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Build a Cabinet Super Fast

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Plus Great Plans

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Billy Reeder,
Author at Cabin People



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Good man gone

This Christmas will be very different in our family, as it will be the first we'll celebrate without my father-in-law, Don, who passed away suddenly at the end of July.

In many ways, we couldn't have been more different. Don grew up on a farm and earned an eighth-grade education. I was a city kid and college boy. As he entered adulthood, he served in the Army motor pool in Korea; I served loose-meat sandwiches at the Wolf Den Drive-in. He got to church an hour before Mass and left before the last song was done. I get there 5 minutes early and linger long after, visiting.

We did have common ground. We both liked to build. Working from his own sketches, he added a second story onto their house. Later, he built a massive garage to shelter their camper (another shared love). When he (over)built a flip-down ladder to access the lofted storage area in that garage, it was too heavy to lift, so he designed a counterweight system that effectively lightened the load.

When Annette and I got our first house, it seems like every visit from Don and my

mother-in-law, Shirley, started and ended with a project. A shed. Wiring the garage. Repairing a leaky pipe after a bathroom remodel.

The eighth-grader teaching the college boy. Most people saw Don as an ornery, stubborn old man who didn't say much in group settings and rarely wore anything but denim overalls for the past 20 years, regardless of the occasion. But deep down, I think he really liked helping people, even though he outwardly complained about it.

So, finally, one more project: a simple case to hold the flag that draped his casket, and a matching one to display his military regalia and 21 empty shell casings. Nothing fancy, but it'll get the job done.

Just like the man it honors. 🌳

See you in the shop.

Dave Campbell

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Build it from low-cost pine, as we did, or showcase great grain in the headboard.

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Blend rich red oak with sturdy steel for this classic, yet contemporary, display.

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It "pops" figured grain, feels glass-smooth, and repairs easily. Gotta love it.

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WINTER IS COMING.

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SOUNDING BOARD

YOUR VOICE



Not bad for a newbie

My 14-year-old grandson Aidan (shown) wanted to build something in the shop with me, but he didn't want to do the usual beginner's projects. So we designed—and he made—these end tables for his mother and father as Christmas gifts. I showed him how to use the tools and helped with setup; he did the work.

The tops are book-matched oak-burl veneer with white-oak legs and stretchers. The bottom shelf is made up of two white ceramic tiles. Who says beginners have to make pencil boxes?

—Doug Johnson
Prospect, Ky.



We give you wings

I've had my mitersaw, and the steel stand that supports it, for about 10 years. But I always had to jury-rig ways to support long pieces of stock until I saw your Portable Miter Saw Stand in issue 249 (October 2017). I custom-fit some mounts to my stand (photo, above), installed the wings I made from your plans, and they work great. Thanks for the idea.

—Mike Edwards
via email

Lauds for the lathe

Ken Jerome, you have undoubtedly made your dad proud (Sounding Board, issue 249). That is a gorgeous restoration of his lathe and a magnificent new stand that honors the original. You have created a true heirloom.

—Carl Berger
Gaithersburg, Md.



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To dump or not to dump? Depends.

In issue 248 (September 2017), the article "Brush Up on Brush Care" suggests to "dump the dirty solvent" several times. Allowing the paint or finish solids to settle out of used solvent, as shown at left, leaves crystal-clear solvent ready to be decanted and used over and over. The practice saves money and, more important, keeps harmful chemicals out of our water supply.

—Mark Hamen
Galena, Ill.

Because the article discussed cleaning with both water and mineral spirits, depending on the finish, we used the word "solvent" to cover both products. Water can be dumped down the drain, but, as you correctly point out, mineral spirits should be deposited into a container for reuse. Sorry for the confusion, Mark.



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SOUNDING BOARD

YOUR PROJECTS

This is one of 27 unique clocks that **Rene Poirrier**, of Donaldsville, La., has designed and built—so far—in his career. The wood is sapele.



This desk, designed and crafted by **Jesse Turner**, of Paris, Ky., has a secret. Well, two, actually, in the form of hidden drawers that can be accessed only when the visible drawer is removed.



You just can beat this coffee table built by **Mark Munson**, of Brainerd, Minn. It consists of five cajons, each tuned differently, and each removable for that rockin' cajon solo. Watch a video of Mark playing his table at woodmagazine.com/cajontable.



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SOUNDING BOARD

YOUR PROJECTS



David Tomasso, of Rochester, N.Y., designed this wine cabinet, which he then builds for nieces and nephews as wedding gifts. The case of this one is maple; the legs, black walnut; and the top, granite.



Kevin Hart, of Friendswood, Texas, enters his home office in style through a doorway he fashioned from African and Honduran mahogany, cherry, and walnut. He inlaid the casing with scrollsawn figures.



While looking for a father/son project, **Michael Johnson**, of Metropolis, Ill., and his son, Tim, landed on building a kitchen table that looks like a 40"-diameter segmented cutting board. The smallest segments are only 2mm square.

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YOUR SHOP



Remote

A 48x96" workbench doubles as an outfeed table for the 10" cabinet saw.

Under the saw wing, an 18x18x24" plenum serves as a hub for dust-collector hoses. A 4" flexible hose from the dust collector feeds into the top, and 4" flexible hoses extend to the tablesaw, jointer, and bandsaw. The three tools plug into power outlets at the plenum base.

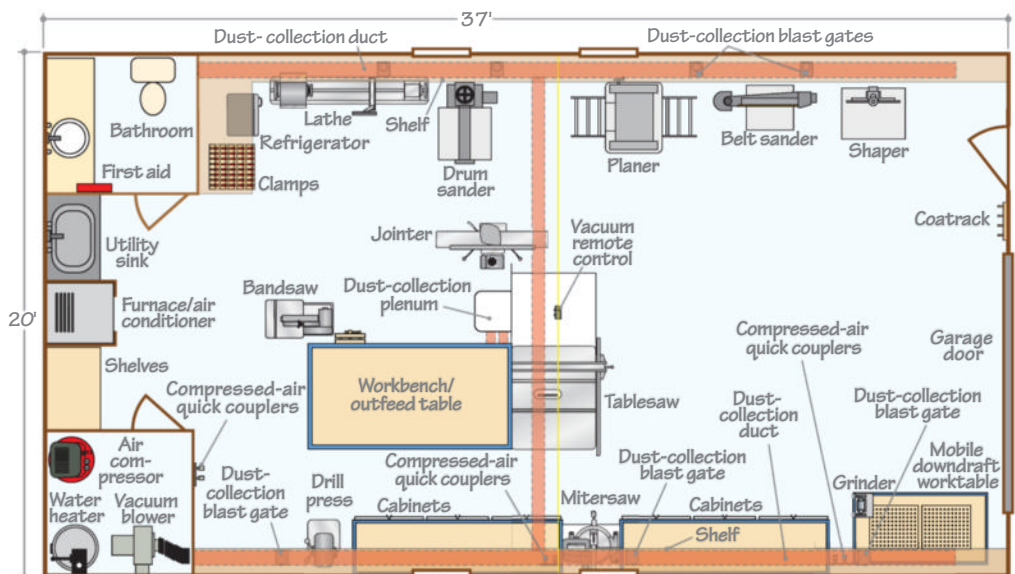
Plenum

Photos: Steven Langla, Studio L Photography

Dickie Lamp's woodworking world hasn't always looked so squeaky clean. When Hurricane Katrina whipped through Tangipahoa Parish in 2005, Dickie lost everything he had accumulated over five decades as a woodworker. "Before Katrina," he says, "I had a shop big enough for me to build my 60' fiberglass sailboat inside. But Katrina pretty well destroyed everything.

"So I got a fresh start with a much smaller shop—about 740 square feet. It's right-sized for me to build a reproduction of the 14' wooden boat I built when I was 15 years old." The cathedral ceiling, rising from 8' to 14', helps ensure that.

With an architect's eye for detail, Dickie first set sail on designing a new workshop that would be well lit and easy to clean. For starters, his dust collector shoots sawdust





Wall-hung cabinets provide 8' of worksurface on each side of the 10" compound mitersaw and keep the floor clear for easy cleanup. Dickie uses his compressor to blow out the cabinets, which he designed and built without backs. For the bypass doors, aluminum-faced perforated hardboard (available at home centers) contributes to the tidy appearance.



A 31'-long chase along the wall conceals a 6"-diameter dust-collection pipe, stereo speakers, and compressor and electrical lines, and provides a 12"-wide shelf for power and hand tools.

outdoors onto his wooded property. In his words: "I give it back to Mother Nature."

Dickie's dust system includes a shop-made plenum, shown in the photo, *previous page*, and a vacuum remote control that slides across the room on a suspended wire, as shown in the illustration.

To minimize cleanup, he installed a ceramic-tile floor over the concrete slab. A row of 12"-square tile turns up the wall and serves as a maintenance-free baseboard. "Tile is a little bit of an extravagance," Dickie admits, "but with the air hose I can blow dust out the door without any trouble."

A corner closet contains the noise from his 5-hp air compressor and the dust-collection blower. For creature comforts, a bathroom nestles in one corner, with a refrigerator right outside. Above the tablesaw, a duct from a residential-style air conditioner tames the Louisiana heat and humidity. 🌳



Dickie Lamp, center, with his son Melvin (left) and grandson Matt (right). Matt framed the shop and hung drywall; Dickie built out the interior.

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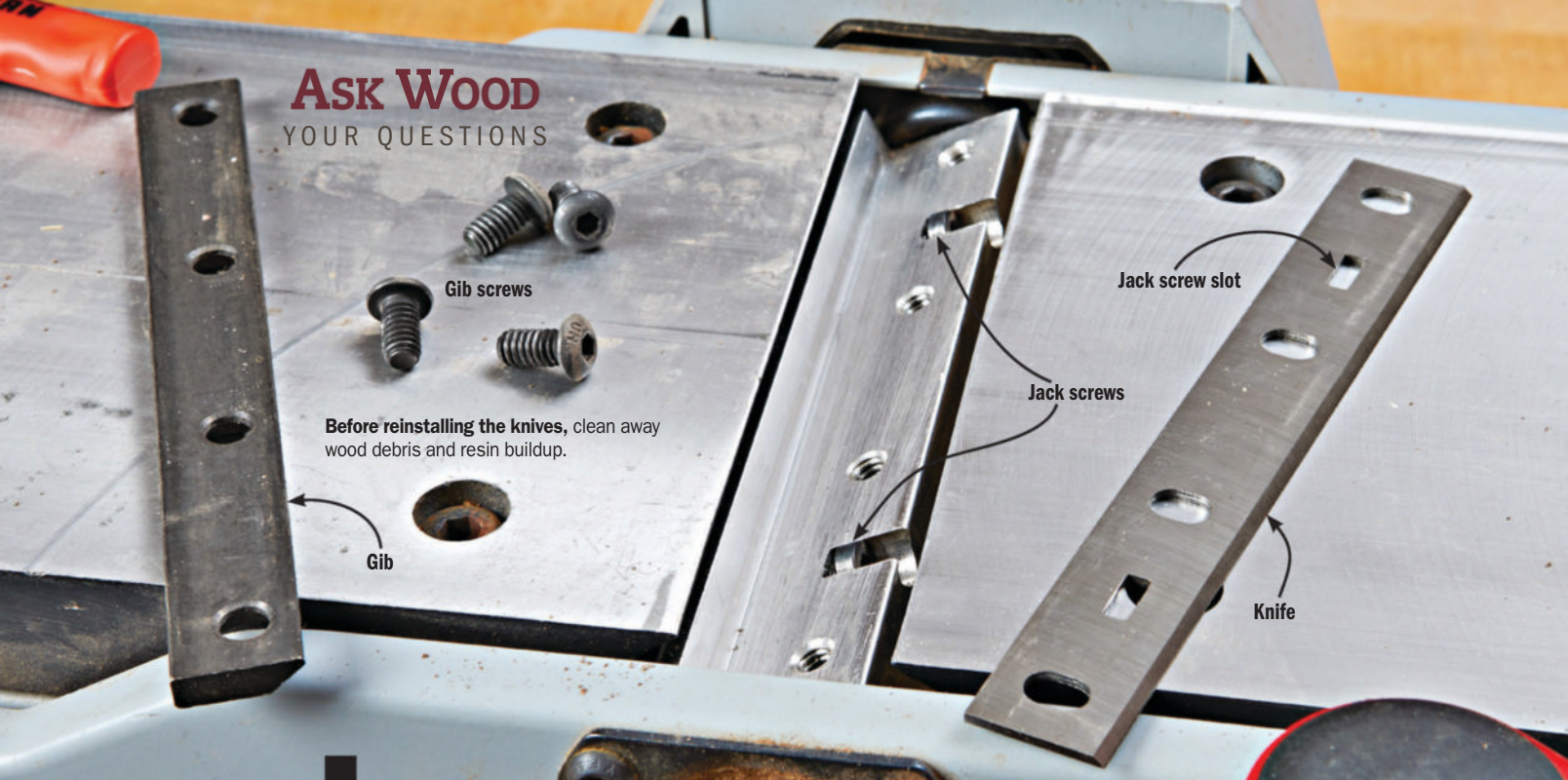
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ASK WOOD

YOUR QUESTIONS



Set aluminum-bed jointer knives by feel

Q I have a benchtop jointer with aluminum beds, and the time has come to resharpen its knives. Since most knife-setting jigs use magnets to hold the knives in alignment with cast-iron beds, how can I align the knives to aluminum jointer beds?

