

**4** Dry-assemble a drawer, measure for the drawer bottoms (N), and cut them to size. Finish-sand the drawer parts, then glue up the drawers. After the glue dries, notch the bottom edge of each drawer back and drill the holes to accept the undermount slides and clips [Drawing 3a].




### 3a DRAWER BACK NOTCH



**5** From 3/4" maple, cut the drawer face rails (O) and stiles (P) to size along with a test piece. Cut a centered 1/4" groove on the inside edge of each part [Drawing 3].

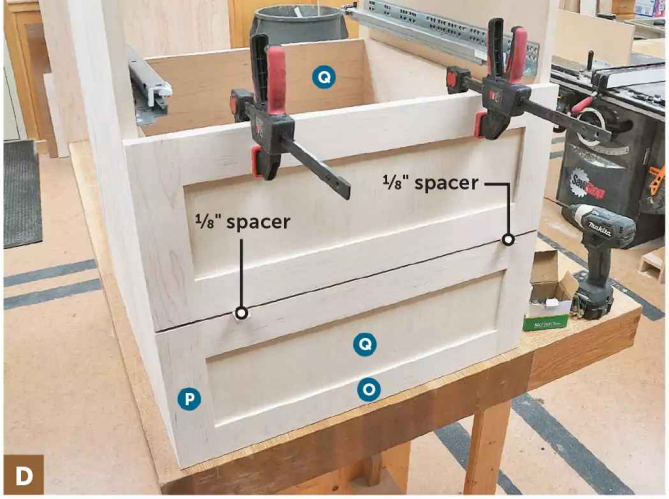
**6** Cut rabbets on each face of the test piece to create a tongue that fits the grooves in the drawer face stiles. Then cut tongues on the drawer face rails (O).

**7** Cut the drawer face panels (Q) to size and glue up the drawer faces. Finish-sand the drawer faces.

**8** Attach the drawer slide clips to the drawer following the manufacturer's instructions. Then screw the slides to the case sides (B) [Drawing 1]. Install the drawers in the carcase.

**9** Clamp a drawer face (O–Q) to the bottom drawer, flush with the bottom edge and outside faces of the carcase. Drill pilot holes from inside the drawer into the face stiles (P) and screw the drawer face in place [Drawing 3].

**10** Position and attach the next drawer face [Photo D]. Then repeat for the two remaining faces.




Place 1/8"-thick spacers on the lower drawer face. Rest the next face on the spacers, align the ends of the two faces, and clamp the face to the drawer. Then drill pilot holes and screw the face in place.

> **I LOVE UNDERMOUNT DRAWER SLIDES BECAUSE THEY STAY HIDDEN AND ALLOW A LITTLE MORE DRAWER SPACE.**
>
> *-KEVIN BOYLE, SENIOR DESIGN EDITOR*

## START THE INSTALL

**1** Remove the drawers, drawer slides, and clips. Apply a finish to all wood parts. We sprayed on two coats of quick-drying satin polyurethane. After the finish dries, reinstall the drawer hardware. Install the drawer pulls [Sources] centered on the drawer face panels (Q) [Drawing 3].

**2** Glue and screw the base (D–F) to the bottom of the drawer cabinet flush at the back and with the cabinet overhanging equally on each side [Drawing 1]. Glue and screw the backs (C) to each cabinet.

**3** Clean out the closet and mark the stud locations on the walls at least 80" above the floor. Center the drawer cabinet and base between the closet walls and mark the baseboard on each side of the base. Cut away the baseboard between these marks.

**TIP!**

To cut the baseboard in place, align a scrap block on the mark to guide an oscillating multitool equipped with a flush-cut blade.

**4** Stack the cabinets in the closet and screw them together [Drawing 1], and then to studs through the backs (C).

**5** Use a long level to mark a level line from the cabinet's top to the closet side walls. Position an end panel (G/I) on the side wall against the back of the closet and align its top edge with the mark. Screw the end panel to wall studs.

## SIZE THE SHELVES

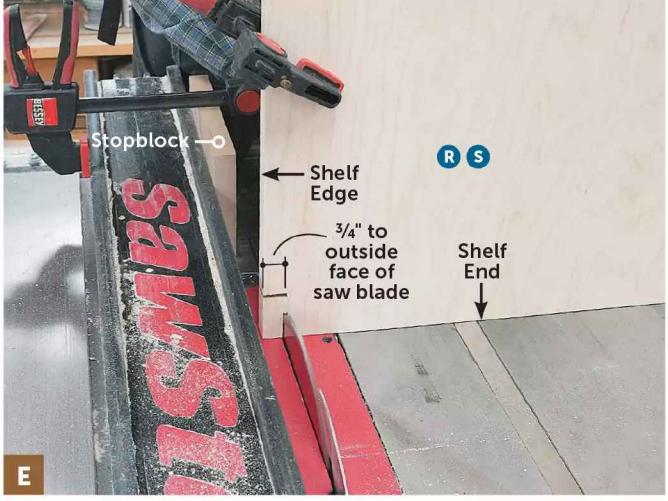
**1** Cut the center shelves (R) to size [Drawing 1]. Measure between the case sides (B) and end panels (G), and cut the outer shelves (S) 1/8" shorter than this length. Cut closet rods to match. Edge-band the front edge of each shelf.

**2** To notch the shelf (R, S) corners to fit around the shelf standards [Drawing 4], set your tablesaw rip fence 1 9/16" from the *outside* face of the blade and raise the blade to cut 3/4" deep. Attach a tall auxiliary fence to your miter gauge, and clamp a shelf to it with the shelf's rear edge against the saw table. Cut a kerf at the corner, rotate the shelf end for end, and kerf the other rear corner. Repeat to cut kerfs in the front edge.

**3** Raise the blade to 1 1/2" above the table. Clamp a stopblock to the rip fence in front of the blade and position the fence to cut a kerf that will complete the notch in each shelf edge [Photo E].

**4** Cut the outer shelf stiffeners (T) to size, 1 1/2" shorter than the shelves (S), and bevel-cut the ends. Glue the stiffeners under each outer shelf (S) centered side-to-side and front-to-back.

**5** Measure the wall-to-wall distance of your closet and cut the top panels (U) to half of that length.



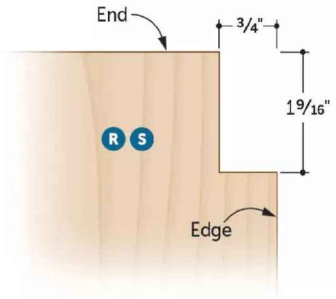

Clamp a stopblock to the rip fence to prevent the waste piece from kicking back. Butt a shelf edge against the stopblock, clamp the shelf to the auxiliary fence, then make the cut. Repeat for each notch.

**6** Finish-sand and apply a finish to the shelves and top panels. After the finish dries, screw the top panels across the end panels and cabinets [Exploded View].

**7** Screw the remaining outer shelf standards (I) to the cabinet assembly (A–F), positioning the front standards flush with the top of the cabinet and flush with the front edges [Exploded View]. At the rear, place temporary 1/4" spacers between the standard and the closet back wall, then screw the standards into place.

**8** Install the cleats, closet rods, shelves, and drawers. Gather your wardrobe and introduce it to the new home you fashioned.

**4 SHELF DETAILS**




# PARTS LIST

| PART | | FINISHED SIZE T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|
| A | CASE TOP/BOTTOM | ¾" | 22¾" | 22½" | MP | 4 |
| B | CASE SIDES | ¾" | 23" | 38" | MP | 4 |
| C | CASE BACKS | ¼" | 23¼" | 38" | MP | 2 |
| D | BASE FRONT/BACK | ¾" | 4" | 23½" | M | 2 |
| E | BASE SIDES | ¾" | 4" | 20½" | M | 2 |
| F | BASE CLEATS | ¾" | 2" | 20½" | M | 2 |
| G | END PANELS | ¾" | 23" | 76" | MP | 2 |
| H* | CENTER SHELF STANDARDS | ¾" | 1½" | 36½" | M | 4 |
| I* | OUTER SHELF STANDARDS | ¾" | 1½" | 76" | M | 8 |
| J | SHELF CLEATS | ¾" | ¾" | 20⅜" | M | 18 |
| K | CLOSET ROD STIFFENERS | ¾" | ¾" | 19¾" | M | 12 |
| L | DRAWER SIDES | ⅝" | 7½" | 21" | M | 8 |
| M | DRAWER FRONTS/BACKS | ⅝" | 7½" | 21⅜" | M | 8 |
| N | DRAWER BOTTOMS | ¼" | 21⅜" | 20¼" | MP | 4 |
| O | DRAWER FACE RAILS | ¾" | 2¼" | 20¼" | M | 8 |

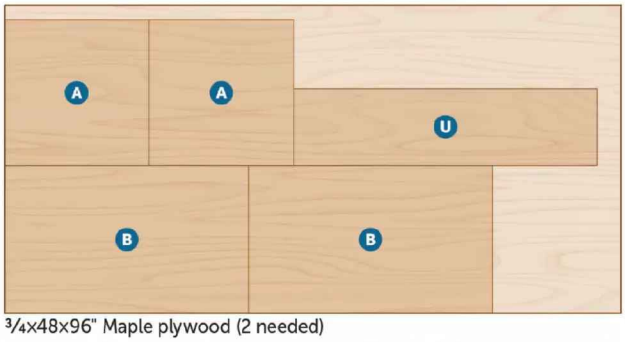
| PART | | FINISHED SIZE T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|
| P | DRAWER FACE STILES | ¾" | 2¼" | 9⅜" | M | 8 |
| Q | DRAWER FACE PANELS | ¼" | 20¼" | 5⅝" | MP | 4 |
| R | CENTER SHELVES | ¾" | 22¾" | 22 7/16" | MP | 2 |
| S | OUTER SHELVES | ¾" | 22¾" | 34⅜" | MP | 4 |
| T | OUTER SHELF STIFFENER | ¾" | 1½" | 32⅞" | M | 4 |
| U | TOP PANELS | ¾" | 12" | 47¼" | MP | 2 |

*Parts initially cut oversize. See the instructions.

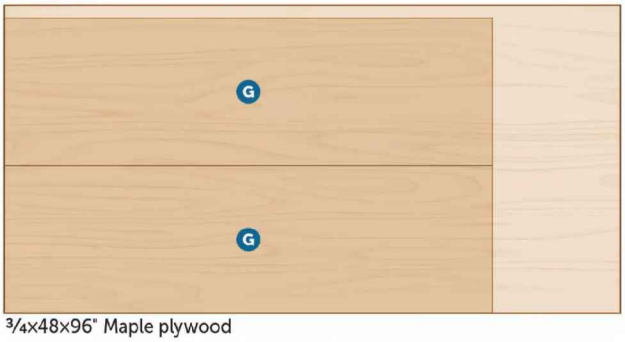
**MATERIALS KEY:** MP–maple plywood, M–maple.
**SUPPLIES:** 1 5/16" closet rods 36" long (4), 1¼" fine-thread pocket screws, #8x1¼" flathead screws, #8x1¼" panhead screws.
**BLADE AND BITS:** Dado stack, ⅜" round-over bit, 1⅜" drill bit or holesaw.
**SOURCES:** Iron-on maple edge banding (250') no. EBU-22000021, $53; 21" undermount drawer slides (4 pairs) no. VLS2-U21-SC, $20/pair; undermount-slide locking devices no. VLS2-U-FBKT (4 pairs), $3/pair; 4" wire pulls (4) no. BK-PW555-SN $7 each, cabinetparts.com; edge banding end trimmer no. RC21E, $56, virutextools.com.
**PROJECT COST:** It cost us about $1,000 to build this project. Your cost will vary by region and source.

# CUTTING DIAGRAM

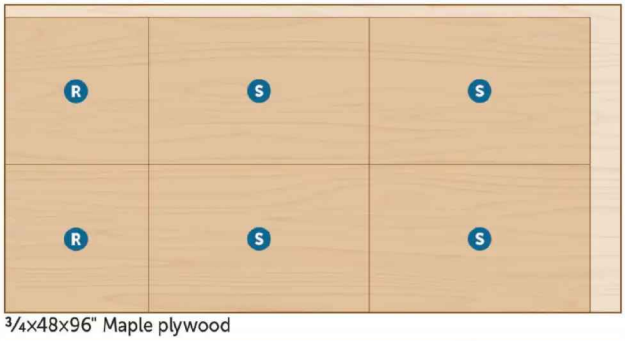
We purchased 59 board feet of 4/4 maple. Before cutting parts to size, we planed them to the thicknesses shown in these example boards.



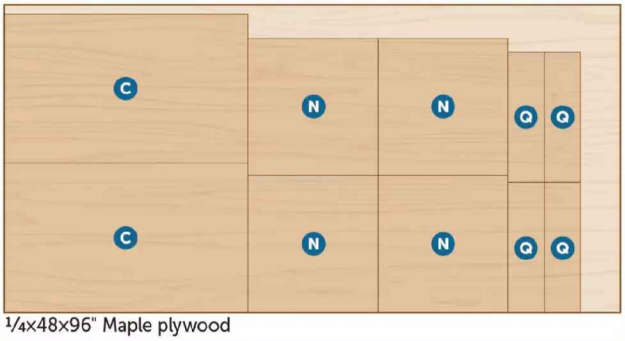
¾x48x96" Maple plywood (2 needed)



¾x48x96" Maple plywood



¾x48x96" Maple plywood



¼x48x96" Maple plywood

¾x5½x96" Maple

¾x5½x96" Maple

¾x3½x96" Maple

¾x5½x96" Maple

¾x3½x96" Maple (4 needed)

¾x5½x96" Maple

⅝x9¼x96" Maple (4 needed)

• SHOP TESTED •

# CORDLESS RANDOM-ORBIT SANDERS

We took 12 cordless models for a spin to determine which ones have the grit to stand up to demanding use.

**WRITER:** VINCE ANCONA
**TESTER:** STEVE FEENEY

In most woodworking shops today, handheld power tools like drills, drivers, saws, and even routers are often cordless. But sanders? Not so much. Partly this is because cordless random-orbit sanders are relatively new compared to other cordless tools. Makita introduced the first one in 2012, and it took a while for other manufacturers to follow suit.

In the past few years, more competitors have entered the market, making cordless random-orbit sanders a perfect candidate for an in-depth review. For this test, we focused on 18-volt and higher models with 5"-diameter discs and brushless motors. Our goal was to determine which sanders performed the best in terms of aggressiveness, runtime, dust collection, vibration mitigation, and overall ease of use. When the dust settled, here is what our testing revealed.

