INSTANT ANTIQUES WITH RECLAIMED LUMBER p. 46

ISSUE 230 DEC/JAN 2014/2015

Better Homes and Gardens®

WOOD®

The World's Leading Woodworking Resource

Space-Saving Drill-Press Cabinet

p.26

Plus *Last-Minute* Gift Plans

Glue Up Dead-Flat Tabletops

p.22

Sneak a Peek at 2015's Most Innovative Tools

p.34

Grizzly Industrial® CHRISTMAS SALE

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- Motor: 1 HP, 110V/220V, single-phase, TEFC
- Precision-ground cast iron table size: 14" sq.
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- Max. cutting height: 6"
- Blade size: 92½"–93½" L (⅛"–¾" W)
- Blade speeds: 1800 & 3100 FPM
- Approx. shipping weight: 247 lbs.

CAST IRON WHEELS

MADE IN TAIWAN

G0555LANV ~~$545.00~~ SALE $445.00 $79 shipping

ULTIMATE 14" BANDSAW

- Motor: 1 HP, 110V/220V, single-phase, TEFC
- Precision-ground cast iron table size: 14" sq.
- Table tilt: 45° R, 15° L
- Cutting capacity/throat: 13½"
- Max. cutting height: 6"
- Deluxe extruded aluminum fence
- Blade size: 92½"–93½" L (⅛"–¾" W)
- Blade speeds: 1500 & 3200 FPM
- Approx. shipping weight: 196 lbs.

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30TH ANNIVERSARY SPECIAL EDITION 17" BANDSAW

- Motor: 2 HP, 110V/220V, single-phase, TEFC
- Precision-ground cast iron table size: 17" sq.
- Table tilt: 45° R, 10° L
- Cutting capacity/throat: 16¼"
- Max. cutting height: 12¼"
- Blade size: 131½" L (⅛"–1" W)
- Blade speeds: 1700 & 3500 FPM
- Quick release blade tension lever
- Approx. shipping weight: 342 lbs.

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INCLUDES DELUXE EXTRUDED ALUMINUM FENCE, MITER GAUGE, and ½" BLADE

G0513ANV ~~$895.00~~ SALE $825.00 $99 shipping

10" LEFT-TILTING TABLE SAW
WITH CAST IRON ROUTER TABLE

- Motor: 3 HP, 240V, single-phase
- Cutting capacity: 8" left, 25¾" right of blade
- Maximum depth of cut @ 90°: 3"
- Maximum depth of cut @ 45°: 2⅛"
- Assembled table size: 48" W x 27" D
- Base dimension: 20½" x 20½"
- Precision-ground and heat-treated solid cast iron table
- T-slot miter gauge
- Dust port: 4"
- Magnetic safety switch
- One-piece steel cabinet type stand
- Poly-V serpentine drive belt
- CSA certified
- All sealed ball bearing construction
- Approximate shipping weight: 550 lbs.

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G1023RLW ~~$1360.00~~ SALE $1325.00 $150 shipping

10" CABINET TABLE SAW
WITH RIVING KNIFE & EXTENSION RAILS

- Motor: 3 HP, 220V, single-phase, 12.8A
- Blade tilt: Left • Table height from floor: 34"
- Table size with extension: 27" x 74¾"
- Arbor speed: 4300 RPM • Arbor size: ⅝"
- Maximum dado width: 13/16"
- Maximum depth of cut @ 90°: 3⅛"
- Maximum depth of cut @ 45°: 2⅜"
- Maximum rip capacity: 50"
- Distance from front of table to center of blade: 17¼"
- Overall dimensions: 40" H x 41" W x 82" L
- Approximate shipping weight: 557 lbs.

G0691 ~~$1595.00~~ ONLY $1525.00 $150 shipping

3 HP DUST COLLECTOR

- Motor: 3HP, 240V, single-phase, 3450 RPM, 12A
- Air suction capacity: 2300 CFM
- Static pressure: 16.7"
- 7" inlet has removable "Y" fitting with three 4" openings
- Impeller: 12¾" cast aluminum
- Bag capacity: 11.4 cubic feet
- Standard bag filtration: 2.5 micron
- Portable base size: 21½" x 48½"
- Bag size (dia. x depth): 19½" x 33" (2)
- Lower bags: Plastic
- Powder-coated finish
- Height with bags inflated: 78"
- Approximate shipping weight: 170 lbs.

MADE IN TAIWAN

G1030Z2P ~~$439.95~~ ONLY $425.00 $79 shipping

24" DRUM SANDER

- Motor: 5 HP, 220V, single-phase drum motor drives 2 aluminum sanding drums
- Surface speed of drum: 2300 FPM
- Handles stock up to 23½" wide and 4¼" thick
- ¼ HP conveyor motor provides 11 FPM feed rate
- Sandpaper installs easily onto the drums
- All steel and ball bearing construction
- Sandpaper size: 6" x 95½"
- Two 4" dust ports for easy hook-up to a collection system
- State-of-the-art, computer balanced drums
- Powder-coated finish
- Approximate shipping weight: 442 lbs.

DRUMS ARE NON-RUBBERIZED!

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G1066R ~~$1695.00~~ SALE $1650.00 $99 shipping

PLANER/MOULDER WITH STAND

- Motor: 2 HP, 240V, single-phase, 10.8A, 3450 RPM
- Precision-ground cast iron table measures 14⅛" x 10" x 1⅛"
- Max. planing width: 7"
- Max. planing height: 7½"
- Cuts per minute: 14,000
- 2 HSS knives
- Approx. shipping weight: 324 lbs.

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2 HP MOTOR!

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1½ HP CYCLONE DUST COLLECTOR

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- Air suction capacity: 775 CFM
- Static pressure at rated CFM: 1.80"
- Intake port: 6" with included 5" optional port
- Impeller: 13½"
- Height: 65½"
- Built-in remote control switch
- Approx. shipping weight: 210 lbs.

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Dec/Jan 2014/2015 Issue 230

In this issue

PLANS

TOOLS & TECHNIQUES

DEPARTMENTS

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The *WOOD*® magazine difference: We build every project, verify every fact, and test every reviewed tool in our workshop to guarantee your success and complete satisfaction.

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This Veritas shoulder plane received 5-star ratings from editors and readers alike.

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Dec/Jan 2014/2015 **Vol. 31, No. 7** **Issue No. 230**

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Editor's Angle

A time to chill

I love this time of year because it tends to bring out the best in people. We reflect on our own blessings, give more generously to those less blessed, and—woodworkers especially—"regift" our talents to brighten the lives of others. No feeling in the world compares to seeing sincere appreciation for a good gift given.

The holiday season also brings with it additional pressure on schedule: shopping, kids' programs and school concerts, travel... Time in the shop becomes more precious than ever, and now you're trying to build gifts for everyone on your list.

Nowhere does the adage "haste makes waste" apply more readily than a wood shop. Rushing leads to a miscut part, which leads to more rushing, as you try to catch up. Shortcuts (and working into the wee hours) compromise not only the quality of your work but also your safety.

Stop.

Take the night off.

Not every gift needs to be your masterwork.

People love your gifts because they came from your heart and hands, not because you spent 20 hours on the joinery and 40 on the finish. Keep it simple, and add a flourish to make it unique.

To help you out, we've filled this issue with easy, giftable projects with a twist. For example, contrasting-species dowels highlight the basic box joint in the beer caddy/hardware tote on *page 30*; simple strip-filled slots accentuate the playing field of the cribbage board on *page 50*; and the shadow boxes on *page 62* can be built to repurpose heirloom picture frames to make them even more special.
And of course, we have hundreds more gift plans at woodmagazine.com/gifts and woodmagazine.com/toys.

So, after you relax and regroup, take this issue out to the shop and get started. And happy holidays!

See you in the shop!

Dave Campbell
dave.campbell@meredith.com

Sounding Board

Our bulletin board for letters, comments, and timely updates

Honey, I shrunk the lamp

I liked the Adjustable-arm Floor Lamp project in issue 225 (May 2014) so much, I decided to make one—along with a scaled-down tabletop version to go with it. I resized the plans to 45 percent of the original design, and used black walnut for the body and an inexpensive shade I found at the home center. I think the two look great together.

—Doug Nelson, Durham, N.C.

Tile-top table gets stretched

Upon seeing the tile-top accent table project in issue 225 (May 2014), I decided to make a few modifications to transform it into a sofa table. I extended the top to hold four tiles, made the table taller, narrowed the front and back legs, and added walnut inlay to the ends. It's been an excellent addition to the family room. Thanks for the inspiration!

—Jeff Voss, Holden, Mass.

Porter-Cable router base recall

Porter-Cable has identified a safety issue with the bases on some 3¼ HP fixed-base production routers. The router base does not have insulated gripping surfaces and could present a shock hazard. The following models are affected: 7518, 7519, 7519EC, 22-7519-60, 75361, with date codes before 2014 and uninsulated handles. If your router or base is affected, call 888-344-7973 for information regarding a free replacement router base.

Cover switcheroo

I really enjoy the magazine, and buy a copy whenever I come across it. After purchasing what I thought was the most recent issue, I came across another issue I hadn't seen before at a different store. Imagine my surprise when, after getting the second issue home, I learned it was identical to the first, only with a different cover! What's the story?

—Ty Vega, submitted via Internet

Ty, we assure you this wasn't meant to be deceiving. We occasionally run two different covers on the newsstand to see which is best received by our readers.

—WOOD® Editors

Article Updates

▸ Backhoe loader

In issue 226 (July 2014), page 33, Drawing 1, disregard the washers between the axle (D), the chassis (A), and the chassis cutoff. They will not fit in the available space and are not needed.

▸ A-cut-above Bookends

In issue 228 (October 2014), page 63, Step 2 should read "Install a full-kerf (⅛") blade in your tablesaw and set its height to 1½"." The original pattern in the *WOOD Patterns®* insert was correct.

continued on page 6

The facts are hard to ignore.

Titebond® III outperforms polyurethane glues.

As the leader in wood glues, we want you to know the truth about polyurethane glue and woodworking. A straightforward comparison between Titebond® III Ultimate Wood Glue and polyurethane glue tells the story.

Titebond® III is THE ultimate choice for bonding wood to wood. Period.

www.titebond.com/TBIIIvsPolyurethane

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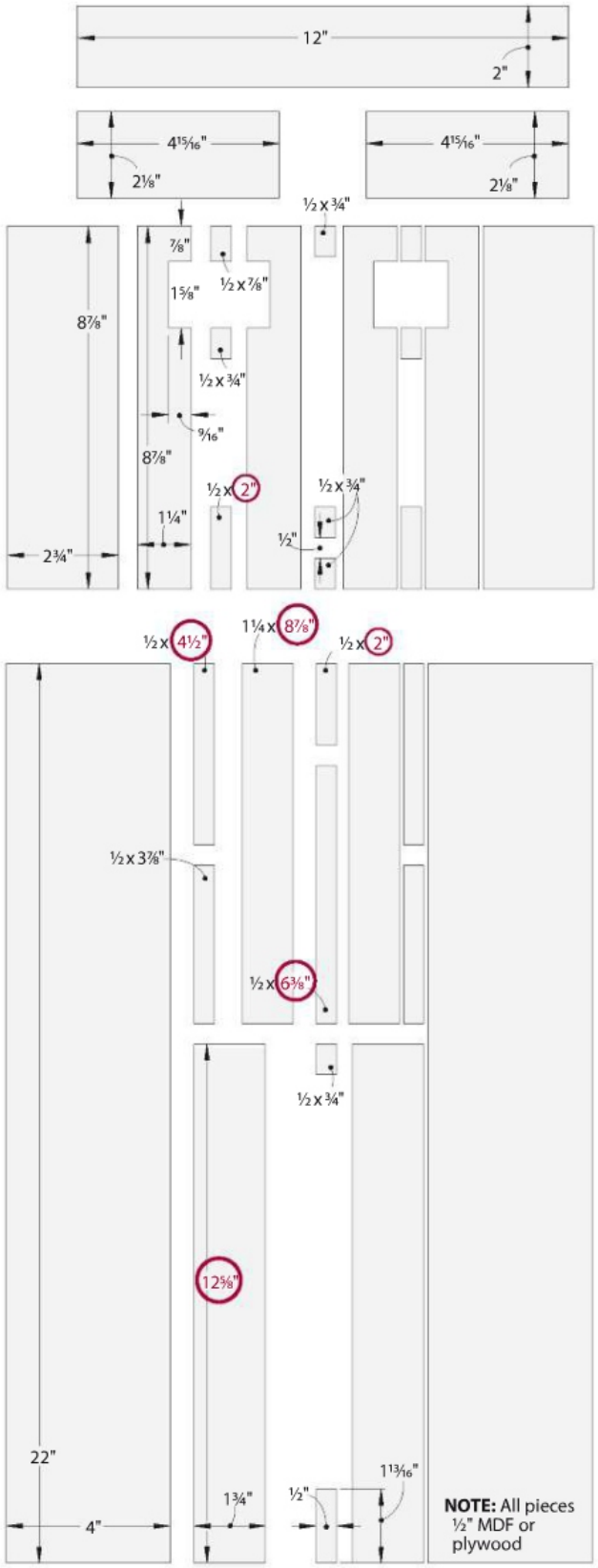
Article Updates (cont.)

▶ Arts and Crafts Bookcase

In issue 228 (October 2014), pages 40 and 41, *WOOD Patterns®* insert, update the template dimensions as shown in red *below.*



May your days be merry and *bright.*

Engineered for the toughest industrial environments, Big Ass Light's new Shop LED is perfect for your garage. Big Ass Lights feature unmatched durability and longevity to brighten every inch of your workshop this holiday season.

Before

After

Call 888-958-1709 or visit **bigasslight.com/BRIGHT** with promo code **WOOD1214** for a free info kit and become eligible for free shipping* through Dec. 31. Ready to purchase online? Use **WOOD1214** at checkout.

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*Free shipping on Big Ass Light valid in contiguous 48 states and expires December 31, 2014. Cannot be applied to previous orders or combined with any other offer.

Great Ideas
For Your Shop

Close-shaving Miter Shooting Board

The difference between an ill-fitting miter and a gap-free one can be as little as a single pass with a hand plane. This quick-to-build miter shooting board gives you the means to take just a whisper off your workpiece while trimming the angle of the miter dead-on.

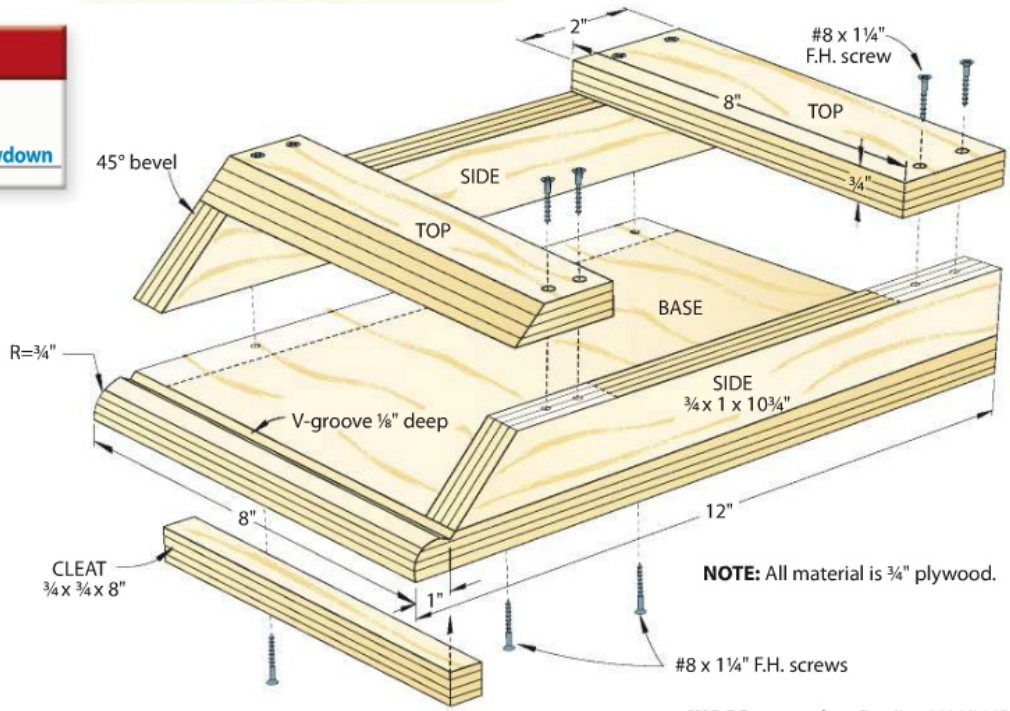
To build it, we cut all parts from void-free ¾" Baltic birch plywood. Use a V-groove bit (no. 405460, $23.49, 800-535-4482, woodcraft.com) to rout the channel in the base, where shown in the **Drawing**. Rout a ¾" round-over along the edge of the base nearest the groove, and then countersink and screw the jig's parts together.

To use the shooting board, simply drop its cleat into your bench vise, slide your workpiece into the jig—pinning it tightly to the side farthest from you—and make repeated passes until you've removed enough material.

Note: *We designed this shooting board to fit a low-angle block plane, which excels at trimming end grain without tear-out.*

More Resources

- Make crisp cuts with a properly sharpened plane iron: woodmagazine.com/sharpeningshowdown



NOTE: All material is ¾" plywood.

New! Router, tables, & bits.

Product details at mlcswoodworking.com

Master Joinery System

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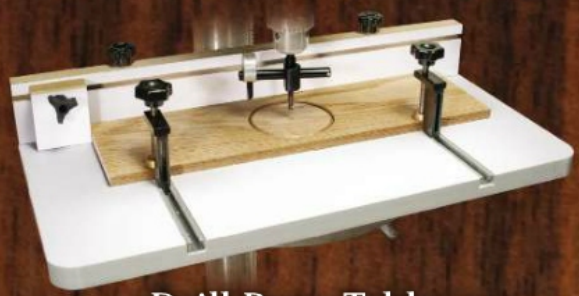

Drill Press Table

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U-Turn Router Lift

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The Homemade Tool Movement

You like to build, rather than buy, right? Don't just furnish your house; outfit your shop with that philosophy as well.

by James Hamilton, a.k.a. Stumpy Nubs

Humans have been making their own tools since the beginning of time. We are creative beings with a desire to make new things and devise tools to build those things easier, faster, and better. That drive toward innovation is especially strong in some of us. We are the jig makers.

Stretch your budget

I didn't set out to become a jig maker; I just wanted a new tool. But I remember fighting back the dry heaves as I contemplated maxing out my credit card on a fancy new whatnot. That's when it hit me: Why not make my own? The $20 bill in my wallet wouldn't go far in the tool store, but back at the shop I had some wood scraps, a little hardware, and a fair amount of "I've got nothing better to do." Suddenly, I was living like a king in my own workshop!

When you train yourself to reach for the sketch pad ahead of the credit card, you're no longer limited by your budget. That router lift you've always wanted, the overpriced drill-press table, everything your spouse forbade you to spend money on is now within your reach. And as your homemade tool collection grows, your woodworking becomes more cost-efficient as well, with less waste and time spent.

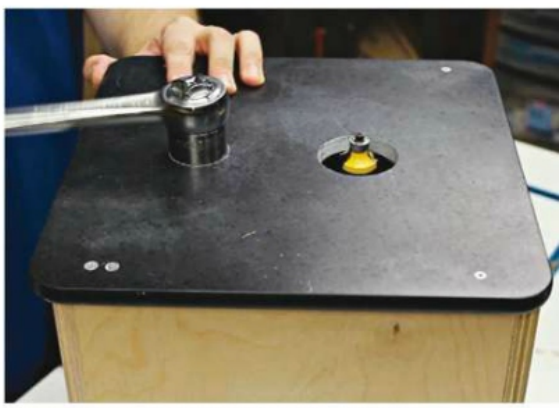
Challenge yourself, impress your friends

As I sat on my bench admiring my fledgling fiefdom of wooden fixtures, I wondered just how far this could be pushed. Was it possible to make real, precision tools from wood? I was determined to find out.

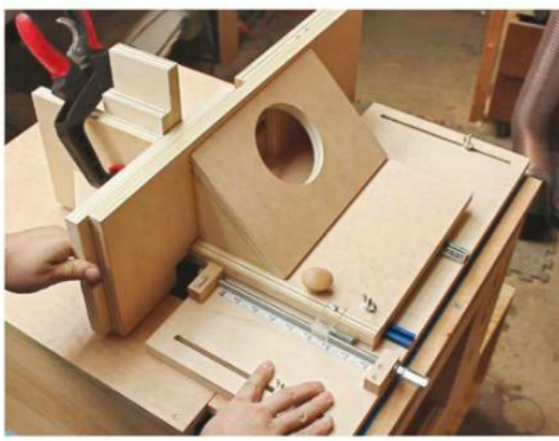
You'll be amazed by the tools that come out of a little ingenuity and some basic hardware. Add extruded aluminum T-track, threaded rod, and ¼"-20 knobs to your kit, and the possibilities become nearly endless.

I built a fully functional dovetail jig and a micro-adjustable box-joint machine. Neighbors started dropping by to borrow my handheld mortiser and my homemade drum sander. Soon I was designing "out-there" tools, like an X-Y drill-press table and a multiple-tool stand that worked like a

continued on page 12



Commercial router-lift systems can cost several hundred dollars. Choose to make it yourself and you might spend several dozens of dollars instead.



Mating 16-TPI threaded rod provides hard stops every 1/16" in this homemade micro-adjustable router fence, providing predictable, incremental positioning.

Last time a band played this well, Ringo was at the drums!

Our bandsaws will bring music to your ears. Give us a call today and find out how we can bring harmony to your shop.

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Unvarnished

Ferris wheel. I was hooked! (You can find plans for many of these tools at stumpynubs.com.)

Join the movement

It won't take you long to discover that you're not alone in your new tool-making habit. Deep within the World Wide Web, in the smoky back rooms of the forums, and on YouTube, among the videos of kittens and dancing squirrels, there is a movement growing.

Woodworkers who enjoy building jigs are sharing their creations with anyone who cares to look. New makers have popped up with ever more audacious creations: Homemade bandsaws, shapers, and jointers. Tools articulated with wooden gears, springs, levers, and lifts. Some make do-it-all jigs, such as a complete router-joinery machine. Others build just-for-fun jigs, like a tablesaw-mounted wooden bowling-ball carver.

Not satisfied with simply "building a better mousetrap," we'll build a micro-adjustable mousetrap with a self-setting spring and integrated rodent disposal. We are a new breed of woodworkers, jig makers, and workshop tinkerers, pushing the limits of the craft and making things from wood that few ever considered. Join us!

STUMPY'S FAVORITE JIG MAKERS:

- Matthias Wandel **woodgears.ca**
- John Heisz **buildit.ca**
- Izzy Swan **thinkwoodworks.net**

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"As a newcomer to woodworking, I was afraid that some classes would be over my head. To my delight and relief I found them all enjoyable, understandable, and enriching."

"Expertise of the presenters and the hospitality were top notch!"

"I knew I was going to learn a lot, but was blown away at the quality of instruction. Only wish I could have taken all the classes."

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"Big-screen video was VERY nice and helpful."

"WAAAAY past excellent!!"