—Al Agnew, Salem Ill.

A Al, you can still use magnets to set knives in aluminum-bed jointers. This simple and inexpensive method takes advantage of the sensitive nerves in your fingertips.

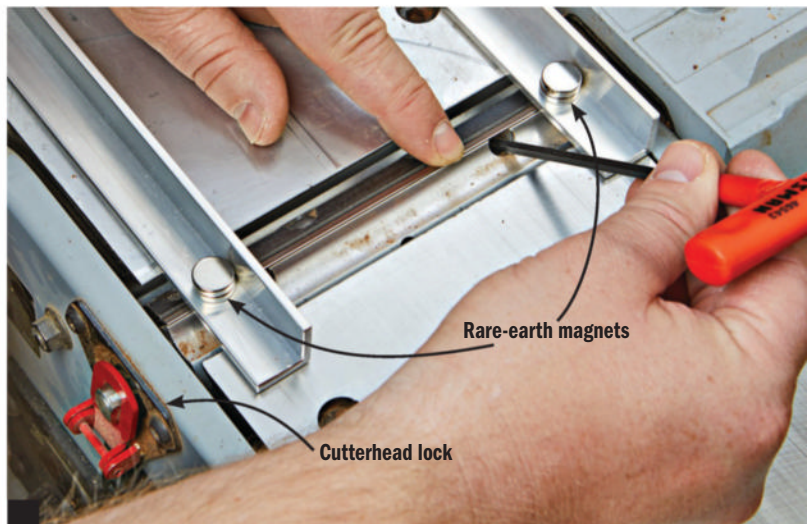
First, cut two 16" lengths of $\frac{3}{4} \times \frac{3}{4}$ " aluminum angle $\frac{1}{8}$ " thick, available at hardware stores. You'll also need four $\frac{1}{2}$ "-diameter rare-earth magnets (rockler.com).

With the jointer unplugged, gain accessibility by removing the fence and cutterhead guard. Carefully rotate the cutterhead by hand to remove the four screws that hold each knife and its gib [above]. After sharpening the knives, replace all parts and tighten the holding screws so the knives are snug but will move with light finger pressure.

Rotate the cutterhead until a knife edge is at its peak height and then engage the machine's cutterhead lock. Position an aluminum angle and two magnets at both ends of the knife. Rotate both jack screws to barely lift each aluminum angle off the outfeed table. Then lower each end of the knife so it's just a hair lower than the aluminum angle when you gently push down on the knife with your finger [right]. You should be able to feel the short distance the knife moves when you

let off the downward pressure, allowing the knife to be drawn back up to the magnet. Slowly rotate each jack screw upward as you repeatedly apply and release finger pressure, alternately at both ends of the knife, until the knife no longer goes down when you apply pressure. At that point, the knife edge should be exactly level with the outfeed table. Release the cutterhead lock and tighten the gib screws. Repeat for the other knife.

Replace the fence, unclamp the guard, and test your adjustments by jointing a board edge. You may need to repeat the adjustment process, but with a little practice you'll soon master this surefire method. 🌲



Rare-earth magnets lift a steel knife level with the outfeed table, enabling you to feel any backlash existing between the jackscrew mechanism and the slot in the knife.

Have a question?
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ACHIEVE IN MINUTES WHAT TAKES MOTHER NATURE DECADES



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Demonstration on red oak



SHOP TIPS

WORK FASTER, SMARTER, SAFER

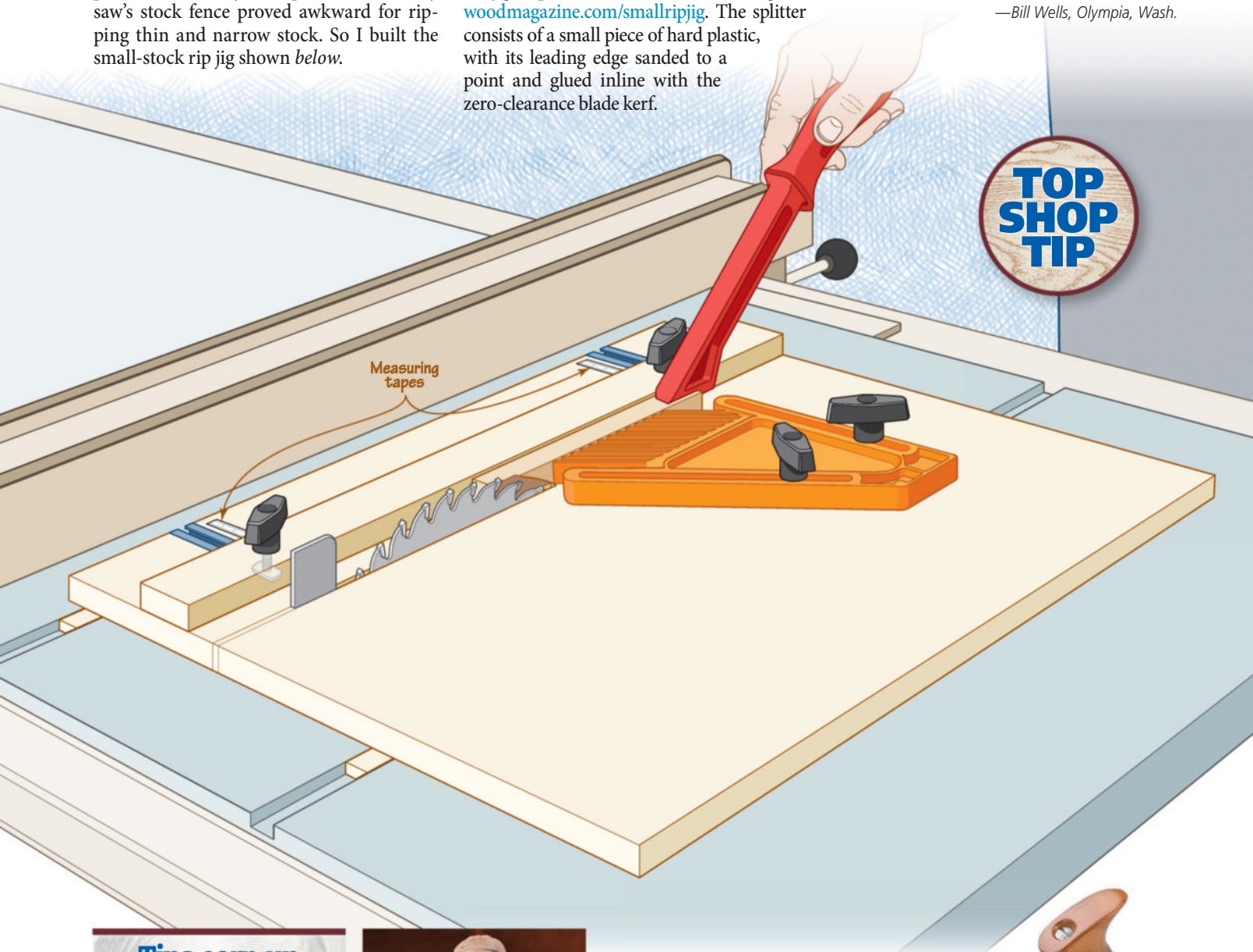
Mini tablesaw top adds safety and accuracy to small-part cuts

My work requires a lot of small workpieces, including segments for turned projects. A tablesaw sled helps me crosscut those workpieces with safety and precision, but my saw's stock fence proved awkward for ripping thin and narrow stock. So I built the small-stock rip jig shown *below*.

I made the oak runners to fit tightly into the miter channels, preventing the jig from sliding. A few taps with a rubber mallet secure the jig in place. To order the hardware go to woodmagazine.com/smallripjig. The splitter consists of a small piece of hard plastic, with its leading edge sanded to a point and glued inline with the zero-clearance blade kerf.

Apply strips of self-adhesive measuring tape where shown, making it easy to set the fence at a precise distance from, and parallel to, the blade.

—Bill Wells, Olympia, Wash.



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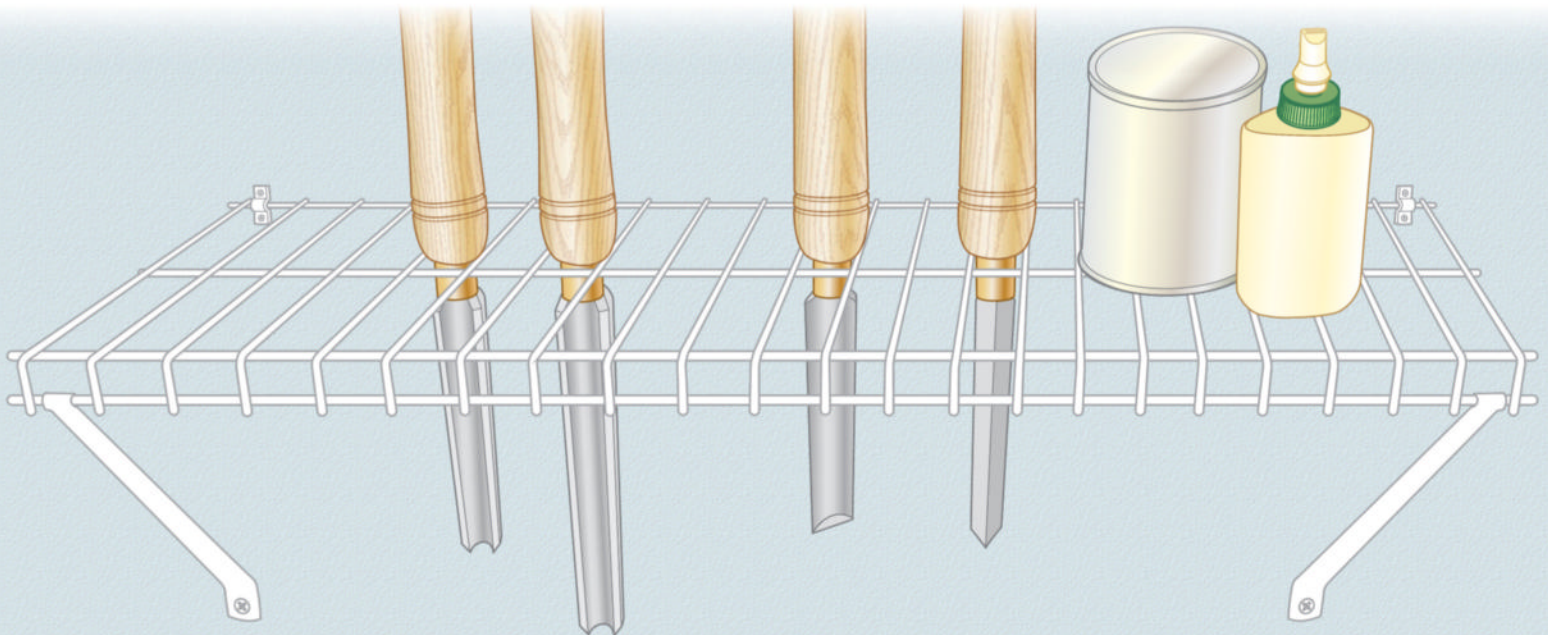
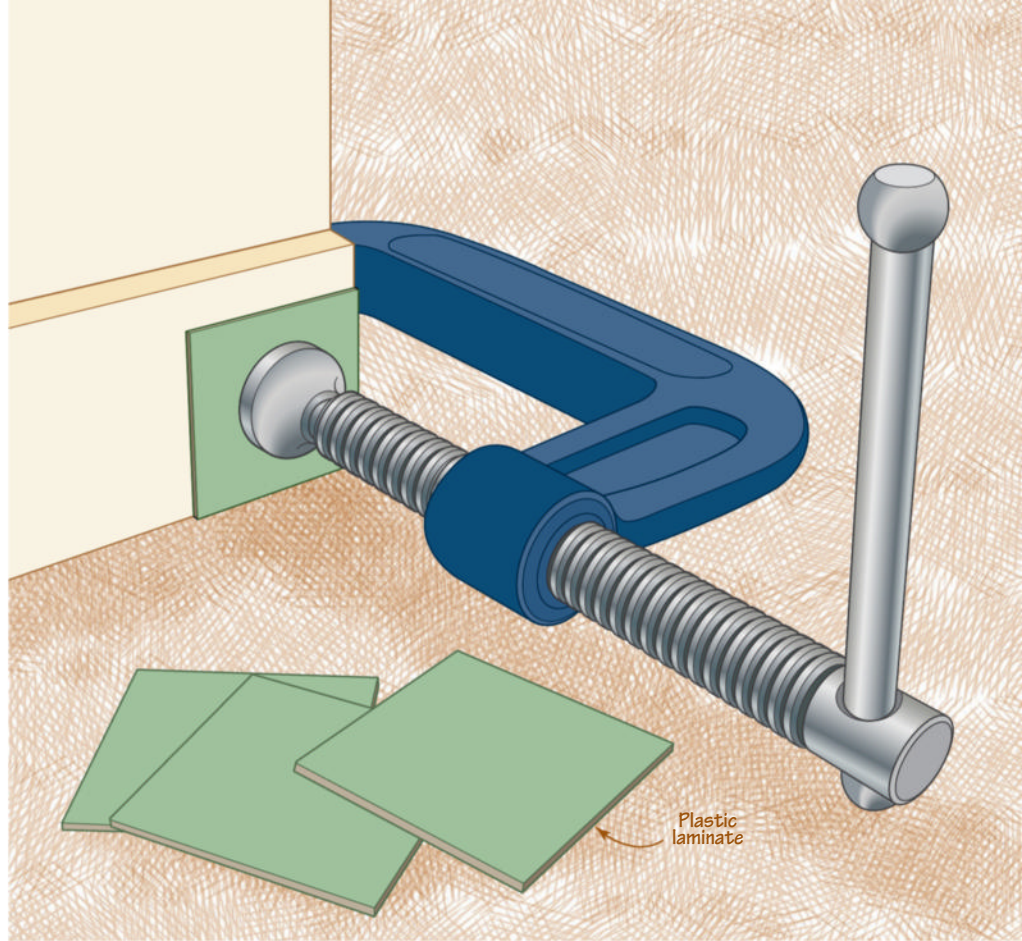
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SHOP TIPS

No-cost, effective clamp pads

Sure, you can always use wood scraps as clamp pads, but here's a better option: plastic-laminate scraps, often available as samples from home centers or cabinet shops. Cut them into $1\frac{1}{2}\times 1\frac{1}{2}$ " squares and put them to work. Unlike wood pads, plastic laminate readily sheds glue, and eats up precious little clamping capacity. Place the smoothest side of the laminate against your workpiece.