## AGGRESSIVENESS

Few woodworkers enjoy sanding, so the faster you can get the job done, the better. To compare how aggressively each sander performs, we drew lines across 12" lengths of 1×10" pine boards with a felt-tip marker and then timed how long it took to sand them off. To remove any variables with sandpaper, we equipped each sander with a new, 80-grit Mirka Ultimax Ligno disc with Multifit hole spacing. (See *The Hole Story on Sanding Discs, below.*)

We tested each sander using both its dust bag and a shop vacuum. The Festool ETSC 2 125, Milwaukee 2837-20, Metabo HPT SV1813DAQ4M, and DeWalt DCW210B performed the best out of the bunch, removing the lines in under two minutes (see *Smooth Operators: Cordless Sanders Go Head to Head, page 55.*)

## THE HOLE STORY ON SANDING DISCS

When random-orbit sanders first appeared, little consistency existed in the number and configuration of the holes in the pads (and sanding discs). Some sanders required discs with five holes, while some used discs with eight. Sanders that lacked dust control used discs without any holes. Over time, manufacturers have more or less settled on an eight-hole disc as standard. But even among eight-hole discs, the spacing isn't identical. Most manufacturers use a 65mm (2½") hole-pattern diameter. But Festool sanders have a 90mm (3½") hole-pattern diameter, *right, top*, limiting you to only discs made specifically to fit Festool sanders.

To avoid stocking multiple types of discs, abrasive manufacturers now offer universal-fit discs that will accommodate five-hole and eight-hole sanders, regardless of the hole-pattern diameter, *right, bottom*. These discs have anywhere from 12 to 50 smaller holes to align with any hole pattern. The downside is that the smaller holes restrict airflow, making dust collection slightly less efficient. But it's a small price to pay for the convenience of not having to keep multiple discs on hand for different sanders.

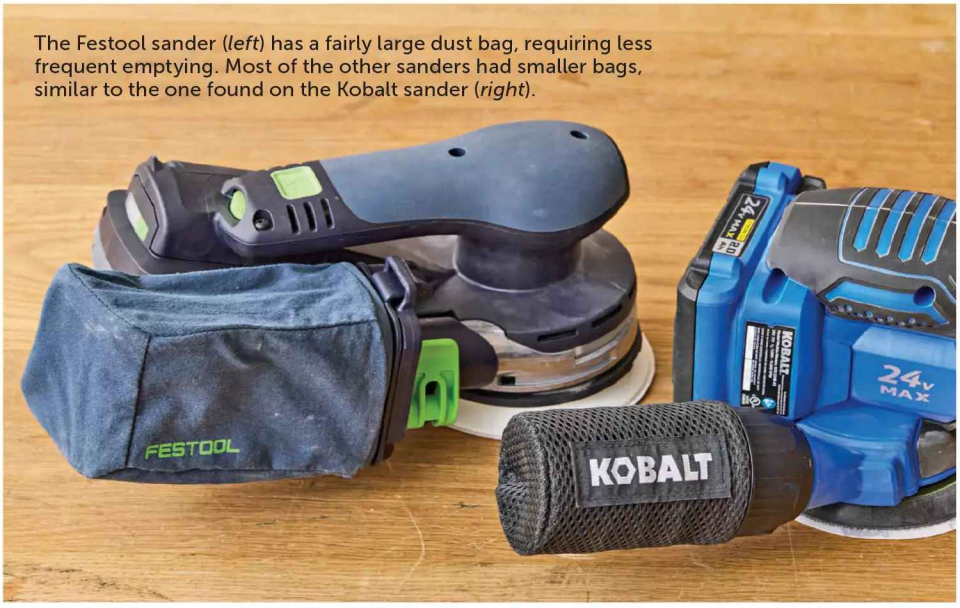
Festool (*left*) uses a unique hole layout pattern, requiring you to purchase Festool discs, discs with specialized hole patterns (*below*), or discs made of net or mesh.


With 42 holes, Mirka's Multifit sanding discs work with all 5" sanders, eliminating the need to purchase different discs for specific sanders.

PHOTOGRAPHER: JASON DONNELLY

It may seem counterintuitive, but in just about every case, the time required to sand away the lines increased when the sander was connected to a shop vacuum. The likely culprit is the increased downward force caused by the suction from the vacuum. In fact, the Ridgid R870651B and the Kreg KPTRS500A slowed down so much that we had to decrease the suction pulled by the vacuum for them to run at full speed.

It bears mentioning that all of these sanders have a fairly small orbit diameter (the size of the circular sanding motion of the pad). They're all intended to be used as finish sanders rather than for hogging off large amounts of material quickly. Save that task for your corded sanders.




The Festool sander (*left*) has a fairly large dust bag, requiring less frequent emptying. Most of the other sanders had smaller bags, similar to the one found on the Kobalt sander (*right*).

## DUST COLLECTION

Sanding creates a lot of fine dust, so adequate dust collection ranks high on our list of important features. While conducting the sanding aggressiveness test, we tested the sanders with their included dust bags as well as with a vacuum. We evaluated each sander for dust collection, both objectively and subjectively.

To test the effectiveness of the onboard dust collection, we weighed each of the dust collection bags before and after sanding the boards in our test and recorded how much dust each sander captured. We also observed the amount of dust each sander left behind on a black worksurface (after letting the air clear).

After testing the sanders with their bags, we connected each sander to a dust extractor and compared the results. Refer to the chart on *page 55* to see how the sanders stacked up.

Using just the bag, the Metabo HPT collected dust most effectively, closely followed by the Festool and the Kobalt KOS 224B-03. Dust collection was not quite as effective with the others but was still acceptable. When connected to a shop vacuum, all of the sanders collected dust well, making the sacrifice of tethering a cordless tool to a hose worth it.

Most of the sanders have a cylindrical dust bag fitted over a wire or plastic frame, similar to the Kobalt, *above*. To empty this style of bag, you remove it from the sander and shake the dust out over a trash can. The Festool and Metabo HPT bags open at one end to empty the sawdust.

Most of the bags lock in place on the dust port with a twist, preventing them from working loose during operation. The bags on the Festool, Milwaukee, and Ryobi PBLSD01B have a plastic clip on one side. We had difficulty engaging the clip on the Ryobi, and the bag fell off a couple of times. The bags on the Metabo HPT and Wen 20405 are held in place with a friction fit. The Metabo HPT uses an O-ring to grip the port. The Wen lacks any sort of lock or clip.

Hooking the sanders up to a shop vacuum proved a challenge due to the wide range of port sizes, *right*. Some of the sanders are designed to fit commonly available hose sizes. For the others, you'll have to provide your own adapter if your hose doesn't fit. The Milwaukee and Metabo HPT sanders include adapters to accommodate multiple hose sizes.

The dust port on the Milwaukee sander swivels, which allows the hose to move freely without snagging or tugging as you sand. The dust ports on the Festool and Bosch sanders are made of metal, while the others are plastic. This may be a small detail, but it speaks to the overall build quality of these two models.

Dust port sizes range from 1¾" outside diameter of the Metabo HPT (*left*) to the ⅞"-diameter of the Wen (*right*). You may need an adapter to fit a shop vacuum hose to many of these sanders.

## SWIRL MARKS

A major consideration when evaluating the performance of a random-orbit sander is the presence of swirl marks left behind on the wood. These pigtail-shaped scratches stand out like a sore thumb, particularly if you stain your project.

To evaluate swirl marks, we sanded pine and oak boards using 80-, 150-, and 220-grit discs, examining the surface for scratches after each grit. Ideally, each round of sanding should remove the scratches from the previous round, with the goal being that by the time you get to the final sanding any scratches are so fine that they're nearly invisible.

The best performers (Festool, Wen, and Milwaukee) left minimal swirls marks after every grit. Others (DeWalt, Metabo HPT, Ridgid, and Ryobi) started with noticeable swirl marks from the coarser grits but were able to eliminate these by the final sanding. The remaining sanders (Bosch GEX18V-5N, Flex FX3411-Z, Hercules 58700, Kobalt, and Kreg) left significant scratches or swirl marks even after the final sanding.

## COMFORT & CONVENIENCE

A big factor with any tool is how comfortable it is to use. Here we looked at things like the grip, balance, vibration, noise level, and controls. Right off the bat, we noticed differences in the way the batteries mount. The Bosch, Festool, Milwaukee, and Ridgid sanders cantilever the battery off the back of the tool in a horizontal orientation, throwing off the balance of the tool slightly, *below*. Oddly, the orientation of the Bosch's battery doesn't allow you to see the charge level indicator lights without removing the battery from the tool.

The other sanders mount the battery vertically on the back of the housing, sliding in from the top or the side. We prefer this design slightly because it creates a more compact (albeit taller) profile with a better overall balance.

Excessive vibration can make a sander difficult to control and lead to fatigue and numbness in your hands and fingers, particularly during long sanding sessions. There was a distinct divide among the

Sanders with a cantilevered battery, like the Bosch (*left*), have a low profile but are slightly off-balance. The vertical battery orientation of the Metabo HPT (*right*) made it the tallest sander in our test.

sanders in this area, with the Bosch, Festool, Metabo HPT, Milwaukee, and Ridgid sanders having little vibration and the others exhibiting moderate to substantial vibration.

All of the sanders we tested, except for the Hercules, have a soft-start feature and a brake for the disc. In terms of how long the disc continued to spin after powering off, the sanders fell into two camps. The Bosch, DeWalt, Festool, Metabo HPT, Milwaukee, and Ridgid sanders all stopped almost instantaneously, while the rest continued to spin for a second or two, with the Hercules clocking the longest wind-down at just over 5.5 seconds.

We didn't find a huge difference in noise level between the sanders. They ranged between 87.9 (Milwaukee) and 96.7 (Metabo HPT) decibels.

We prefer sanders with large, spring-loaded power switches, like this one on the Kobalt. All of the sanders in our test feature a rubberized grip to dampen vibrations.


## POWER SWITCH

Random-orbit sanders don't have a lot of controls—in most cases, just an on-off switch and a variable speed control. The Bosch, Festool, Flex, and Kobalt sanders have a spring-loaded, push-button power switch, *left*. We prefer the positive action and tactile feel of this style of switch, followed closely by the sanders with rocker-type switches.

We were less enamored of the soft-touch switches found on the Kreg, *below left*, Milwaukee, Ridgid, Ryobi, and Wen sanders. They're small and difficult to find by touch alone, especially if you're wearing gloves. We particularly disliked the switch configuration on the Wen, *below right*. One switch turns the power on and also controls the speed settings, while a separate switch turns the sander off. Trying to remember which switch to press to start and stop the sander was initially frustrating, but something we'd probably get acclimated to over time.

Because the soft-touch switches on the Kreg sander look so similar, it's difficult to distinguish between the power button (*left*) and the speed control button (*right*) from a casual glance.


We found the poor labeling and separate power-on (*left*) and power-off (*right*) buttons on the Wen sander confusing. The power-on button also controls the motor speed.

## RUNTIME

Runtime is a concern with any cordless tool, but particularly so with a sander because it's often used for long stretches. To test runtime, we fitted each sander with a fully charged battery, set each sander on its highest speed, then sanded an oak board continuously until the battery was depleted, taking a break every 15 minutes to replace the disc. (We timed each break at 5 minutes to keep the playing field even.) We repeated the test with each sander and averaged the results, which you'll find in the chart on *page 55*.

The Bosch and DeWalt sanders ran the longest overall, at just over 45 minutes each. The Kreg and Ryobi brought up the rear of the pack, running out of steam in less than 15 minutes. But these numbers tell only part of the story. Because we purchased all of these sanders (except the Wen) as bare tools for comparable prices, we added battery/charger starter kits to go along with each sander for testing. Consequently, we tested the Bosch, DeWalt, Festool, Hercules, Milwaukee, and Ridgid with 4- or 5-amp-hour (Ah) batteries while the others had smaller (2- or 2.5-Ah) batteries.

For a fairer comparison between sanders with batteries of varying voltages and amp-hour ratings, we divided the average runtime of each sander by the watt-hour capacity of its battery. Based on watt-hours, the Bosch outperformed the others noticeably, while the Festool was at the bottom.

There's a trade-off between the longer runtime and increased weight of a larger battery. We found the sanders with smaller, lighter batteries easier to control and more comfortable to use. But when using these smaller batteries, most sanders ran for only 20 minutes or so. If given the choice between a large battery or two smaller ones to avoid charging downtime, we prefer the balance and comfort of the latter.

In addition to overall runtime, we looked for any changes in power or performance as the battery depleted. The DeWalt, Festool, Kreg, Metabo HPT, Milwaukee, Ridgid, Ryobi, and Wen ran at a consistent speed throughout our tests and stopped suddenly when the battery was discharged. The other sanders began slowing down 4 to 10 minutes before stopping completely, decreasing their effective runtime.

The harsh reality of our runtime test reveals that cordless sanders work fine for quick jobs or small projects. But if your sanding sessions regularly last for a half hour or more, you'll definitely want to have an extra battery (or two) on hand.

## VARIABLE SPEED

All the sanders in our test feature variable-speed motors, ranging overall from 6,000 to 13,000 orbits per minute. To keep sanding time to a minimum, we typically run our sanders at the highest orbit speed. But if you're sanding off paint or finish, a slower speed prevents heat build-up that can melt the paint rather than remove it. Slower speeds are also useful when sanding plywood or delicate assemblies, or anytime you need more control.

A dial controls the speed on the Bosch, DeWalt, Festool, Kobalt, Metabo HPT, and Ridgid sanders, *below*. The other sanders use soft-touch switches to choose from a limited number of speeds. The Milwaukee has five speeds and the Hercules, Kreg, Ryobi, and Wen have three. The Flex has three speeds along with a "turbo" mode for a top speed of 13,000 orbits per minute.

**Learn the difference between amp-hours and watt-hours**
woodmagazine.com/watthours


Sanders using a thumbwheel to control the speed offer a larger number of speeds over those that use pushbuttons. The speeds on the Ridgid sander (*above*) are clearly marked.

> **"I KEEP MY CORDLESS SANDER ON MY BENCH AND USE IT ALMOST LIKE A BLOCK PLANE TO EASE SHARP EDGES OR MAKE QUICK ADJUSTMENTS TO A WORKPIECE."**
>
> **-KEVIN BOYLE, SENIOR DESIGN EDITOR**

Most of the sanders that utilize soft-touch speed switches indicate the speed selection with display lights, *right*. But the only way to determine the speed setting with the Kreg and Wen sanders is by sound. Even more frustrating is that neither of these sanders hold its low- or medium-speed settings when powered down. Switching the sander off and back on returns the motor to full speed.