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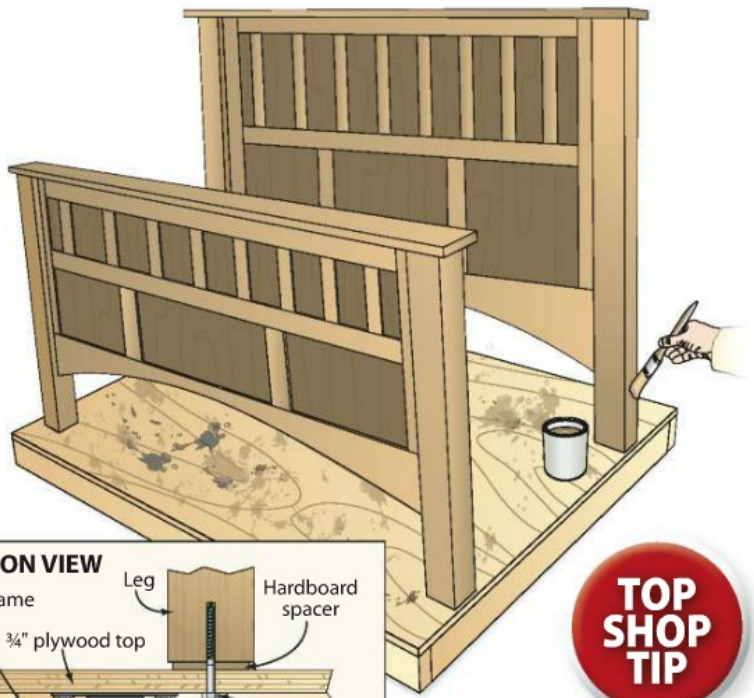
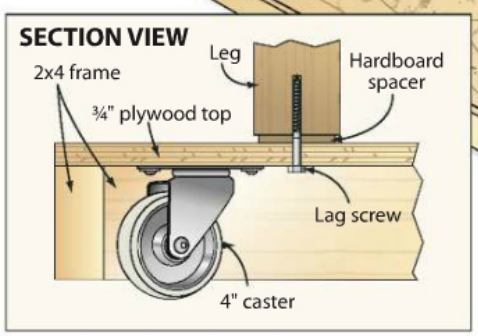
—*Hud Peters, Cincinnati*





TOP SHOP TIP

We chose our favorite Shop Tip— now choose yours! Vote online now at woodmagazine.com/shoptipoftheyear.

For sending this issue's Top Shop Tip, Hud receives a Jet 10" sliding dual-bevel compound mitersaw valued at $550.

TIPS EARN $$$

Have a clever trick for overcoming a shop conundrum? Share it with us, and if we print it, you could earn up to $150. If your tip is the best of the issue, it'll win Top Shop Tip honors, and you'll receive a tool prize from Jet Tools worth at least $300!

Send your tip, photos or drawings, and contact info to **shoptips@woodmagazine.com** or snail-mail them to:

Shop Tips, WOOD magazine, 1716 Locust St., LS-253, Des Moines, IA 50309-3023.

Because we try to publish original tips, please send yours only to *WOOD®* magazine. Sorry, submitted materials can't be returned.

continued on page 16

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Pat. Pend.

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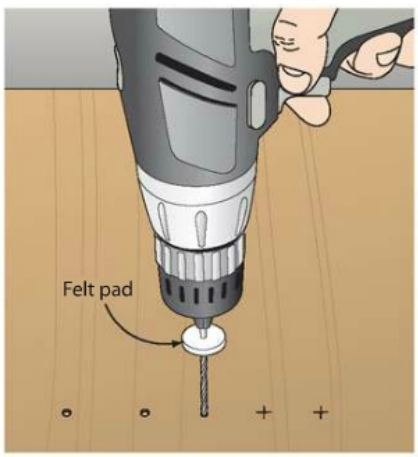
Shop Tips

A soft touch prevents scarring

When drilling holes, the bit suddenly breaking through the workpiece can cause the chuck jaws to bump into the workpiece, which leaves an ugly round scar in the surface. I found a preventive measure amid my rotary-tool accessories: a felt polishing wheel. Slip the wheel over the drill bit and you'll put a stop to errant chuck marks.

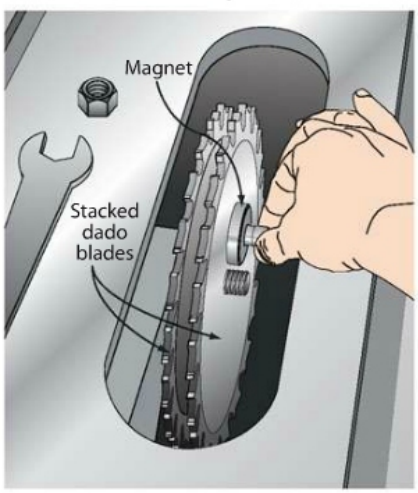
—Douglas Tapling, Reed City, Mich.



Get a grip with this magnetic blade puller

Separating and pulling off stacked blades, chippers, and shims from a tablesaw's arbor requires nimble fingers and no small amount of effort. But a magnetic print holder (no. 891-8105, $4 each, 800-873-3626, use-enco.com) gives you a low-profile handle for tugging each piece free.

—Roger Lueck, Santa Rosa, Calif.

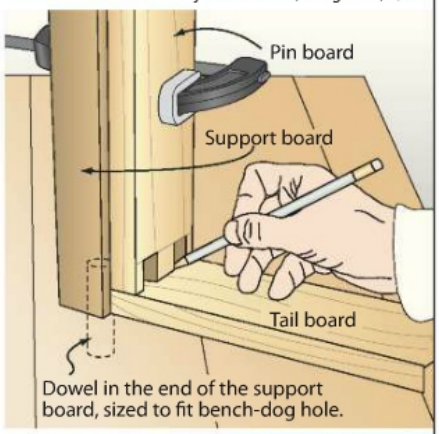


Bench-dog support pins the tails on your workpiece

When cutting dovetails, I prefer to cut the pins first because I find them easier to transfer to the tail boards given the space between the pins. However, I struggle to hold the pin board steady while scribing the tails.

To add stability to that process, glue a dowel that fits your workbench's dog holes into the end of a flat, square board. Mount the support on your workbench, clamp the pin board to the support atop the tail board, and scribe away!

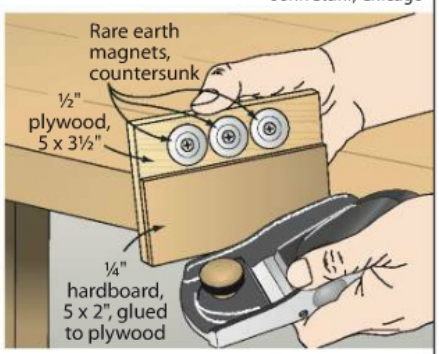
—Alejandro Balbis, Longueuil, Que.



This magnetic hand-plane guide is cutting edge

Paring off just a little material from the edge of my workpiece seemed the perfect task for a sharp hand plane. But the piece was too large to fit my shooting board, and I quickly found that my hand plane wanted to tip on the workpiece's narrow edge. This simple edge guide—hardboard glued to a scrap of plywood, with rare-earth magnets epoxied into countersinks—solved that problem by keeping my plane steady and centered on the narrow workpiece edge.

—John Stahr, Chicago



continued on page 20

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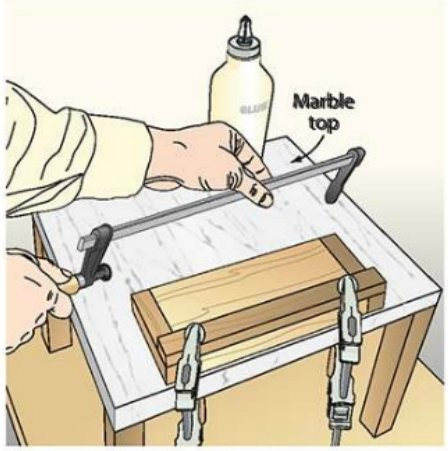
Shop Tips

No-stick assembly stand stops squeeze-out struggles

Glue squeeze-out is tough to remove from a wood workbench, but easily flakes off nonporous surfaces. So, using a sealed marble countertop remnant I found in the clearance section of a home center, I built this raised assembly stand to minimize the mess. It's dead flat, and helps produce square glue-ups as a result.

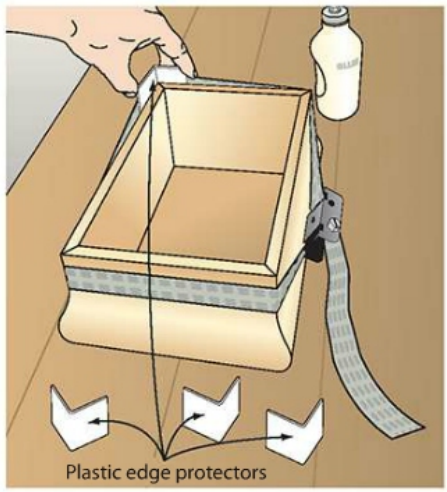
—Mike Goss, Highlands Ranch, Colo.



Plastic edge protectors keep your corners covered

To keep my strap clamp free from glue squeeze-out, I slip plastic edge protectors, commonly used for shipping sheet goods to home centers and lumberyards, between the workpiece and the strap. Just ask the store employees if they have any lying around—they usually just throw them out!

—Rob McEwen, Indianapolis



Develop Your **Shop Skills**

Keys to Building

Forever-flat Tabletops

To make a flat solid-wood tabletop that *stays* flat throughout its life, you need to choose, prepare, machine, and join its boards correctly. Sound tricky? Not at all—just follow these tips.

Choose the right stock

When selecting lumber for your tabletop, avoid heavily knotted or highly figured boards. You'll get more stability from clear stock. Also examine the end grain to learn how the lumber was sawn from its log. Riftsawn and quartersawn boards (see illustration *below*) warp less than flatsawn lumber. The reason: A board tends to flatten along its growth rings (visible from the board's end) as it dries. On flatsawn stock, the growth rings appear in a hill-like shape, and as the hill flattens, the edges of the board pull up, causing a cup.

Instead, select lumber with straight grain on its face: Those boards cup less, typically, and also blend together more easily when assembled into a completed top. To further improve stability, select thick boards with closely spaced growth rings that signify slow-growth woods; the tighter rings will limit warp, and thick boards add mass to your tabletop that helps it resist movement. So keep those boards as thick as possible during machining, particularly for large tabletops where the effects of warp will be magnified.

STRAIGHT-GRAINED WOOD STARTS FLAT & STABLE

Flatsawn (Least stable) | Riftsawn (More stable) | Quartersawn (Most stable)

WOODS THAT RESIST WARP

To win the fight against wood warp, start with a wood species that moves less with changes in humidity. Common domestic species, such as oak, maple, cherry, and walnut, tend to stay flat; beech, sycamore, elm, and hickory have a tendency to warp.

STABLE

WARP-PRONE

continued on page 24

Orient the boards for strength *and* beauty

Although you may not be able to completely prevent wood warp, especially using common and economical flatsawn lumber, you can limit its effect by the way you arrange the end-grain growth rings. You have three choices:

1. Orient all boards with the growth rings positioned like hilltops *(below, top).*
Result: The tabletop will curl upwards at its outside edges.

2. Orient all boards with the growth rings configured like a series of valleys.
Result: The opposite of orientation #1: The tabletop will crown in the middle.

3. Alternate the direction of the boards' growth rings *(below, bottom).*
Result: A wavy tabletop—each board cups in an alternating direction.

So how do you choose the best orientation? For tabletops fastened to an apron (a wood-rail framework that surrounds and supports the table's legs), we suggest orientation #1 because the apron secures the tabletop at its edges, restricting that movement. For tabletops that mount in the center, such as pedestal or trestle tables, orientation #2 will move the least. The fasteners installed in the table's center would restrict or eliminate warp.

With your boards oriented for stability, don't forget about the overall look of your final glue-up. Working within the confines of your stable board orientation, shuffle and rotate the boards for a pleasing appearance where the grain from one board seems to flow into the one beside it.

***Quick Tip!** With the tabletop laid out in its final configuration, number the boards. Should they need to be moved or separated, you can put them back in order easily.*

MATCHING GROWTH RINGS MAKE THE TOP CUP PREDICTABLY

ALTERNATING GROWTH RINGS MAKE WAVES

Although each board comprising a tabletop may warp only a little, the effect of that warp magnifies across the tabletop's width, as shown. You may not be able to prevent the boards from warping, but you can predict how they'll warp according to the way in which you laid out your boards, and fasten the tabletop accordingly.

A flat glue-up makes for a flat tabletop

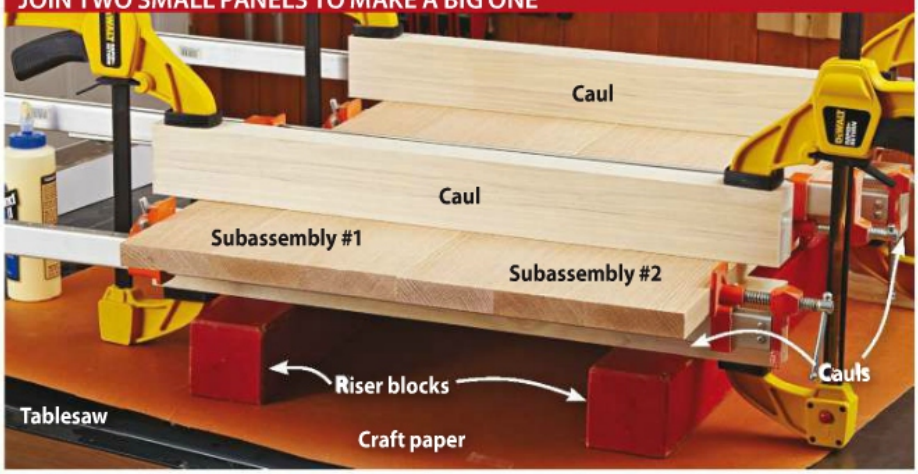
With the boards laid out for stability and appearance, group the boards into subassemblies (keeping the numbered boards in order) to fit the width of your thickness planer.

***Quick Tip!** Before gluing up your panels, consider cutting tongue-and-groove joints along the board edges to aid alignment and add strength.*

Find a flat surface (such as a tablesaw top) and glue up the subassemblies. When dry, plane them to the same thickness; then, join them together in a final glue-up. Note: Clamp pressure and glue lubricity can cause the subassemblies to shift, especially in larger glue-ups. Use clamping cauls and riser blocks to create a flat panel, like the one at *right.*

After cutting your tabletop to its final dimensions, commence sanding. Don't linger too long on imperfections or problem areas—you're likely to oversand and create divots that will be magnified after you apply a finish. Be sure to give the tabletop's edges as much attention as its center.

JOIN TWO SMALL PANELS TO MAKE A BIG ONE



To achieve a flawless tabletop, your glue-up technique must be flawless, too. Employ riser blocks to provide clearance for the clamps needed to pin the clamping cauls tight to the panel.

Heed the caul

Tapered slightly from center to edge, clamping cauls (like those at *right*) put more pressure on the panel's center, where clamping pressure is weakest. Along each caul's edge, take a few shavings with a hand plane from both ends to create a subtle spring. We wrapped the edge of the caul with packaging tape to prevent squeezed-out glue from bonding with the caul.

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- Precision-ground cast iron table
- Table size: 19¾" x 14⅜" x 1½" thick
- Table tilt: 8° left, 45° right
- Floor-to-table height: 42¼"
- Cutting capacity/throat: 13½"
- Maximum cutting height: 10"
- Blade size: 106" long
- Blade width: ⅛"–¾"
- Blade speed: 3000 FPM
- Resaw fence height: 6"
- Overall size: 29¾" W x 73" H x 29½" D
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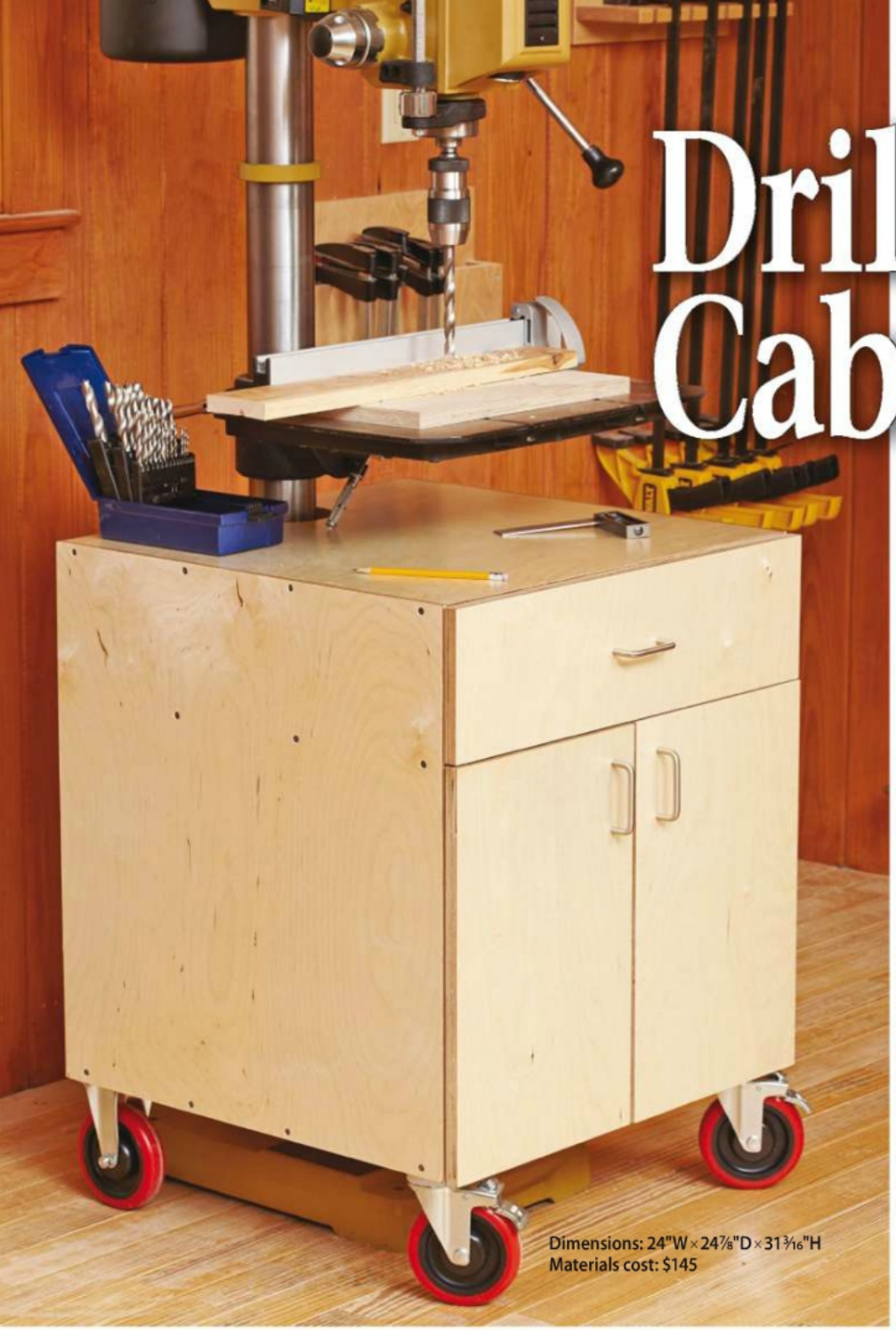


Dimensions: 24"W×24⅞"D×31³⁄₁₆"H
Materials cost: $145

Before Senior Design Editor Kevin Boyle could finish describing the design of this project, I was already thinking about how I'd adapt it to my shop. He talked about how it nests around the column of a floor-standing drill press, creating storage in unused space; how the drawer helps you organize drill bits and other small accessories; and the large storage space behind the doors that hides bulkier items. Plus the unit rolls out of the way on casters so you can lower the table. As for me, I plan to park my benchtop drill press on top of the cabinet and scoot it wherever needed. If you go this route, consider the height of the tool as it sits on the completed cabinet; you may want to build a shorter version for comfortable access to the drive belts, switch, and feed lever.

Craig Ruegsegger
Deputy Editor

First, build a divided box

1 From ¾" plywood, cut the sides (A), top and bottom (B), divider (C), and back (D) to size [**Materials List**]. Lay out the column notches on the top and bottom [**Drawing 1a**] and jigsaw and sand them to shape. ***Note:*** *If you have a benchtop drill press, you can skip the notches, but cutting them anyway allows for a future upgrade to a floor-standing model.*

2 Install in your tablesaw a dado blade to match the thickness of the plywood, making test cuts in scrap to check the setup. Position the rip fence and cut in each side (A) the dado for the divider (C) [**Drawing 1b**]. Reposition the fence and cut the grooves for the back (D), making sure the sides mirror each other.

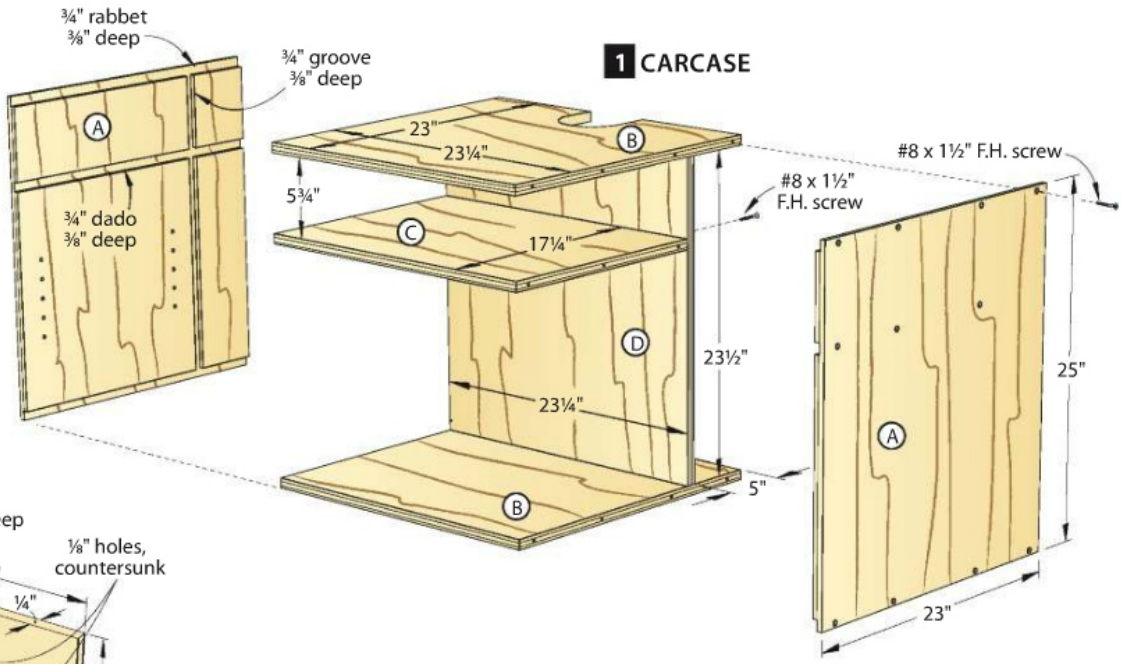
3 Attach an auxiliary face to the rip fence and adjust the face to just touch the dado blade. Cut the rabbets on the ends of the sides (A).

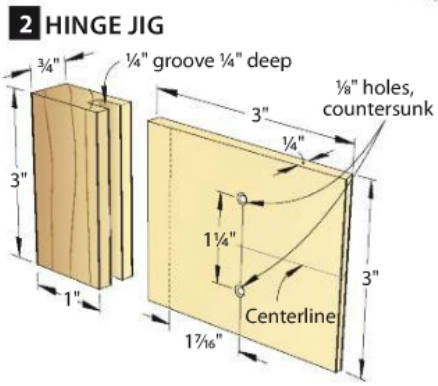
4 Drill the shelf-pin holes as described in the **Shop Tip**, on *page 29*.