—Joe Godfrey, Forest City, N.C.



Fast-and-easy-to-install, super-effective turning tool rack

A short length of open-wire shelving—often available free from anybody installing or removing it from a home remodel—makes a great organizer for turners. Mounted to the wall directly behind your lathe, it holds tools, glues, and finishing supplies, but lets chips fall right through.

—Kenneth Walden, Farmington, N.H.

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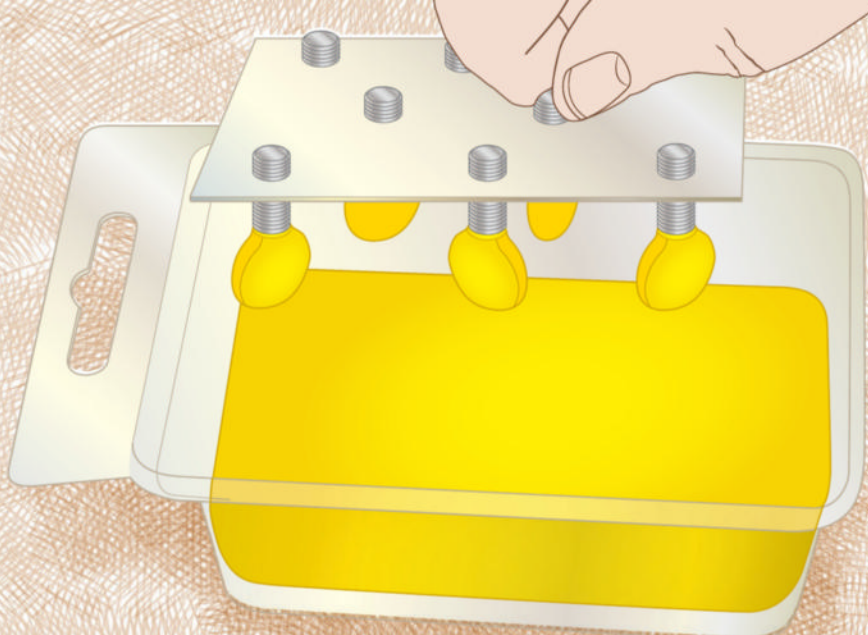
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SHOP TIPS

Take the pain out of bandsaw adjustments

Many bandsaws have small knobs for securing guide blocks and thrust bearings. To make those knobs gentler on your fingers, into the lid of a discarded container or an old credit card, drill holes just big enough to hold knobs. Then fill a container with Plasti Dip. Dunk the knobs, let dry for 30 minutes, and give them another dunking. Your fingertips will thank you the next time you need to make bandsaw adjustments.

—Willie Sandry, Camas, Wash.

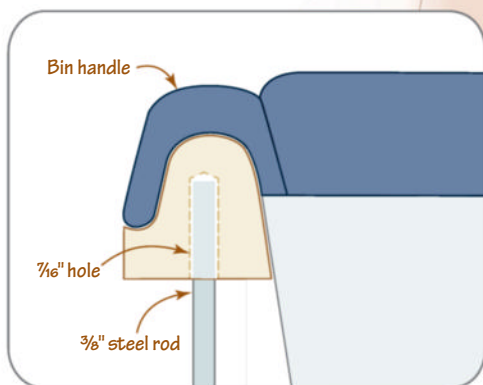
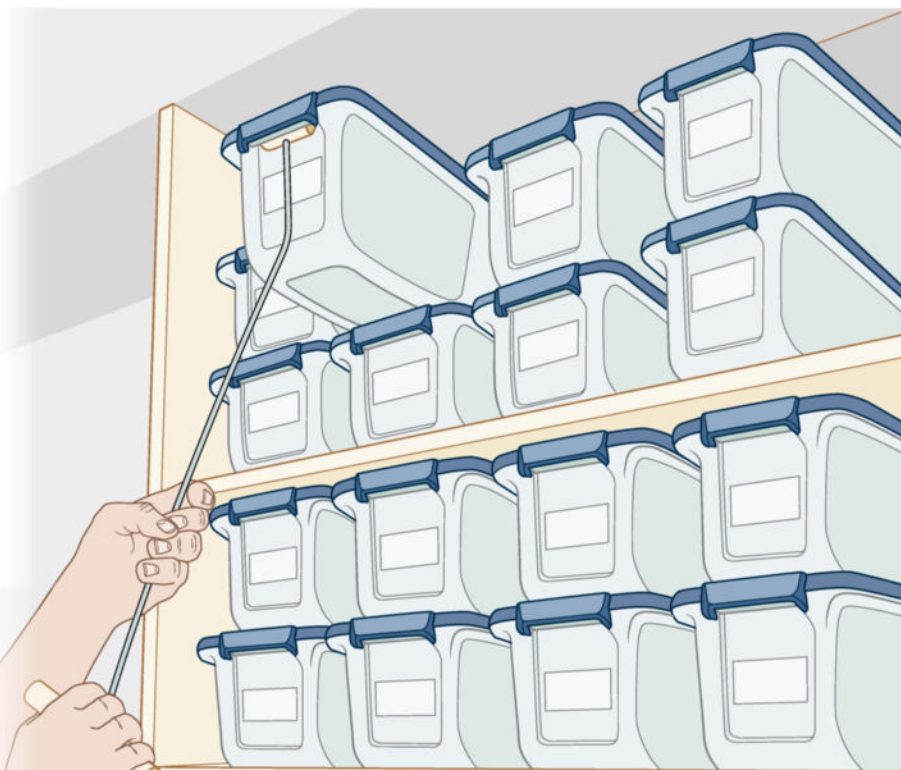


Simple tool puts high-stacked mini bins within easy reach

Because of the difficulty in seeing and reaching items on my cabinets' highest shelves, I wasn't storing much up there. Then, I made a tool for quickly retrieving small, clear bins labeled with their contents.

To make such a tool, cut a short piece of wood to fit the cavity formed by the bin handles. Drill a $\frac{7}{16}$ " hole into the wood to accept a length of $\frac{3}{8}$ " steel rod. (The oversize hole allows room for epoxy you'll add later.) At about 6" down from the wood, bend the rod at a 30° angle. Then add a 1"-diameter dowel handle with a $\frac{7}{16}$ " hole. The exact length of the rod will depend on the height and position of your highest bins. Add epoxy to the holes and assemble.

—Sam Jenkins, Bastrop, Texas



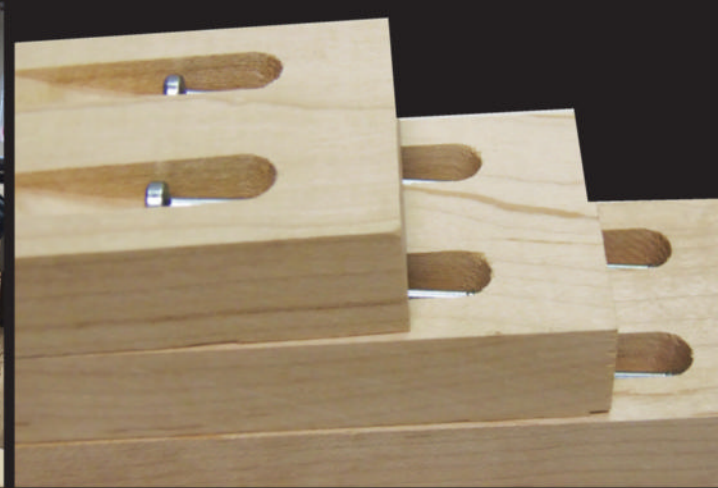
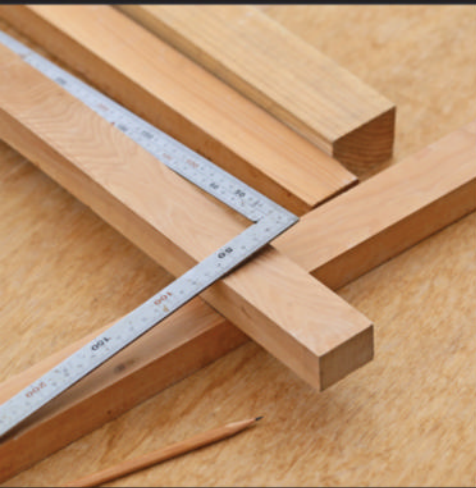
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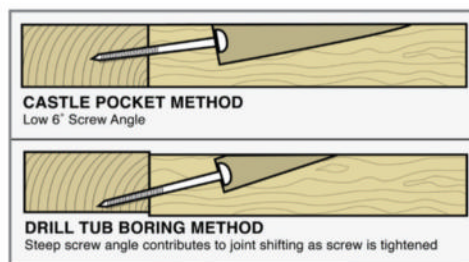
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SHOP TIPS

Dental trick prevents damage to delicate inlays

I like to decorate projects with inlays. There's just one problem with that process: removing the inlay from the routed depression after dry-fitting can easily damage the edges of the inlay and the depression. To avoid that problem, I place a piece of dental floss in the recess prior to fitting the inlay—the thin floss won't interfere with the fit. Then, remove the inlay by simply pulling up on the ends of the floss.

—George LaMotte, Houghton, Mich.



Instant glue hardens wood threads so screws stay put

I often drill and tap wood, MDF, and plywood for holding bolts, screws, and threaded inserts. One example: zero-clearance inserts with leveling setscrews. But I had a problem with the fasteners vibrating, enlarging the tapped holes, and moving.

To prevent that from happening, put a tiny drop of thin-bodied cyanoacrylate (instant) glue into each hole and spritz it with accelerator. Then make another pass with the tap to clean up the now-hardened threads. Add a bit of thread lock to the fastener and know that it won't again move on its own. 🌲

—Floyd Calderwood, Belfast, Maine



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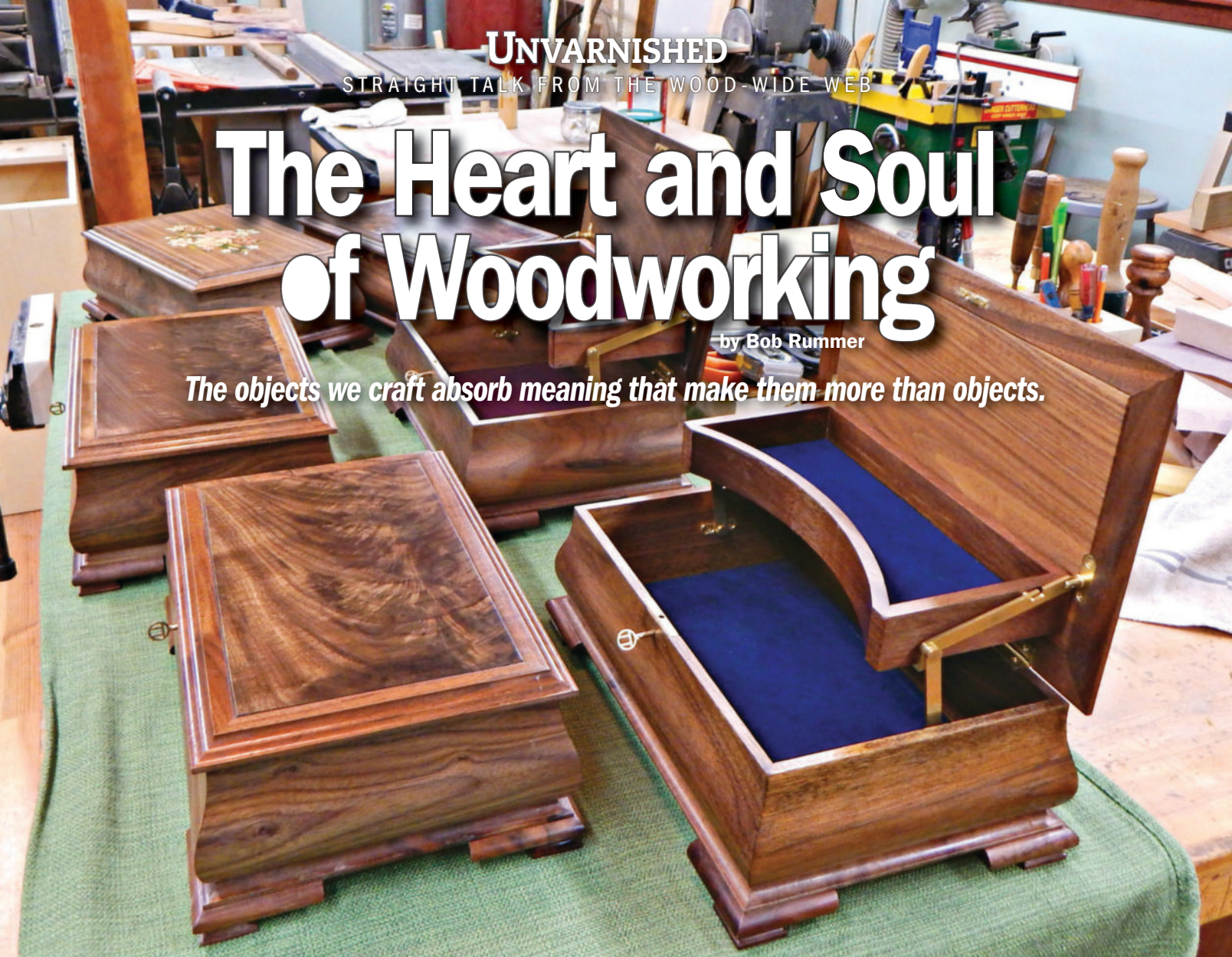
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The Heart and Soul of Woodworking

by Bob Rummer

The objects we craft absorb meaning that make them more than objects.