LEDs next to the push-button control on the Hercules (*shown*), Flex, Milwaukee, and Ryobi sanders provide a visual indicator of the speed selection. The Kreg and Wen sanders lack this feature.

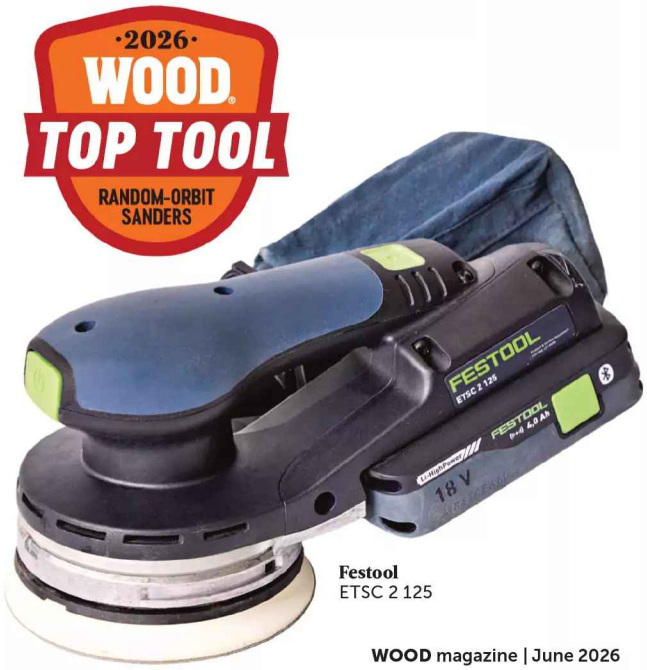

The Festool (*left*) features a wide LED ring with high and low settings to cast a wide swath of raking light. The smaller LED on the Ryobi (*right*) covers a narrower field but still does a good job.

## BONUS FEATURES

We appreciate manufacturers that incorporate innovative features into their tool designs, especially those that are genuinely useful and not just gimmicky. A case in point is the LED light ring on the base of the Festool sander, *left*. Its raking beam highlights surface flaws in a wide arc and is one of the best ideas in sanders since hook-and-loop sanding discs. Ryobi is the only other manufacturer to incorporate this feature, despite being one of the lower-priced sanders in our test.

The Milwaukee and Festool sanders include edge guards, *below left*. And both are Bluetooth-enabled, allowing them to automatically turn a Bluetooth dust extractor on and off.

The Milwaukee (*above*) and Festool sanders are equipped with detachable edge guards, allowing you to sand next to a vertical surface without damaging it.




**Festool**
ETSC 2 125

# SMOOTH OPERATORS: CORDLESS SANDERS GO HEAD TO HEAD

| MODEL | PERFORMANCE RATINGS (1) | | | | | | | | | | ORBIT DIAMETER | SPEED RANGE, ORBITS PER MINUTE (×1000) | POWER SWITCH STYLE (2) | VOLTAGE | BATTERY AMP-HOURS (AS TESTED) | WATT-HOURS (AS TESTED) | AVERAGE RUNTIME (MINUTES) | RUNTIME PER WATT-HOUR (SECONDS) | BATTERY MOUNTING STYLE (3) | ITEMS INCLUDED (4) | WEIGHT, BARE TOOL WITH DUST BAG (LBS) | PRICE, BARE TOOL (5) |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | AGGRESSIVENESS | RUNTIME | DUST COLLECTION (W/ BAG) | DUST COLLECTION (W/ SHOP VACUUM) | ABSENCE OF SWIRL MARKS | BALANCE | ABSENCE OF VIBRATION | GRIP COMFORT | EASE OF USING ON/OFF SWITCH | EASE OF USING SPEED CONTROL | | | | | | | | | | | | |
| **BOSCH** GEX18V-5N | B+ | A | B+ | A | C+ | B+ | B+ | A- | A- | A- | 3/32" | 6–10 | P | 18 | 4.0 | 72 | 48.2 | 40.2 | C | B | 2.6 | $159 |
| **DEWALT** DCW210B | A- | A- | B | B+ | B | B+ | C- | B+ | B+ | A- | 3/32" | 8–12 | R | 20 | 5.0 | 100 | 46.8 | 28.1 | S | B | 2.1 | $179 |
| **FESTOOL** ETSC 2 125 | A | B- | A- | A | A | B | A- | B+ | A | A- | 9/64" | 6–10 | P | 18 | 4.0 | 72 | 19.0 | 15.6 | C | B, Ca, E | 3.2 | $449 |
| **FLEX** FX3411-Z | B | B- | B | B+ | B- | B+ | C- | B+ | A- | B+ | 3/32" | 6–13 | P | 24 | 2.5 | 60 | 18.6 | 18.6 | S | B | 2.5 | $169 |
| **HERCULES** 58700 | B | B+ | B | A- | C | B- | C+ | B- | B+ | B | 3/32" | 8–12 | R | 20 | 5.0 | 93 | 37.8 | 24.6 | T | B | 2.5 | $55 |
| **KOBALT** KOS 224B-03 | B | A- | A- | A- | C+ | B+ | C | B+ | B+ | A- | 3/32" | 7–11 | P | 24 | 2.0 | 48 | 21.8 | 27.0 | S | B | 2.1 | $99 |
| **KREG** KPTRS500A | B | B | B+ | A- | C | B | B- | B+ | B- | C+ | 3/32" | 6–12 | ST | 20 | 2.0 | 36 | 12.7 | 21.0 | T | B | 2.7 | $120 |
| **METABO HPT** SV1813DAQ4M | A | A- | A | A | B | A- | B+ | A- | A | A- | 1/8" | 7–11 | R | 18 | 2.0 | 36 | 15.4 | 25.8 | T | A, B | 2.8 | $139 |
| **MILWAUKEE** 2837-20 | A | B+ | B+ | A- | A- | B+ | A- | B+ | A- | B+ | 3/32" | 6–12 | ST | 18 | 5.0 | 90 | 35.8 | 24.0 | C | A, B, E | 3.1 | $229 |
| **RIDGID** R870651B | B+ | B | B+ | A- | B+ | B | B+ | A- | A | A- | 1/10" | 7–11 | ST | 18 | 4.0 | 74 | 25.2 | 20.4 | C | B | 2.7 | $139 |
| **RYOBI** PBLSD01B | B- | B+ | B | A- | B+ | B | C- | B+ | A- | B | 3/32" | 7–11 | ST | 18 | 2.0 | 37 | 14.0 | 22.8 | S | B | 2.6 | $129 |
| **WEN** 20405 | B+ | A- | B+ | A- | A- | B | C- | B- | C+ | C+ | 3/32" | 6–11 | ST | 20 | 2.0 | 40 | 19.8 | 29.7 | S | B | 2.1 | $80* |

## WINNERS

Selecting a winner from among the dozen sanders in our test was no easy task. We ultimately landed on two picks for our Top Tool award. The Festool ETSC 2 125 is a smooth-running sander with plenty of power, and we really liked the added features of the built-in LED base, edge guard, and Bluetooth capability. The only rub is the price; it's nearly twice as expensive as the next-highest priced sander in our test.

Our second Top Tool winner is the Metabo HPT SV1813DAQ4M. While it lacks the bells and whistles of some of the other models, it performed consistently well in most of our tests, is well-balanced, and is comfortable to grip. Considering it's priced lower than many of the competitors on our list, it also wins in the value department.

1. A Excellent
   B Good
   C Fair
   D Poor
   N/A Not applicable

2. **(P)** Push button
   **(R)** Rocker
   **(ST)** Soft-touch

3. **(C)** Cantilevered
   **(S)** Side mount
   **(T)** Top mount

4. **(A)** Adapter for shop vacuum hose
   **(B)** Dust bag
   **(Ca)** Case
   **(E)** Edge guard

5. Prices current at time of article production and do not include shipping, where applicable.

*Includes 2-Ah battery and charger


Metabo HPT SV1813DAW4M

# COMPACT ROUTER TABLE

**Don't let the size fool you. This pint-sized machining center packs a powerful punch.**

**WRITER:** VINCE ANCONA
**DESIGNER/BUILDER:** JOHN OLSON


**OVERALL DIMENSIONS**
17"W × 12½"D × 13¼"H

**PHOTOGRAPHER:** CARSON DOWNING; **ILLUSTRATOR:** CHRISTOPHER MILLS

A router table is an indispensable workshop upgrade. But if your shop is starved for floor space, consider this portable version that packs in most of the features of its full-size siblings. As compact as it is, you may even want to make two so you don't have to change bits or setups in the middle of a project.

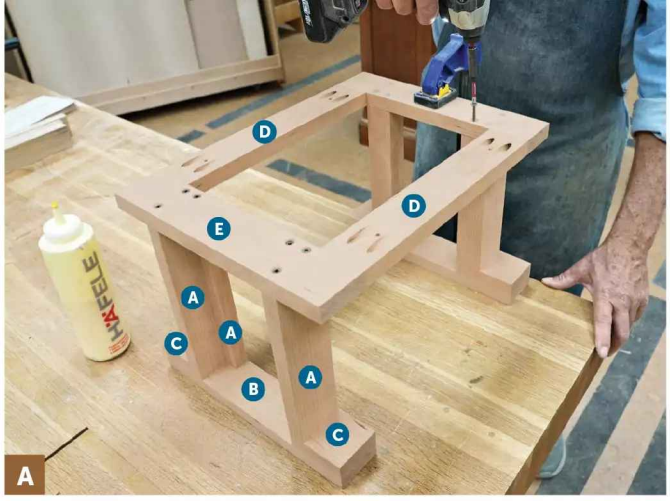
## START WITH A SOLID BASE

Solid-wood components glued and screwed together provide sturdy support for the top and router. Sled feet offer a stable footing and allow you to easily clamp the table to your bench.

**1** Cut the legs (A), feet (B), and caps (C) to size **[Parts List, Drawing 1]**.

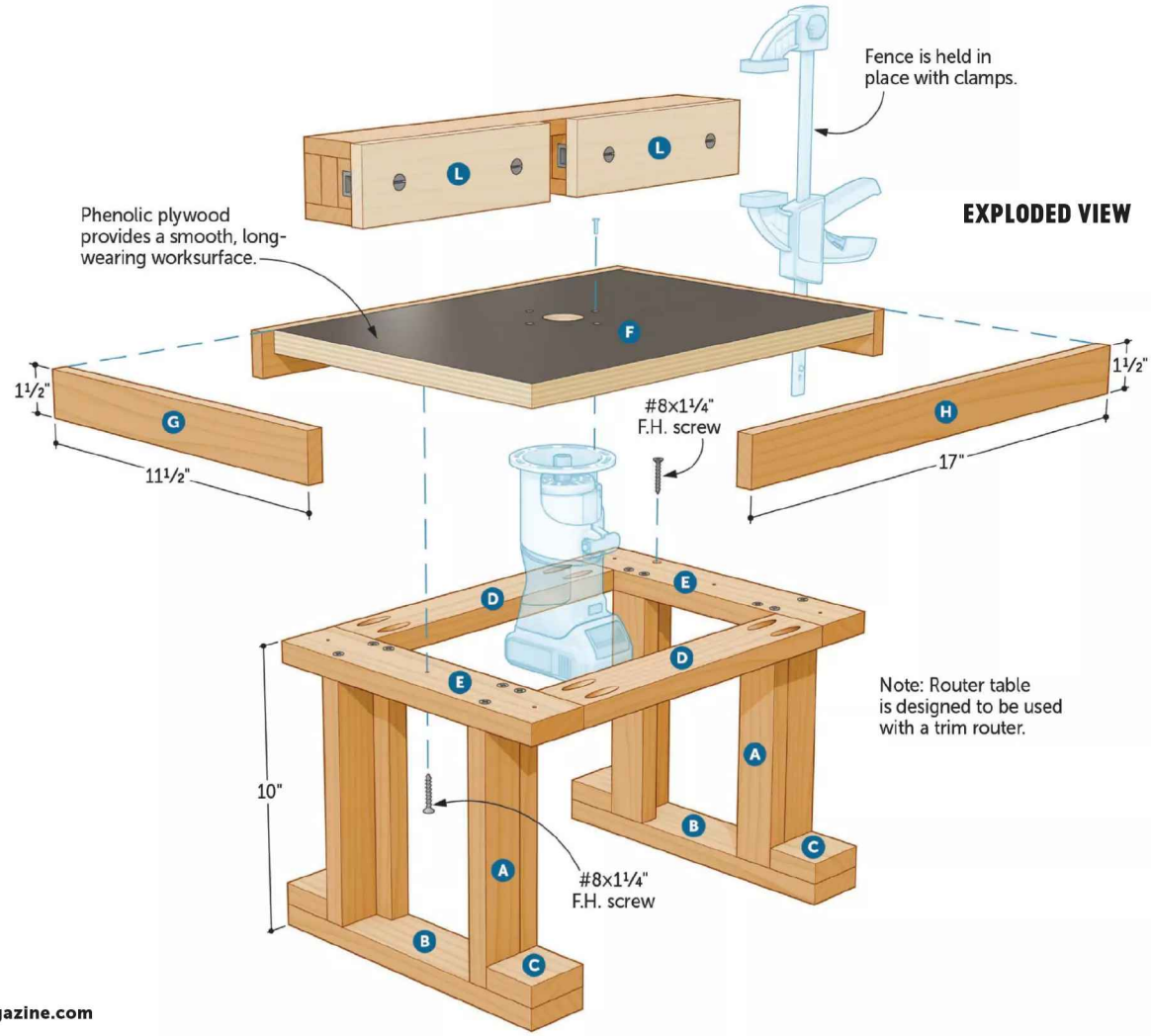
**2** Glue the legs (A) together in pairs to create four L-shaped leg assemblies **[Drawing 1]**. Glue the caps (C) to the top of the feet (B), flush with the ends.