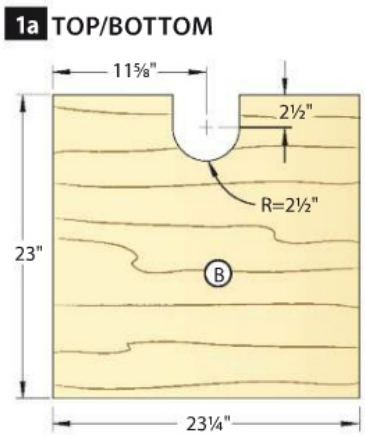
Assemble the case

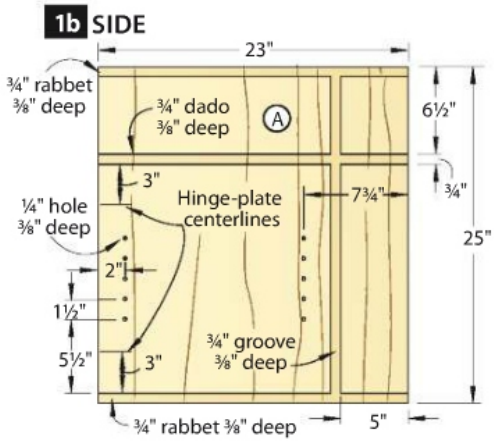
1 To assemble the cabinet, glue and clamp the divider (C) to a side (A), using a clamping brace [**More Resources**] to help position the parts [**Photo A**]. Drill countersunk 3⁄32" pilot holes and drive the screws [**Drawing 1**]. Attach the top and bottom (B) to the side in the same fashion.

2 Rest the carcase assembly (A/B/C) on the side (A) and glue the back (D) in place [**Photo B**]. Attach the remaining









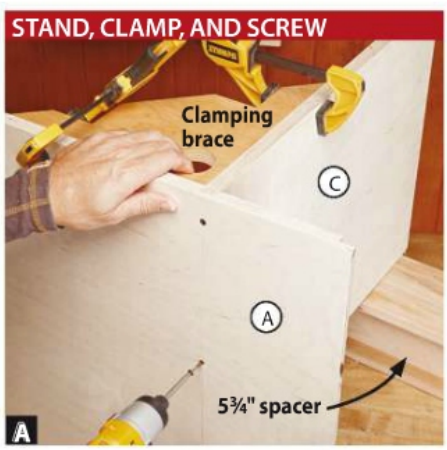
side (A), then drive screws through both sides and into the top (B), bottom (B), and divider (C).

3 Cut a shelf (E) to size to fit inside the case [**Drawing 5**] and set it aside.

Make super-simple doors next

1 Make the hinge jig shown in **Drawing 2**. Rest the carcase (A–D) on your bench. Mark hinge-plate centerlines on each side (A) [**Drawing 1b**], then drill the hinge-plate screw holes using a 5⁄64" self-centering drill bit [**Photo C**].

2 Cut the doors (F) to size [**Drawing 3**]. Rest the bottom of a door on your bench with one edge against the side (A) of the cabinet. Transfer the hinge-plate centerlines to the door [**Photo D**], and repeat for the other door on the opposite



Because the divider (C) is narrower than the sides (A), rest the divider on a 5¾" spacer while you drill holes and drive screws.

Apply glue to the dado for the back (D), then slide the back into position. Secure the opposite side (A) with glue and screws.

Align the jig's centerline with the hinge-plate centerline on each side (A). Butt the cleat against the front edge of the side and drill ⅛"-deep holes.

side. At the drill press, bore the hinge-cup holes in the doors centered on these lines and centered 15⁄16" from the edge [**Drawing 3**]. Drill holes for the wire pulls where shown and install them.

3 Install the hinge plates on each side (A) [**Photo E**], and screw the hinge cups to the doors. Hang the doors by clipping the two halves of each hinge together.

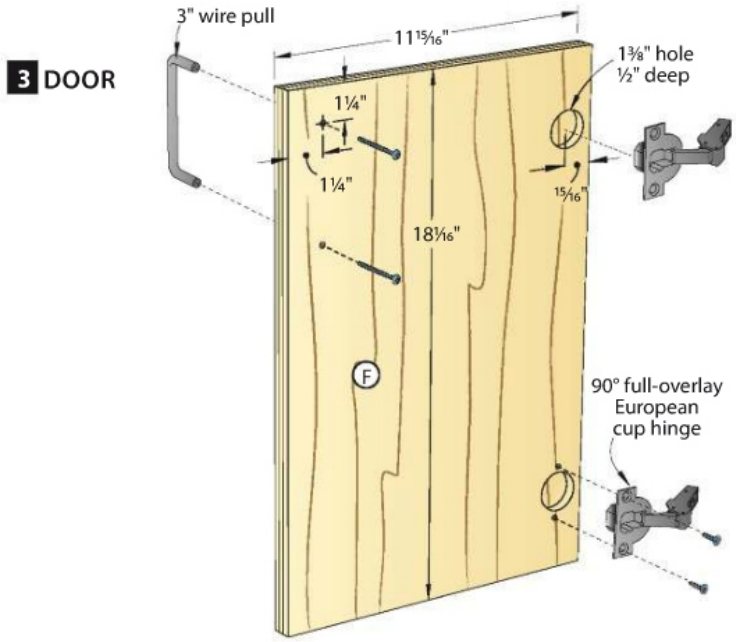
Now an equally simple drawer

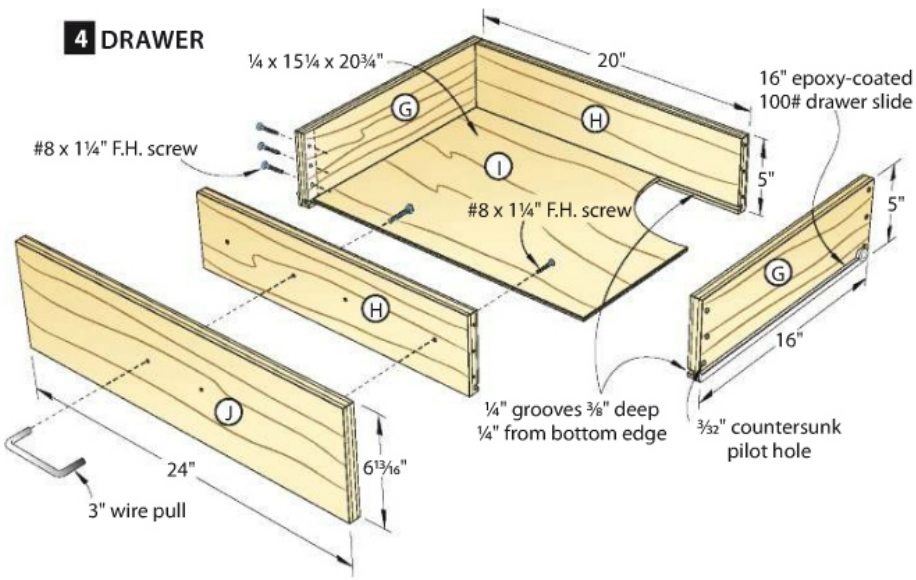
1 Cut the drawer sides (G) and front and back (H) to size [**Drawing 4**]. Cut a ⅜"-deep groove to fit the plywood for the bottom (I) ¼" from the bottom edge of each piece by making two passes over your tablesaw blade, nudging the fence between passes.

2 Cut the drawer bottom (I) to fit the dry-assembled drawer. Drill countersunk screw holes through the drawer sides (G) [**Drawing 4**]. Disassemble the drawer, apply glue in the grooves and to the ends of the front and back (H), and screw the drawer together, trapping the bottom panel. While the glue dries, cut the false front (J) to size and set it aside.

3 Using the screws provided with the slides, attach the drawer portion of each slide to the bottom of the drawer sides (G), flush with the front of the drawer [**Drawing 4**]. Clamp and install the mating half of each slide in the cabinet [**Photo F**].

4 Install the drawer box (G/H/I) in the carcase. Place a strip of double-faced tape on the rear face of the false front (J). Position the false front flush with the outside faces of the sides (A) and top (B). Press it against the drawer front (H), then pull the drawer out. Drive screws





ALIGN THE HINGE LAYOUT MARKS

Transferring the hinge-plate centerlines from the side (A) to each door (F) simplifies locating the holes for the hinge cups.

SUPER-SIMPLE HINGE INSTALLATION

Align the hinge plates along the centerlines on the sides (A) and drive the screws provided with the hinges into the holes drilled earlier.

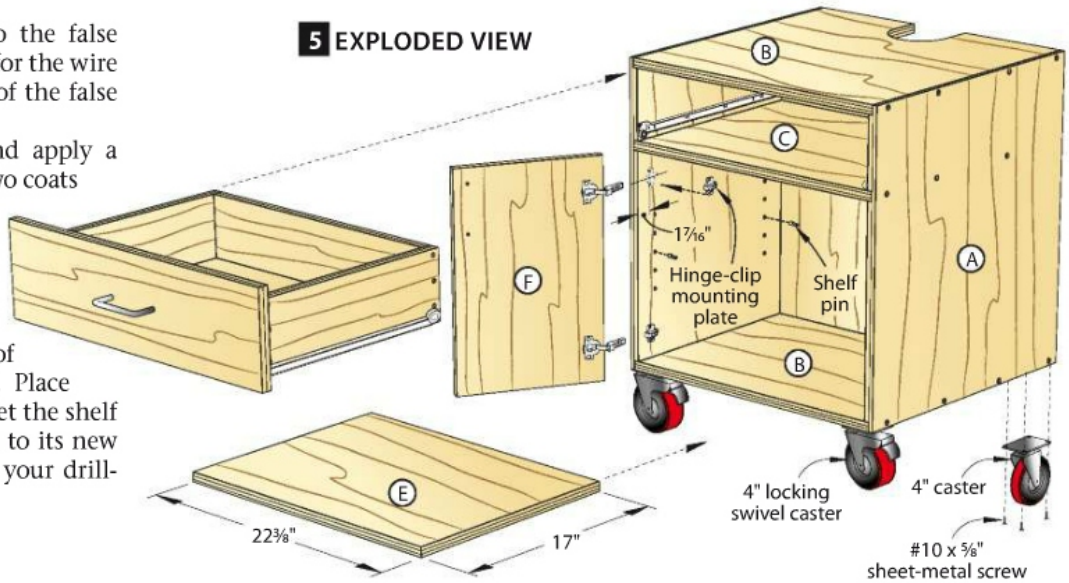
GET SPACEY FOR THE SLIDES

Rest the drawer slide on a ½"-thick spacer, aligning the front end of the slide with the edge of the side (A). Screw the slide in place.

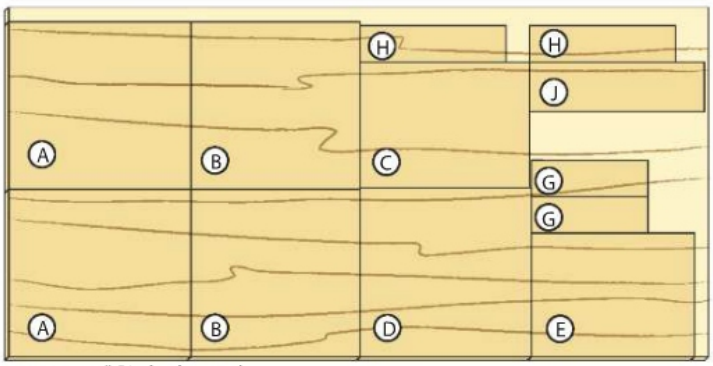
from inside the drawer into the false front [**Drawing 4**]. Drill holes for the wire pull to center it on the face of the false front and attach the pull.

5 Remove all hardware and apply a finish. (We brushed on two coats of polyurethane, sanding lightly with 320-grit sandpaper after each coat.) After the finish dries, flip the case onto its back and screw a caster to each corner of the bottom (B) [**Drawing 5**]. Place four shelf pins in holes and set the shelf (E) in place. Roll the cabinet to its new home and begin organizing your drilling accessories.

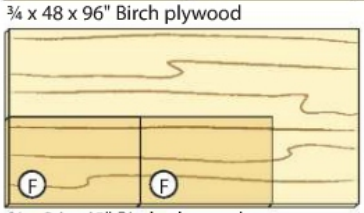
5 EXPLODED VIEW



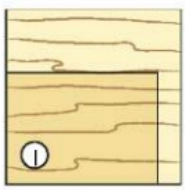
Cutting Diagram



¾ x 48 x 96" Birch plywood



¾ x 24 x 48" Birch plywood



¼ x 24 x 24" Birch plywood

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Lorna Johnson**

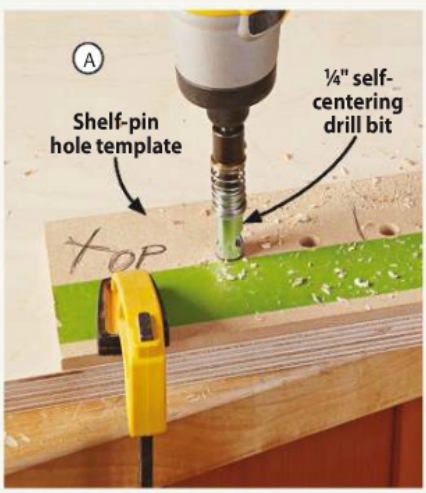
Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A	sides	¾"	23"	25"	P	2
B	top/bottom	¾"	23"	23¼"	P	2
C	divider	¾"	17¼"	23¼"	P	1
D	back	¾"	23¼"	23½"	P	1
E	shelf	¾"	17"	22⅜"	P	1
F	doors	¾"	11⁵⁄₁₆"	18⁷⁄₁₆"	P	2
G	drawer sides	¾"	5"	16"	P	2
H	drawer front/back	¾"	5"	20"	P	2
I	drawer bottom	¼"	15¼"	20¾"	P	1
J	drawer false front	¾"	6¹³⁄₁₆"	24"	P	1

Material key: P–Baltic birch plywood.
Supplies: #8×1¼" flathead screws (16), #8×1½" flathead screws (25), #10×⅝" panhead sheet-metal screws (16), 90° full-overlay European cup hinges (4), ¼" shelf pins (4), 16" epoxy-coated 100# drawer slides (2), 3" wire pulls (3), 4" casters (2), 4" locking swivel casters (2).
Blade and bits: Dado blade; ¼" and ⅝₄" self-centering drill bits, 1⅜" Forstner, ³⁄₃₂" drill bits, countersink.

Supplies on Demand: Order the hinges, shelf pins, drawer slides, wire pulls, casters, and self-centering drill bits at woodmagazine.com/225dpcabinet. Simply remove from your cart any items you already have on hand before checkout.

SHOP TIP



Perfectly positioned shelf-pin holes

To align all four sets of shelf-pin holes, make a template from a 4×14" piece of ¼" hardboard. Drill ⅜" holes in the hardboard to match the spacing of the shelf-pin holes [**Drawing 1b**]. Clamp the template to a side (A) with its bottom end flush with the top of the rabbet and drill the holes with a ¼" self-centering bit [**Supplies on Demand**, at *right*]. (This type of bit won't ream out the template holes.) Move the template to the next location and repeat the process.

Note: Supplies on Demand provides convenient ordering of the hardware and specialty drill bits needed to build this project.

More Resources

- For a free right-angle clamping brace plan, see **woodmagazine.com/clampingbrace**.
- Find more ways to trick out your drill press at **woodmagazine.com/dpupgrade**.
- Check out our top picks in drill presses at **woodmagazine.com/dpreviews**.

Beer Caddy/ Hardware Tote

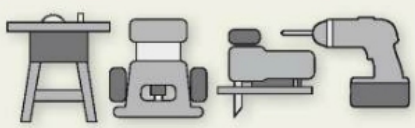
Size: 10¾"L x 6¾"W x 11¼"H

The original concept for this project was a caddy that would show off your woodworking skills as you transport beverages to a tailgate party or picnic. But we also thought this tote could "work" as well as "play." Luckily, I knew of these neat metal canisters [**Source**] *that organize fasteners and other hardware and fit in the same space as a bottle of suds! And if you need to carry more refreshments, hardware, or some tools, simply build a longer version.* *(See the photo on page 32.)*

Kevin Boyle
Senior Design Editor

BASIC-BUILT
GREAT PROJECTS MADE SIMPLE.

TOOLS NEEDED



Jump into the joinery

1 From ½" stock, cut the ends (A) and a matching test piece to width but 12" long [**Drawing 1**]. Set the test piece aside. Then, cut the sides (B) to size.

2 Attach an extension to your tablesaw miter gauge. Raise the blade 1" above the table and position the rip fence ½" from the *outside* edge of the blade [**Shop Tip**, *next page*]. Cut a kerf on each corner of the sides (B) [**Photo A**].

3 Remove the waste [**Photo B**]. Complete the notches by pushing the workpiece back and forth over the highest point of the blade [**Photo C**].

4 Lower the blade to ½" and reposition the rip fence 3" from the *outside* edge of the blade. Clamp a stopblock to the miter-gauge extension 13⅞" from the rip fence. Using the test piece made in **Step 1**, cut a kerf with one end against the rip fence and a second kerf with the opposite end against the stopblock [**Photo D**]. Compare the width of the finger in a side (B) to the distance between the out-

Butt the side (B) against the rip fence and cut a kerf at each corner. The miter-gauge extension backs up the cut and steadies the workpiece as you work.

Make additional cuts, starting at the end and working in, sliding the side (B) toward the rip fence the width of the saw blade after each pass.

To smooth the notch, push the side (B) against and then away from the rip fence across the peak of the blade. Use the miter-gauge extension for support.

side edges of these kerfs. Make any adjustments to the tablesaw setup to get a match, then make these cuts on each edge of each end (A). ***Note:*** *It's better to have the notch a bit undersized than too wide. You can later sand or file the notch for an exact fit.*

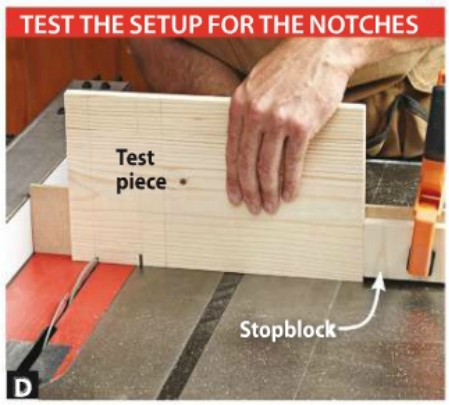
5 As you did with the sides (B), remove the waste from the notches in the ends (A) by making a series of passes over the blade. Test the fit of the joints and adjust the width of the notches as needed to achieve a snug fit.

Shape the ends and assemble

1 Photocopy **Drawing 2**, enlarging it 200 percent to make a full-size half-pattern. Spray-adhere the pattern to ¼" hardboard and cut and sand the template to shape. Do not drill the holes yet.

2 Place a square across an end (A), aligning the top edge of the blade with the top of the notches. Rest the bottom of the template on the square's blade, trace along the template [**Photo E**], flip the template to the opposite edge, and repeat. Mark the centerpoint of the ¾" hole where shown.

3 Stack both ends (A) together with double-faced tape, aligning their ends and edges. Cut and sand the ends to shape and drill the ¾" hole where marked. (The ¼" holes are drilled later.) Separate the ends and finish-sand them to 220 grit.

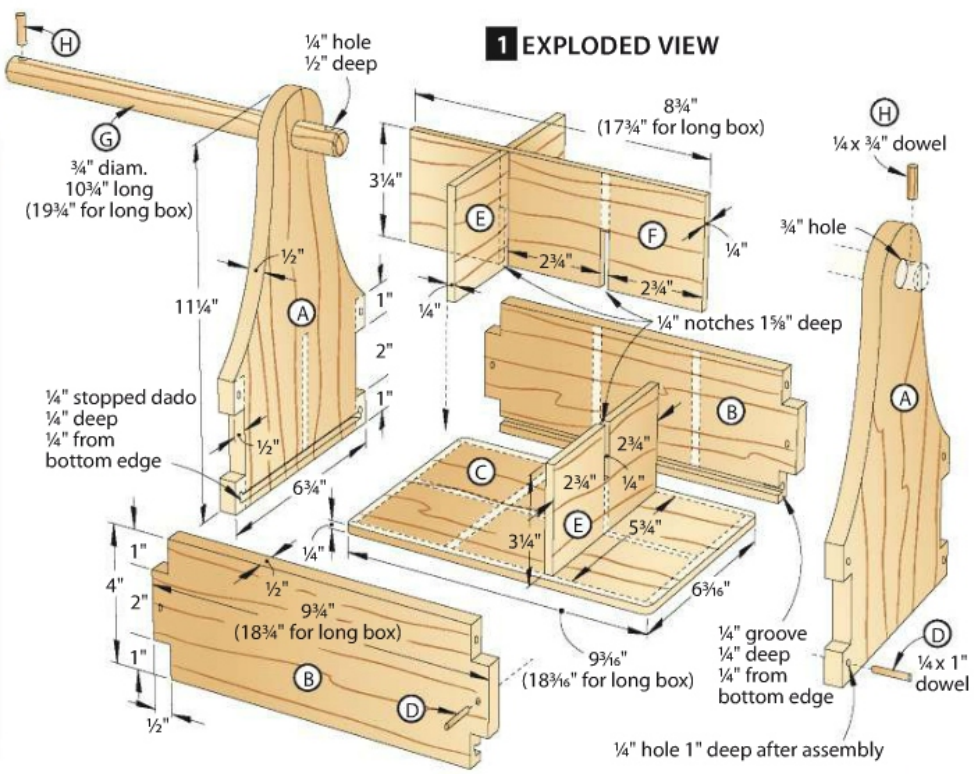


Making cuts on a test piece first prevents messing up a project part. If you need to make a second, third, or fourth test cut, flip and rotate the piece.

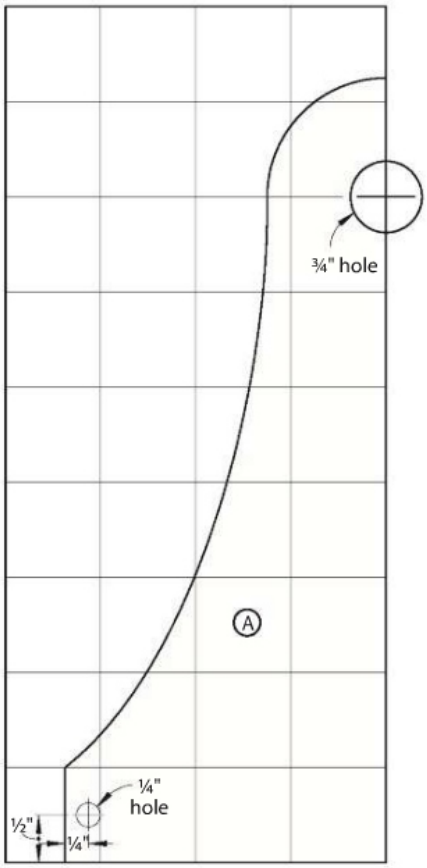
SHOP TIP

A fit without measuring

With your saw unplugged, use an end (A) as a gauge to set the rip fence. Place one face of the end against the rip fence and adjust the fence until the opposite face aligns with an outermost tooth on the blade. Use your finger to check for a perfect alignment.



2 END GRID



One square=1"
Enlarge 200%

4 Install a ¼" box-slotting bit [**Source**] in your router table and set the bit's lower cutting edge ¼" above the table. Dry-fit and clamp the ends (A) and sides (B) together, and rout a slot around the lower inside face of the pieces.