Fundamentally, woodworking is about creating something for others. Sometimes we make things for ourselves, but by and large, the focus is on somebody else. We make furniture for someone else to enjoy, we build picture frames to highlight someone's special memories, we make bookcases to fit that particular space in another's hallway. A lot of woodworkers find that this element of meeting the needs of others is the motivating factor for time in the shop.

I once had a wonderful opportunity to work on a special project for a local family. Their uncle, the family woodworker, had been in the process of making walnut jewelry boxes for the ladies in the family when he passed away. I took on the job of completing his project for the family. It was a bit tricky to pick up in the middle of all the parts and pieces, but I managed to finish the set of six boxes, *above*. Each was engraved

with the recipient's name and "Made by" with their uncle's byline.

I spent a lot of time during this project reflecting on other people. I thought about the woodworker who started the project, and found myself challenged to match his standard of craftsmanship. I even stripped and refinished one box top because the finish wasn't quite right. I thought about the women who would have these jewelry boxes on their dressers, and how they would remember their uncle whenever they touched these objects. So I put extra effort into rubbing out the finish for a silky-smooth touch. Focusing on others as I worked enhanced my craftsmanship and gave me additional satisfaction.

There is a saying that "the laborer works with his hands, the craftsman with his head, but the artist works with his heart." A true artist puts meaning into their work that

Focusing on the recipient transforms a tedious task, like finishing, into an act of giving.



My grandfather's shop coat hanging in the office reminds me that woodworking is about making things for others, as he did for me—my first violin, the desk chair for my first homework, the cradle for my kids.



This platter features walnut from our hometown, and a Celtic claddagh design my son has used in several pieces he has built. The wood's provenance adds meaning; the design and work have meaning because of family history; and the act of spending time in the shop has meaning for both my daughter and me.

flows from emotions and passion, distinguishing creativity from skillful imitation. However, I think working with your heart is something much deeper than just creativity.

When my grandfather built a walnut cradle to be shared among his descendants, he was thinking of great-grandchildren and great-great grandchildren he would never meet. He worked with his heart. I keep his old shop coat on a hook next to mine as a reminder.

Perhaps it is in the creation of things for others that we tap into the deep "joy of wood-working." It doesn't matter if you're working on a simple toy truck or a fancy marquetry panel, such as in the cake platter I made for my daughter's wedding (above). Focusing on the recipient transforms a tedious task, like finishing, into an act of giving. Maybe the quote should be, "The laborer works with his hands, and his reward is a paycheck and blisters. The woodworker works with his heart, and his reward is joy." 🌳

Perhaps it's in the creation of things for others that we tap into the deep "joy of woodworking."



▶ Bob Rummer inherited his woodworking skills from a long line of European woodworkers dating back to the mid-1700s. His custom woodworking reflects the craftsmanship and skills of his family heritage. Find his shop, Joh. Rummer and Söhne, in Lawrence, Kansas, and on the web at jrummersons.com.

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Antique Brass (shown above)	#PKREVAB	\$24.95	\$23.95	\$22.95	\$21.95
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Antique Brass	#PKLEVAB	\$22.95	\$21.95	\$20.95	\$19.95
Antique Pewter	#PKLEVAP	\$22.95	\$21.95	\$20.95	\$19.95

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BEFORE FINISH

AFTER FINISH

►To build a lap desk similar to the one shown here, see issue 159 (November 2004) or woodmagazine.com/lapdesk.

When you build a chair destined to sell for \$50,000 at auction, its finish had better be pretty special.

No small wonder then, that master chair builder Russ Filbeck chooses a sanded-in oil finish for all his work, including the masterpieces he donates to the annual auction benefiting the global humanitarian work of The Carter Center (cartercenter.org).

Sanded-in oil topped with paste wax brings out the light-refracting beauty in figured woods, such as curly maple or walnut crotch, delivering depth and luster that just can't be achieved with a brushed or sprayed finish. Should the finish be damaged, you

can easily repair it by simply sanding in more oil. And because the finish fills the wood pores with an oil/wood fiber slurry, even highly porous species, such as oak, become silky smooth to the touch.

Fortunately, you can use a few basic finishing supplies, and Russ' simple method, to get the same high-dollar look and feel with your projects. This method requires a little more effort and patience than most finishing techniques, but you'll find the results well worth it.



Russ Filbeck specializes in making ladder-back chairs, like this one he crafted from ancient kauri, a wood found buried for 50,000 years in New Zealand. For more information on the wood, go to ancientwood.com

First, round up a few supplies

After years of trying various brands and products, Russ prefers the following products:

① Liberon Finishing Oil. “It penetrates deep into the wood without becoming sticky prior to absorption,” says Russ. “Minwax Antique Oil Finish works almost as well, and is widely available.”

② Clear Liberon Wax Polish. “Other high-quality waxes will suffice, so long as they’re clear.”

③ 3M Wetordry silicon carbide sandpaper in 220, 320, and 400 grits. “It holds up better than most; other abrasives made for wet use will also work.”

④ Small squirt bottle for controlled dispensing of the oil.

⑤ Clean, lint-free rags for wiping away excess oil, applying paste wax, and buffing.

⑥ Nitrile or latex gloves.

Note: If you choose a slow-curing oil finish, such as boiled linseed oil, allow 2–3 times as much curing time between coats.

► Buy these supplies with one click.
woodmagazine.com/sandedinfinish



Let's do this

1 Before you apply the finish, sand project surfaces with 80-, 120-, 150-, and 180-grit abrasives. Lightly sponge the project with water to expose any glue squeeze-out; remove it with a chisel or scraper. Check surfaces in a low-angle light for dents, and use a hot iron and clean wet cloth to steam them out. Allow the project to dry, then sand with 220-grit abrasive.

Tip! To prevent the abrasive backing from absorbing humidity and curling, tear sandpaper into ¼ sheets and store those in zipper-type plastic sandwich bags.

2 Cut the wet-sanding abrasive sheets into ¼-sheet pieces (about 2¼×2¾"). Fold those twice to yield three equal sanding surfaces [Photo A].

3 Squirt oil onto a small section of the project (one face of a box, or one arm of a chair, for example). Sand the oil into the surface using 220-grit abrasive [Photo B]. When you feel the sandpaper starting to dull, rotate to a fresh abrasive surface. In

CAUTION: Oily finish rags can spontaneously combust if left crumpled in a trash can. Always lay out oil-soaked rags on a noncombustible surface, such as a concrete slab, until completely dry.



A

Create a ¼-sheet by cutting a full sanding sheet in half across its width, then repeating that action three more times on each resulting piece of abrasive.



B

Pack the pores with an oil/fiber slurry as you sand the workpiece surface in a circular motion. Sand with the grain for the last few strokes to remove any swirl marks.



C

Remove excess slurry using a clean, lint-free cloth and a light touch.



D

Apply a thin and even film of wax using a soft, lint-free cloth. A discarded ladies' shoulder pad also works well.

little time you'll force as much slurry as possible into the pores—stop at that point and let the oil cure 5–10 minutes. Then, wipe away excess slurry [Photo C]. For working efficiency, repeat the oil application/sanding process on another section as you wait for the previous section to do its initial curing.

Note: With coarse-grain woods, such as oak, ash, mahogany, or walnut, sand in two coats of oil using 220-grit abrasive before moving on to 320-grit.

4 After completing the previous step on all surfaces, wipe the entire project with a clean cloth every hour, for four hours, to remove any oil bleed-back. Let the finish cure 24 hours. Some domestic woods, such as walnut, cherry, and oak, as well as drier exotics, including bubinga, may require two days of

curing. Oily exotics, such as cocobolo or teak, should sit 3–4 days between coats.

5 Repeat Steps 3 and 4 using 320-grit sandpaper. Then, repeat again with 400-grit abrasive. Allow the finish to cure at least one week after the final oil application.

Bring out the sheen with wax

1 Thoroughly work paste wax into a soft cloth. Then, apply it sparingly [Photo D], and let sit 20 minutes.

2 Buff the wax with a soft, lint-free cotton cloth. If you want an even higher sheen, repeat the wax application after 24 hours. 🌿

Produced by **Bill Krier** with **Russ Filbeck**

Meet Russ Filbeck

After a 23-year Navy career, most of it aboard submarines, Russ taught woodworking at the college level for 24 years. Today, when he's not making donations to auctions for The Carter Center or Good Samaritan Boys Ranch near Springfield, Missouri, Russ instructs chair-making one-on-one in his San Diego garage workshop, where he's happy to say "The door stays open nearly year-round." He enjoys sharing his knowledge with woodworkers around the world, and strives to incorporate the skills, precision, and sense of tradition from Japanese woodworking into his own work.



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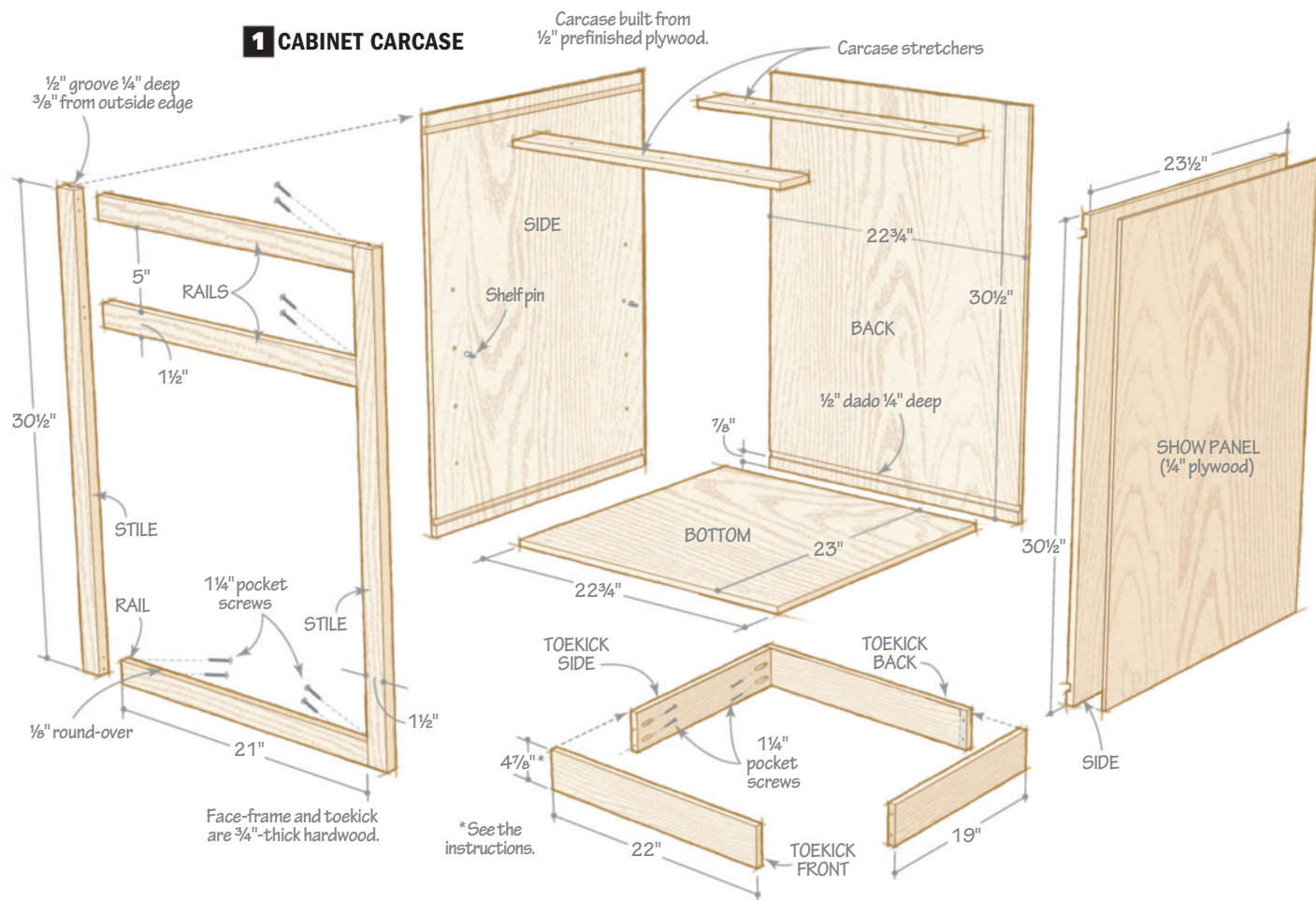
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1 CABINET CARCASE



The secret to building a cabinet lickety-split? It's not one thing, but a series of choices regarding materials, joinery, part sizing, and methods of work, each providing efficiency and saving time.