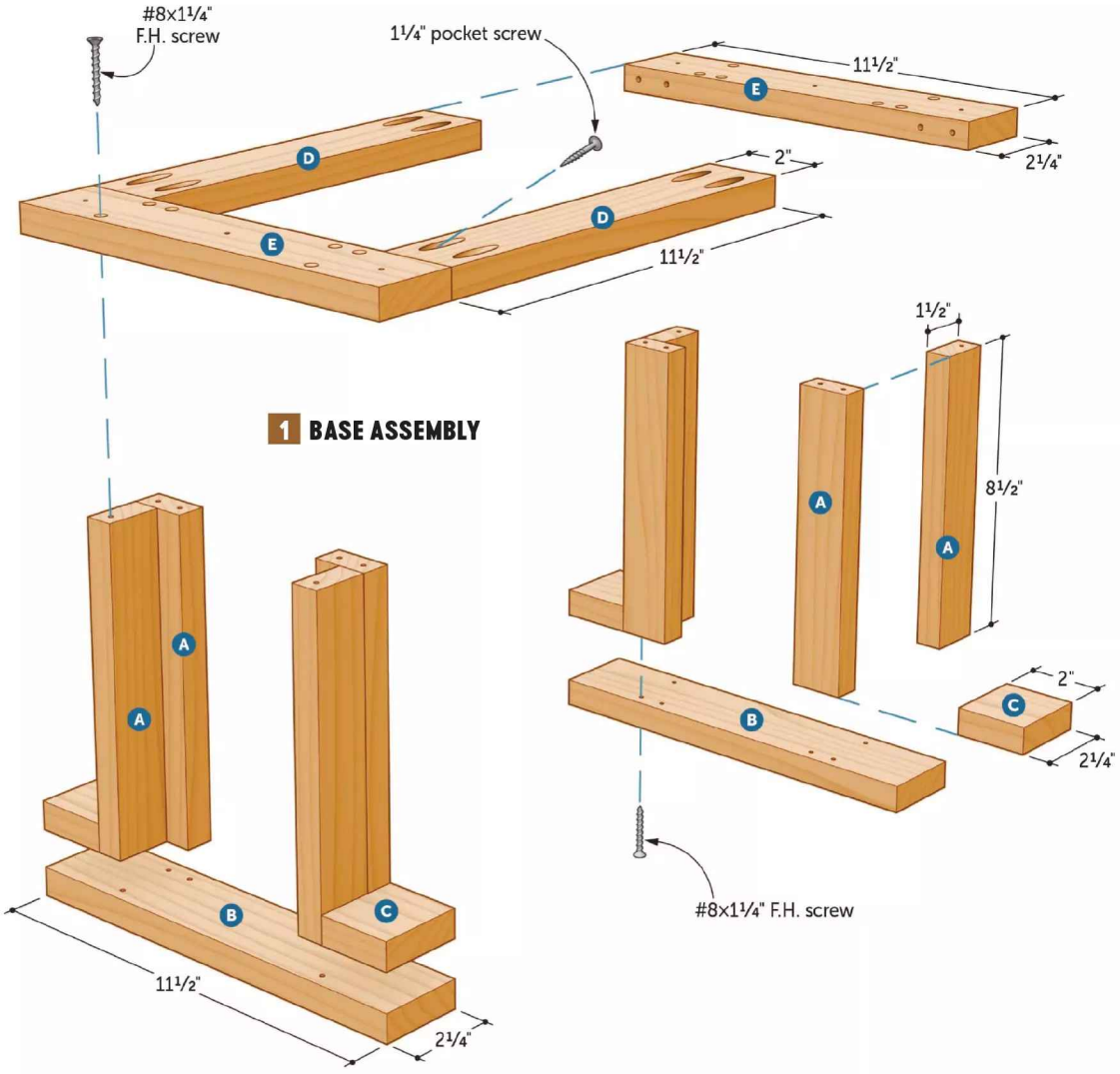
**3** After the glue dries, attach the leg assemblies to the foot assemblies with glue and screws **[Drawing 1]**.




Align the inner corners of the frame assembly (D/E) with the inside faces of the leg assemblies (A–C). Glue and clamp the parts together, then drill countersunk pilot holes and screw the frame to the legs.

**4** Cut the front/back rails (D) and side rails (E) to size **[Parts List, Drawing 1]** and drill pocket holes in the ends of the front/back rails. Assemble the frame with glue and screws, then attach the frame to the top of the leg assemblies **[Photo A]**.







Clamp a hardboard template to the top (F) flush with its edges and use a pattern bit to rout the ⅜"-deep recess for the router base. Rout the recess in stages, lowering the bit between passes.

## MAKE A SLICK TOP

We made the top out of phenolic-covered, Baltic birch plywood [Sources] for a smooth, durable surface.

**1** Cut the top (F) to size [Parts List]. Lay out and drill the hole through the top [Drawing 2].

**2** From ¼" hardboard, create a template the same size as the top (F). Mark the same centerpoint you used for the top [Drawing 2], center your router's baseplate on it, and trace its profile. Then cut or drill the profile to shape and sand the edges.

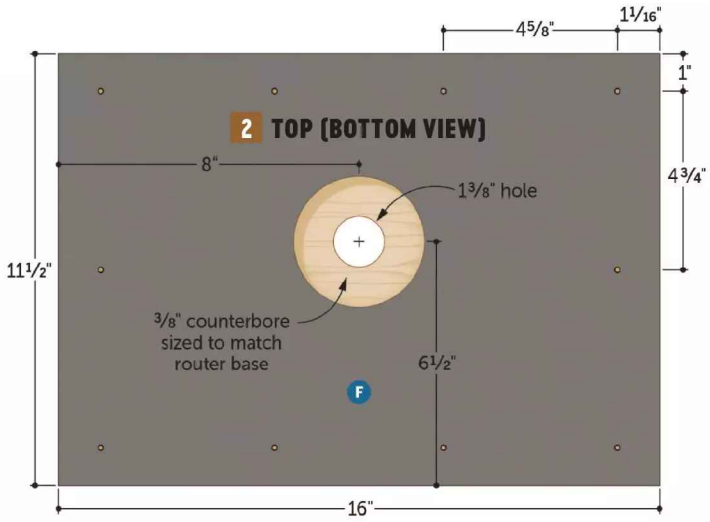
**3** Clamp the template to the bottom face of the top (F) and rout the recess [Photo B, Drawing 2].

**TIP!**

Drill a ¼" hole in the template's centerpoint, chuck a ¼" straight bit in your router, and insert it in the hole to center the baseplate for tracing.

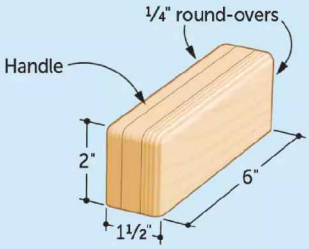
**4** Cut the side aprons (G) and front and back aprons (H) to size **[Parts List, Exploded View]**. Glue and clamp the side aprons to the ends of the top (F) so they stand just a hair proud of the surface. After the glue dries, sand them flush. (If the aprons end up too proud, see *Flush with Success, below.*) Glue the front and back aprons (H) to the top and sand or trim them flush with the surface.

**5** Using your router subbase as a template, mark the location of the router mounting holes. Drill counterbored holes in the top (F) at these marks, then screw the router in place. Attach the top assembly to the base assembly with screws.



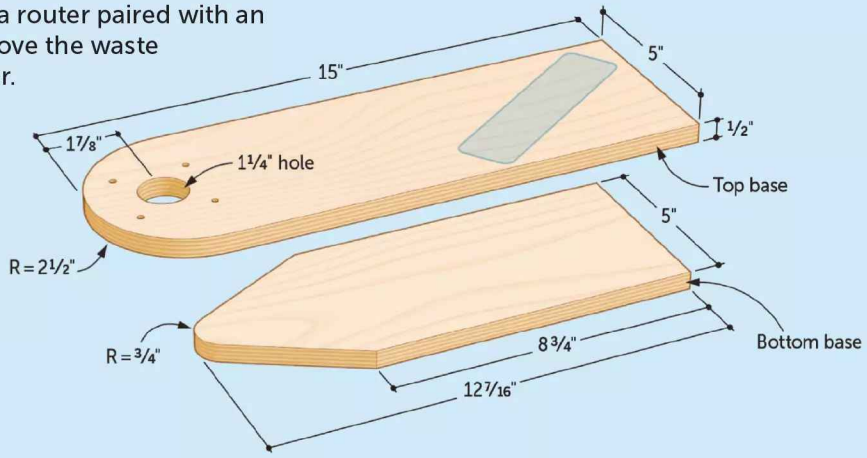

# FLUSH WITH SUCCESS

Trimming solid-wood aprons flush with the face of phenolic plywood requires precision to avoid scratching or cutting into the thin phenolic film layer. To level aprons that are just slightly proud of the surface, make a custom sanding block by cutting a rabbet that is the same width as the apron thickness in a piece of scrap and affix a strip of adhesive-backed sandpaper.



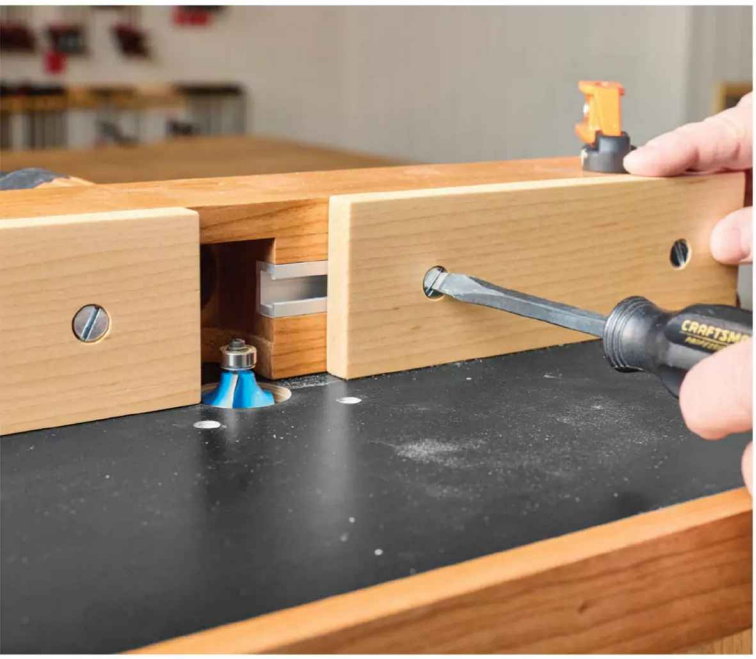

If the aprons are too proud to sand flush, a router paired with an edge guide and the jig shown here can remove the waste quickly without damaging the phenolic layer.

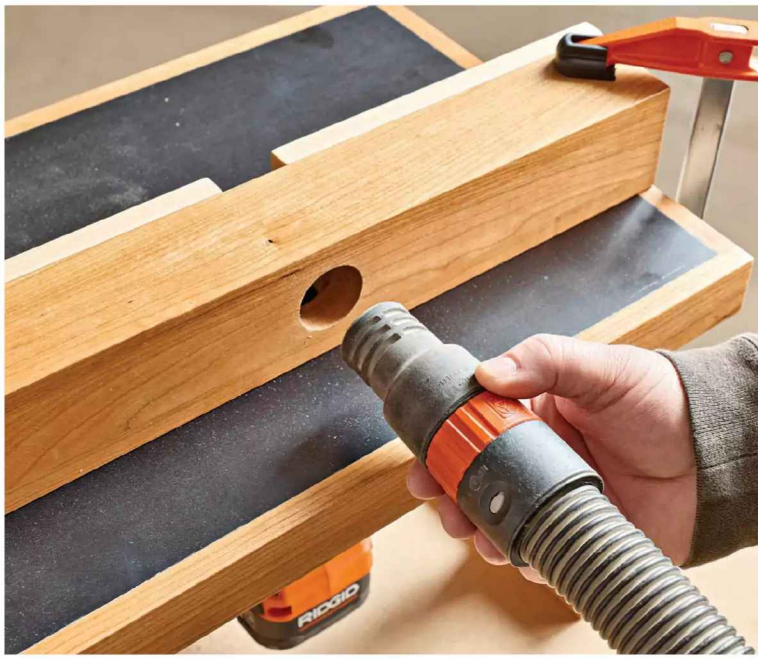
We built the jig to accommodate a trim router, *below right*. Adjust the width of the jig and hole locations to match your router. From ½" plywood, cut the top and bottom bases to size and shape **[Drawing]**. Using your router baseplate as a pattern, locate and drill the mounting holes in the top base. Glue the bases together with the square ends flush, then add a handle made from glued-up plywood scraps and attach the router.




To use the jig, install a pattern bit with a short cutter in the router and place it on a flat surface with a piece of paper under the bit. Adjust the bit height until it just grazes the paper and lock the bit in place. Make a test pass over a scrap of phenolic plywood. The bit should not leave any score marks in the phenolic surface. Adjust the edge guide so the bit lines up with the inside edge of the apron. Trim the aprons, then finish up with a light sanding.


The jig prevents the bit from accidentally cutting into the phenolic layer while trimming the aprons (G, H). Avoid applying downward pressure on the router to prevent gouging the phenolic.





## FIX UP A FENCE

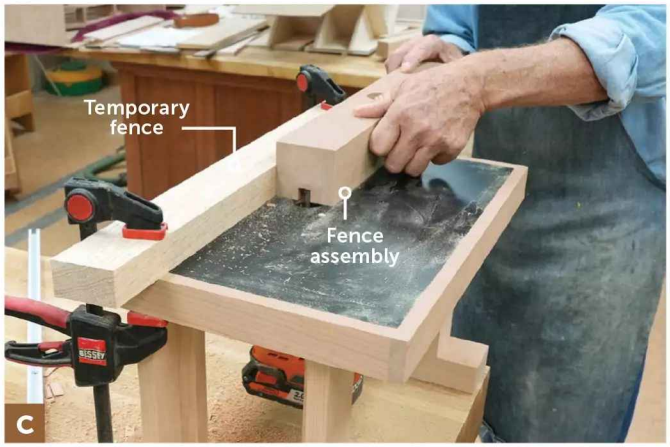
The fence features a pair of adjustable faces that ride in T-tracks **[Sources]**. To keep the construction simple, the fence is held in place with clamps. A dust port at the back of the fence allows you to hook up a shop vacuum.

**1** Cut three $^{3}/_{4}\times1^{1}/_{2}\times17$" blanks; two for the fence cores (I) and one for the fence back (J). Laminate two of the blanks; then, after the glue dries, cut the fence cores to length **[Drawing 3, Parts List]**. Glue the fence cores to the fence back with their ends flush.

**2** Cut the fence top and bottom (K) to size **[Parts List]**. Make the notch in the fence bottom by drilling a hole and then cutting away the remaining waste **[Drawing 3a]**.