5 To determine the size of the bottom (C), measure between the ends (A) and sides (B) and add 7/16" to each measurement. Cut the bottom to size and sand its corners round to fit in the slot.

MAKE THE ENDS SHAPELY

Align the edge of the template with the edge of the end (A) and against the blade of the square. Trace along the curved edge of the template.

Disassemble the box and dry-fit it again with the bottom to check the fit. Make any adjustments needed to the bottom, then sand the sides and bottom to 220 grit. Apply glue in the slots and to the notches in the ends and sides, and clamp the box together, trapping the bottom. Check the assembly for square.

6 After the glue dries, drill ¼" holes 1" deep centered on each finger on the ends (A) and sides (B) [**Drawing 1**]. From a ¼" dowel, cut the finger pins (D) to length, and glue them into the holes. Sand the dowels flush after the glue dries.

7 If you want to add the dividers (E, F), cut them to fit in the caddy (A–D). Cut the notches at the tablesaw, guiding the dividers with an extension on your miter gauge. Finish-sand the dividers.

8 Cut a 10¾" length of ¾" dowel for the handle (G). Insert it through the holes in the ends (A), centering it. Mark the outside faces of the ends around the handle. Remove the handle and drill a ¼" hole ½" deep just outside each mark [**Drawing 1**; **Shop Tip,** *above*]. Sand chamfers around the ends of the handle. Then, reinsert it, cut the handle pins (H) to size, and glue them into the holes in the handle.

9 After the glue dries, apply a finish. We used a satin-finish aerosol lacquer. If you made them, install the dividers (E, F) in the box. Leave them unglued so you can remove them if desired. Now use your tote for work or relaxation—or both.

SHOP TIP

Corral roly-poly dowels

Secure a dowel in a V-block and it will stay put while you drill. To make the V-block, use your tablesaw to cut intersecting 45° kerfs in a scrap of 2×4.

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Lorna Johnson**

Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
*A	ends	½"	6¾"	11¼"	P	2
B	sides	½"	4"	9¾"	P	2
C	bottom	¼"	6 3/16"	9 3/16"	P	1
D	finger pins	¼" diam.		1"	P	12
E	short dividers	¼"	3¼"	5¾"	P	2
F	long divider	¼"	3¼"	8¾"	P	1
G	handle	¾" diam.		10¾"	P	1
H	handle pins	¼" diam.		¾"	P	2

*Parts initially cut oversize. See the instructions.

Material key: P–pine.

Supplies: Spray adhesive, double-faced tape, ¼" hardboard.

Blade and bits: ¼", ¾" drill bits.

Source

¼" box-slotting bit, no. 16J83.14, $32.40; Large stainless steel canisters, no. 45K17.65, $4.20/ea., Lee Valley, 800-871-8158, leevalley.com.

Upsize for a toolbox

A longer tote allows you to carry most tools as well as a few more hardware canisters or refreshments. Simply increase the length of the sides (B), bottom (C), and handle (G) as indicated in **Drawing 1**. If you add dividers, make five short dividers (E) and lengthen the long divider (F). We built our toolbox out of quartersawn oak with walnut finger pins (D) and handle (G).

More Resources

- If your tastes run more to wine than beer, we've got you covered: woodmagazine.com/winegiftbox
- Nuts about rustic pine? Read our guide on showing off knots at woodmagazine.com/knots.

We appreciate innovation in woodworking tools and products, especially when it makes a meaningful difference across shops large and small, pro and hobbyist. Among the dozens of new products we considered for this award, these eight intrigue us the most.

2015 WOOD MAGAZINE INNOV8 AWARDS

8 Finger-saving tablesaw fence

Pushblocks and pushsticks work great at keeping hands away from a spinning tablesaw blade, but they can actually interfere when ripping narrow stock. The Deulen Safety Fence screws to your existing fence and lets you safely rip stock as narrow as ⅛". Here's how it works: As the tail of the workpiece reaches the edge of the table, you simply crank the handle to kick out the driver foot, which catches the end of your workpiece and feeds it through the blade. Two hold-downs and one hold-in (all included) keep the stock tight to the table and fence for precise rip cuts. You can replace the molded-nylon driver foot for a few bucks.

Deulen Safety Fence, $249 for 3' model; $199 for 2' model
Deulen Tools
360-573-0305, deulentools.com
Availability: late 2014

8 Are you ready for some computer-aided routing?

Next Wave Automation's Ready2Lift system—an electronically controlled router lift that fits into most common table openings—uses an LCD touch-screen controller, shown *right*, to set bit height accurate to within .001". The same controller also operates the manufacturer's computer-controlled Ready2Rout fence, letting you position and program settings for precise joinery that can be stored and recalled instantly. If you already own the Ready2Rout fence and controller, you can buy the lift alone and simply plug it in.

Ready2Lift, $399 for lift only; $599 with controller
Next Wave Automation
419-491-4520, nextwaveautomation.com

Auto-pulse power seats screws slowly

Black & Decker's 20-Volt Max Drill/Driver with Autosense Technology eliminates the need for a multiposition clutch. Instead, when driving screws, this cordless drill automatically detects when a screw is nearly seated in a workpiece, and transitions to a slow, pulsing mode so you can sneak up on the perfect driving depth. (This feature does not engage in drilling mode.)

20-Volt Max Drill/Driver with Autosense Technology, no. BDCDE120C, $80
Black & Decker
800-544-6986, blackanddecker.com

Recharge battery packs on the tool

Wireless charging, also known as inductive charging, has been around for years with small household tools and appliances, but never for serious power tools. Bosch's Power Ready Wireless Charging System works with proprietary battery packs that retrofit to existing 18-volt Bosch lithium-ion powered tools. With this system, you place a pack—even if still in the tool—onto the charging pad, and it tops off the charge automatically.

Power Ready Wireless Charging System,
various kits from $159 to $279
Bosch Tools
877-267-2499, boschtools.com

Half-blinds on a router table? You bet!

Until now, no dovetail jig could create one-pass half-blind dovetail joints on a router table—something we've been craving for years. Leigh's RTJ400 16" jig changes that with the capability of three sizes of half-blind joints. In addition, this jig makes nine sizes of through dovetails and four sizes of box joints. (Optional bits are required for some of these joints.) You'll need a guide-bushing insert (*below*) on your table or router lift to install Leigh's eccentric guide bushing, which adjusts to fine-tune the fit of each joint.

Router-table Dovetail Jig, no. RTJ400, $365
Leigh Industries
800-663-8932, leighjigs.com

Put an end to noncomforming dust-hose connections

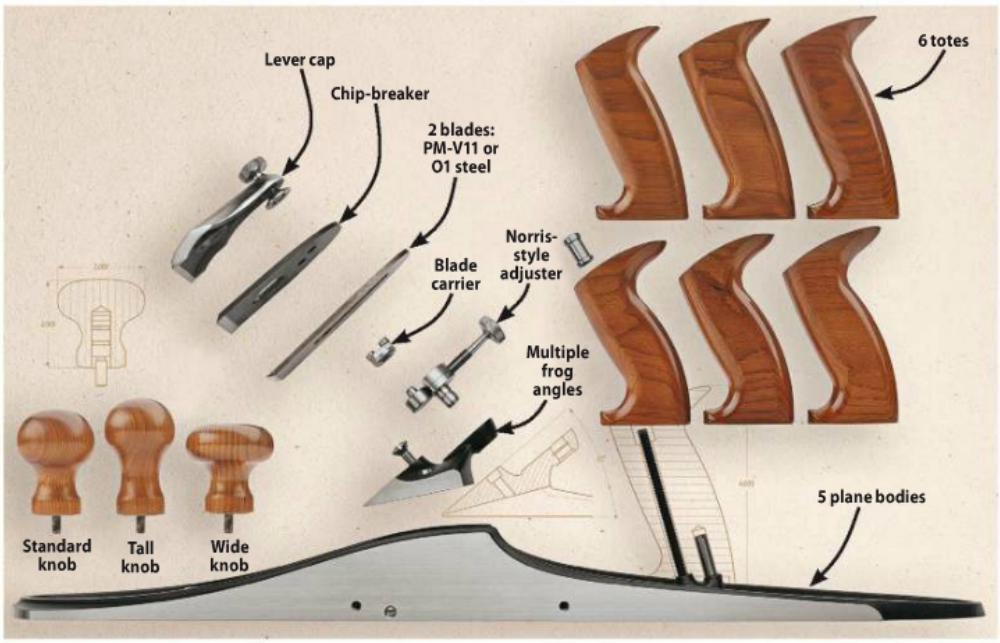
For years, we've asked toolmakers to standardize dust-port sizes on portable power tools. Currently, you have a slim chance of hooking up a tool to a shop-vacuum hose of a different brand without using an adapter (or duct tape). Rockler's new swiveling rubber dust-port nozzles come in three sizes—1", 1½", and 2¼"—and flex to fit on almost any tool. They thread into the included flexible dust hose, which has a standard 2¼" opening that fits most shop vacuums and dust extractors and stretches up to 15'.

Dust Right Universal Small-Port Hose Kit, $30
Rockler Woodworking and Hardware
800-279-4441, rockler.com
Availability: spring 2015

Custom-build your own hand plane

Ever wish your bench plane had just one or two things tweaked on it to make it a better performer? Now you can do just that. When you order one of Lee Valley's Veritas Custom Bench Planes, you select each component and have the plane shipped to you fully assembled. Choose from five body styles (4 and 4½ smoothers, 5 and 5½ jacks, and a 7 jointer); two blade types (O1 and the harder PM-V11 steel); four blade-holding frogs (45°, 50°, and 55°, or a custom angle); three front knobs; and six rear totes.

Veritas Custom Bench Planes, $279–$399
Lee Valley
800-871-8158, leevalley.com



Motion-activated, rechargeable LEDs shine brightly

Tired of looking into a dark cabinet or drawer and not seeing what you want? Add a Häfele Loox LED light for instant visibility. These small motion-activated lights come in round, rectangular, and tubular shapes and shut off after 30 seconds of inactivity. You can recharge the built-in lithium-ion battery via a USB cable connected to any device with a matching port. Häfele says each charge nets about 10 hours of "shine" time.

Loox LED Rechargeable Lights, nos. 9003 (round), 9004 (rectangle), and 9005 (tube), $48 each
Häfele
800-423-3531, hafele.com/us

2014 WOOD® INDEX Issues 223 thru 229

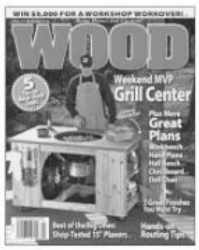
For quick tips on using this index, see page 40.

223

224

225

226



227

228

229

PROJECTS


Arts and Crafts bookcase, 228:26–33


Heirloom workbench, 227:38–44


Construction-grade mobile crane, 229:52–58

continued on page 38

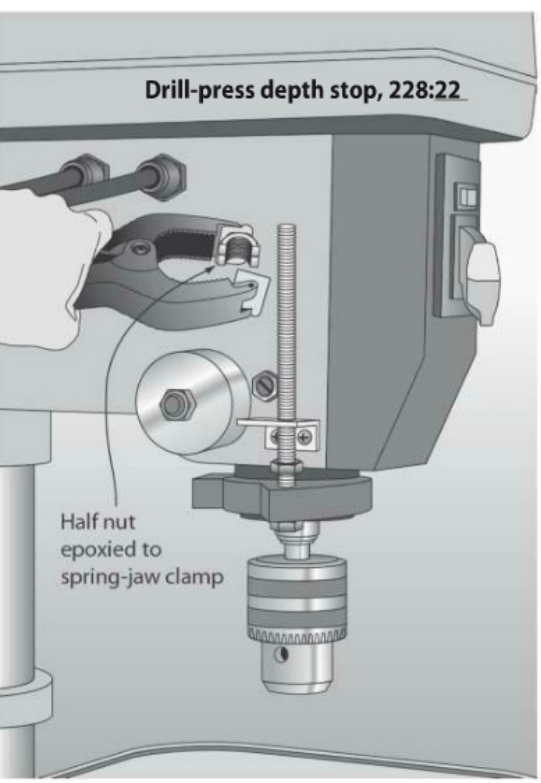
TOOLS AND MATERIALS

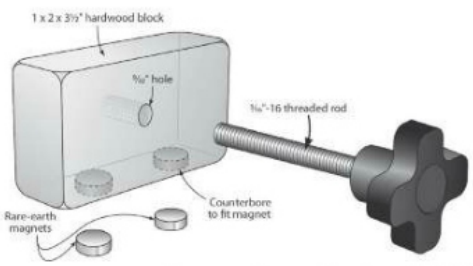
TECHNIQUES AND FEATURES

Angled tenons, 224:48

SHOP TIPS

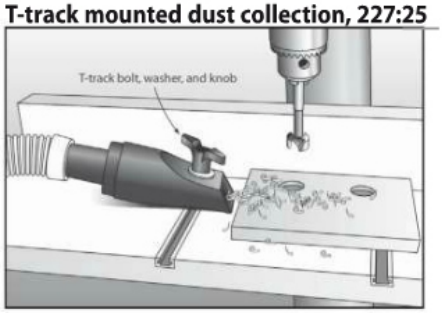
Drill-press depth stop, 228:22

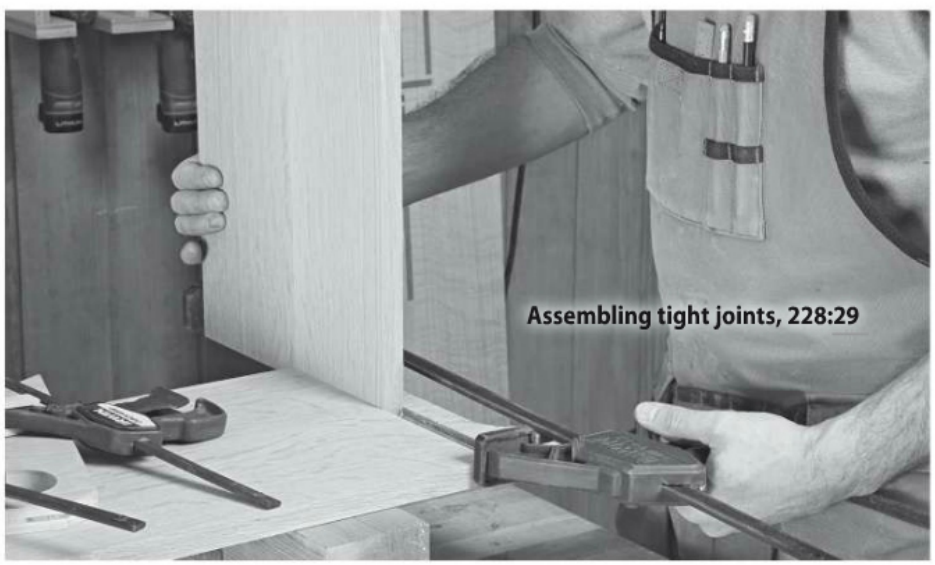




Fence micro-adjuster, 226:23

T-track mounted dust collection, 227:25





Assembling tight joints, 228:29

HOW TO USE THIS INDEX

This annual index includes every article and Shop Tip that appeared in *WOOD*® magazine from the December/January 2013/2014 issue through the November 2014 issue. To quickly find the article you're looking for, first identify the major index category most likely to contain the article:

- Projects (plans with step-by-step instructions)
- Tools and Materials (product reviews and guidance on using tools, accessories, hardware, and wood products)
- Techniques and Features (specific skills and articles of general interest, such as safety tips)
- Shop Tips/Skill Builders (quick ideas you can put to use in your shop today)

Then look for the one word that best describes the project, technique, tool, or shop tip. Articles with two strong descriptors, such as a mission table, may be found under both descriptors—"mission" and "table."

Three steps to find any article, from issue 1 to present, using the online index

1 You also can quickly search the comprehensive online index of all *WOOD* magazine articles at **woodmagazine.com/index**.

2 In the Keyword Search box, type the *one word* that best describes the article subject, avoiding plurals. For example, to locate a tablesaw review, type "*tablesaw*," (or simply "*table*") but not "*review*." Click on the button marked **Search**. If you want to narrow the search to tablesaw jigs, type "*tablesaw*" in the box, then click on the button next to the words: **Jigs, fixtures, & organizers** under Category Search. Next, scroll down and click on **Search** under Keyword and Category Search.

Keyword Search 'tablesaw'

137 articles from WOOD magazine matched the search criteria you entered.

Article	Month	Year	Issue No.	Page
Supersize Job-site Tablesaw Crosscut Sled	Oct	2014	228	34
Downloadable plan is available at the WOOD Store				
Shop Tested 10" Tablesaws	May	2014	225	44
Craftsman - General International - Grizzly - Jet - Steel City -				
Small-parts Tablesaw Sled	Nov	2013	222	30
Downloadable plan is available at the WOOD Store and in the Complete WOOD Magazine Collection on USB Thumb Drive				

3 The Web page now displays a list of articles related to your search term, including the cover date of the issue, issue number, and the page number. If you don't have the issue, most articles published in *WOOD* magazine can be downloaded for a minimal cost. This list indicates downloadable articles with the blue words **WOOD Store**, which, when clicked on, give you more details about buying the article. Otherwise, some back issues are available for $7.95 (plus S&H) by calling 888-636-4478.

Classy & Curvaceous Dining-Room Table

A contemporary piece with stunning lines, this solid cherry table is as functional as it is beautiful. Build it to accompany the hutch featured in issue 229 (November 2014). Chairs for this table will be featured in the next issue of *WOOD*® (March 2015).

Materials cost: $225 (@ $6/bd. ft.)
Overall dimensions: 39" W × 72" D × 30" H

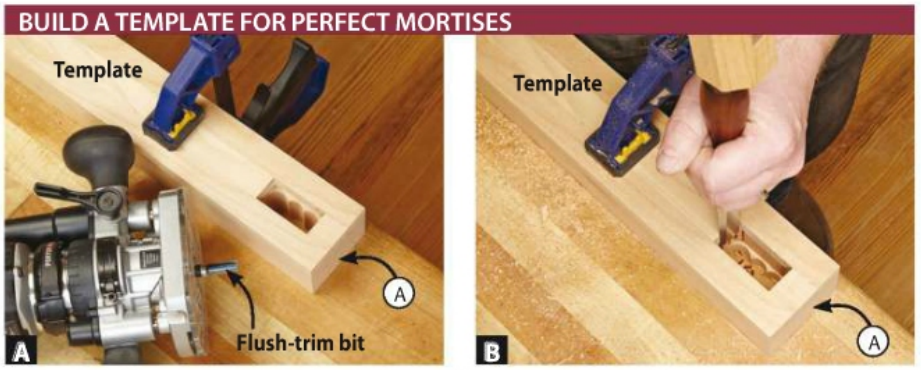
First, a great pair of legs

1 From 1½" stock, cut the four legs (A) to size [**Materials List**], leaving the ends square. Lay out through-mortises where shown [**Drawing 1**] and drill out most of the waste with a ⅞" Forstner bit, drilling to partial depth from both sides to prevent tear-out. Clean up the mortises as shown in **Photos A** and **B**.

2 From 1½" stock, laminate and cut the uppers (B) and feet (C) to size. Cut tenons on the ends of the uppers [**Drawing 2**] and feet [**Drawing 3**] to fit the leg mortises [**Photo C**]. Install a rip blade, tilt it to 15°, and bevel-rip the top edge of the uppers and the bottom edge of the feet [**Photo D**]. ***Note:*** *Because the uppers and feet are different widths, you'll have to move the rip fence when cutting the second set of parts.*

3 Mark and bandsaw the tapers on the bottom of the uppers (B) and on the top of the feet (C) [**Drawings 2, 3,** and **Photo E**]. Miter the ends of the legs (A) to match the bevels of the feet and uppers [**Drawing 1**]. Glue an upper and foot to

BUILD A TEMPLATE FOR PERFECT MORTISES



To ensure identical mortises, build a template to match the size of both mortises by edge-gluing three strips of 1"-wide material. Use a router with a pattern flush-trim bit to clean up the edges (above left). Square the corners using a chisel (above right); then, flip the leg and repeat to complete the mortise.

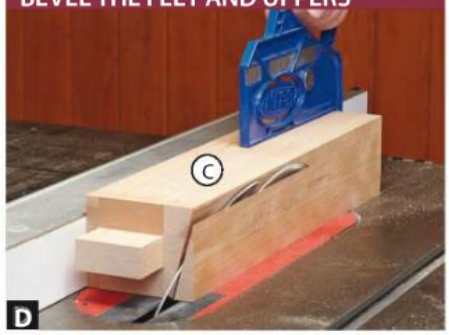
each leg [**Drawing 4, Photo F**]. Check for square at the exterior corners by the leg and foot, and the leg and uppers.

Quick Tip! ***Before the glue dries on the leg assemblies, check them to ensure they mirror each other perfectly.***

CUT THE TENONS

After marking the tenon length on your workpiece, install a full-width dado stack in your tablesaw to quickly and cleanly cut the tenons.

BEVEL THE FEET AND UPPERS



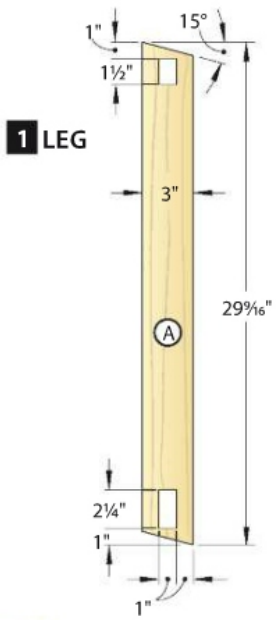
To get mirrored sets of feet (C) and uppers (B), cut two of each with the tenon facing away from you, followed by two of each facing you.

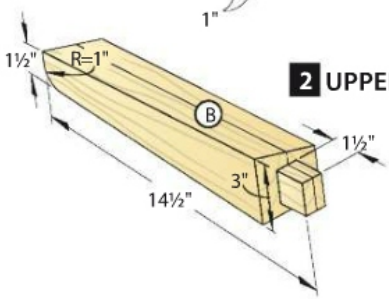
BANDSAW THE TAPERS

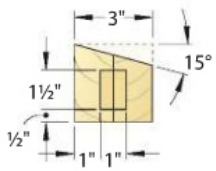
Bandsaw from the top edge of the feet (C) to 1⅞" on the narrow end. Then, bandsaw the uppers (B), starting from the bottom edge, tapering to 1½".

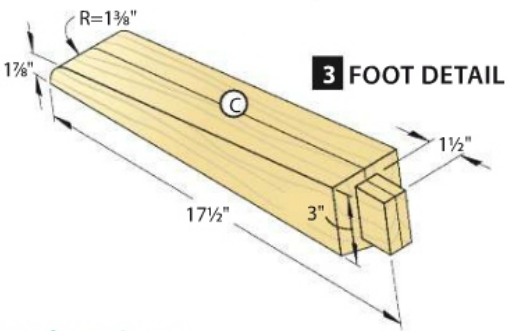
AVOID SQUEEZE-OUT

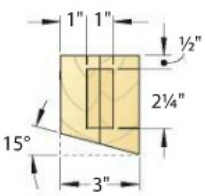
When gluing the feet (C) and uppers (B) into the legs (A), apply only a thin layer of glue on the mating parts to minimize squeeze-out.