Senior Design Editor Kevin Boyle has built dozens of cabinets using the approach shown here. If you read and understand the process before you get into the shop, you'll be amazed how quickly a cabinet comes together.

The keys to speed

First, let's review some of the ways Kevin speeds up the build.

► **Lumber.** Using prefinished 1/2" maple or birch plywood for the carcass reduces finishing time, materials cost, and weight. Plus, the light-colored wood improves visibility inside the cabinet. Place the finished face to the inside, because the only visible exterior carcass face is on the end of a line of cabinets. Cover that face with a 1/4" plywood show panel. (Apply a panel to each side of a freestanding cabinet with both sides visible.)

► **Design.** Overlay doors and drawers require the least fitting, so that's the fast choice.

► **Hardware.** Kevin chooses undermount drawer slides [Source] because they install easily with no visible hardware.

To maintain a clean look, go with 35mm hinges [Source]. They hide inside the cabinet and adjust in three axes, reducing the time spent fitting doors. With a soft-close feature, you won't put up with slamming doors.

► **Procedure.** A cabinet doesn't require a lot of hardwood, so prep it all in one session. Select your best-looking material for the face frame, door frame, and drawer false front [Drawings 1, 2, 4], and plane it, and stock for the toe kick, to 3/4" thick. Plane the drawer-box material to 5/8" thick.

Minimize time spent swapping a dado set in and out by cutting all parts to size first. Then cut all of the door and drawer joinery with one dado stack, and the joinery for the carcass with a second dado stack.

Save precious floor space and make moving around the shop easier by building the face frame first, then fit the door and drawer to the face-frame openings, and construct the bulky carcass last.

Now that you know the "why's" of building a cabinet quickly, let's get to the "how."

► A 1/4" plywood carcass back would be cheaper, but 1/2" plywood provides purchase for the screws for the drawer-slide brackets.

First, build the face frame

Note: This base cabinet is a standard 34½" high and 24" deep [Drawing 1]. While the sample is 24" wide, you can vary any of these dimensions to suit your needs. For example, make shorter a shop cabinet that doubles as a tool stand to put the tool at a comfortable working height.

Round over the top inside edge of the lower rail [Drawing 1], then assemble the face frame with pocket screws. You'll cut the grooves in the stiles later. Finish-sand to 220 grit the face frame, door panel, and drawer false front, and apply a finish to these pieces.

Do the drawer and door

Size the drawer false front [Drawing 2] and the completed door [Drawing 4] ¾" wider and taller than the face-frame openings. Cut the drawer sides, front, and back 1" narrower than the opening height. The completed drawer box will be ⅜" narrower than the opening width.

Set up a ¼" dado blade in your tablesaw to cut the joinery [Drawings 2, 3, 4]: grooves and dados in the drawer parts; centered grooves

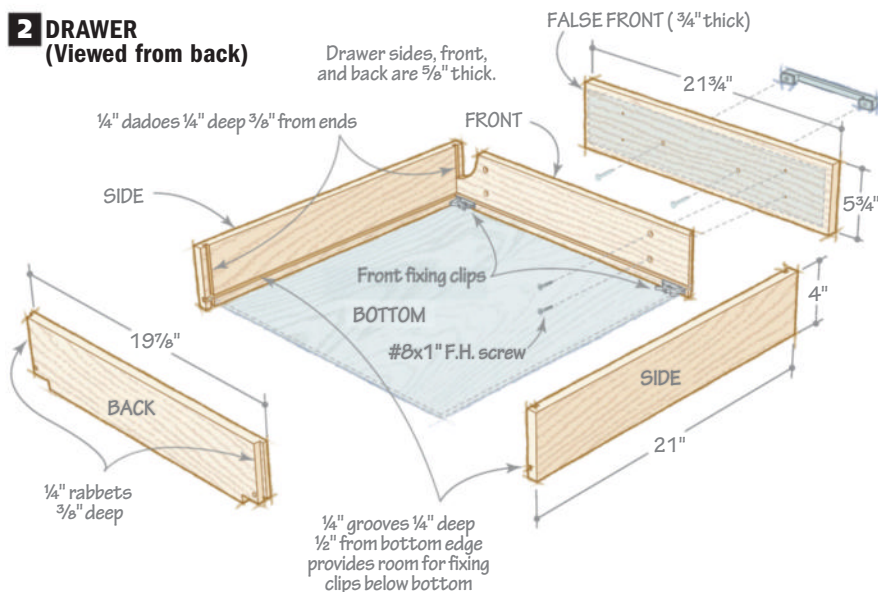


A Adjust the blade height and rip-fence position to cut ⅜"-long tongues on each end of the door rails. Sneak up on the final blade height to get a snug-fitting tongue.

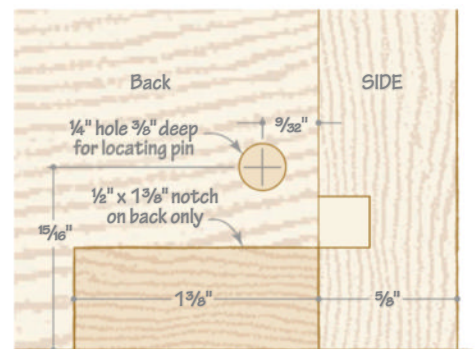
in the door rails and stiles; and rabbets on the ends of the rails [Photo A]. To accommodate the drawer slides, notch the drawer backs [Drawing 2a], and drill the holes.

With the joinery cut, glue up the door, applying a small amount of glue in the grooves to secure the panel. Then glue up the drawer box without the false front. While the glue dries, you can move on to the carcass.

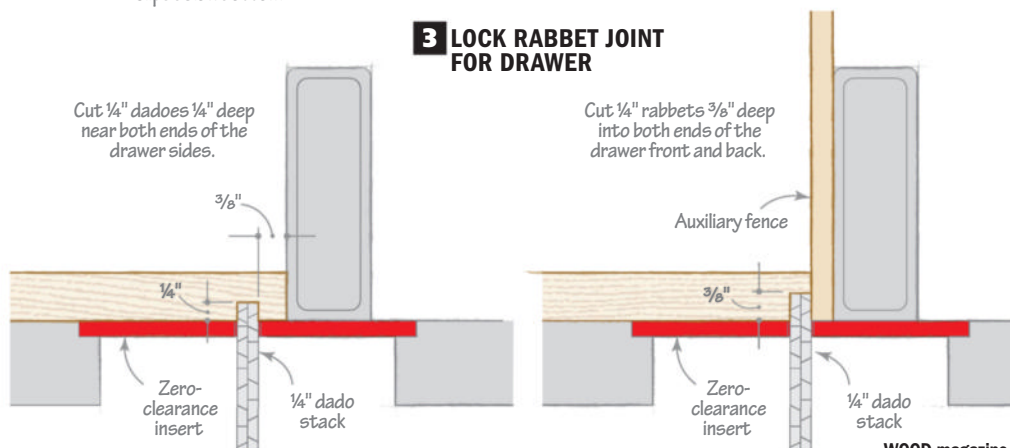
2 DRAWER (Viewed from back)

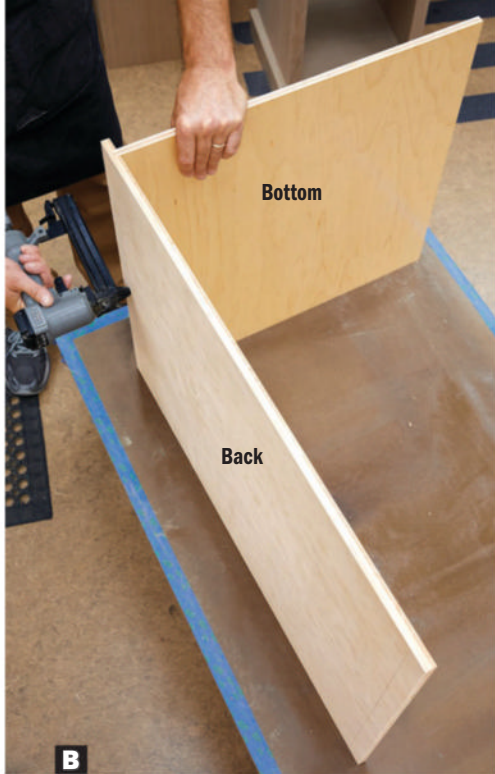


2a DRAWER REAR CORNER



3 LOCK RABBET JOINT FOR DRAWER





B Glue the bottom to the back and secure the joint with 1¼" narrow-crown staples.



C Attach a carcass side to this assembly. The sides protrude ¼" beyond the bottom to fit into the grooves in the face frame.



D Add the stretchers and remaining side. Then glue the face frame to the carcass (no staples).

Craft the carcass last

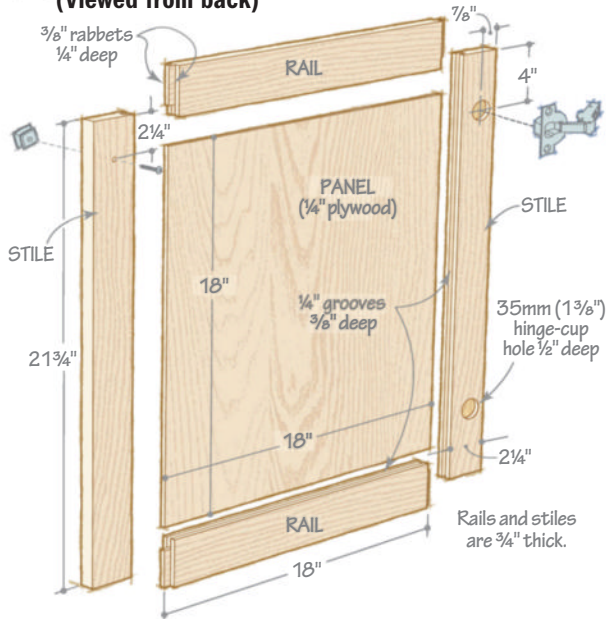
► Learn how to get perfectly sized dados with just one test cut.
woodmagazine.com/perfectdadovid

Set up your dado blade to match the thickness of the ½" plywood. Then, rabbet and dado the carcass sides and back, and groove the face-frame stiles [Drawings 1 and 5]. If you want an adjustable shelf, drill shelf-pin holes in the carcass sides. Glue up the carcass as shown in Photos B–D.

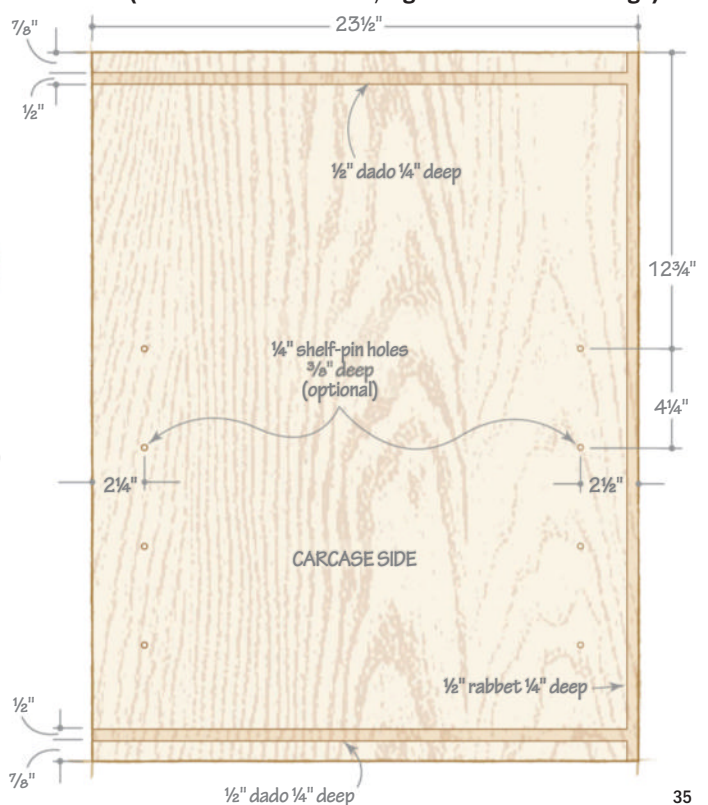
Assemble the toe-kick [Sizing the toe-kick, next page], and glue it to the bottom of the cabinet, against the back [Drawing 1]. Cut the show

panel to cover the cabinet side and glue it in place. If you drilled shelf-pin holes, cut a shelf from ¾" plywood, cover the exposed edge with hardwood, and set it in place on shelf pins.