**3** Glue and clamp the fence core assemblies (I/J) between the top and bottom (K). After the glue dries, drill a hole through the fence back (J) to fit your shop vacuum hose or a hose adapter **[Drawing 3]**.

**4** Install a $^{1}/_{4}$" spiral upcut bit raised to $^{1}/_{2}$" height in your router and clamp a straight-edged board to the router table top (F) as a temporary fence to cut a groove down the center of the fence assembly (I-K). Widen the groove to fit the T-track **[Photo C, Drawing 3]**. Cut two sections of T-track to length and screw them to the fence cores.



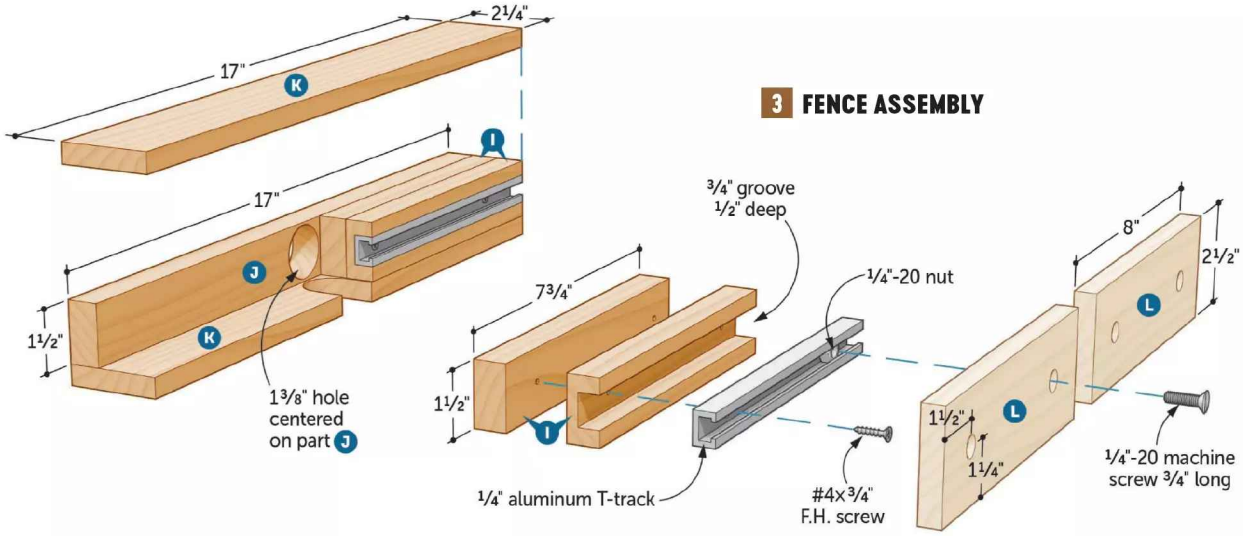

Rout a ¼" groove down the center of the fence assembly. Then move the fence away from the bit in increments to widen the groove, flipping the piece end for end to keep the groove centered.

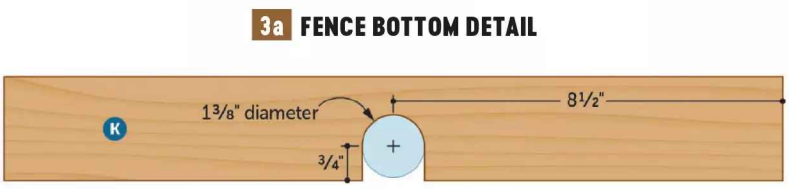
**5** Cut the fence faces (L) to size. Drill and countersink two holes in each fence face aligned with the T-track groove **[Drawing 3]**.

**6** Finish-sand the router table and fence to 180 grit. Ease any sharp corners.

**7** To finish the router table, we wiped on three coats of General Finishes semi-gloss Arm-R-Seal, buffing between coats with 0000 steel wool.

**8** Attach the fence faces with $^{1}/_{4}$"-20 machine screws and nuts **[Drawing 3]**. Mount your router in the table and you're ready to get to work.




## PARTS LIST

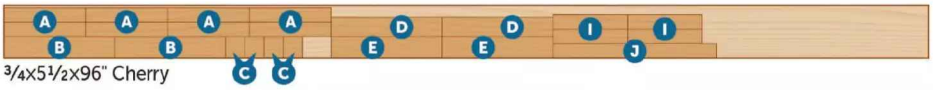
| PART | | FINISHED SIZE | | | Matl. | Qty. |
|---|---|---|---|---|---|---|
| | | T | W | L | | |
| A | LEGS | ¾" | 1½" | 8½" | C | 8 |
| B | FEET | ¾" | 2¼" | 11½" | C | 2 |
| C | CAPS | ¾" | 2¼" | 2" | C | 4 |
| D | FRONT/BACK RAILS | ¾" | 2" | 11½" | C | 2 |
| E | SIDE RAILS | ¾" | 2¼" | 11½" | C | 2 |
| F | TOP | ¾" | 11½" | 16" | PBB | 1 |
| G | SIDE APRONS | ½" | 1½" | 11½" | C | 2 |
| H | FRONT/BACK APRONS | ½" | 1½" | 17" | C | 2 |
| I* | FENCE CORES | ¾" | 1½" | 7¾" | C | 4 |
| J | FENCE BACK | ¾" | 1½" | 17" | C | 1 |
| K | FENCE TOP/BOTTOM | ½" | 2¼" | 17" | C | 2 |
| L | FENCE FACES | ½" | 2½" | 8" | M | 2 |

*Parts initially cut oversize. See the instructions.

**MATERIALS KEY:** C–cherry, PBB–phenolic Baltic birch plywood, M–maple.
**SUPPLIES:** #8×1¼" flathead screws, 1¼" pocket hole screws, #4×¾" flathead screws, ¼"-20×¾" machine screws, ¼"-20 hex nuts.
**BITS:** ¼" spiral upcut and ⅝" pattern router bits, 1⅜" Forstner bit, 3½" hole saw (optional).
**SOURCES:** WoodRiver standard ¼" T-track 24" no. 159894, $15, woodcraft.com; ¾×12×20" phenolic Baltic birch plywood (black), $16, makerstock.com.
**PROJECT COST:** It cost us about $110 to build this project. Your cost will vary by region and source.

## CUTTING DIAGRAM

We purchased 6 board feet of 4/4 cherry and 2 board feet of 4/4 maple. Before cutting parts to size, we planed them to the thicknesses shown in these example boards.




¾x5½x96" Cherry


½x5½x48" Cherry


½x3½x48" Maple


¾x12x20" Phenolic Baltic birch plywood

# SECRET-DOOR CELLARETTE

Keep your libations out of sight while putting your woodworking skills on full display with this clever, historically inspired cabinet.

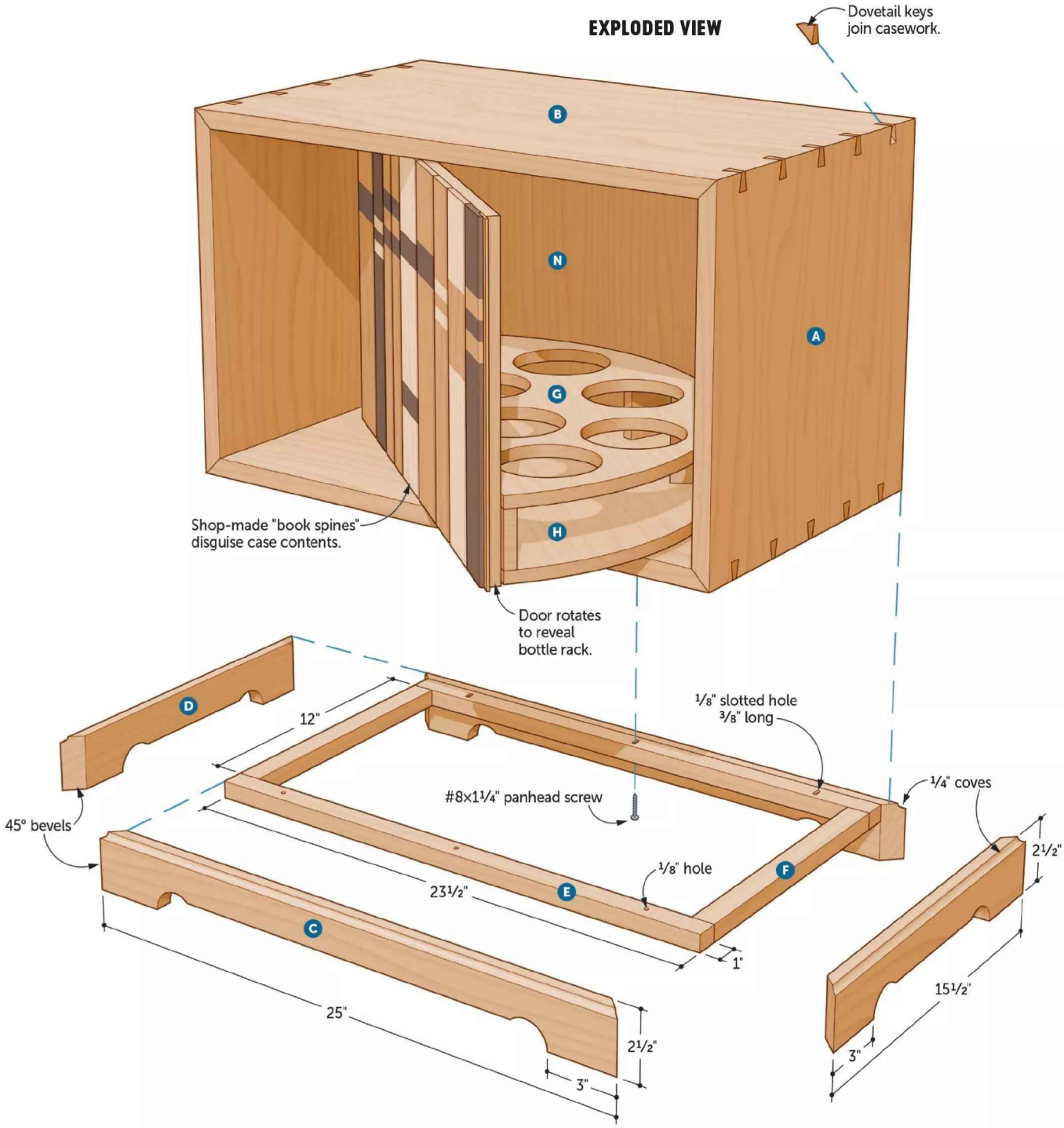
**WRITER:** ZACH BROWN
**DESIGNER:** KEVIN BOYLE
**BUILDER:** BRIAN BERGSTROM

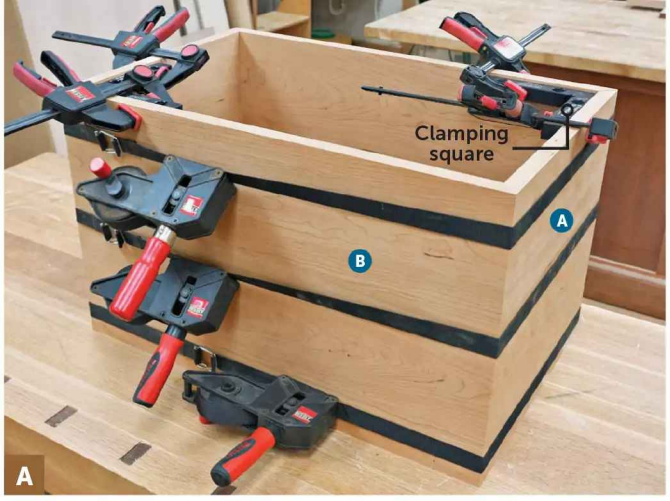
**OVERALL DIMENSIONS**
25"W × 15½"D × 17½"H

**PHOTOGRAPHER:** CARSON DOWNING; **ILLUSTRATOR:** CHRISTOPHER MILLS

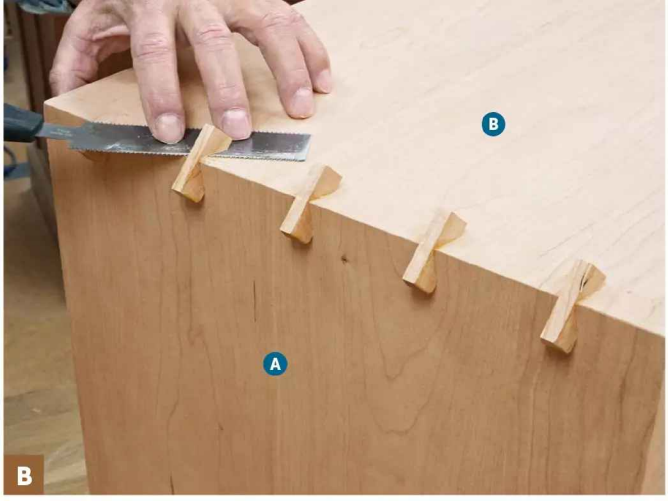
Before refrigeration, a cellarette was the free-standing furniture item used to store, and sometimes cool, beverages before serving. They were found in fashionable European houses and drinking establishments as early as the 15th century. During the Prohibition era in the United States, cellarettes saw a resurgence in popularity, disguised by clever scofflaws as everyday furniture or a shelf full of books.

We lifted that less-than-legal secret bookcase motif for the front of our cellarette, and installed a lazy Susan, allowing the door and bottle rack to easily spin open and closed. Have fun designing your own book spines, or an alternative false front. When you do, send photos of your version to **woodmail@woodmagazine.com**.






Apply glue to the bevels and clamp the case (A, B) together using band clamps and clamping squares to keep the assembly square.




Use a flush-cut saw to cut both ends of each key flush with the case. Then, finish-sand the outside of the case.