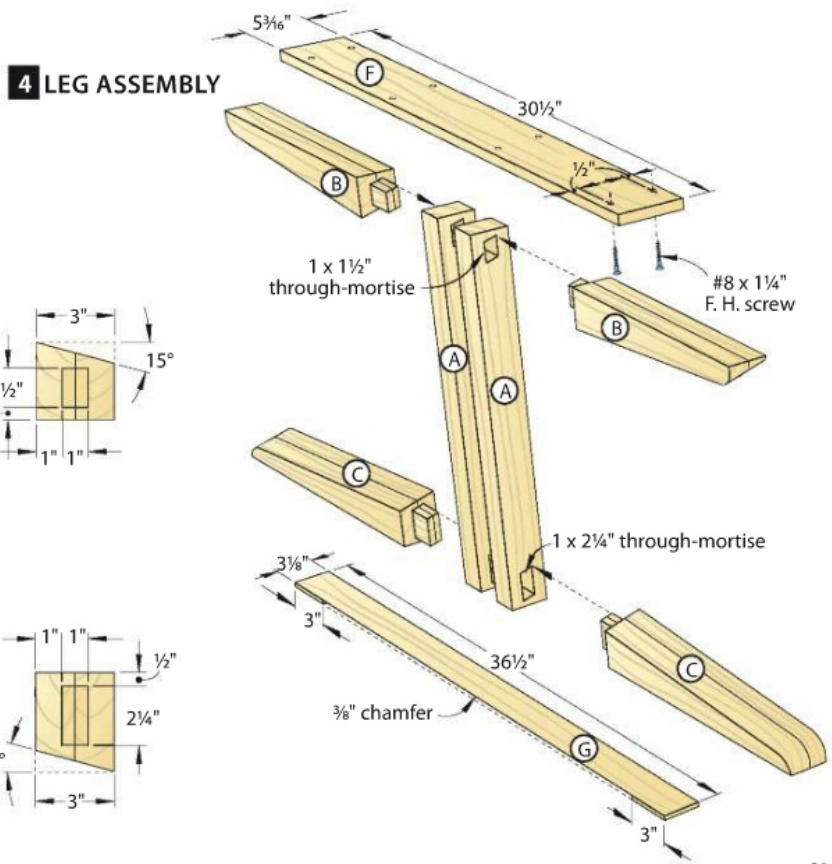












By dry-assembling the base, you can scribe the stretchers (D, E) along the legs (A) to perfectly match the angle.

With only a piece of a string and a long, thin cutoff, you can make a fairing stick like the one shown to make perfect, repeatable arches [**More Resources**].

Then, a bewitching base

1 Rip the upper stretcher (D) and lower stretcher (E) to width, but 1" longer than listed [**Drawing 5**]. Dry-assemble the base by clamping the stretchers between the leg assemblies [**Photo G**]. Mark the stretchers and cut them to final length.

2 Lay out the arches on the stretchers (D, E) [**Drawing 5, Photo H**], bandsaw along the lines, and sand them smooth. Assemble the base (A–E) [**Photo I, Drawing 6**].

3 Cut the upper braces (F) to size. Drill countersunk pilot holes for screws on the bottom faces and glue the braces to the top faces of the uppers (B), centered on their width [**Drawing 4**].

Quick Tip! *To allow the tabletop to expand with changes in humidity, slightly elongate the pilot holes on the ends of the upper braces.*

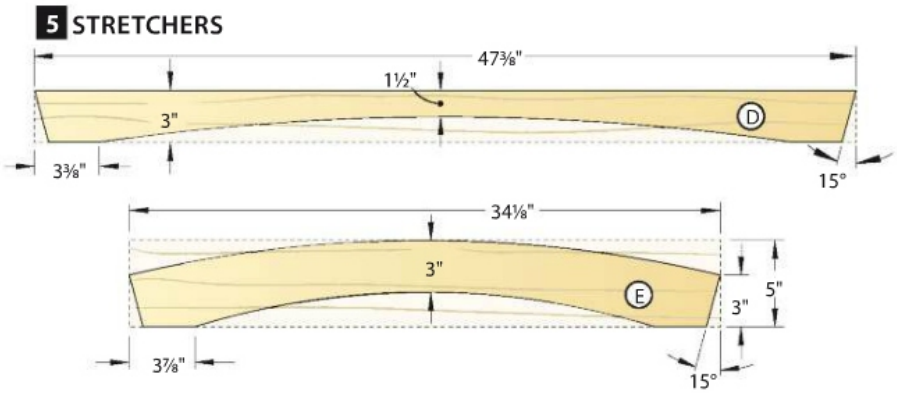
4 Cut the foot braces (G) to length, but ½" wider than listed. Glue them to the feet (C) where shown [**Drawing 6, Photo J**]. Rout a ⅜" chamfer along the length of both edges of the foot braces, leaving 3" of material untouched at each end [**Drawing 4, Photo K**]. After routing the chamfers, plane the remaining edges flush with the feet using a block plane or sand them flush.

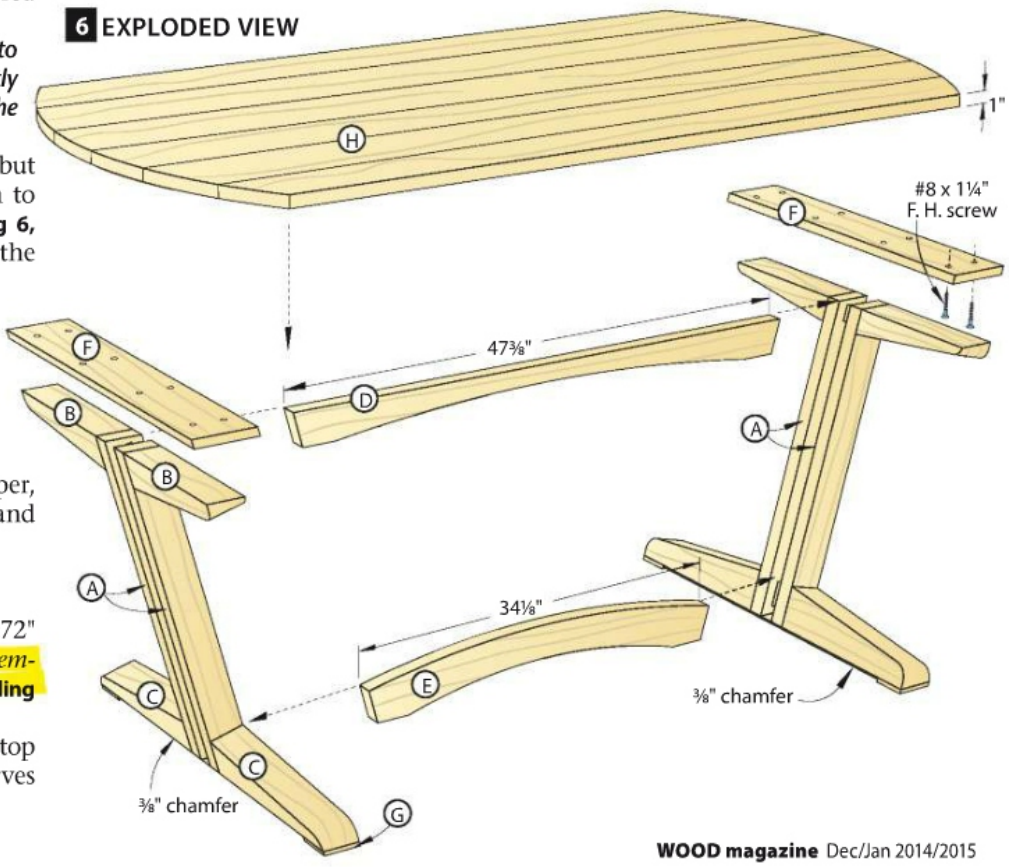
5 Using a rasp, file, and sandpaper, radius the ends of the uppers (B) and feet (C) [**Drawings 2** and **3**].

Try a trim-looking top

1 From 1"-thick stock, glue up a 39×72" top (H). ***Note:*** *For guidance on assembling a perfect tabletop, see* **Keys to Building Forever-flat Tabletops** *on page 22.*

2 Cut a radius on each end of the top (H) [**Drawing 7**]. Sand the curves smooth and break the edges.

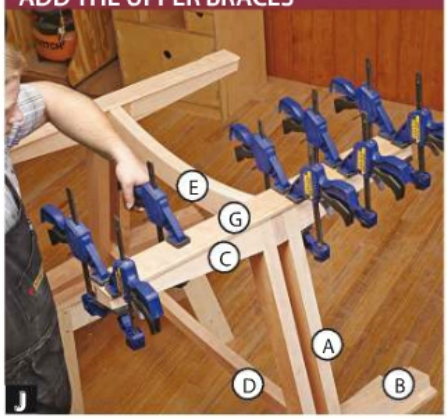




ONE LEG AT A TIME

Glue the base together one leg assembly (A/B/C) at a time, clamping the feet (C) to a flat board on the benchtop for a straight, no-tip glue-up.

ADD THE UPPER BRACES



When gluing pieces face-to-face as in the case of the foot braces (G) on the feet (C), use as many clamps as possible to ensure good adhesion.

TAPE BEFORE YOU CHAMFER

Apply three layers of painter's tape to the face of the feet (C) to prevent the router bit bearing from scarring the workpiece.

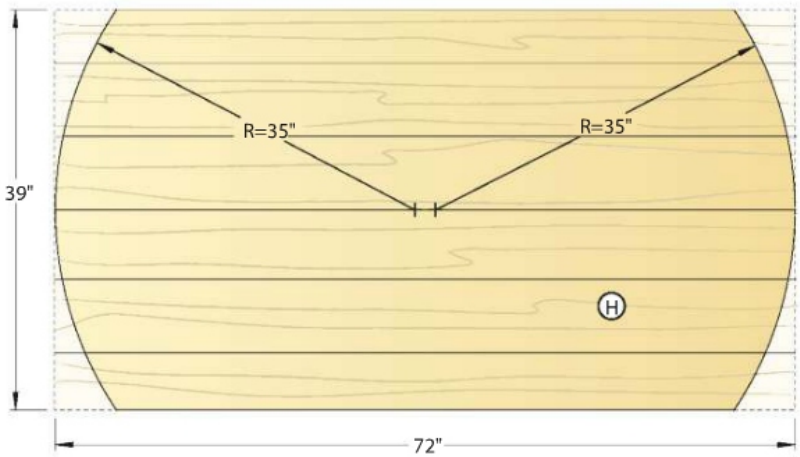
Finally, apply a fetching finish

1 After sanding all parts to 220 grit and clearing any dust with a clean rag, wipe on a coat of boiled linseed oil. After the oil cures, spray on three coats of satin lacquer, sanding between coats with 800-grit sandpaper. To achieve a hard and water-resistant finish, we used MagnaMax Pre-Catalyzed Lacquer (mlcampbell.com).

2 After the finish dries, screw the top (H) to the base assembly (A–G). Then, slide your old dining-room table to the end of the driveway with a "free" sign on it.

Produced by **Nate Granzow** with **John Olson**
Project design: **John Olson**
Illustrations: **Roxanne LeMoine; Lorna Johnson**

7 TOP

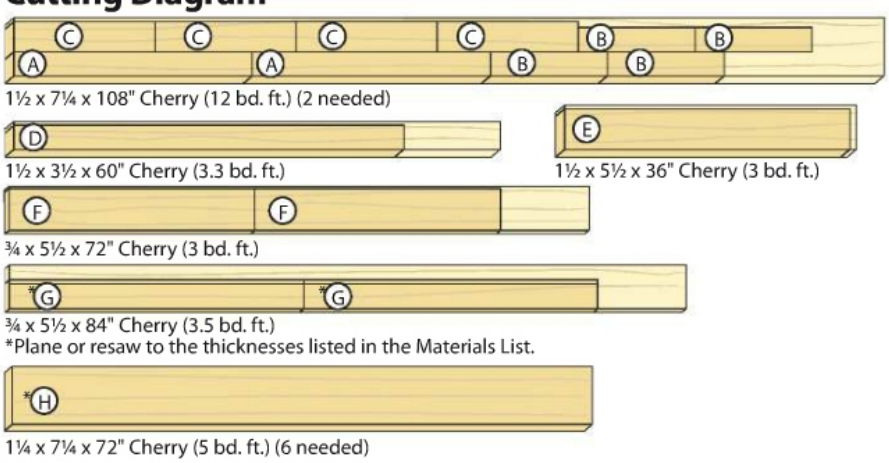


Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A	legs	1½"	3"	29⁹⁄₁₆"	C	4
B	uppers	3"	3"	14½"	C	4
C	feet	3"	3¾"	17½"	C	4
D*	upper stretcher	1½"	3"	47⅜"	C	1
E*	lower stretcher	1½"	5"	34⅛"	C	1
F	upper braces	¾"	5³⁄₁₆"	30½"	C	2
G*	foot braces	⅜"	3⅛"	36½"	C	2
H	top	1"	39"	72"	C	1

*Parts initially cut oversize. See the instructions.
Material key: C–cherry.
Supplies: #8×1¼" flathead screws (16).
Blade and bits: Dado set; ³⁄₃₂" brad-point bit, ⅞" Forstner bit; 45° chamfer bit, pattern flush-trim bit.

Cutting Diagram



1½ x 7¼ x 108" Cherry (12 bd. ft.) (2 needed)
1½ x 3½ x 60" Cherry (3.3 bd. ft.)
1½ x 5½ x 36" Cherry (3 bd. ft.)
¾ x 5½ x 72" Cherry (3 bd. ft.)
¾ x 5½ x 84" Cherry (3.5 bd. ft.)
*Plane or resaw to the thicknesses listed in the Materials List.
1¼ x 7¼ x 72" Cherry (5 bd. ft.) (6 needed)

More Resources

▶ To lay out smooth arcs like those on this table's stretchers, try a fairing stick: woodmagazine.com/fairing

Finishing Reclaimed Lumber

A mix of dye and stain techniques matches fresh-cut edges to the face-grain patina of salvaged wood.

Building a project from reclaimed lumber creates a piece with instant character, not to mention the green benefits of salvaging some wonderful material. But freshly cut edges and ends lack that time-worn patina and stick out like a sore thumb. With a little trial and error, plus a mix of finishing techniques, you can have your reclaimed-lumber projects looking good as old.

To demonstrate, we built the chairside chest from issue 229 (November 2014) using pine shelving rescued from a shut-down, century-old shoe store.

UNCOVER HIDDEN TREASURE

Despite obvious defects and the risk of an occasional nail, reclaimed lumber offers both tight grain and widths not easily found in new lumber.

When building with reclaimed lumber, start with plenty of extra material, as you may need to work around large defects in the boards as you build. Test-matching finishes also requires plenty of scrap stock. In fact, it's best to test finishes *before* you build so that, if necessary, you can stain fresh-cut ends and edges as you go to avoid getting stain on adjacent patina surfaces later on.

To further protect the patina, spray on the topcoats—brush strokes could dislodge embedded dirt or lift the existing finish and cause streaks to appear.

BEFORE

Here's the chest with the fresh-cut edges and ends. Note how the drawer fronts appear darker than the sides—reclaimed stock can vary greatly.

AFTER

Dye and stain helped blend the fresh-cut edges. Topcoats of shellac darkened the pine, and evened out the contrast between the drawers and sides.

Plan on trial and error

Even with a clear shellac or lacquer topcoat, expect the stock to darken considerably once finish is applied. (See the before and after photos of our chest on the *previous page*.) So prepare at least half a dozen sample sticks. You can try a different stain on each edge; just be sure to label them.

Quick Tip! ***Some manufacturers sell stains in small packets*** **(above)** ***for less than 50 cents each. These make it economical to try several colors without investing in pints of stain you may not use up.***

Initially, we used an antique knotty-pine aniline dye (see **Sources** and **More Resources**, *page 49*) and it appeared to match fairly closely, *below*. But once we sprayed on lacquer, the face of our test piece was much darker than the freshly cut edge, *below right*.

Find finish at the source

Another technique worth trying is to create a finish from the original stock. Consider this option if you're building a small project with minimal fresh edges to blend in because it requires pulling up the patina and finish from several "donor boards" (cutoffs from your reclaimed lumber).

Start by thinning an oil-based natural-tint base stain 50/50 with mineral spirits. Apply a liberal amount of the mix to the face of a donor board and use 220-grit sandpaper to create a slurry of old finish. Then use the sandpaper to transfer the slurry to the edge of the board. It may take a couple of coats to get the color to match.

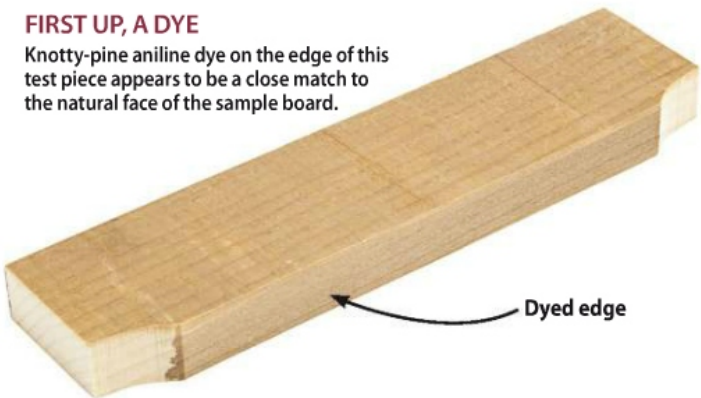
SAND UP A SLURRY

Apply some thinned oil-base natural-tint stain and loosen up the old finish by sanding in a circular motion. Add more stain and keep sanding until you've created a rich slurry that you can apply to the raw edges with the same piece of sandpaper.

So on a fresh sample stick, we applied a driftwood oil stain for a grayish base coat, then tried several brown stains on top of that base. Again, it looked close *(bottom)* until we sprayed on the lacquer. We finally settled on a mix of the two techniques, starting with the knotty-pine dye to create a gray-toned base.

FIRST UP, A DYE

Knotty-pine aniline dye on the edge of this test piece appears to be a close match to the natural face of the sample board.



A TOPCOAT CHANGES THINGS

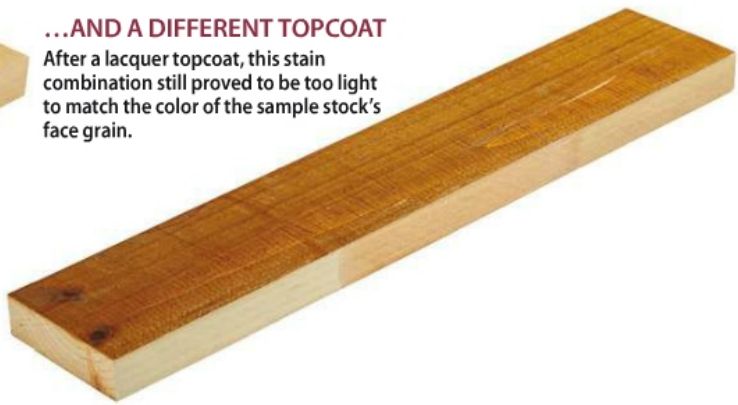
Spraying on a lacquer topcoat, however, turned the face of our sample much darker and warmer than the dyed edge.

SO, LET'S TRY A STAIN...

To darken and warm up the fresh-cut edge, we applied a gray-tone oil-stain, followed with a brown-tone stain (Puritan Pine shown).

...AND A DIFFERENT TOPCOAT

After a lacquer topcoat, this stain combination still proved to be too light to match the color of the sample stock's face grain.

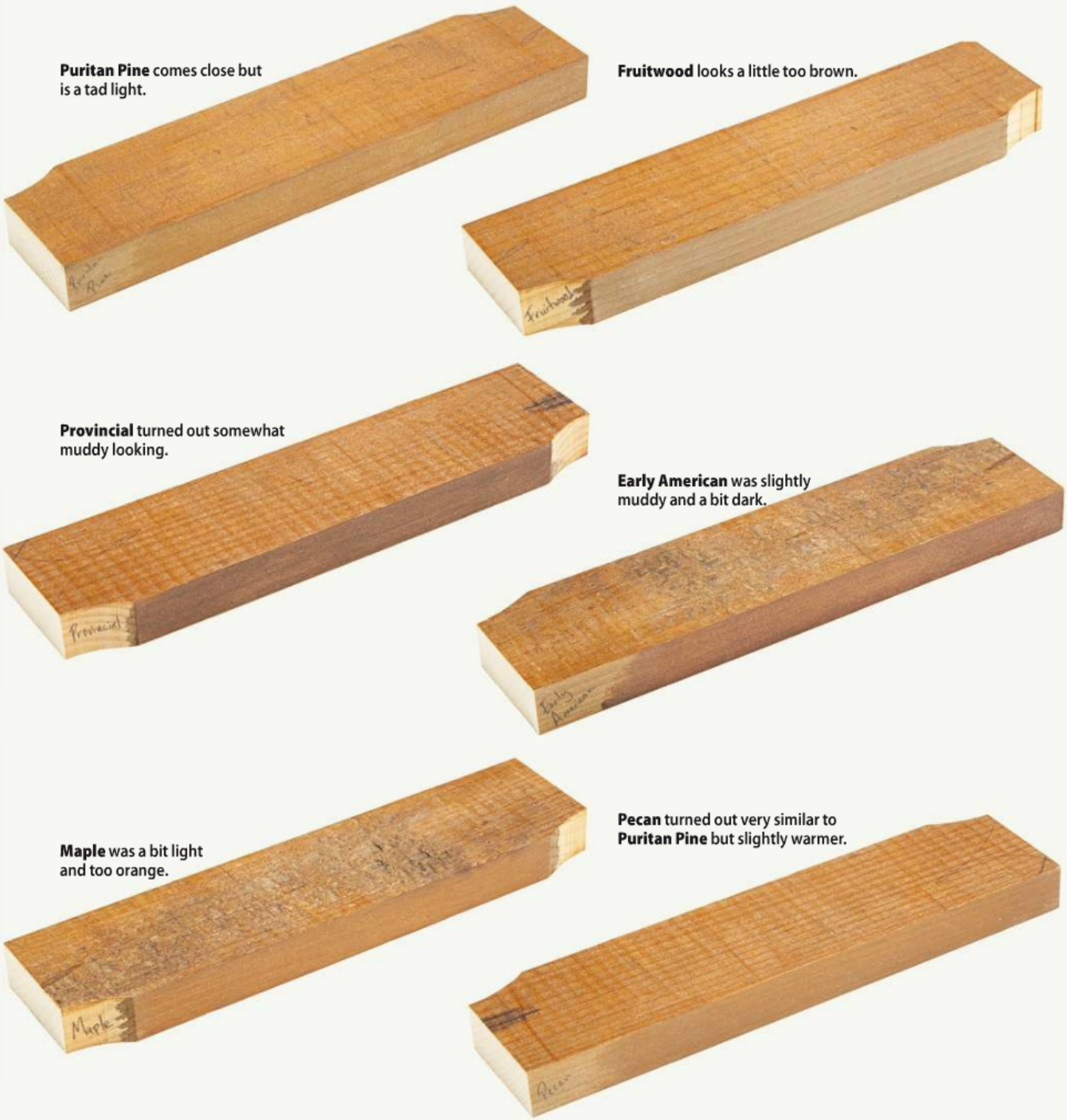


Over this, we tried different brown oil stains from Old Masters. (See **Gallery of Stains**, *below*.) We also switched to spraying a blonde shellac topcoat, which gave a warmer look than clear lacquer.

If the proper color appears to fall somewhere in between two samples, try mixing the stains together. For our boards, both Puritan Pine and Pecan were close matches. We ultimately settled on a 50/50 blend of the two.