4 DOOR (Viewed from back)



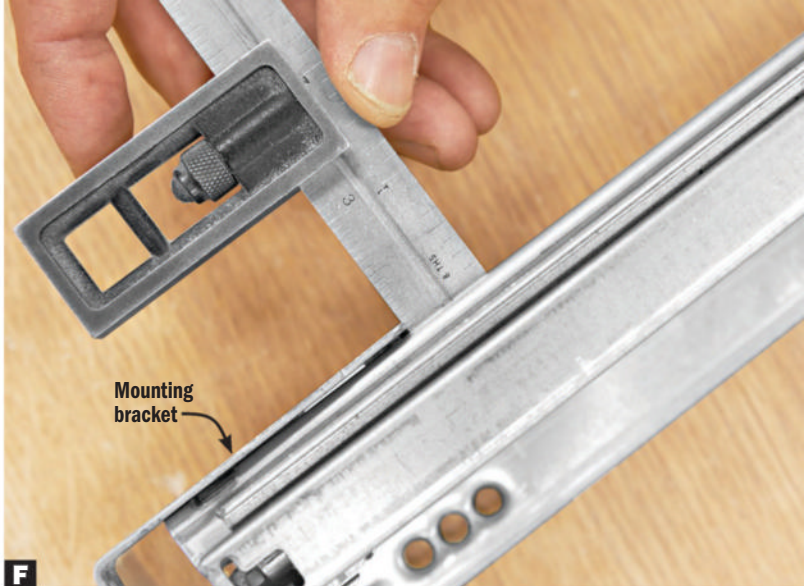
5 CARCASS SIDE (Left inside face shown, right side is mirror image)





E

Clamp a straight scrap to the face frame $\frac{3}{8}$ " below the top of the bottom rail and parallel to the rail's edge. Rest the door on the scrap, and screw the hinge mounting plates to the exposed face frame.



F

Attach the rear mounting brackets to the drawer slides and measure from the bottom of the slide to the bottom of the bracket. Subtract this from the distance from the top edge of the middle rail and the cabinet bottom. Cut a scrap support to this length.

Install the door and drawer

Drill the hinge-cup holes in the door, and the knob and pull holes in the drawer false front and door. Install the knob and pull. Screw the hinges to the door, then install the cabinet-mount portion of the hinge [Photo E].

Install the drawer slides [Photos F and G]. Attach the fixing clips to the drawers. Slide the drawer in place, then rest a $\frac{3}{8}$ "-thick spacer on the door to position the false front over the drawer box. Clamp the false front in place, then drive screws from the inside [Drawing 3].

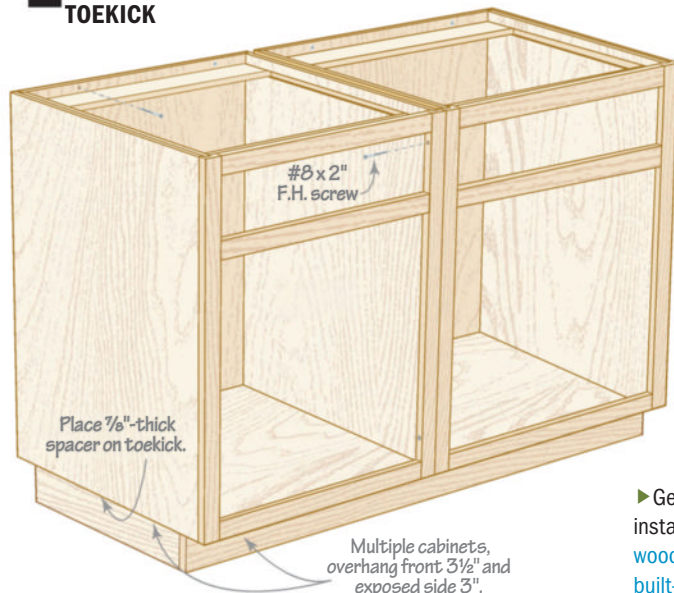
Remove the hardware, and apply a finish to the door and drawer. Lastly, top the cabinet with a countertop. 🌲

Sizing the toekick

Keep in mind these guidelines as you build a toekick. For a single cabinet, make the toekick as shown to fit between the cabinet sides [Drawing 1].

For two or more cabinets set next to each other, the cabinet sides and backs rest on the toekick, so make the toekick parts 4" wide and the toekick length 3" less than the combined width of the cabinets. Put the toekick in place, level it, then screw it to the floor. Rest the cabinets on it, overhanging the front and exposed side [Drawing 6]. Shim above the exposed side of the toekick. Join the cabinets with screws through the adjoining face frames, and then screw them to the wall studs.

6 MULTIPLE-CABINET TOEKICK



G

Rest the slide on the scrap and the face frame with the front end set back from the front of the face frame according to the manufacturer's instructions. Screw the slide to the face frame and the back.

► Get details about installing cabinets. woodmagazine.com/built-ins-that-blend-in

Materials List

(for one standard cabinet)

Part	T	FINISHED SIZE		Matl.	Qty.
		W	L		
Carcase					
sides	½"	23 ½"	30 ½"	PP	2
back	½"	22 ¾"	30 ½"	PP	1
bottom	½"	23"	22 ¾"	PP	1
face-frame stiles	¾"	1 ½"	30 ½"	M	2
face-frame rails	¾"	1 ½"	21"	M	3
stretchers	½"	4"	22 ¾"	PP	2
show panel	¼"	23 ¼"	30 ½"	P	1
toekick sides	¾"	4 ⅞"*	19"	M	2
toekick front/back	¾"	4 ⅞"*	22"	M	2
Door					
stiles	¾"	2 ¼"	21 ¾"	M	2
rails	¾"	2 ¼"	18"	M	2
panel	¼"	18"	18"	P	1
Drawer					
sides	⅝"	4"	21"	M	2
front/back	⅝"	4"	19 ⅞"	M	2
false front	¾"	5 ¾"	21 ¾"	M	1
bottom	¼"	19 ⅞"	20 ¼"	P	1

* See **Sizing the toekick** on the previous page.

Materials key: PP—prefinished plywood, M—maple (or your choice of species), P—maple plywood (or your choice of species).
Supplies: 1¼" pocket screws, 1¼" crown staples, #8×1" flathead screws, ¼" shelf pins (optional), drawer and door pulls.

Source:

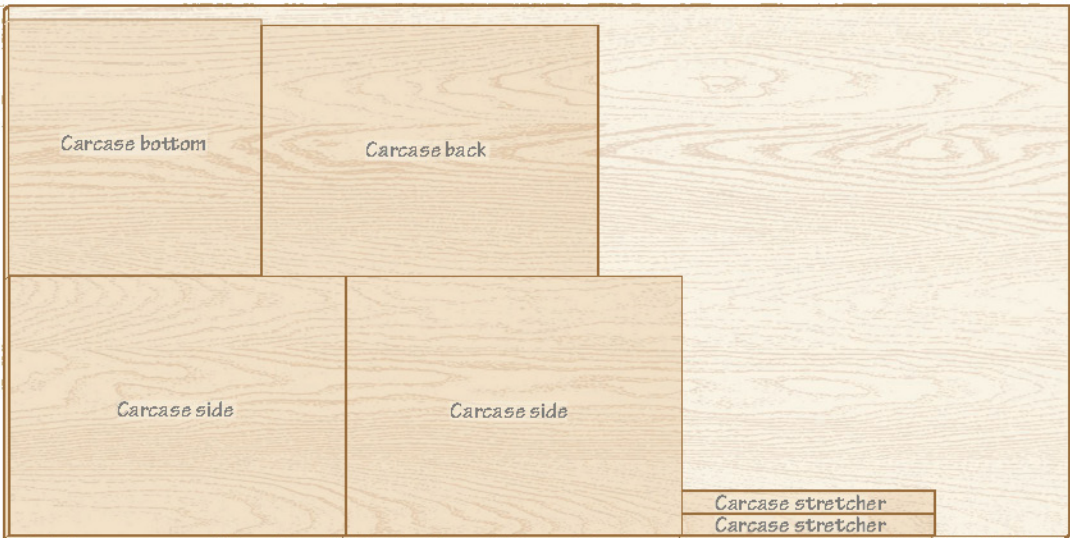
Blum 110° soft-close hinges (1 pair), no. B071B3650, \$5.27 ea.; Blum face-frame clip mounting plates (2), no. B175L6600.22, \$1.34; Hettich 21° soft-close drawer slides (1 pair), no. HT9134329, \$25; Woodworker's Hardware, 800-383-0130, www.hardware.com.

Produced by **Craig Ruegsegger** with **Kevin Boyle**
Illustrations: **Roxanne LeMoine**, **Lorna Johnson**

Cutting Diagram



¼ x 48 x 48" Plywood



½ x 48 x 96" Prefinished plywood



¾ x 7¼ x 96" Maple



¾ x 9¼ x 96" Maple *Plane to the thickness listed in the Materials List.



*From lumber to
slumber in no time*

Platform Bed

◀ For a unique feature,
use a natural-edge slab
for the headboard instead
of a glued-up panel.

D I M E N S I O N S :
70 1/2" W x 90 1/2" D x 41 1/2" H

Approximate
materials cost:
\$300

Southern yellow
pine: about
20
percent lighter and
35
percent cheaper
than red oak

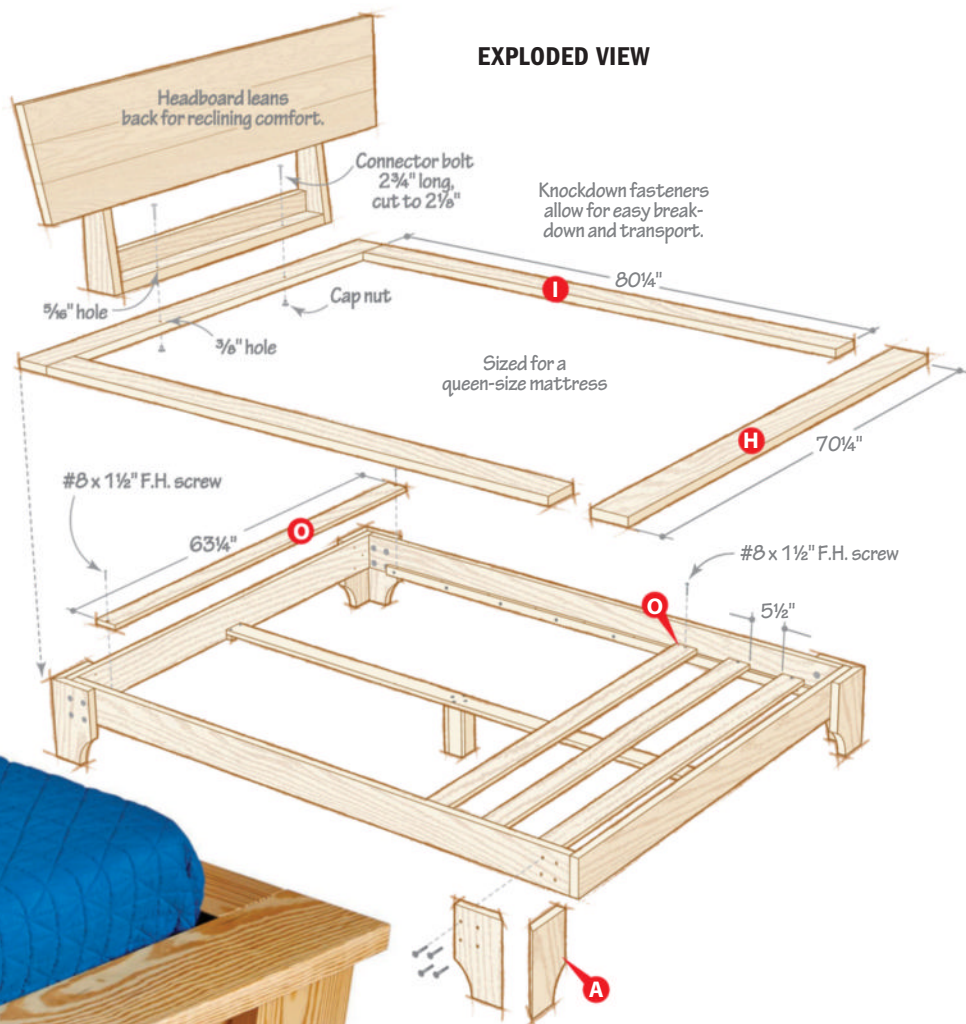
You won't give up a thing in the looks department by using well-chosen southern yellow pine instead of hardwood for this queen-size sleeper.

First, the feet

1 Face-joint and plane boards to $1\frac{1}{4}$ " thick for parts A–C, H–L, and N [Materials List]. Mark part letters on the boards with chalk.

2 Cut the foot halves (A) and pair them for a good grain match at the mating edges [Exploded View]. Mark the pairs for reassembly and the edges to bevel. Draw the arcs [Drawing 1].

3 Bevel-rip the foot halves and bandsaw and sand the arcs. Assemble the feet [Skill Builder, below], sand chamfers along their bottom edges, and finish-sand them.