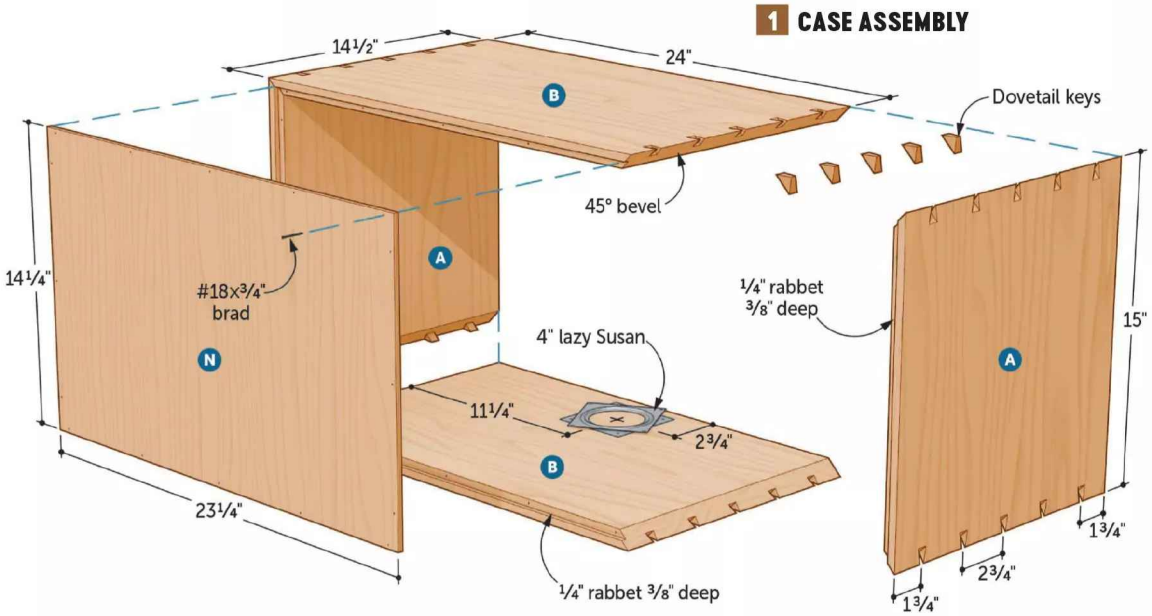
## CRAFT THE CASE

**1** From ¾" cherry, glue up oversize panels for the case sides (A) and top/bottom (B) **[Parts List]**. Once the glue dries, rip the panels to width; then bevel-cut the sides, top, and bottom to length **[Drawing 1]**.

**2** Rabbet the rear edge of the sides, top, and bottom, and finish-sand the inside faces. Use band clamps to assemble the case **[Photo A]**.

**3** Lay out the location of the dovetail keys on one corner of the case. Cut dovetail slots centered on the marks using a spline-cutting jig. (See *The Key to Strong Case Corners, page 66.*) Glue a dovetail key into each slot and, once the glues dries, cut them flush **[Photo B]**.

**1 CASE ASSEMBLY**




Ripcut each base blank down the center to form two 2½"-wide base fronts/backs (C) as well as two base ends (D).


Position the bandsaw fence ¾" from the far side of the blade and trim off the lower edge of each base part between the half-circles.

## ELEVATE WITH THE BASE

The case sits on a base with uniquely shaped feet **[Exploded View]**. To make them, start with two extra-wide blanks.

**1** From ¾" cherry, prepare a 5⅛×26" blank for the base front/back (C) and a 5⅛×16½" blank for the base sides (D). Use a Forstner bit to drill a 2"-diameter hole 4" from each end of each blank and centered on its width **[Drawing 2]**. Then ripcut each blank down the center **[Photo C]**.

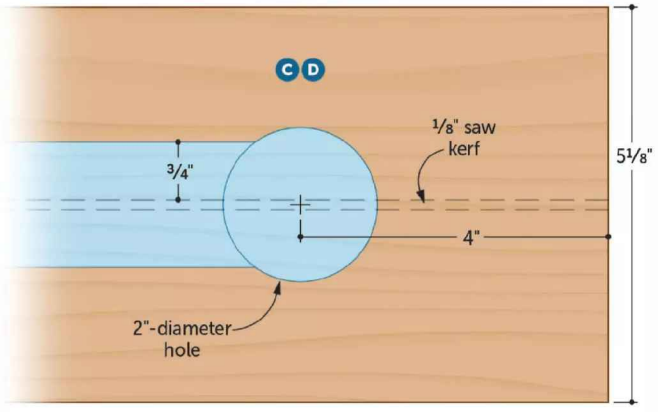
**2** Bevel-cut each base piece to length, taking equal amounts from each end **[Parts List]**. Rout the cove on the top edge of each piece; then finish shaping the base parts at the bandsaw **[Exploded View, Photo D]**.

**3** Finish-sand the base parts. Apply glue to the beveled ends and use your band clamp to clamp together the base assembly, checking for square.

**4** Once the glue dries, measure the inside dimensions of your base assembly and cut the base cleats (E, F) to fit **[Exploded View]**. Glue and clamp the cleats to the inside of the base assembly, flush with the top edge. Drill the holes in the front cleat and form the slotted holes in the back cleat.

> **CREATE THE BOOK SPINES FROM SCRAPS, USING ANY SPECIES YOU LIKE TO GIVE THEM UNIQUE AND VARIED APPEARANCES.**
>
> **-KEVIN BOYLE, SENIOR DESIGN EDITOR**

**2 BASE PROFILE**

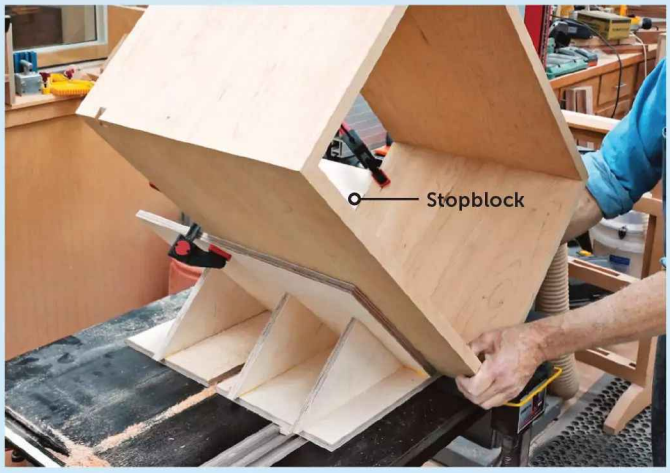


# THE KEY TO STRONG CASE CORNERS

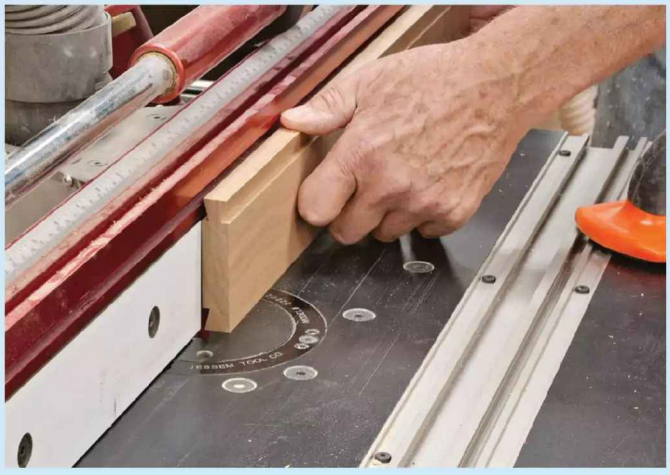
Beveling box corners offers a clean, continuous-grain appearance, but end-grain, glue-only joints lack strength. For larger casework it's a good idea to add splines, or in this case dovetail keys, for considerably more glue surface and strength. We built a router table sled, *below*, to support the case at a 45° angle, making routing the dovetail slots a safe and easy task.

Build the sled from ¾" plywood, with a hardwood strip on the bottom that fits in your router table's miter slot. Install a ½" dovetail bit in the router and adjust the height to rout ½"-deep slots in the case corners, accounting for the thickness of the jig base. Clamp a stopblock to the sled to align the outer key slot location with the bit. Rout the outer slots, *right top*. Reposition the stopblock and repeat until you have five slots in each corner.

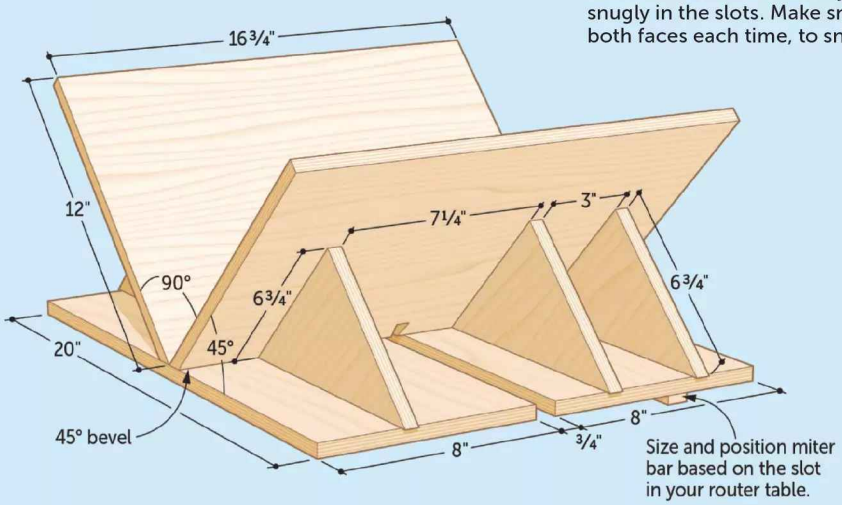
To form the dovetail keys, use the same router bit to rout a dovetail on both edges of a ⅝×3×20" blank, *right bottom*. Ripcut the dovetail key stock from the blank; then cut 20 keys to 1½" length.




Rout the outer slots on one end of the case; then flip the case in the sled to rout the outer slots on the opposite end. Clamp the case to the sled during each pass.



Raise the bit to 9/16" and adjust the fence to rout a dovetail that fits snugly in the slots. Make small adjustments to the fence, and rout both faces each time, to sneak up on the width.



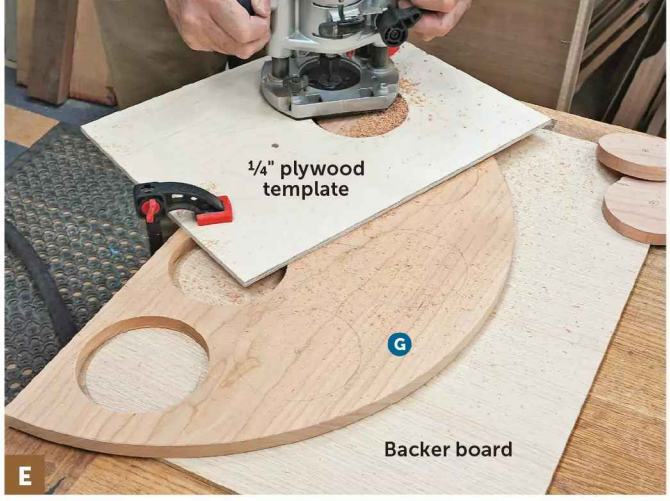

> **YOU'LL USE THE DOVETAIL-KEY JIG OVER AND OVER AGAIN FOR BUILDING BOXES.**
>
> **-KEVIN BOYLE, SENIOR DESIGN EDITOR**

## TAKE IT FOR A SECRET SPIN

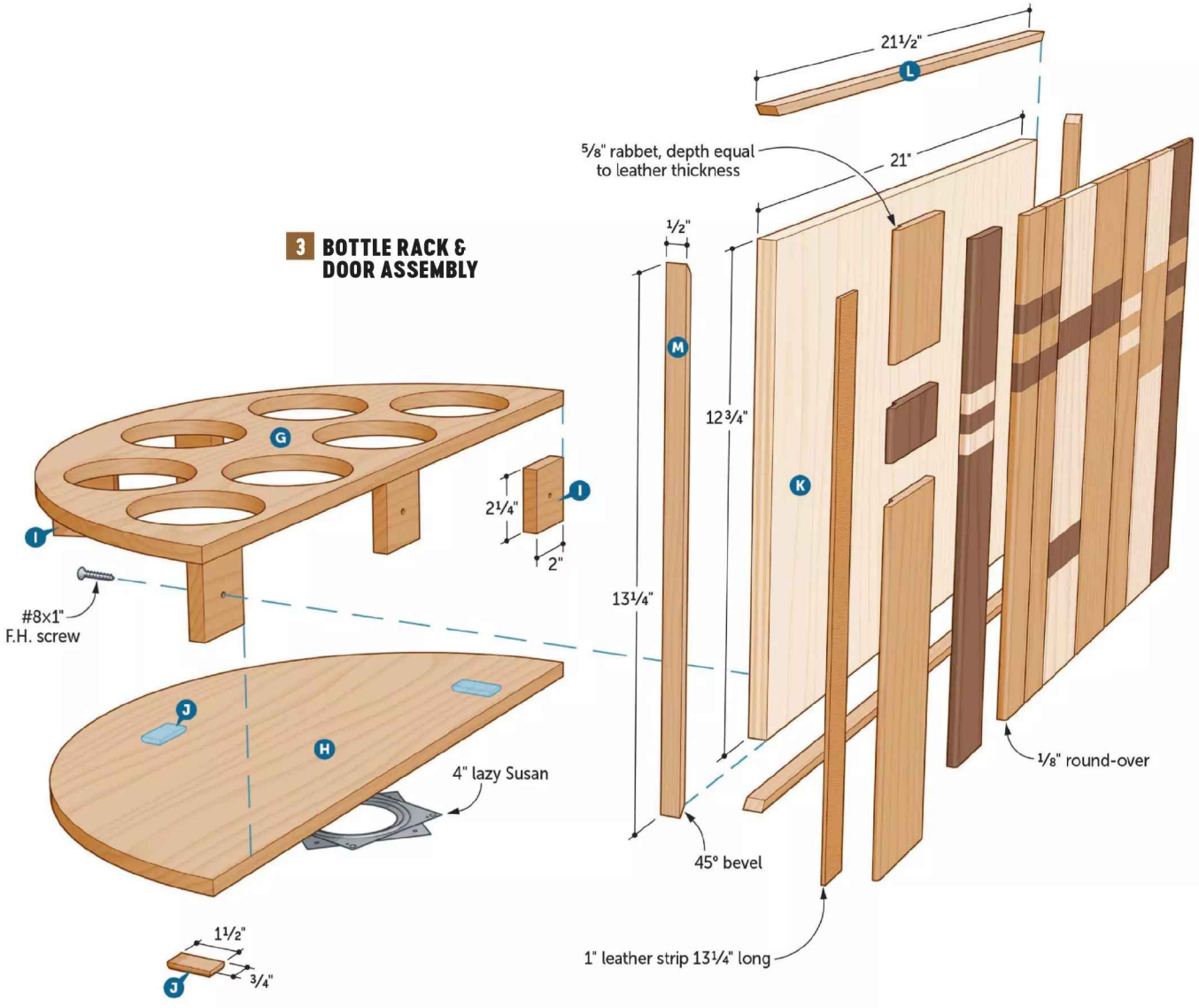
**1** From 1/2" cherry, glue up panels for the bottle rack (G) and bottle base (H) slightly larger than listed **[Parts List, Drawing 3]**. Once the glue dries, lay out the arc on both panels and scribe the outline of each hole on the bottle rack **[Drawing 4]**. Cut and sand the arcs to shape.