Because the faces of reclaimed boards will likely vary some in color, creating a uniform color match can be tricky. To help even out these variations, we switched the topcoat again, from a clear blonde shellac to garnet shellac. The added orange color provided the even, warm tone we were looking for. With the trial and error complete, the actual finishing can begin.

GALLERY OF STAINS



PERFECT BLEND

A mix of Puritan Pine and Pecan stains applied over a base coat of knotty-pine dye, with a sprayed-on garnet shellac topcoat, gave us just the right combination of brown and warmth to match the face grain.

Keep it off the face

To preserve the stock's face-grain patina, take care to apply the dye and stain only on the freshly cut edges and ends. Don't try masking off the edges; the tape will damage the face patina on the boards *(below left)*.

We applied both the dye and stain with a foam brush *(below right)* to avoid stray bristle marks a regular brush may leave on the face of the stock. To prevent drips and runs, avoid overloading the brush, apply light coats, and hold edges horizontally. Recoat as necessary to get uniform color and coverage.

DON'T TRY THIS AT HOME

Masking tape will lift old finish from the face grain. You're better off carefully applying stain to fresh-cut edges/ends with a brush and a steady hand.

APPLY THE DYE, THEN THE STAIN

Aniline dye, mixed with water, goes on first (opening photo, page 46). Once the dye has dried, apply the chosen stain (above) and wipe off the excess.

Sources

Knotty Pine, Gray Antique aniline dye: no. 462, W.D. Lockwood, $6.72 for 1 oz dry powder (makes 1 quart of dye), wdlockwood.com, 866-293-8913.
Oil-base wiping stains: Old Masters, myoldmasters.com/store-locations.htm, 800-747-3436.

Produced by **Kerry Gibson** with **John Olson**

More Resources

Learn more with these free online articles:
- New to aniline dyes? Find out how simple it is to mix and use them at woodmagazine.com/aniline.
- Take the mystery out of determining which blend of stains yields which color: woodmagazine.com/matchstain.
- Discover how to finish projects with shellac by downloading an article at woodmagazine.com/shellac.

Tournament-grade Cribbage Board

Few games have the historical provenance of cribbage. Invented nearly 400 years ago, its compact size made it a favorite means for seafarers to pass the time, a tradition that continued inside the cramped spaces of WWII submarines and has now become a fixture inside the confines of my similarly cramped family sedan. Although there have been many variations in the board's design over the centuries, this one follows a simple, traditional pattern, using cherry with quilted maple accents. It's comely enough to make a fine keepsake box, too, for those who don't play the game. Just skip drilling the holes.

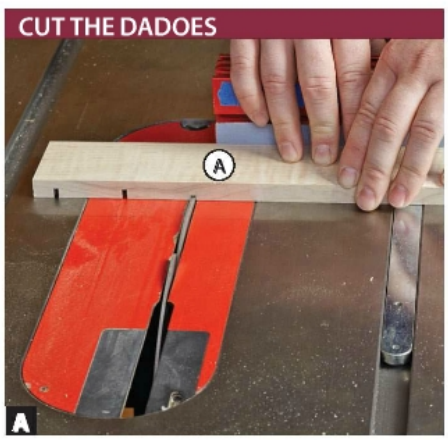
Nate

Nate Granzow
General-Interest Editor

Begin with the board

1 Cut a ½×2½×11⅞" maple blank that will be used for both fields (A) [**Materials List**]. Mark the locations of the dadoes on the best face and both edges of the blank [**Drawing 1**]. Crosscut ⅛" dadoes ¼" deep on the marked lines [**Photo A**].

2 Rip ⅛"-thick strips for the hashes (B) [**Photo B**], and then rip those strips to 5/16" wide. (This extra width leaves the hashes proud of the field [A] dadoes—making them easier to clamp in place and plane down flush with the fields.) Fine-tune the thickness of the thin strips for a snug fit in the dadoes



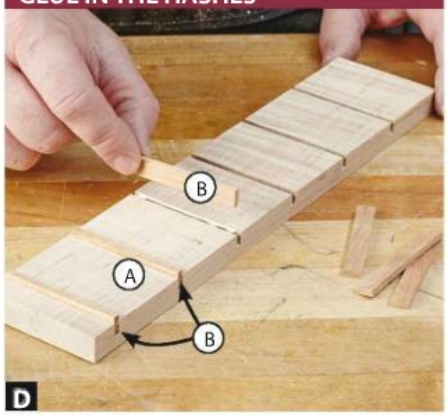
Although a standard combination blade won't leave perfectly flat-bottomed kerfs, it's okay—the edges of the fields (A) will be covered by trim.

To safely guide the stock through the blade, use a sacrificial pushblock. A zero-clearance insert prevents the thin stock from becoming trapped.

USE THIS SMALL-PARTS PLANING STOP

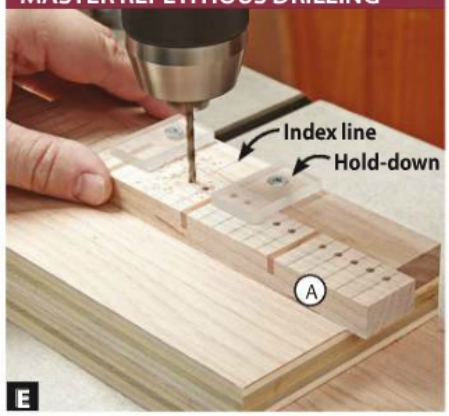
To dial in the exact thickness needed for the hashes (B) to fit snugly in the field (A) dadoes, use a simple planing stop clamped to your benchtop.

GLUE IN THE HASHES



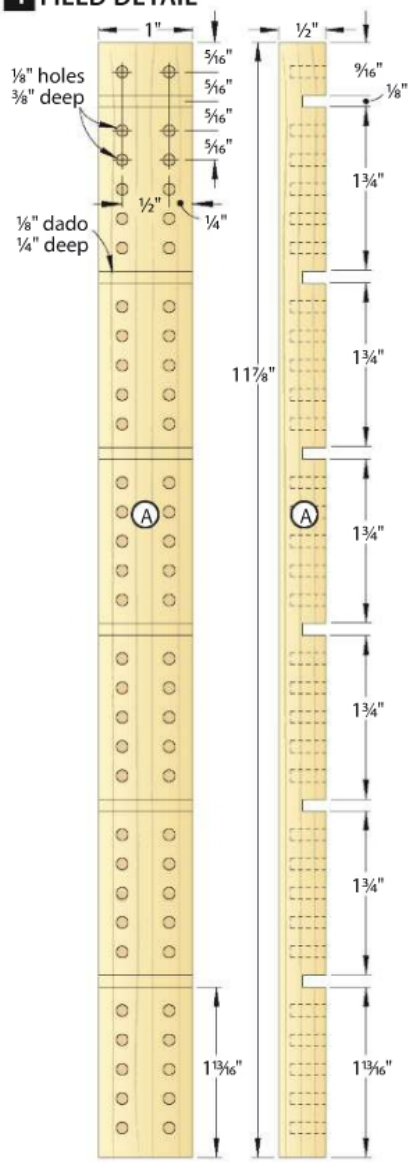
Apply a thin bead of glue to the upper edge of each of the field (A) dadoes before inserting the hashes (B). Wipe off any squeeze-out with a damp rag.

MASTER REPETITIOUS DRILLING



Save time by marking an index line on the fence in line with the bit. Then, align the marks on the field with the index line before drilling each hole.

1 FIELD DETAIL



[**Photo C**]. Crosscut the strips to 2⁷⁄₁₆" long using a backsaw.

3 Glue the hashes (B) into the fields' (A) dadoes [**Photo D**].

***Quick Tip!** To firmly seat the hashes, clamp a caul across their tops.*

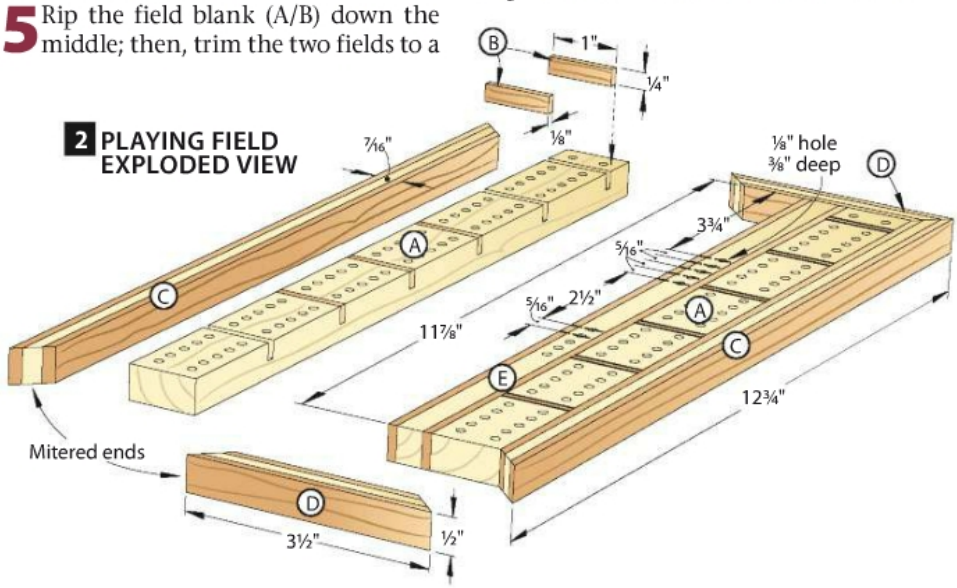
4 Using a hand plane or sanding block, make the hashes flush with the top face of the fields (A). Next, use a try square to help lay out lines across the top face of the fields every 5⁄16" for hole locations [**Drawing 1**].

5 Rip the field blank (A/B) down the middle; then, trim the two fields to a finished width of 1" [**Drawing 1**]. After building a scrapwood platform with a fence and hold-downs (it's worth the extra time, as you'll be drilling 134 holes), drill ⅛" holes ⅜" deep in the fields where marked [**Photo E**].

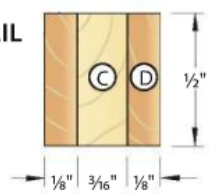
Wrap the top

1 From ¾" stock 18" long, rip the six cherry and three maple strips for the long edges (C), short edges (D), and score strip (E) [**Drawings 2a** and **2b**]. Laminate

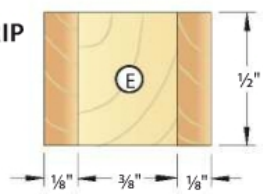
2 PLAYING FIELD EXPLODED VIEW



2a EDGE DETAIL



2b SCORE STRIP DETAIL



SHOP TIP

Glue 'em together, stack 'em up

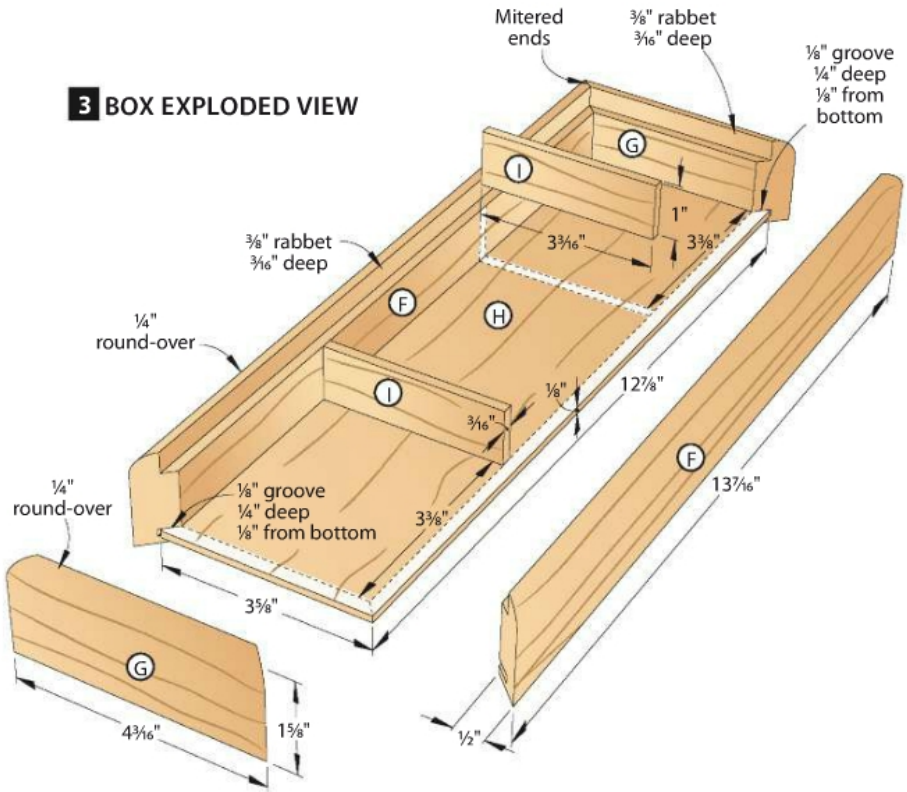
After gluing a cherry strip to each face of a maple strip, simplify your clamp-up by stacking the laminations. Use plywood cauls to distribute clamping pressure. Do not glue the laminations to each other.

The oversize stock used for the edge (C, D) strips and score strip (E) leaves spare material to square the edges if the laminations weren't perfect.

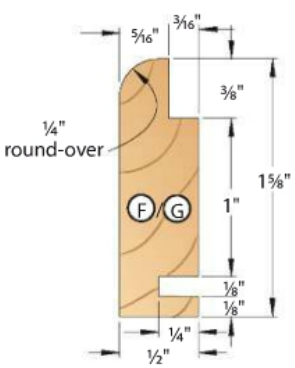
the strips, sandwiching a maple strip between two cherry strips [**Shop Tip,** *left*]. When the glue dries, rip the laminations to final thickness [**Photo F**].

2 Cut the score strip (E) to final length and drill holes for the scoring pegs [**Drawing 2, Source**]. Glue and clamp the score strip between the fields (A/B), keeping the ends and faces flush. Miter the edge strips (C, D) to fit around the field assembly (A/B/E). Glue and clamp them in place. When the glue has dried, sand the top (A–E) to 220 grit.

3 BOX EXPLODED VIEW



3a SIDE DETAIL



ASSEMBLE THE BOX

For a box with tight miters, first lay the sides (F) and ends (G) end to end. Apply painter's tape across the miters. Spread glue on the miters and wrap the sides around the bottom (H). Finally, use a strap clamp to pull the assembly tightly together.

Last, build the box

1 Cut the box sides (F) and ends (G) to width, but 1" longer than listed [**Drawing 3**]. Label the outside faces of the ends and sides, and then cut a ⅛" groove on the inside face of each piece to accept the bottom (H) [**Drawing 3a**]. Mill a ⅜" rabbet 3/16" deep on the inside faces of the sides and ends, opposite the ⅛" groove, using a dado blade or rabbeting router bit. Miter the box sides (F) and ends (G) to length so the top (A–E) fits into the rabbets with a 1/32" reveal.

Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A*	fields	½"	1"	11⅞"	QM	2
B*	hashes	⅛"	¼"	1"	C	12
C*	long edges	½"	7/16"	12¾"	C/M	2
D*	short edges	½"	7/16"	3½"	C/M	2
E*	score strip	½"	⅝"	11⅞"	C/M	1
F*	box sides	½"	1⅝"	13 7/16"	C	2
G*	box ends	½"	1⅝"	4 3/16"	C	2
H	bottom	⅛"	3⅝"	12⅞"	C	1
I	dividers	3/16"	1"	3 3/16"	C	2

*Parts initially cut oversize. See the instructions.
Materials key: QM–quilted maple, C–cherry, C/M–cherry and quilted maple lamination.
Supplies: Painter's tape.
Blade and bits: Dado set or rabbeting router bit; ⅛" brad-point drill bit; ¼" round-over router bit.

Source

Cribbage pins: Four brass and four chrome, item no. RS-01050, $8.95 plus shipping, WOOD Store, 888-636-4478, woodmagazine.com/cribbage

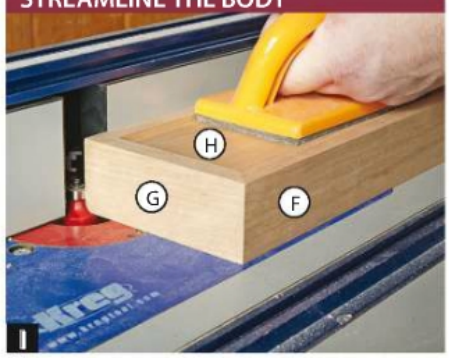
2 Plane material to ⅛" thick for use as the box bottom (H) and 3/16" thick for the dividers (I). Cut the bottom to size and dry-assemble the box (F/G/H). When you're satisfied with the fit, glue the box together [**Photos G** and **H**].

3 With the box (F/G/H) assembled, round over its top edges [**Photo I**]. Cut the dividers (I) to size and glue them in place.

Quick Tip! ***Dry-fit the dividers in the box, then mask the area on either side of them with painter's tape to protect against squeeze-out and to keep the dividers upright while the glue dries.***

4 Sand all parts to 220 grit and wipe clean with a rag. Using a semigloss spray lacquer, apply three even coats to all surfaces, sanding between coats with 800-grit sandpaper.

STREAMLINE THE BODY



Use a ¼" round-over bit in your router table to ease the box's (F/G/H) edges. Watch your speed: A slow feed rate will result in burn marks.

Produced by **Nate Granzow** with **John Olson**
Project design: **John Olson**
Illustrations: **Lorna Johnson**

More Resources

▶ Learn to drill without damage by choosing the right bit: woodmagazine.com/nodamagedrilling

▶ Watch a video about thin-strip ripping strategies at: woodmagazine.com/thinstrips

Darling Doll Changing Table

Overall dimensions:
27½" W × 22½" H × 13" D

This piece, built to complement the bed featured in issue 223 (Dec/Jan 2013/2014) and the chair in issue 227 (September 2014), gives you a matching set of furniture sure to delight that special aspiring mommy-to-be.

Build the carcase

1 From 1¼"-thick stock (laminate thinner stock if needed), cut the legs (A) to size [**Materials List**]. Rout ⅛" chamfers around the bottom ends [**Drawing 1**]. Finish-sand the legs to 150 grit.

2 Cut the sides (B) to size, finish-sand the faces, and glue each side between two legs (A) with the inside faces flush [**Drawing 1**]. After the glue dries, drill six shelf-pin holes in the right side assembly only [**Drawing 2**].

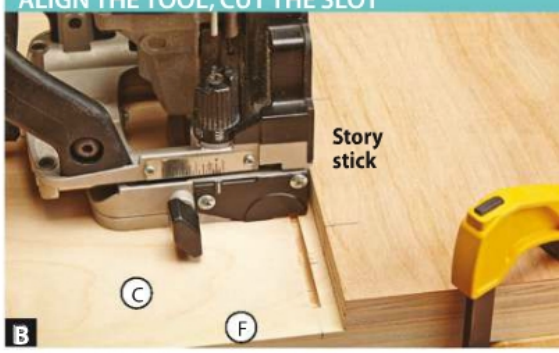
3 Cut the subtop and bottom (C), divider (D), and fixed shelves (E) to size, along with a spacer the same size as the divider. Set the spacer aside for now. Drill and countersink on the inside face of the subtop (C) two 5/32" holes and two ¼"-long 5/32" slots [**Drawing 1**].

4 From ¾" poplar, cut the edging (F, G, H, I) to size. Glue and clamp each piece of edging to its corresponding panel [**Drawing 1**]. Align the bottom edging (G) flush with the top face of the bottom (C). After the glue dries, drill shelf-pin holes in the divider (D/H), aligning the holes with

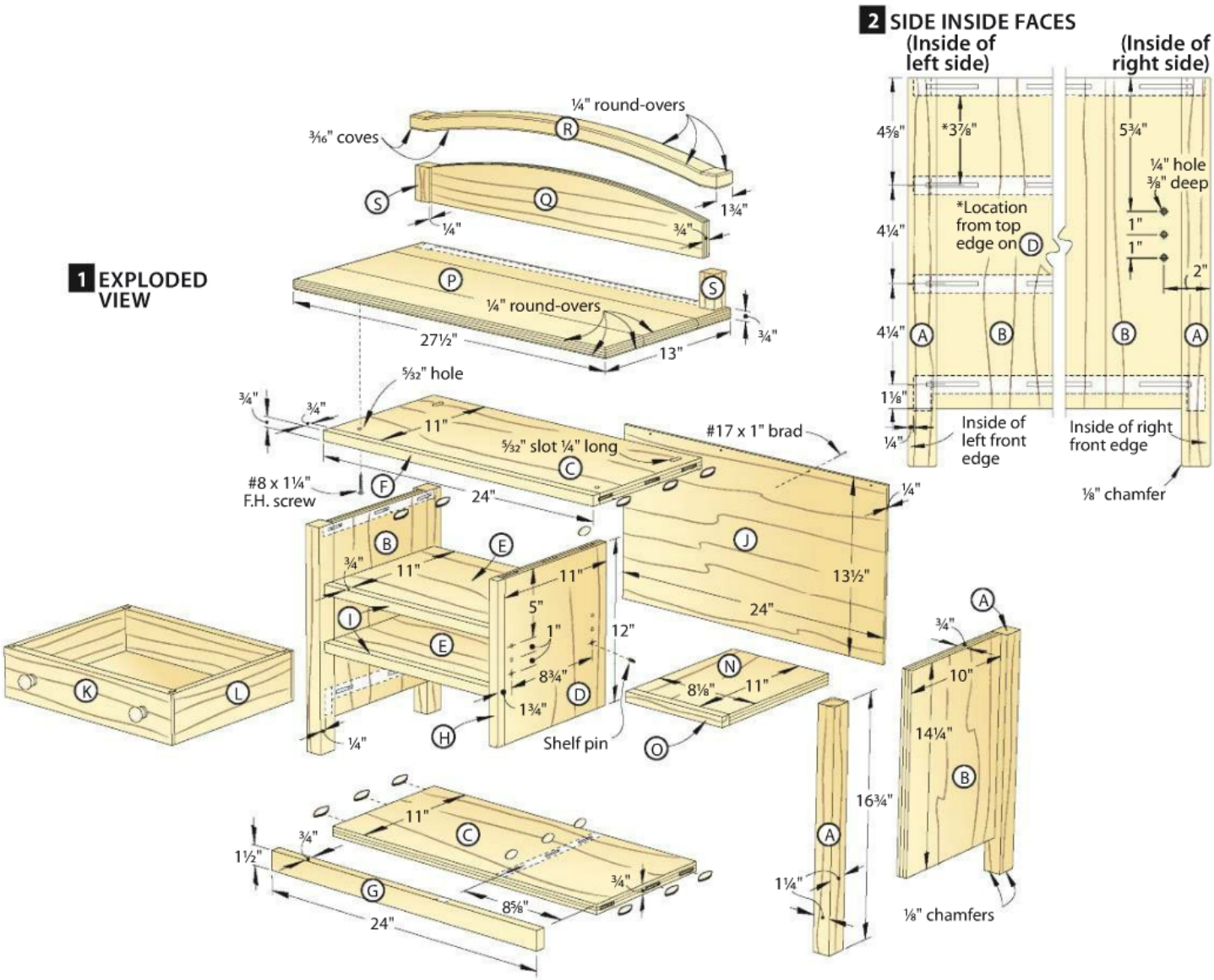
LOCATE BISCUIT SLOTS PRECISELY

Clamp the plywood story stick to the panel, flush along the edges and ⅜" from the centerline you marked for the divider (D).