SKILL BUILDER

Tape rescues a slippery bevel glue-up

Gluing beveled parts, such as the feet in this project, can be a challenge. Clamping from the outside edges across the joint causes the bevels to slip past one another. And you have to keep the ends of the assembly flush. To gain control, reach for a roll of masking tape instead of clamps. Then follow the steps in Photos A–C. This method also works for closed assemblies with any number of sides, as well as mitered frames.



A Position the foot halves inside faces down, ends flush, with the bevel points touching. Apply masking tape across the joint.

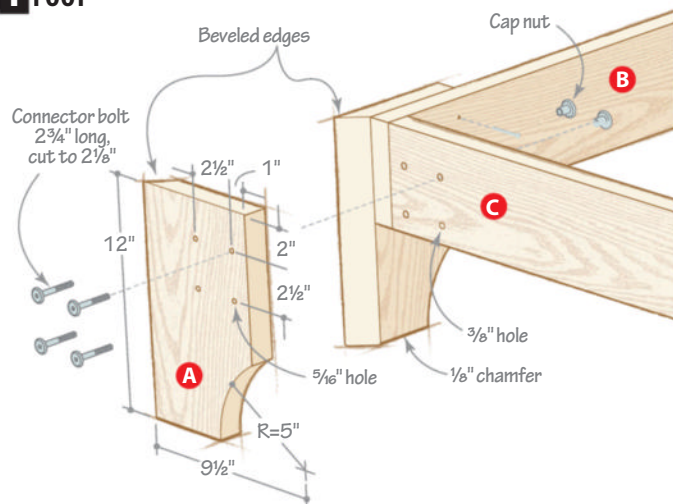


B Carefully turn over the assembly and apply glue to the bevels.



C Fold the foot halves to form a 90° corner. Tightly pull the joint together with more masking tape.

1 FOOT



D Glue and screw the feet (A/A) to the ends of the end rails (B) with the top ends and edges flush and the rail ends tightly butted into the inside corners of the feet.

Build the base frame

1 Cut the end rails (B) and side rails (C) [Drawing 2] and finish-sand them. Assemble the feet (A/A) and end rails [Photo D].

2 Cut the side cleats (D). Glue and screw them to the side rails (C), flush at the bottom and centered end to end [Drawing 2].

3 Cut the end cleats (E) and slat support (F). Using double-face tape, secure a cleat to the bottom face of the support at each end. Drill holes through the cleats and into the support [Drawing 3]. Separate the parts, remove the tape, and glue dowels into the stopped holes in the support [Drawing 2]. Glue the cleats to the end rails (B), flush at the bottom and centered.

4 Cut the leg sides (G) and glue the leg together [Drawing 4]. Center the leg on the slat support and screw it in place [Drawing 2].

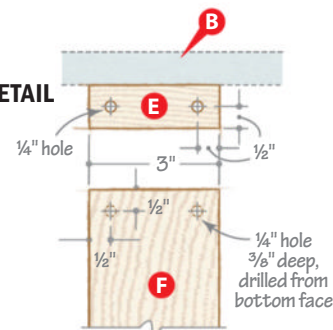
5 Clamp the side rails (C) to the inside faces of the feet on the end-rail assem-

blies [Drawing 2]. Drill 5/16 inch holes through the feet and side rails [Drawing 1]. Separate the parts and enlarge the rail holes to 3/8 inch. Assemble the side rails to the end-rail assemblies with cut-to-length connector bolts and cap nuts [Source].

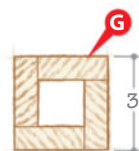
6 Cut the caps (H, I) [Exploded View] and clamp them to the rails (B, C), overhanging 2 1/8 inch all around. Remove the caps one at a time and glue and clamp them in place. Do not glue the end caps to the side rails. Finish-sand the caps.

Note: We purchased 2 3/4 inch connector bolts and trimmed them to 2 1/8 inch long with a hacksaw.

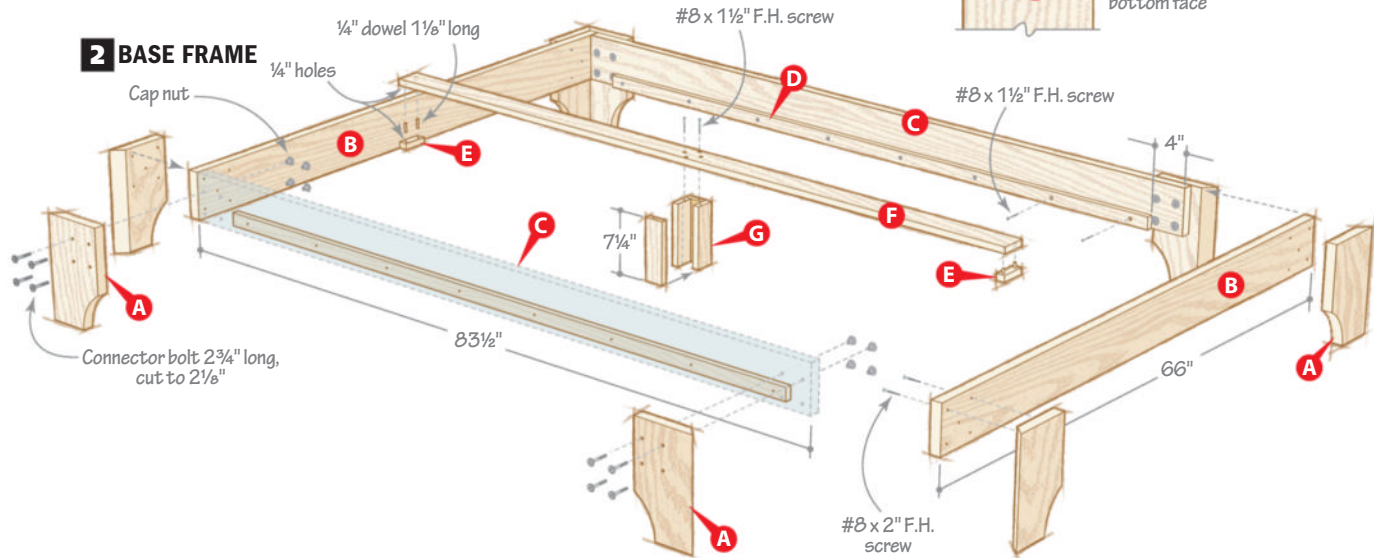
3 CLEAT AND SUPPORT DETAIL



4 LEG END VIEW



2 BASE FRAME





E Lay out the slots and drill overlapping $\frac{1}{4}$ " holes. True up the edges of the slots with a chisel.



F Center a $\frac{1}{4}$ " drill bit in the flange (M) slots and drill into the headboard (N) only enough to make a mark. Drill pilot holes into the headboard at the flange center-hole locations.

Note: We drilled pocket holes with a Kreg Jig HD and used $2\frac{1}{2}$ " HD pocket screws to join the brace/spacer assembly (K/L) to the struts (J). You can instead use a standard pocket-hole jig and 2" pocket screws. If you don't have a pocket-hole jig, drill counter-bored holes through the struts, screw the struts to the brace and spacer, and plug the holes.

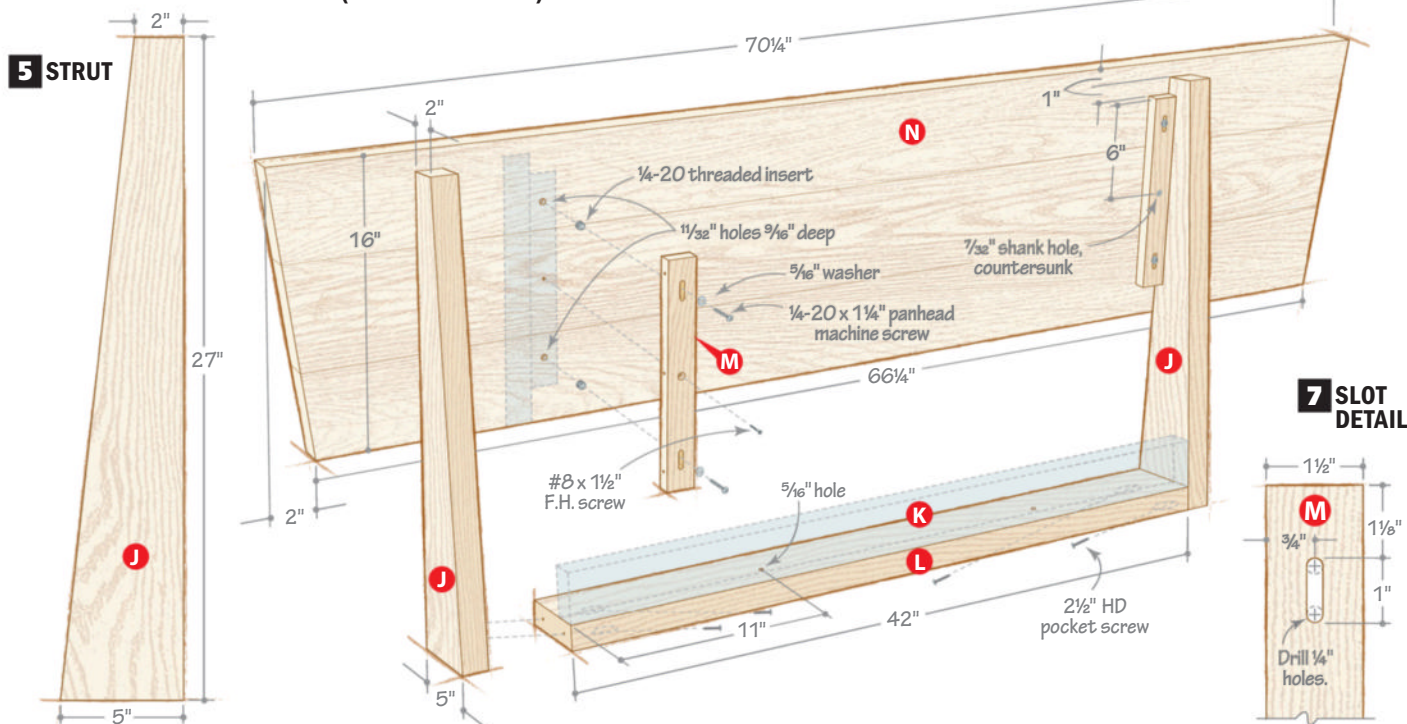
Add the headboard

- 1 Cut the struts (J) and mark the taper lines. Bandsaw just outside the taper lines. Stick the parts together with double-face tape and joint the tapered faces smooth, feeding the wide ends across the cutterhead first.
- 2 Cut the brace (K) and spacer (L) [Drawing 6]. Drill pocket holes in the back of the brace and the bottom face of the spacer. Glue and clamp the parts with the ends and back edges flush. Clamp the brace/spacer assembly between the struts (J) flush at the back and bottom and drive pocket screws.

3 Cut the flanges (M). Drill the center holes and form the slots [Drawings 6 and 7, Photo E]. Glue the flanges to the struts (J), flush with the tapered edge.

4 Edge-join a blank for the headboard (N) and sand it smooth. Cut the headboard to size, cut the end angles [Drawing 6], and finish-sand it. With the headboard face-down on your workbench, clamp the strut assembly (J-M) to the headboard, centered and 1" from the top edge. Mark the flange (M) slot and hole locations [Photo F].

6 HEADBOARD (Viewed from back)



► Install threaded inserts true with this simple jig.
woodmagazine.com/insertinstall

5 Remove the strut assembly and drill holes for threaded inserts [Drawing 6, Source]. Install the inserts [Photo G].

6 Center the headboard assembly on the end cap (H) and clamp it in place [Exploded View]. Drill $\frac{5}{16}$ " holes through the spacer (L) and the end cap. Remove the headboard assembly and enlarge the end-cap holes to $\frac{3}{8}$ ".

7 From $\frac{3}{4}$ " stock, cut the slats (O) to size and finish-sand them.

Finish up

1 Disassemble the base frame and finish-sand where needed, easing sharp edges with a sanding block. Apply a clear finish. (We used a water-based satin polyurethane.)