**2** Cut and sand a 4 1/4" hole in a piece of 1/4" plywood and use it to rout the 4" holes in the bottle rack **[Photo E]**.

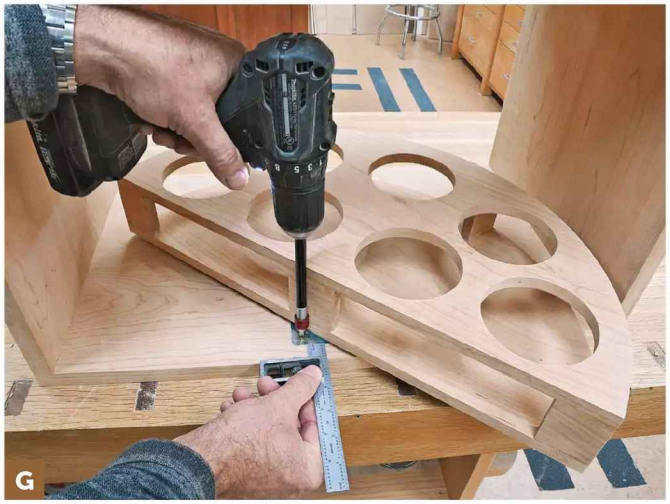
**3** Cut the spacers (I) to size, then finish-sand the bottle rack, base, and spacers. Glue and clamp the spacers to the underside of the bottle rack, flush with the edges and spaced evenly. Once the glue dries, glue the bottle base to the bottom ends of the spacers.




Install a 1/4" spiral bit and 1/2" short-barrel guide bushing in a plunge router; then use the template to rout the holes. Make multiple passes for each hole, increasing the cutting depth with each pass.




Space the feet (J) evenly on the underside of the bottle rack assembly, and about 1½" from the edge. The feet ride on the case bottom (B) to stabilize the rack as it spins.




Position the bottle rack assembly ¾" from the front of the case and centered side-to-side. Screw the bottom plate of the lazy Susan to the bottom of the case, rotating the bottle rack to reach each screw.

**4** Screw the lazy Susan to the underside of the bottle rack assembly, flush with the front edge and centered side-to-side. Cut the feet (J) to size, matching their thickness to the lazy Susan (ours was about ⅜"). Ease the edges of the feet and glue them to the bottom of the assembly [Photo F].

**5** Install the bottle rack assembly in the case [Photo G].

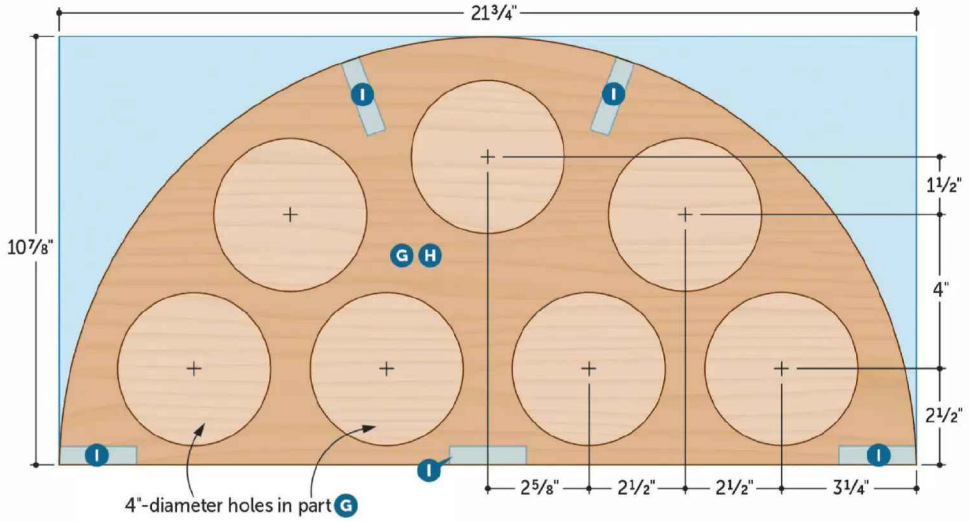
## PARTS LIST

| PART | | FINISHED SIZE T | W | L | Matl. | Qty. |
|---|---|---|---|---|---|---|
| A* | CASE SIDES | ¾" | 14½" | 15" | EGC | 2 |
| B* | CASE TOP/BOTTOM | ¾" | 14½" | 24" | EGC | 2 |
| C* | BASE FRONT/BACK | ¾" | 2½" | 25" | C | 2 |
| D* | BASE SIDES | ¾" | 2½" | 15½" | C | 2 |
| E | BASE FRONT/BACK CLEAT | ¾" | 1" | 23½" | C | 2 |
| F | BASE SIDE CLEATS | ¾" | 1" | 12" | C | 2 |
| G* | BOTTLE RACK | ½" | 10⅞" | 21¾" | EGC | 1 |
| H* | BOTTLE BASE | ½" | 10⅞" | 21¾" | EGC | 1 |
| I | BOTTLE RACK SPACERS | ½" | 2¼" | 2" | C | 5 |
| J | BOTTLE RACK FEET | ⅜" | ¾" | 1½" | C | 3 |
| K | DOOR | ½" | 21" | 12¾" | MP | 1 |
| L | DOOR TOP/BOTTOM TRIM | ¼" | ½" | 21½" | C | 2 |
| M | DOOR SIDE TRIM | ¼" | ½" | 13¼" | C | 2 |
| N | BACK | ¼" | 23¼" | 14¼" | CP | 1 |

*Parts initially cut oversize. See the instructions.

**MATERIALS KEY:** EGC–edge-glued cherry, C–cherry, MP–maple plywood, CP–cherry plywood.
**SUPPLIES:** #8×1" flathead screws, #8×1¼" flathead screws, #18×¾" brad nails, 2½×13½" leather strip.
**BITS:** ½" dovetail , ¼" cove, ¼" spiral, ⅛" round-over router bits, ½" short-barrel router bushing, 2" Forstner bit.
**SOURCE:** 4" lazy Susan no. 28969, $5, rockler.com.
**PROJECT COST:** It cost us about $225 to build this project. Your cost will vary by region and source.

### 4 BOTTLE RACK ASSEMBLY



## DOUBLE-TAKE DOOR

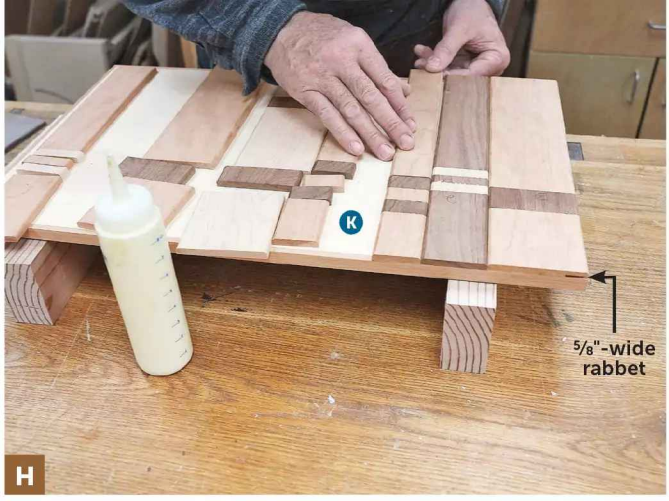
**1** From 1/2" plywood, cut the door (K) to size. From 1/4" cherry, cut the door trim (L, M) to match the thickness of your plywood and bevel-cut the ends to fit around the perimeter of the door [Drawing 3]. Glue and clamp the trim to the door.

**2** To create the book-spine look on the door front, gather scraps of 1/4" hardwood (we used cherry, walnut, and maple) in various widths that correspond to the book thicknesses—anything from 3/4" wide for trashy paperbacks and tool catalogs to 2" or more for epic Russian novels and encyclopedias.

**3** We cut a few of each species to four standard widths, allowing us to mix and match the contrasting woods and further simulate the book-spine effect. Choose a combination of widths that allow you to match the width of the door. Round over the edges of each piece to create a slight shadow line; then cut them to length and begin laying them out on the door front. Once you're happy with the layout, rabbet both outside pieces and glue the strips to the door [Photo H].

**4** Cut the back (N) to size [Drawing 1]. Finish-sand the back and door, and remove the bottle rack assembly from the case to prepare for finishing. We wiped three coats of polyurethane onto the case, base, bottle rack, door, and back, sanding between each coat with a 320-grit sanding sponge.

**5** Reinstall the bottle rack in the case. Use double-faced tape to attach the door to the bottle rack front spacers (I), shimming the door as necessary to center it in the opening. Once you have an even reveal, drive screws through the spacers into the door.



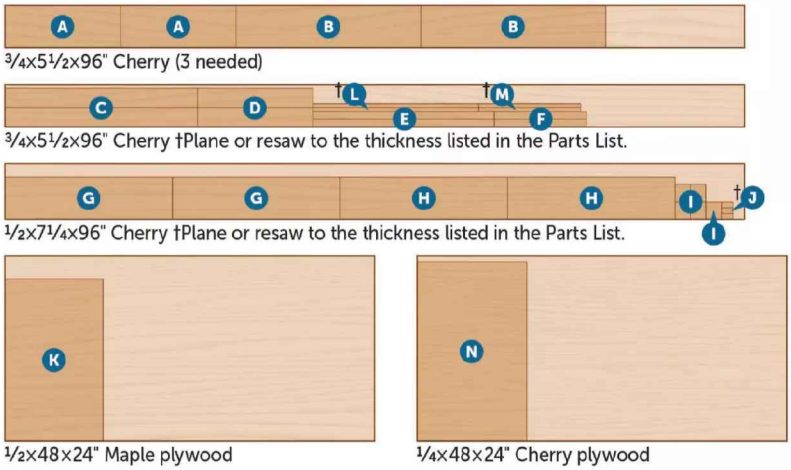
Form a 5/8" rabbet on the outside pieces to receive a strip of leather that seals the door's edges to the case. Make the depth of the rabbet match the thickness of your leather.

**6** Cut two 1"-wide strips of leather, insert them into the door rabbets, and rotate the assembly to check the fit. The leather should brush the sides of the case as you spin the door but not make it too difficult to operate. Trim the strips as necessary; then adhere them to the rabbets with wood glue [Drawing 3].

**7** Screw the base assembly to the bottom of the case [Exploded View] and attach the back with brad nails [Drawing 1]. Install the cellarette in your bar, or on a bookshelf, and stock it with your favorite literary libations.

## CUTTING DIAGRAM

We purchased 21 board feet of 4/4 cherry. Before cutting parts to size, we planed them to the thicknesses shown in these example boards.



# BENCHTOP PLANERS GO BIG

A pair of new thickness planers pushes beyond previous benchtop versions with the ability to handle 15"-wide boards. Weighing in at close to 160 lbs, neither one qualifies as truly portable, but they offer floor-model capacity in a more manageable footprint. Both are built on the same platform and, except for color, look identical on the outside. But differences appear when you take a peek under the hood. Both proved impressive performers in our limited evaluation. Which one you choose may come down to your budget and your shop's electrical supply.


## Grizzly goes with 110-volt power

Grizzly's G0999 planer handles boards from 3/16" to 6" thick and 15" wide. To power through that much width, the planer uses a 16.5-amp, 2-hp motor that runs on 110 volts, meaning it can plug into a standard 20-amp circuit. The cutterhead has 32 carbide cutters arranged in four spiral rows. Two feed speeds allow you to plane quickly at 22 feet per minute, or at 12 feet per minute for a finished surface. A digital readout measures thickness in decimals, while a conventional scale shows fractions. Both of them, along with an easy-to-use depth stop, proved accurate out of the box. We set ours up with the infeed and outfeed tables, which are sold separately. We limited our cuts to boards about 8" wide, and never took off more than 3/16" in a single pass. We found the planer powerful, though we recommend only very light cuts in wide boards at the fast feed speed.

**Grizzly, *grizzly.com***
15" 2-hp Benchtop Planer With Spiral Cutterhead no. G0999, $1,395; Folding Infeed/Outfeed Tables no. T34360, $85

## Oliver opts for 220 volts plus more cutters

We gave the Oliver 10055 a *WOOD*® Innovation Award in 2025 after trying a prototype, due to its capacity and its helical head containing 40 carbide cutters arranged for shearing cuts. That increased capability requires extra oomph that can't be coaxed out of most home-shop 110-volt wiring. So Oliver stepped up to 220-volt power for the planer's 12-amp, 2.5-hp motor. This planer also has a digital readout, a fractional scale, and easy-to-use depth stops, all of which proved accurate right out of the box. Infeed and outfeed tables are included. We passed the same 8"-wide boards through this planer, limiting our maximum cutting depth to 3/16". It handled those cuts at the 12- and 22-feet-per-minute settings without any perceivable strain on the motor.