ALIGN THE TOOL, CUT THE SLOT



Set your biscuit joiner for a #20 biscuit. Center the joiner on each mark, press the bottom face against the story stick, and make a cut.



those in the side (B) [**Drawing 1**]. Sand the edging flush. Then, finish-sand the panels and edging.

5 To help lay out the biscuit locations, cut an 11¾×11¾" piece of plywood to serve as a story stick. On the edge of one face, make a mark 2" from each end and a third mark centered on the scrap's length. On the inside faces of the subtop (C/F) and bottom (C/G), mark the centerline of the divider (D) [**Drawing 1**]. Position the story stick on the subtop and bottom in turn [**Photo A**]; then, cut a biscuit slot at each mark [**Photo B**].

6 Lay out the locations of the biscuit slots for the fixed shelves (E/I) on the divider (D/H) and the left side assembly (A/B) [**Drawing 2**]. Using the story stick as a guide, cut the slots. Then use the story stick to help locate and cut slots in the ends of the divider (D), subtop and bottom (C), and fixed shelves (E), and near the ends of the sides (B).

7 Retrieve the spacer made in **Step 3** and use it to help assemble the subtop (C/F), bottom (C/G), and divider (D/H) with biscuits [**Photo C**]. Allow the glue to dry.

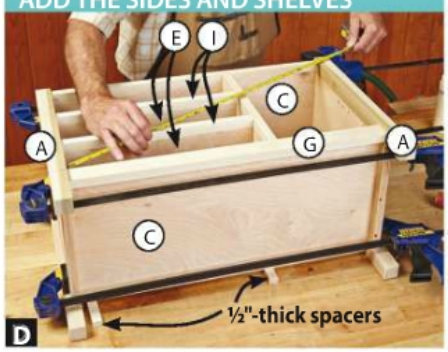
8 Rest the back of the subtop and bottom assembly on ½"-thick spacers [**Photo D**]. Glue and clamp the fixed shelves (E/I) between the divider (D/H) and the side assembly (A/B). Then clamp the other side assembly to the subtop (C/F) and bottom (C/G) panels.

9 From ¼" plywood, cut the back (J) to size. Set it aside for now.

START ASSEMBLING THE CARCASE

With the spacer supporting one end, glue the divider (D/H) between the subtop (C/F) and bottom (C/G). Check the assembly for square.

ADD THE SIDES AND SHELVES



Spacers below the carcase create room for the back (J) added later. Check for identical diagonal measurements to ensure a square assembly.

Add simple drawers

Note: *To ensure tight drawer joints, precisely follow the tablesaw setup shown in* **Drawing 4**. *Cut an extra drawer front and side to test setups until you get a good fit before cutting joints on your project parts.*

1 Cut the drawer fronts and backs (K) and the drawer sides (L) to size [**Drawing 3**].

2 Set up your tablesaw as shown in **Step 1** in **Drawing 4**. Cut a ¼"-deep dado ¼" from each end of the drawer sides (L).

3 Raise the blade to match the thickness of a drawer side (L). Stand each drawer front and back (K) on end and, with the inside face against the auxiliary face, cut a groove across each end [**Step 2** in **Drawing 4**].

4 Remove a portion of the tongue on the *inside* face of each drawer front and back (K) [**Step 3** in **Drawing 4**].

5 Cut the drawer bottoms (M) to size [**Drawing 3**]. Glue and clamp the drawers. Sand the drawers smooth after the glue dries. Slide each drawer into its opening, make note of the gap above each drawer, and sand a chamfer along the bottom edge of each drawer front (K) to match this gap.

6 Drill holes for the knobs [**Drawing 3**] and install them.

7 Cut the adjustable shelf (N) and adjustable shelf edging (O) to size [**Drawing 1, Materials List**]. Glue the edging to the shelf and sand the assembly to 150 grit after the glue dries.

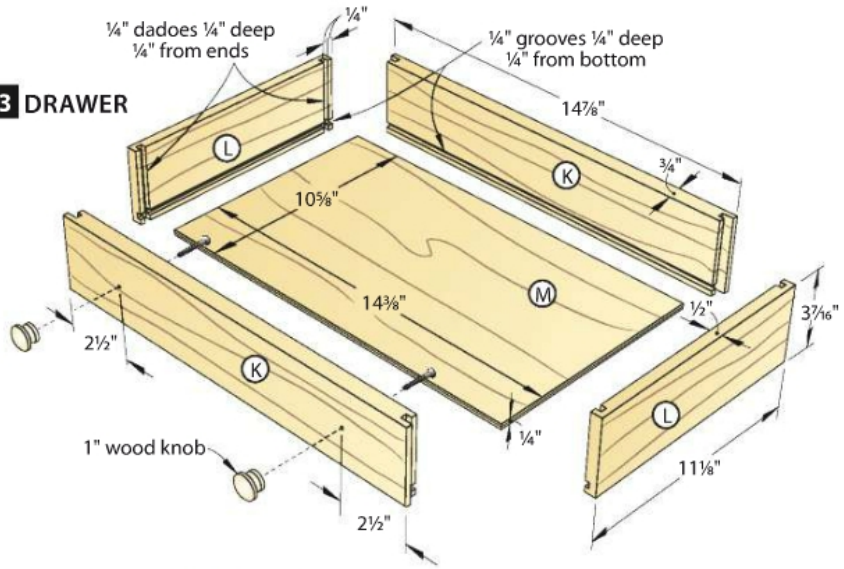
Top it off

1 Edge-glue and cut to size a 13×27½" panel for the top (P) [**Drawing 1**]. Rout ¼" round-overs on the top and bottom faces of the ends and front edge. Finish-sand the panel to 150 grit.

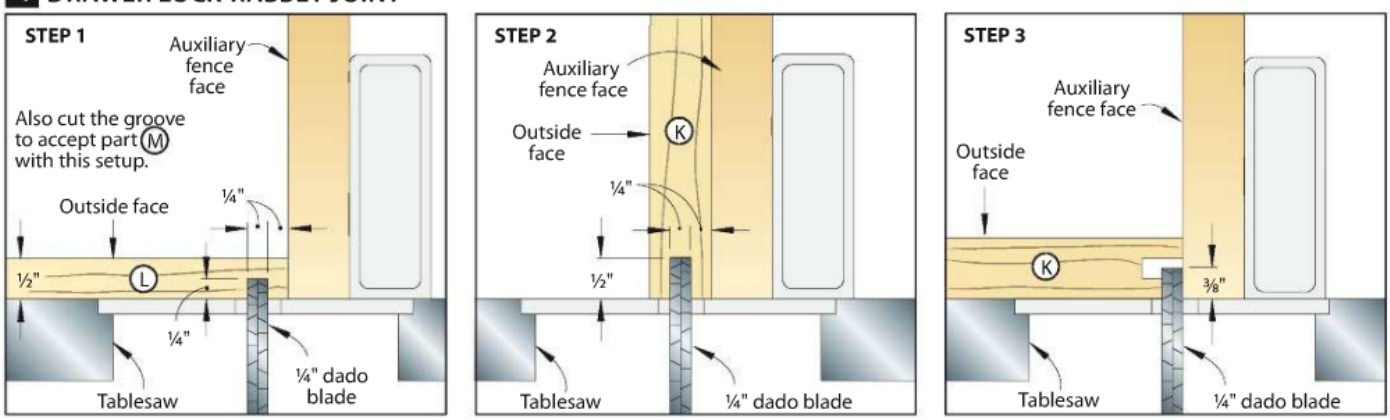
2 From ¾" plywood, cut the valance (Q) to size [**Drawing 5**]. Lay out the arc using a fairing stick, then jigsaw and sand to the line.

3 Cut a 1¾×3×27" blank for the crest (R). Mark a centerline across its width on one face, and lines along the bottom edge 1½" from each end [**Drawing 6**]. Use these marks to lay out the curve on the crest [**Photo E**]. Cut and sand to the line,

3 DRAWER



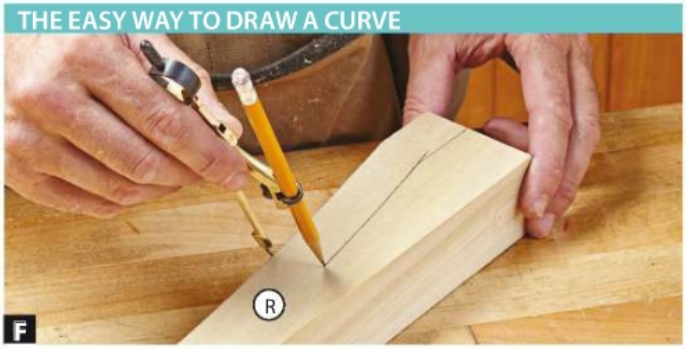
4 DRAWER LOCK-RABBET JOINT



TRACE FOR A PERFECT MATCH

E Align the valance (Q) with the marks near each end of the crest (R) blank. Trace along the valance to copy its arc onto the crest.

THE EASY WAY TO DRAW A CURVE



F Set a compass to a 1" gap. Keeping the imaginary line between the pencil and point perpendicular to the edge, draw a line parallel to the arc.

checking for a tight fit between the valance and crest.

4 Mark a line on the crest (R) parallel to the arc [**Photo F**]. Cut and sand to the line. Round over the top edges and ends at the router table [**Drawing 1; Shop Tip,** *right*]. Then rout 3/16" coves along the bottom edges and ends.

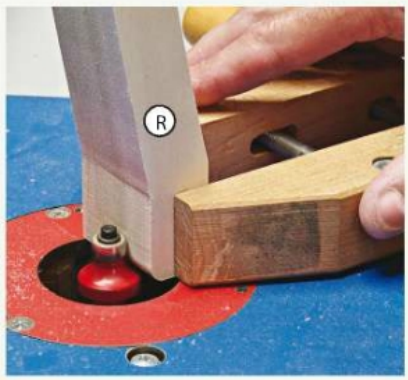
5 Cut the posts (S) to size. Glue one to each end of the valance (Q), centered [**Drawing 1**]. Glue the crest (R) to this assembly. After the glue dries, finish-sand any areas of the crest assembly needing it. Glue the assembly to the top (P) centered side-to-side with the back edges of the posts and top flush.

6 Prime and paint all parts. We used a latex primer and semigloss interior latex paint (Dover White from Sherwin-Williams).

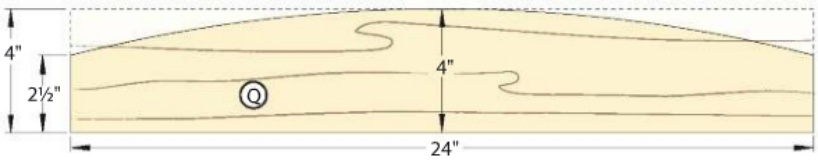
7 Nail the back (J) in place [**Drawing 1**], screw the top (P) to the subtop (C) flush at the back and centered side-to-side. Install the drawers and adjustable shelf. Your changing table is ready to fire a youngster's imagination.

SHOP TIP

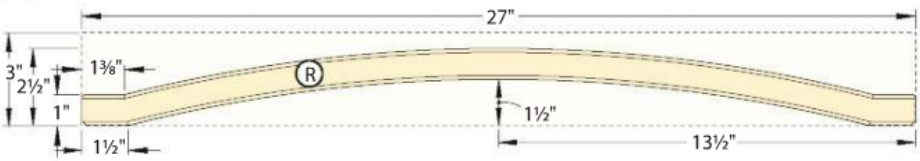
The narrow ends of the crest (R) provide very little surface for steadying the piece when rounding over the top ends. To stabilize the crest, stand it on end, grip it in a handscrew clamp resting on the table, then slide the handscrew across the table when routing.



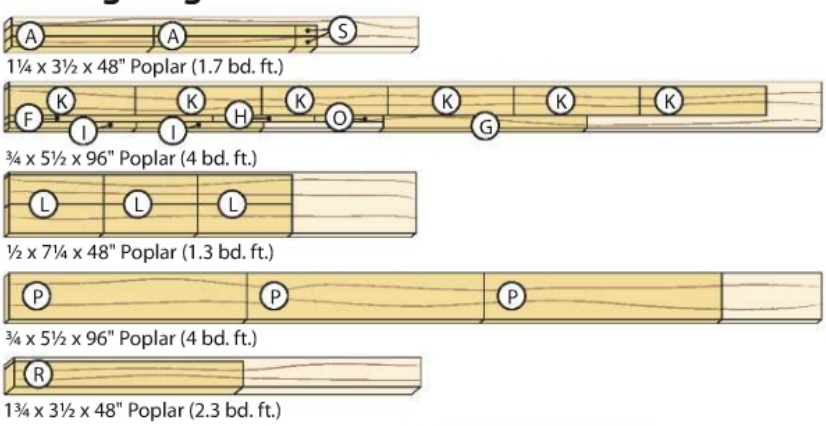
5 VALANCE

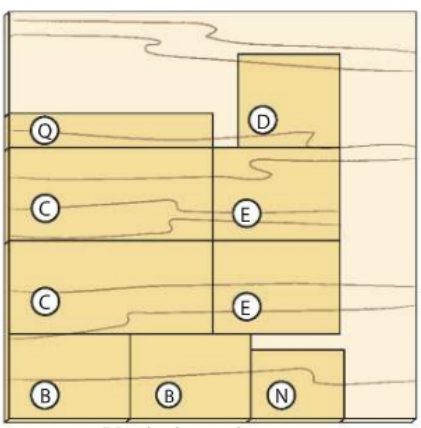


6 CREST

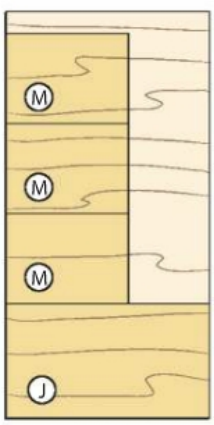


Cutting Diagram





¾ x 48 x 48" Birch plywood



¼ x 48 x 24" Birch plywood

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Lorna Johnson**

Materials List

Part		FINISHED SIZE T	W	L	Matl.	Qty.
Carcase						
A	legs	1¼"	1¼"	16¾"	P	4
B	sides	¾"	10"	14¼"	PL	2
C	subtop/bottom	¾"	11"	24"	PL	2
D	divider	¾"	11"	12"	PL	1
E	fixed shelves	¾"	11"	15"	PL	2
F	subtop edging	¾"	¾"	24"	P	1
G	bottom edging	¾"	1½"	24"	P	1
H	divider edging	¾"	¾"	12"	P	1
I	fixed shelf edging	¾"	¾"	15"	P	2
J	back	¼"	13½"	24"	PL	1
Drawers and adjustable shelf						
K	fronts/backs	¾"	3 7/16"	14⅞"	P	6
L	sides	½"	3 7/16"	11⅛"	P	6
M	bottoms	¼"	10⅝"	14⅜"	PL	3
N	adjustable shelf	¾"	8⅛"	11"	PL	1
O	adj. shelf edging	¾"	¾"	8⅛"	P	1
Top and valance						
P	top	¾"	13"	27½"	EP	1
Q	valance	¾"	4"	24"	PL	1
R*	crest	1¾"	2½"	27"	P	1
S	posts	1¼"	1¼"	2½"	P	2

*Part initially cut oversize. See the instructions.

Materials key: P–poplar, PL–plywood, EP–edge-glued poplar.
Supplies: #20 biscuits (30), #8×1¼" flathead screws (4), #17×1" brads (16), ¼" shelf pins (4), 1" knobs (6).
Blade and bits: Dado blade; ⅛", 3/32", ¼" drill bits; 45° chamfer, 3/16" cove, ¼" round-over router bits.

12" Midi-Lathes

Whether you're just starting out in turning or upgrading from a mini-lathe, one of these fully featured wood-spinners will serve you well for many years.

Because I'm a professional turner and instructor, people ask me all the time which lathe they should buy. I tell them to get the best lathe available within their budget, hopefully with at least 12" of swing (the maximum diameter it can turn) so they can turn bowls and platters as well as spindles. The ideal lathe should have loads of low-end torque, a sturdy tailstock and tool rest that stay locked, and easy speed changes (so you'll be more inclined to do it when needed).

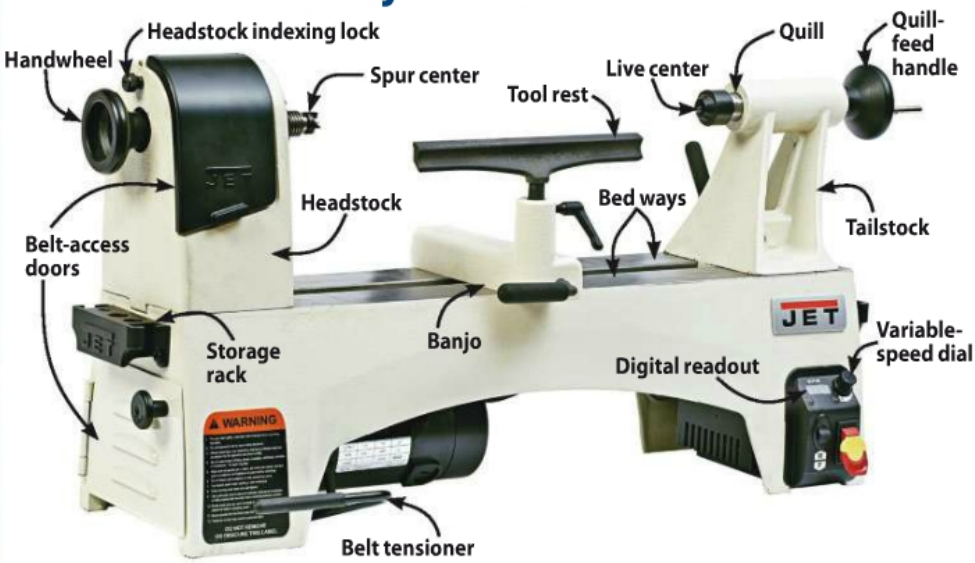
This class of lathes hits that sweet spot between affordability and features: They all have variable-speed 110-volt motors and 1"×8-tpi spindles with no. 2 Morse tapers (so you can use common after-market accessories, such as four-jaw chucks or drive centers), and sell for from $450 to $830. Add a bed extension for $150 or less, and you can turn anything from stair balusters and baseball bats to pens and drawer knobs to bowls and vases.

Brian Simmons, *WOOD*® turning expert

Torque is king

It's simple: If a lathe offers 12" of swing, you should be able to turn a bowl of that diameter. All six models we tested *can* turn a workpiece that size, but some do it two to three times *faster* thanks to greater torque. The Delta 46-460 and Jet 1221VS have 12½" of swing, and the Rikon 70-220VSR 12¾". In our testing they chewed through wood without bogging down, even when we made aggressive ⅜"-wide parting cuts in hard maple (as shown *above*).

Anatomy of a Midi-Lathe



DRIVE-TRANSFER SYSTEM PROVES CRUCIAL FOR TORQUE

Rikon's ½"-wide rubber belt and three-step pulleys help generate superior spindle torque.

Penn State's narrower poly belt slipped regularly on the two-step pulleys during high-demand turning.

DO A 180 FOR BIG PLATTERS

The General International headstock rotates 180° so you can turn 19"-diameter blanks, but the lack of torque becomes more apparent with larger workpieces.

The General International 25-200 and Penn State Turncrafter Commander will get the job done, but their drive belts routinely slipped on the hard-maple spindles and 12" green-wood bowl blanks when we pushed them as hard as we did the other lathes. Teknatool Nova's Comet II experienced similar slowing during our spindle testing, but performed better with the bowl blanks. The difference is in the pulley-and-belt systems (photos *above middle*) that transfer power from the DC motors to the drive spindles.

If you plan to turn primarily between centers, you can overcome a lack of low-end torque simply by increasing the lathe speed when roughing out blanks. But with a rough blank 6" or larger mounted to a four-jaw chuck or faceplate, you must turn it slowly, which requires greater torque.

Good vibrations? Not really

Vibration is more than a nuisance in turning: If severe, it can result in unevenly turned pieces. All the tested lathes vibrated in use until we secured them to the workbench. The Delta, General International, Penn State, and Rikon lathes have flanged legs that can easily be clamped down. But the Jet and Nova lathes come with rubber feet threaded into the cast-iron legs. You must remove these and bolt the lathe to a worksurface or plank that you then clamp down.

Despite being secured, the Rikon (mild) and Jet (significant) lathes continued to vibrate when we turned anything mounted on a faceplate or in a chuck. We suspect this results from the narrow shoulder on each machine's spindle, as shown *above right*. (When we removed the chucked blanks and turned them on other lathes, the vibration did not occur.) Jet's Barry Schwaiger said future models of the 1221VS will have a larger diameter spindle shoulder.

Variable control makes changing speeds easier

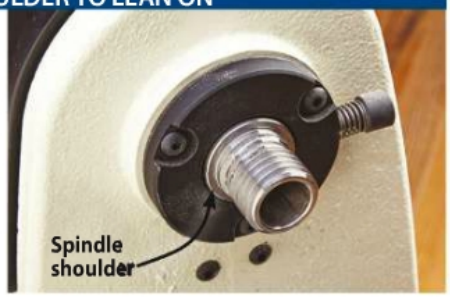
The six lathes we tested have either two or three speed ranges, based on the number of pulleys, with complete variability within each range. Moving the belt from one pair of pulleys to another changes the speed range, and we found it easiest to do that on the Jet. With the others, restricted access or insufficient tension release on the motor pulley made changes more difficult.

Once in a speed range, you adjust the spindle speed by simply turning a dial. Easy enough, but the Jet, General International, Penn State, and Rikon lathes have digital-readout displays for more precise setting. We measured each lathe's actual speeds using digital and manual tachometers, and found only the Jet accurate to its stated speed ranges. All but one of the other models ran about 10 percent faster than specified. We like having the ability to run lathes about 300 rpm or less for roughing out chuck-mounted blanks, and if you like to apply finish to completed projects on the lathe, you want it to turn as slowly as possible to avoid slinging excess finish. All but the Penn State can achieve this. (We give the General International a pass here at 315 rpm.)

All the lathes except Penn State's have reverse capability, letting you turn workpieces backward for more effective hand-sanding. But if you mostly use a power sander, you won't need the reverse feature.

CHUCKS AND FACEPLATES NEED A SHOULDER TO LEAN ON

A broad spindle shoulder provides lots of bearing surface to better support faceplates and chucks.



Jet's spindle has just a ⅛" shoulder, allowing faceplates and chucks to wobble slightly.

Reliable tool holder a must

A banjo and its tool rest must lock securely for safe and accurate turning. All but the Nova and General International lathes accomplished this; the General's banjo repeatedly worked loose during turning, and the Nova's tool rest frequently got loose.

We like to have both a long (10–12") and short (6") tool rest for turning different shapes and sizes. You get both with the Delta, Jet, and Penn State lathes. But General International includes only a 12" rest; only 6" for the Nova and Rikon. (You can buy aftermarket tool rests for all three machines.)

SERRATED SURFACE ADDS GRIP

The stepped washer on Rikon's banjo has serrations that add grip when cinched tightly against the bed ways.

12" Variable-Speed Midi-Lathes:

BRAND	MODEL	PERFORMANCE RATINGS (1)									MOTOR			
		TORQUE	ABSENCE OF VIBRATION	EASE OF CHANGING SPEEDS	EASE OF USING BANJO	EASE OF USING TOOL REST	EASE OF USING TAILSTOCK	EASE OF USING TAILSTOCK QUILL	ACCURACY OF SPEED CONTROL	EASE OF INDEXING HEADSTOCK SPINDLE	CENTER-TO-CENTER ALIGNMENT	RATED HORSEPOWER	REVERSIBLE? (YES, NO)	MEASURED SPEED RANGE, RPM	DIGITAL READOUT? (YES, NO)
DELTA	46-460	A	A-	B+	A	A-	A-	A	B+	A	A-	1	Y	235–3,725	N
GENERAL INTERNATIONAL	25-200	C+	B+	B+	D	B-	A-	C	B	C-	A-	¾	Y	315–4,275	Y
JET	1221VS	A	C	A	A	A	A	C	A	A-	A	1	Y	50–3,630	Y
PENN STATE	TCLC12VS	C	B+	B	A	A	A	A-	C	B	C	1	N	410–3,800	Y
RIKON	70-220VSR	A	B	A-	A	A	A	A	A-	A-	A	1	Y	250–3,850	Y
TEKNATOOL NOVA	COMET II	B-	A-	B-	B-	B-	A	A	C	C+	A	¾	Y	300–4,400	N

1. A Excellent; B Good; C Fair; D Poor
2. (*) Maximum 19" swing using included bed attachment.
3. Measured with tailstock partially extending off end of bed ways.
4. (3) 3" faceplate; (4) 4-prong drive center; (B) Extra drive belt; (E) Bed extension; (F) Faceplate wrench; (G) Safety glasses; (H) Grinding wheel; (K) Knock-out bar; (L) Work light; (N) Cone live center; (P) Standard-cup live center; (R) Replaceable-cup live center; (S) Stand; (W) Wire wheel; (X) Stand extension

Tailstock serves dual purpose

When you turn between centers, the headstock and tailstock centers must line up precisely. Without this, you get more "whip" when turning spindles, especially as they get thinner or longer. All but the Penn State delivered alignment within reasonable tolerance.

In addition to holding workpieces against the headstock, the tailstock also serves as a boring tool. When you remove the live center and install a drill chuck and bit in the tailstock's quill, you can turn the quill handle to feed the bit into a spinning blank, such as you'd do to bore out a pepper mill. To drill deeper than the quill's maximum travel, you'll have to reposition the tailstock and bore again. We prefer quills with stopped keyways, shown *above*, to prevent them from feeding fully out of the tailstock during use. The Delta, Nova, Penn State, and Rikon lathes have such quills.

As for tailstock live centers (ones that spin on internal bearings), we prefer those with removable center points—standard on the Delta, General International, Jet, and Rikon—because you can replace a damaged center point for much less than replacing the whole live center. See the three types of live centers at *right*.

STOPPED KEYWAY PREVENTS UNEXPECTED QUILL RELEASE

A quill with a stopped keyway, shown on the Delta.

A quill with an open-end keyway, shown on the Jet.

Indexing should be intuitive

All the tested lathes include indexing headstocks, which let you lock the spindle in place while you carve or machine elements, such as decorative designs, flutes, or dovetailed sockets, onto a blank. By locking the spindle into evenly spaced indexing stops, you ensure equal spacing for your project details. The Delta, Jet, Penn State, and Rikon lathes have 24 indexing stops, with the Delta easiest to use. The Nova lathe (with 12 stops) and the General International (36) proved confusing to use.

THREE TYPES OF LIVE TAILSTOCK CENTERS

Now it's our turn to pick a top turner

The Delta 46-460, Jet 1221VS, and Rikon 70-220VSR distinguished themselves in our tests. All three have the torque, speed range, and workpiece capacities we want, and all come with five-year warranties. But because of Jet's significant vibration and open-channeled quill, we nudge the Delta and Rikon slightly forward to share the Top Tool award.

Produced by **Bob Hunter** with **Brian Simmons**

Delta 46-460

Rikon 70-220VSR

Delta, 866-999-1499, deltamachinery.com
General International, 888-949-1161, general.ca
Jet, 800-274-6848, jettools.com
Penn State, $450, 800-377-7297, pennstateind.com
Rikon, 877-884-5167, rikontools.com
Teknatool Nova, 866-748-3025, teknatool.com

Small lathes with big-lathe features

	OUTBOARD TURNING CAPABILITY? (YES, NO) (2)	NUMBER OF HEADSTOCK INDEXING STOPS	MAXIMUM TAILSTOCK QUILL TRAVEL, INCHES	DIMENSIONS, INCHES					ACCESSORIES (4)		WEIGHT, POUNDS	CORD LENGTH, INCHES	WARRANTY, YEARS	COUNTRY OF ASSEMBLY (5)	SELLING PRICE (6)
				OVERALL, LENGTH × DEPTH × HEIGHT	MAXIMUM LENGTH BETWEEN CENTERS (3)	MAXIMUM SWING OVER BED	MAXIMUM SWING OVER BANJO	LENGTH OF INCLUDED TOOL RESTS	STANDARD	OPTIONAL					
Delta 46-460	N	24	2⅛	32×10×19	19	12½	9½	6,10	3,4,F,K,R	E,S,X	103	74	5	T	$700
Jet 1221VS	Y*	36	2¼	41×14×19	19½	12	9	12	3,4,F,K,R	E,S,X	139	76	2	T	$830
Penn State $450	N	24	2⅜	34×11×18	20½	12½	9⅛	6,10	3,4,F,K,R	E,S,X	125	57	5	T	$800
Rikon 70-220VSR	N	24	1⅞	35×15×18	18	12	9	6,12	3,4,B,G,K,L,N	E,S	100	75	3	C	$450
General International 160-000	N	24	2½	37×11×18	19¼	12¾	9½	6	3,4,F,K,R	E,S,X	115	83	5	C	$650
Nova 1624-44	N	12	1¾	32×7×16	19	12	9½	6	3,4,F,K,P	E,H,S,W	78	65	2	C	$500

5. (C) China (T) Taiwan
6. Prices current at time of article production and do not include shipping, where applicable.

Choose your style
Shadow Boxes

I love projects that easily adapt to your needs and tastes—these shadow boxes, for example. They share the same basic construction: a mitered box with a back. Simply change the length and/or width of the box to accept whatever collectibles you'd like to display. Then customize the front of the box. The instructions that follow describe how to make the framed walnut box in the main photo. For the frameless version, near right, *we just beveled the front edges of the box. And the third version,* far right, *made from maple, features a recycled frame found at a thrift shop. If you go this route, find the frame first, then adjust the size of the box to fit it.*

Kevin Boyle, Sr. Design Editor

First, the box steps

1 Prepare two ¾×6×26" blanks for the sides (A). Cut or rout the ¼" groove near one edge where shown [**Drawing 1**]. Bevel or chamfer the edge opposite the groove if you're building the frameless or the recycled-frame style [**Drawing 1a**].

2 Tilt your tablesaw blade to 45° and bevel-cut each end of each blank. Then, bevel-cut the sides (A) to length [**Photo A**].

3 Dry-fit the sides (A) and measure the interior dimensions. Add 11/16" to each dimension to allow for the combined depths of the grooves plus 1/16" of "breathing" room, and cut the back (B) to these measurements.

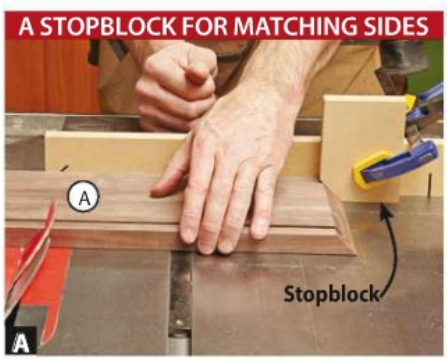
Quick Tip! ***As an alternative to a plywood back, paint a piece of ¼" hardboard to match or complement the wall color or the items to be displayed.***

Dry-fit the sides and back to check that all joints close tight; trim as needed.

4 Finish-sand the back (B) and the inside faces of the sides (A) to 220 grit. Then glue the sides and back together to make the box [**Photo B**].

Add the optional face frame

1 Cut the frame (C) pieces to size [**Drawing 1**], 1" longer than the length of the sides (A). Drill pocket holes and screw the frame together [**Photo C**].



For equal-length sides (A), clamp a stopblock to the miter-gauge fence. A chamfered corner of the stopblock cradles the mitered end of the blank.

GLUE UP THE BOX

Apply glue in the grooves of three sides (A) and to their miters. Assemble the sides with the back (B); then glue and add the fourth side. Clamp the box.

ASSEMBLE THE FRAME

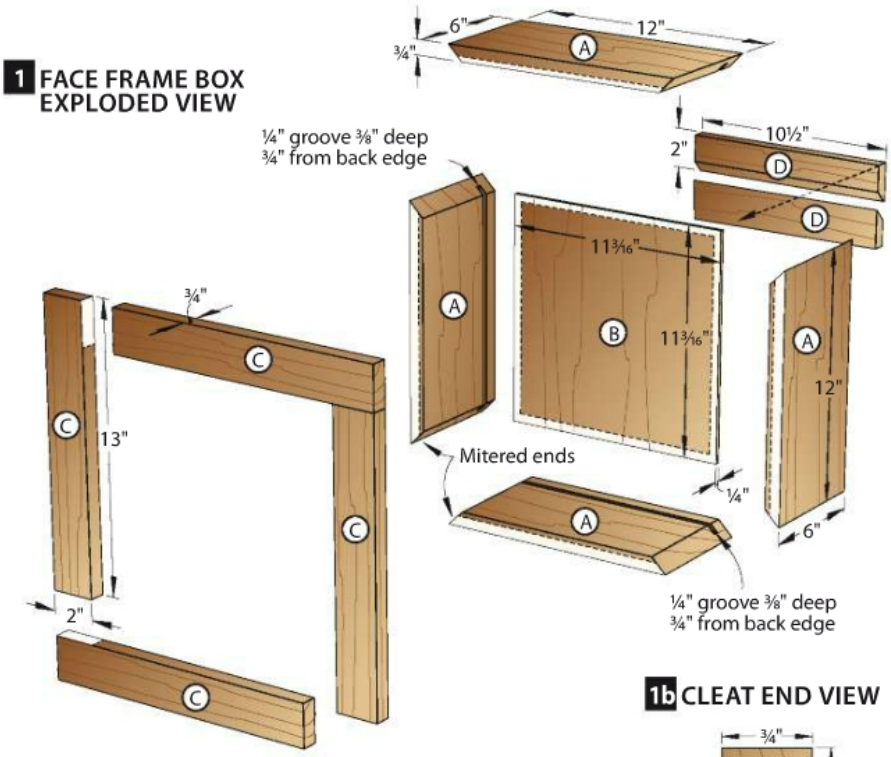
For a tight joint with flush faces, clamp adjoining pieces together; then drive the pocket-hole screws. Use fine-thread screws in hardwoods.

2 Cut two cleats (D), and bevel rip one edge of each [**Drawing 1b**]. Glue the narrower face of a cleat to the back (B), bevel down and against the top of the box [**Drawing 1**]. Screw the other cleat to the wall, wide face out and bevel up, where the completed box will hang.

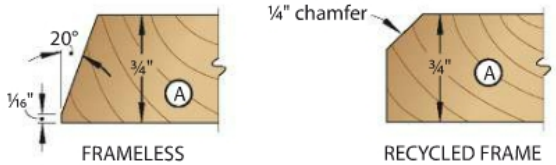
3 Finish-sand the frame (C) and the outer faces of the box (A/B). Glue and clamp the frame to the sides (A), centered. ***Note:*** *We attached the recycled frame using silicone adhesive* [**Photo D**]. Allow the adhesive to dry; then, apply a finish. (We brushed on three coats of oil-based polyurethane, buffing lightly between coats with a 320-grit sanding sponge.) After the finish dries, hang the completed box on the wall-mounted cleat (D).

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Project design: **Kevin Boyle**
Illustrations: **Lorna Johnson**

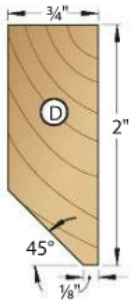
1 FACE FRAME BOX EXPLODED VIEW



1a SIDE EDGE DETAILS



1b CLEAT END VIEW



Cutting Diagram

¾ x 7¼ x 96" Walnut (5.3 bd. ft.)

¼ x 12 x 12"
Walnut plywood

SILICONE STICKS TO FINISHES

A recycled frame may have finish on it or be made of plastic, metal, or other material. Regardless, silicone adhesive will join the frame to wood.

Materials List for one Face-frame Box

Part		FINISHED SIZE T	W	L	Matl.	Qty.
A*	sides	¾"	6"	12"	W	4
B	back	¼"	11³⁄₁₆"	11³⁄₁₆"	WP	1
C	frame	¾"	2"	13"	W	4
D	cleats	¾"	2"	10½"	W	2

*Parts initially cut oversize. See the instructions.

Materials key: W–walnut, WP–walnut plywood.
Blade and bit: Dado blade or ¼" straight router bit.

More Resources

- Tweak your tablesaw's accuracy for better bevels. Check out woodmagazine.com/tsaccuracy.
- Get masterful miters with this FREE miter sled plan: woodmagazine.com/mitersled.
- Find a boxload of box plans at woodmagazine.com/boxes.

Ask WOOD

Answers to your questions from letters, e-mails, and WOOD Online®

When time stands still, fix it!

Q The quartz movement in my wall clock no longer works. I'd like to install a new movement in the original clock body because it was a wedding gift more than two decades ago. How do I replace the movement?

—Greg Lawrence, Appleton, Wis.

A You'll need a few key measurements, Greg, before ordering a new clock movement. Begin by removing the hands from the clock face and the clock movement from the body. Measure the following:

- the length of the minute hand, from the center of the mounting hole to the tip [**Photo A**];
- the thickness of the clock face combined with any backer board and spacers [**Photo B**];
- the length of the movement's center shaft from the case to the end [**Photo C**];
- and, if your clock has a pendulum, the diameter of the bob [**Photo D**].

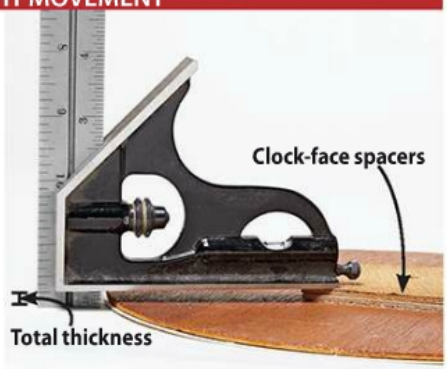
Armed with these dimensions, call a retailer, such as Klockit (800-556-2548), and a representative will help you select a movement that fits your clock. Or, you can visit the company's website (klockit.com) and match a movement to your specifications.

If your clock has a musical chime [**Photo E**], the replacement movement will come with either a built-in speaker or one that attaches to the clock body. You might also be able to connect the movement to your existing speaker.

continued on page 66

FOUR MEASUREMENTS TO GET THE RIGHT MOVEMENT

A LENGTH OF MINUTE HAND



B THICKNESS OF FACE & SPACERS

C LENGTH OF SHAFT

D DIAMETER OF BOB (IF ANY)

E

Have a Woodworking Question?

E-mail it to us at **askwood@woodmagazine.com**. For faster feedback from your fellow woodworkers, search for or post your question on one of our topical woodworking forums at **woodmagazine.com/askwood**. Or snail-mail questions to Ask WOOD, 1716 Locust St, LS-253, Des Moines, IA 50309-3023.

Ask WOOD

Flooring grooves serve multiple purposes

Why do hardwood flooring planks have grooves milled onto their bottom faces?

—Joe Madison, Fergus Falls, Minn.

There are several reasons for those grooves, Joe. Brett Miller of the National Wood Flooring Association explains:

1. The grooves provide a "relief area" for splinters to break into when the planks get nailed in place. Without this, splinters and bulges could create raised "pivot points" where the installed flooring meets the subfloor, which could result in squeaks.

2. Many manufacturers of solid-wood flooring cut grooves into the back face to reduce overall shipping weight. This does not negatively affect the performance of the flooring.

3. With engineered flooring, the grooves become part of the "balancing" of the multiple layers within the final product. Similar to plywood, engineered flooring is manufactured by sandwiching top and bottom layers of hardwood around interior-core layers of lesser-priced processed composites. To help counter the differing degrees of shrinking and swelling among these layers of unlike materials, the bottom layer gets kerf-cut.

4. The last (and most humorous) purpose of these grooves ensures that the installer knows which side of the flooring faces up.

Although many people believe the grooves are meant to deter cupping by relieving internal stress, Miller says this is not the case in most solid-wood flooring (typically 3–4" wide). Cupping usually results from a moisture imbalance in the wood, not stress. But, he adds, grooves can help ward off cupping in flooring 5" or wider, especially in flatsawn planks.

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Item 60237 shown

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Shop-Proven Products

These woodworking wares passed our shop trials.

Marking Knives

We prefer marking knives to pencils for several reasons:

- They score fine lines more precisely, and those can be easier to see on some workpieces, depending on the species color and shop lighting.
- The scoring action slices surface fibers on a workpiece, preventing tear-out when you begin cutting.
- A scored layout line, such as for dovetails or mortises, provides a positive "lock" when you slip a chisel into place to begin cutting.

We tested more than a dozen marking knives, and here are four favorites.

Blue Spruce Small Marking Knife

$50

Blue Spruce, 503-668-8665, bluesprucetoolworks.com

The acrylic-infused, curly-maple handle on this knife catches your eye immediately for its beauty, but it's more than that. This infusion, a signature of Blue Spruce's hand tools, adds a level of hardness and protection that should keep the handle as stunning for years to come. The dual-bevel knife was sharp and ready to go when we opened the box.

Czeck Edge Kerf Kadet, no. 16N01.01

$47.50

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

The cocobolo handle is only slightly larger in diameter than a pencil, so it's familiar and comfortable to hold and use. And the textured brass ferrule provides a great fingertip grip. The double-bevel blade was sharp out of the box and held its edge nicely.

Veritas Workshop Striking Knife, no. 05D20.05

$10.95

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

The bulbous handle on this knife, made of a black nylon composite, has flat sides and recessed grooves for grip points—and it won't roll off the workbench. Its dual-bevel point needed slight honing to be as sharp as we like, but then it held that edge well. This is the only knife we tested that comes with a blade cover we could trust to protect our aprons (and bodies) when stored in a pocket.

X-ACTO Curve Knife, no. X3035

$8

X-ACTO, 800-879-4868, xacto.com

If you don't want to sharpen the blade of a traditional marking knife, the X-ACTO uses disposable blades. (A five-pack of refill blades sells for about $3.50, and changing blades takes just seconds.) We like the rubber over-mold handle because it grips easily and has flat sides. One caveat, though: When marking along wood grain, the thin blade sometimes strayed from our straightedge and instead followed grain lines.

continued on page 76

About our product tests

We test hundreds of tools and accessories, but only top performers appear in this section. The products shown here, along with those that don't make the cut, are also reviewed at toolreviews.woodmagazine.com. Prices shown are current at the time of article production and do not include shipping, where applicable.

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Shop-Proven Products

Midsize spindle sander outperforms its size

Nothing beats an oscillating spindle sander for smoothing curved cuts in wood. And Grizzly's T26418 sander bridges the gap—in price and performance—between benchtop models ($100–$275) and robust floor-standing ones ($700 and up).

Powered by a 1-hp motor (and supported by a sturdy, tapered cabinet), this machine never bogged down, even when I force-fed wood into each spindle. The nearly 20"-diameter cast-iron table provides ample workpiece support, and it easily tilts up to 45° (a feature not typically found on benchtop models).

My biggest gripe: the 2"-diameter dust-collection port—an unusual size—is not easy to hook up to shop-vacuum hoses, most of which come with 1¼", 2¼", or 2½" connectors. After I rigged up a fit with duct tape, the shop vacuum collected the dust pretty well.

The tabletop sits 37" from the floor, forcing me (at 6'4") to stoop more than I'd like when sanding. If this were my sander, I'd situate it on a wood base to raise it 4–6". In addition, because this sander lacks the oil-bath mechanism for the oscillating movement typical of pricier floor-model units, it makes more noise than expected.

You get three spindles with this machine: ¾×4½", 2×9", and 3×9", as well as slotted inserts to fit around them.

—Tested by Bob Hunter, Tools Editor

Oscillating spindle sander (no. T26418)

Price $475

Grizzly Industrial
800-523-4777; grizzly.com

Compact compressor runs easy on the ears

For years I tolerated the noise made by my oil-free "pancake" air compressor because the only alternative was a heavier, oil-lube model that would require regular oil changes. But DeWalt's DWFP55130 oil-free compressor runs at 72 decibels—about the same sound level as a drill press. Nice!

This unit's 2½-gallon tank has a 200-psi rating, so at 90-psi hose pressure it delivers air as if it were much larger. It takes only 90 seconds to fill the tank when empty, and 30 seconds to refill after kicking on during use. So it kept up easily with any nailer in my shop. The gauges are easy to read from a standing position, and the hose-pressure adjuster is simple and intuitive to operate. And when it comes time to drain the tank, the ball valve works smoothly without issues.

For its small size (35 lbs), ease of carrying, ample air delivery, and low noise, I consider this an ideal woodworking shop compressor.

—Tested by Jeff Mertz

200-psi trim compressor (no. DWFP55130)

Price	$235

DeWalt
800-433-9258; dewalt.com

continued on page 72

Readers rate their own tools on WOOD MAGAZINE'S REVIEW-A-TOOL

Read the full summaries by these woodworkers and others, and post your own reviews at toolreviews.woodmagazine.com. (Star ratings are an average of all reviewers.)

Teknatool Nova DVR-XP 16" wood lathe, $2,000

"The DVR-XP is a joy to work with, and the swivel headstock makes hollowing a pleasant experience without reaching far in over the lathe bed."

— Reviewed by Peter Fabricius

Overall rating ★★★★★ 5

DeWalt 12½" benchtop planer (DW734), $400

"Right out of the box it planed flawless surfaces. The depth-of-cut indicator, thickness scale, and depth stops work great. I can't imagine a better machine."

— Reviewed by Mark Fuller

Overall rating ★★★★½ 4.6

Forrest Woodworker II 10" 40-tooth tablesaw blade, $125

"I've used many different blades over the years as a cabinetmaker and I still haven't found one that cuts wood better than this blade."

— Reviewed by Danny Hellyar

Overall rating ★★★★★ 4.9

Ridgid 12-gallon shop vacuum (WD1270), $80

"I use this machine with an Oneida Dust Deputy nearly every day for both cleanup and dust collection, and it functions as well today as it did when I bought it."

— Reviewed by John W. Barrett

Overall rating ★★★★★ 5

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18. Signature and Title of Editor, Publisher, Business Manager, or Owner: Darren Tollefson, Business Manager. Date: 9/15/14. I certify that all information furnished on this form is true and complete. I understand that anyone who furnishes false or misleading information on this form or who omits material or information requested on the form may be subject to criminal sanctions (including fines and imprisonment) and/or civil sanctions (including civil penalties).

What's Ahead

A glimpse inside the March issue (on sale January 13)

Dining chair
A seat as comfortable as it is elegant. The perfect companion to the dining-room table featured on page 42, and the hutch in issue 229.

Turned treasure box
Small enough to be crafted from your scrap pile, this simple box is gorgeous enough to hold your most precious possessions.

Rolling tool chest
So sturdy, simple, and inexpensive to construct, store-bought steel models don't stand a chance.

Turn unused tools into cash
These proven tips help you find a buyer who wants what you're selling.

5 must-have tablesaw jigs from a half-sheet of plywood
Unleash your tablesaw's potential for less than $100. Get dead-on crosscuts, perfect tapers, rip straight edges on rough lumber... the list of jobs these jigs perform goes on and on.

12-volt Li-ion drills
We love these compact tools for everyday use in the shop, and we've got the scoop on 13 of 'em.

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