**Oliver, *olivermachinery.net***
15" Benchtop HCX Helical Cutterhead Planer no. 10055, $1,950


**PHOTOGRAPHER:** JASON DONNELLY, MANUFACTURER IMAGES

*continued on page 72*

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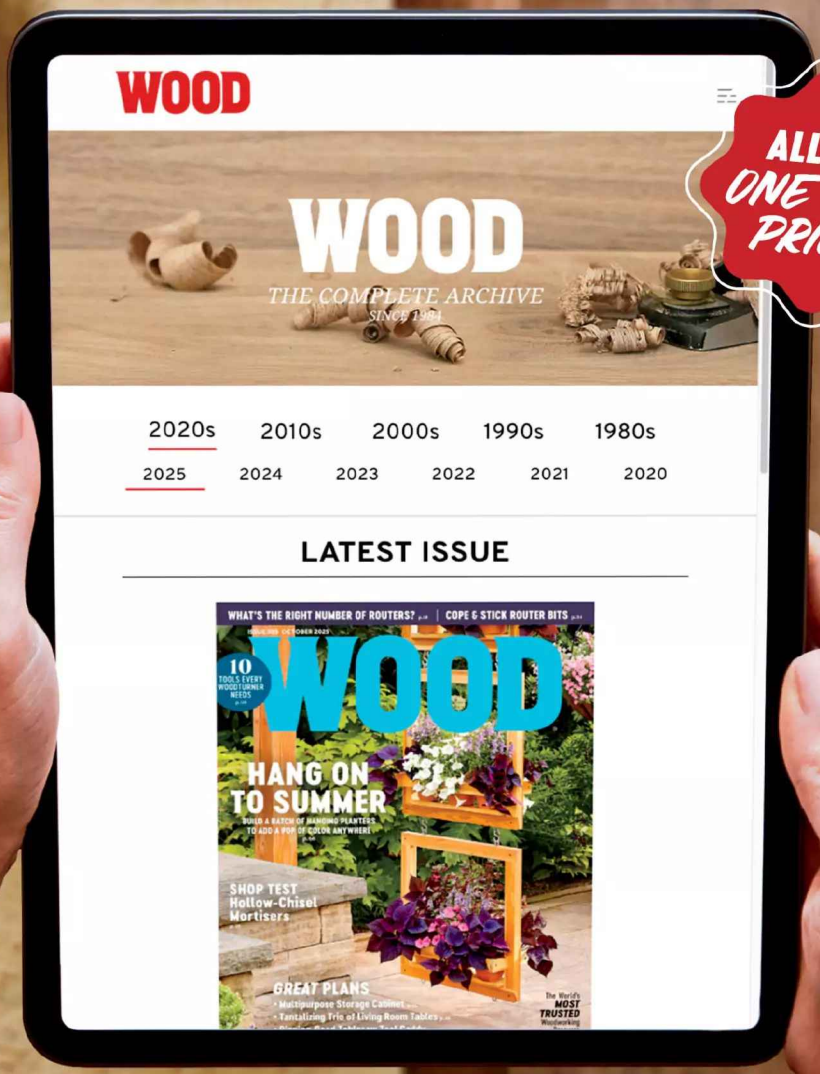


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SHOP-TESTED

## A SIMPLE PAIR OF TABLESAW BLADE-CARE COMPANIONS

**Tester: Kerry Gibson**

Two new products from Rockler simplify handling tablesaw blades. The Blade-Lock Blade Changing Tool, *above*, slips over the top of a 10" blade and rests on wide feet that span the saw's throat plate. Tightening the knobs grips the blade body, not the teeth, with a thick rubber pad, holding the blade while you loosen the arbor nut. The clamp holds well and the tool is easy to grip as you remove the blade.

The Saw Blade Cleaning Kit, *below*, holds blades up to 12" in diameter in a shallow tray that you fill with about ¼" of your favorite blade cleaning liquid. The included grips thread together through the blade arbor—one on each side—providing a safe handle to secure the blade. The self-storing cleaning tool comes equipped with brass bristles and a synthetic abrasive pad for cleaning the blade body.

**Rockler, *rockler.com***
Blade-Lock Blade Changing Tool no. 78443, $20; Saw Blade Cleaning Kit no. 75305, $40

SHOP-TESTED

## POWERTEC LAUNCHES A NEW MINI LATHE

**Tester: Zach Brown**


Powertec's LT1018 Mini Lathe holds work up to 18" long between centers and offers 10" of swing over the bed—plenty of capacity for most woodturning projects. The lathe comes with #2 Morse taper live and spur centers plus a 3⅝" faceplate suitable for turning small bowls.

The heavy cast iron body and rubber feet absorb vibration well, which is critical for achieving smooth results, especially on the smaller turnings a lathe like this is geared for. The 6"-long tool rest adjusts easily and locks securely. The tailstock lock, though, required a lot of force on the lever to prevent it from moving backward as I advanced the quill.

A ½-hp motor supplied adequate power for the spindle turnings I tried. The lathe offers five speeds, from 760 to 3,200 rpm, controlled by stepped pulleys and a belt. Changing speeds proves tedious, though, requiring the removal of two access panels along with manually resetting belt tension.

**Powertec, *powertecproducts.com***
10×18" Benchtop Mini Wood Lathe no. LT1018, $500

SHOP-TESTED

## ROLLING STAND SUPPORTS SEVERAL TYPES OF TOOLS

**Tester: Dave Stone**


The top on Grizzly's new all-metal tool stand measures 30×20¾" and has longitudinal and transverse slots for bolting your benchtop tool in place. Height-adjustable, telescoping rollers extend workpiece support, making the stand a good choice for a mitersaw, planer, or benchtop jointer.

With a 220-lb capacity, the stand proves sturdy and stays in place well, resting on rubber feet in front and plastic wheels at the rear. I appreciate two features most: the out-of-the-way placement of the retractable, swiveling front caster on the inside of the rail; and the slotted shelf that provides a great place to park cutoffs.

**Grizzly, *grizzly.com***
Planer/Miter Saw Stand With Extension Rollers no. T34606, $290



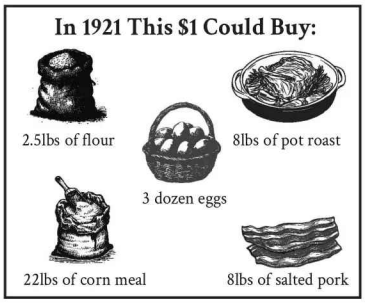
*continued on page 74*

# JUST RELEASED!

## Cache of 832 Last Year 1921 Morgan Silver Dollars Still Pristine As The Day They Were Struck


No coin embodies the spirit of America more than the Morgan Silver Dollar. From the Comstock Lode discovery that provided millions of ounces of silver to make them, to outlaws robbing stage coaches in the Wild West to pay for their bar tabs and brothel visits, the hefty Morgan Silver Dollar holds a special place in American history.

It's no wonder collectors and history buffs alike clamor to get their hands on them. That is, if they can get their hands on them.




### Prized Last-Year Coins

Collectors love "lasts" as no collection is complete without the last coin struck. Last year coins are often hard to find and always in demand. Little did master engraver George T. Morgan know the legacy he was creating when he designed what has become known as "The King of Silver Dollars" but it came to an end 104 years ago with the last-year 1921 Morgan Silver Dollar, the most beloved coin in American history.

### Public Release - Only 832 Coins Available

Rarcoa®, America's Oldest Coin Company, is announcing the public release of 832 of the very last year 1921 Morgan Silver Dollars, struck at the iconic Philadelphia Mint. Each coin today comes in Brilliant Uncirculated condition, pristine as the day they were struck!

### Hold 104 Years of American History

Struck in 1921, each coin is one hundred and four years old. Could Charles Lindbergh have carried your coin in his pocket during his flight across the Atlantic? Or maybe your great-grandfather carried it while storming the beaches of Normandy during World War II before ending up in a small coin shop in Tuscaloosa, Oklahoma. Each coin has its own unique history and you can hold 104 years of American history when you buy yours today!

### A Miracle of Survival

Coin experts estimate that only 15%-20% of Morgans are still surviving today due to multiple mass-meltings over the years. The Pittman Act of 1918 melted over 270,000,000 coins, that's almost 50% of all coins produced at the time. Untold quantities were melted in the 1980s and 2000s when silver prices rose up to $50 per ounce.

### Sold Nationally for as much as $227

This same 1921 Morgan Silver Dollar sells elsewhere for as much as $227. But thanks to Rarcoa's buying power and numismatic expertise, you can own one for as little as $119, in quantity while supplies last. **That's a difference of up to $108!**

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NEW & UNTESTED

## MARKING GAUGE OFFERS LAYOUT PRECISION

Woodpeckers' new marking gauge aims to simplify creating crisp, accurate layout lines. It features a razor-edge wheel that scores a groove less than 0.1mm wide that you can use to register a chisel or saw blade. An oversize, stainless steel reference plate provides stability as you guide it along one face of the workpiece, and a threaded, locking microadjust moves the marking wheel 1/16" per revolution of the knurled barrel adjuster. The gauge comes with a Rack-It fixture you can mount to a wall or tool cabinet to protect the gauge while in storage.

**Woodpeckers, *woodpeck.com***
Wheel Marking Gauge With Micro-adjust no. WWMG, $110


NEW & UNTESTED

## BOSCH DEBUTS MIDSIZE PLUNGE ROUTER

The latest plunge router from Bosch falls squarely in the midsize category with a 10.8-amp, 1¾-hp motor equipped with load compensation and soft start. The router accepts ¼"-shank bits, and has a handle-mounted dial that provides speed control from 11,000 to 28,000 rpm. Standard equipment includes a dust-collection shroud with a vacuum port that mounts to the base, along with an edge guide and one template-routing guide.

**Bosch, *boschtools.com***
1¾-hp Mid-size Plunge Router no. GOF13-25, $169

NEW & UNTESTED

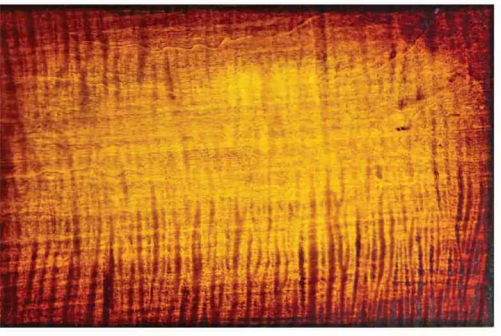
## ABRASIVE PADS PROMISE SMOOTH CONTOURS

Festool sander users have a new sanding option with PROfile sanding pads. These pads feature garnet abrasive in coarse, medium, or fine grits adhered to a ½"-thick soft foam pad that allows them to conform to curves and complex shapes. The pads are available in 5" and 6" discs, 3x4" and 4x6" rectangles, and 4x6" delta (triangular) configurations. All types have dust-collection holes.

**Festool, *festoolusa.com***
Granat PROfile, various item nos., $20-32

A GLIMPSE INSIDE THE SEPTEMBER ISSUE (ON SALE JULY 17)

**NESTED TOOL STORAGE**
Layered clamshell doors pack double-sided peghook storage into minimal wall space. The most difficult part of this build will be finding enough tools to fill it.



**A COLORFUL WAY TO DYE**
Dyes are a great way to add subtle tone enhancement to wood grain. But we throw subtlety out the window for this vibrant dye technique: the perfect recipe for eye-catching instruments, door panels, and box lids.

**FANCY, FUNCTIONAL NIGHTSTAND**
A simple-to-build design combines elegant function with a touch of finery into a pint-size package. Deep drawers supplement your full-size dresser.

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Meet Oliver's **NEW 5315** Open-Ended Wide-Belt Sander, the next evolution of the wide belt sander. It gives you a full 30" capacity using a 16"x48" belt, in a bechtop sized machine.

See **olivermachiney.net/5315** to learn more about this exciting new machine.


See Oliver and the **NEW 5315/5320** at **IWF 2026** in booth B4215.

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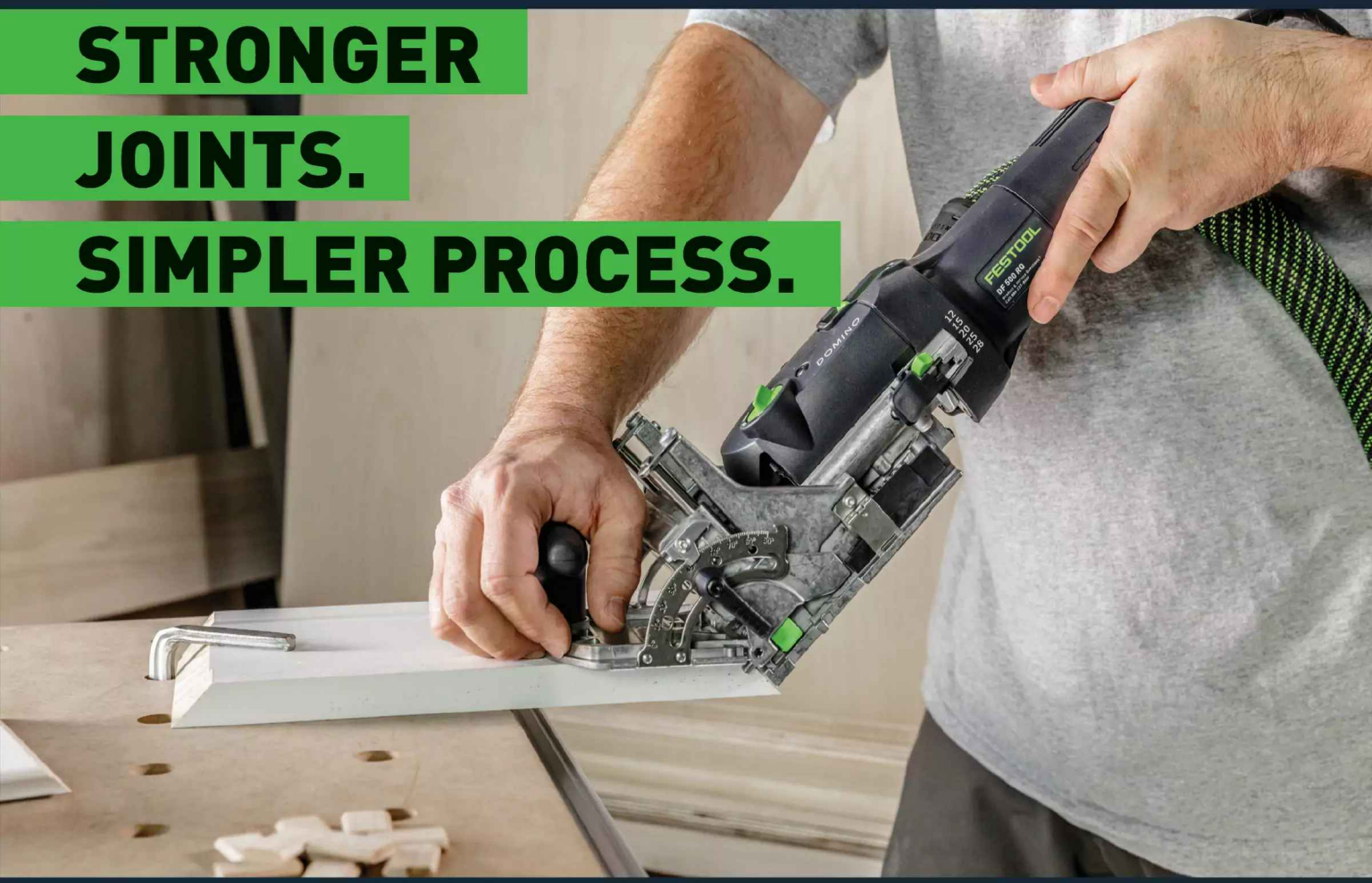


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