2 In the bedroom, reassemble the base frame and mount the headboard assembly [Exploded View]. Fasten the slats (O) to the

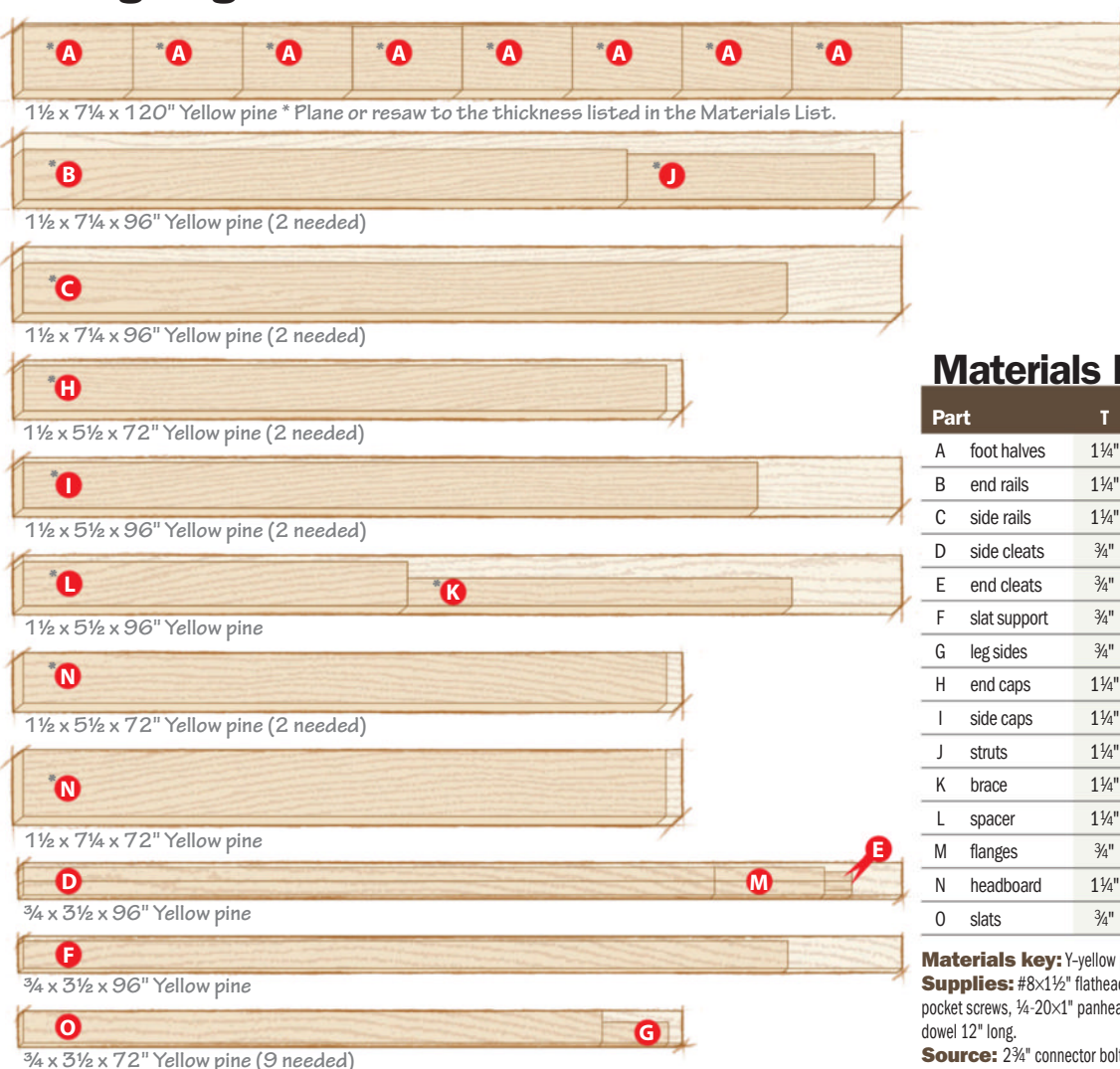


Drive the threaded inserts into the headboard (N) with a hex wrench.

side cleats (D) with a single screw at each end. Plop in the mattress. Now that you've finished making the bed, get the linens, and make the bed. 🌿

Produced by
Craig Ruegsegger with
Brian Bergstrom and
Jan Svec
 Project design: **Kevin Boyle**
 Illustrations: **Roxanne LeMoine**, **Lorna Johnson**

Cutting Diagram



Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A foot halves	1 $\frac{1}{4}$ "	7"	12"	Y	8
B end rails	1 $\frac{1}{4}$ "	5 $\frac{1}{2}$ "	66"	Y	2
C side rails	1 $\frac{1}{4}$ "	5 $\frac{1}{2}$ "	83 $\frac{1}{2}$ "	Y	2
D side cleats	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	75 $\frac{1}{2}$ "	Y	2
E end cleats	$\frac{3}{4}$ "	1"	3"	Y	2
F slat support	$\frac{3}{4}$ "	3"	83 $\frac{1}{2}$ "	Y	1
G leg sides	$\frac{3}{4}$ "	2 $\frac{1}{4}$ "	7 $\frac{1}{4}$ "	Y	4
H end caps	1 $\frac{1}{4}$ "	5"	70 $\frac{1}{4}$ "	Y	2
I side caps	1 $\frac{1}{4}$ "	5"	80 $\frac{1}{4}$ "	Y	2
J struts	1 $\frac{1}{4}$ "	5"	27"	Y	2
K brace	1 $\frac{1}{4}$ "	3"	42"	Y	1
L spacer	1 $\frac{1}{4}$ "	4 $\frac{1}{16}$ "	42"	Y	1
M flanges	$\frac{3}{4}$ "	1 $\frac{1}{2}$ "	12"	Y	2
N headboard	1 $\frac{1}{4}$ "	16"	70 $\frac{1}{4}$ "	EY	1
O slats	$\frac{3}{4}$ "	3 $\frac{1}{2}$ "	63 $\frac{3}{4}$ "	Y	9

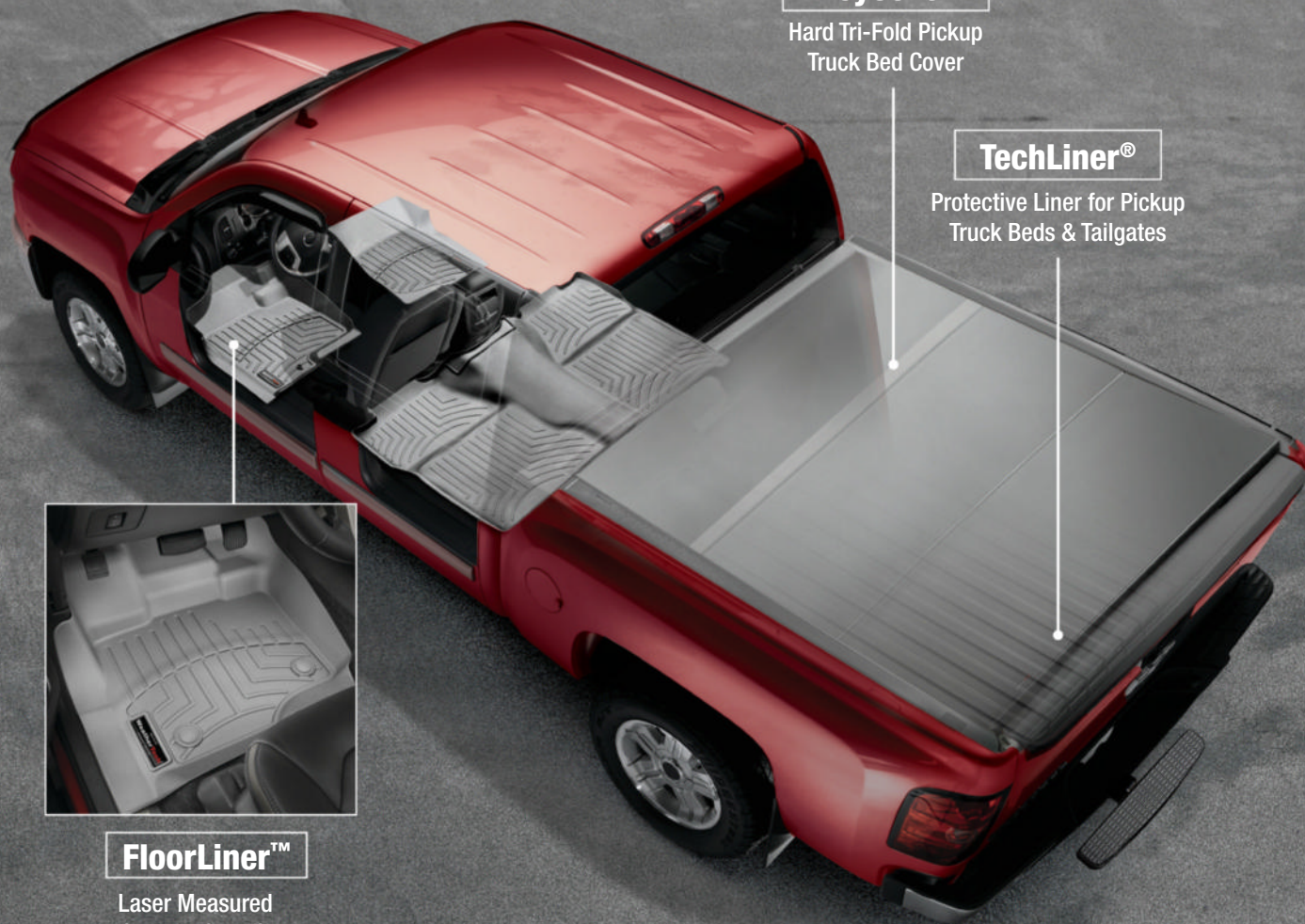
Materials key: Y-yellow pine, EY-edge-glued yellow pine.

Supplies: #8x1 $\frac{1}{2}$ " flathead screws, #8x2" flathead screws, 2 $\frac{1}{2}$ " HD pocket screws, $\frac{1}{4}$ -20x1" panhead machine screws (4), $\frac{5}{16}$ " washers (4), $\frac{1}{4}$ " dowel 12" long.

Source: 2 $\frac{3}{4}$ " connector bolts, statutory bronze no. 31856, \$5.99/8-pack (3 packs); cap nuts, statutory bronze no. 31815, \$5.49/8-pack (3 packs); $\frac{1}{4}$ -20 threaded inserts, hex drive no. 31872, \$6.99/8-pack; Rockler, 800-279-4441, rockler.com.

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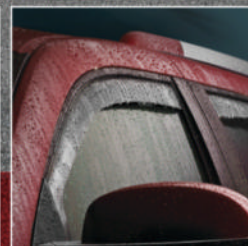
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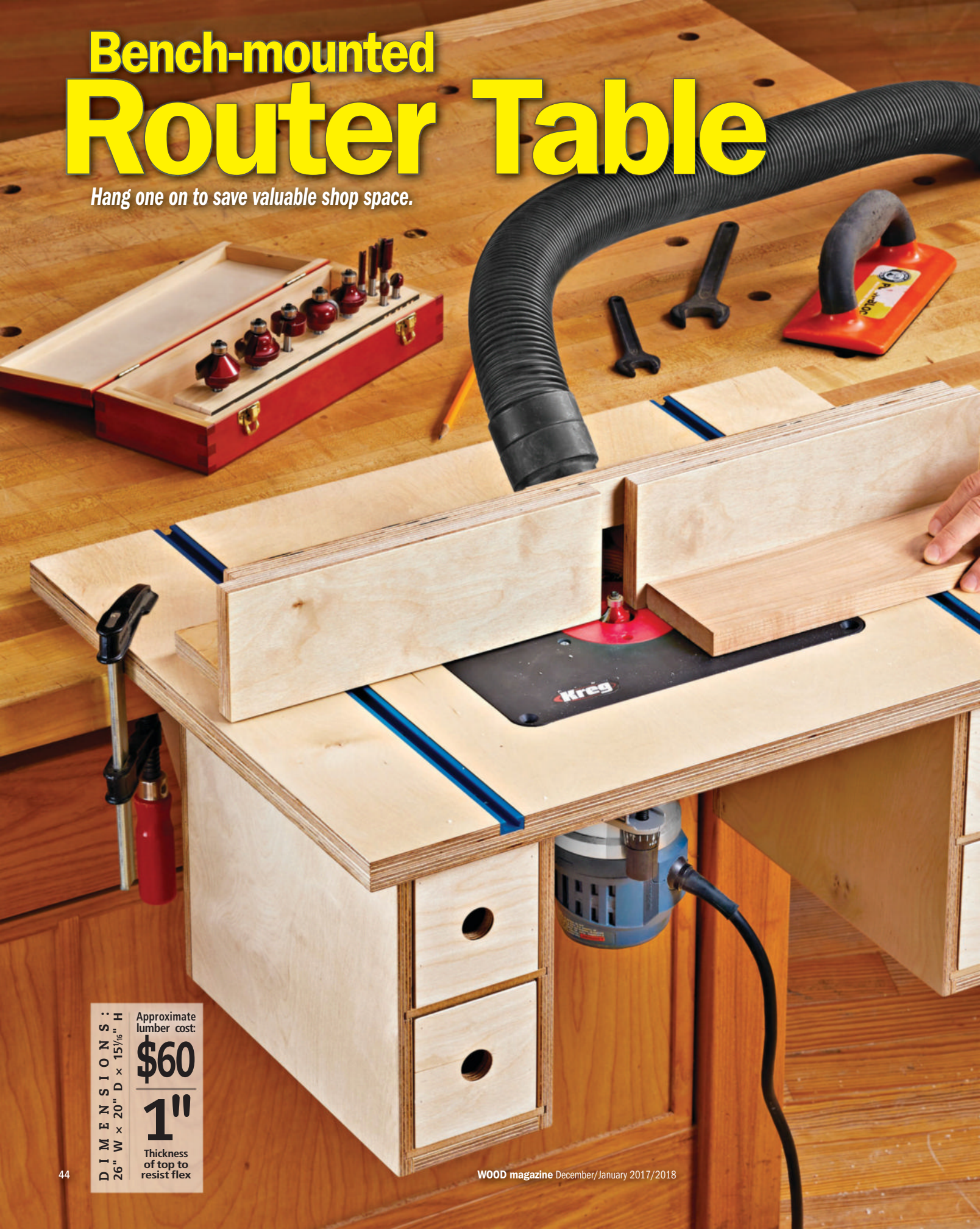
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Bench-mounted Router Table

Hang one on to save valuable shop space.



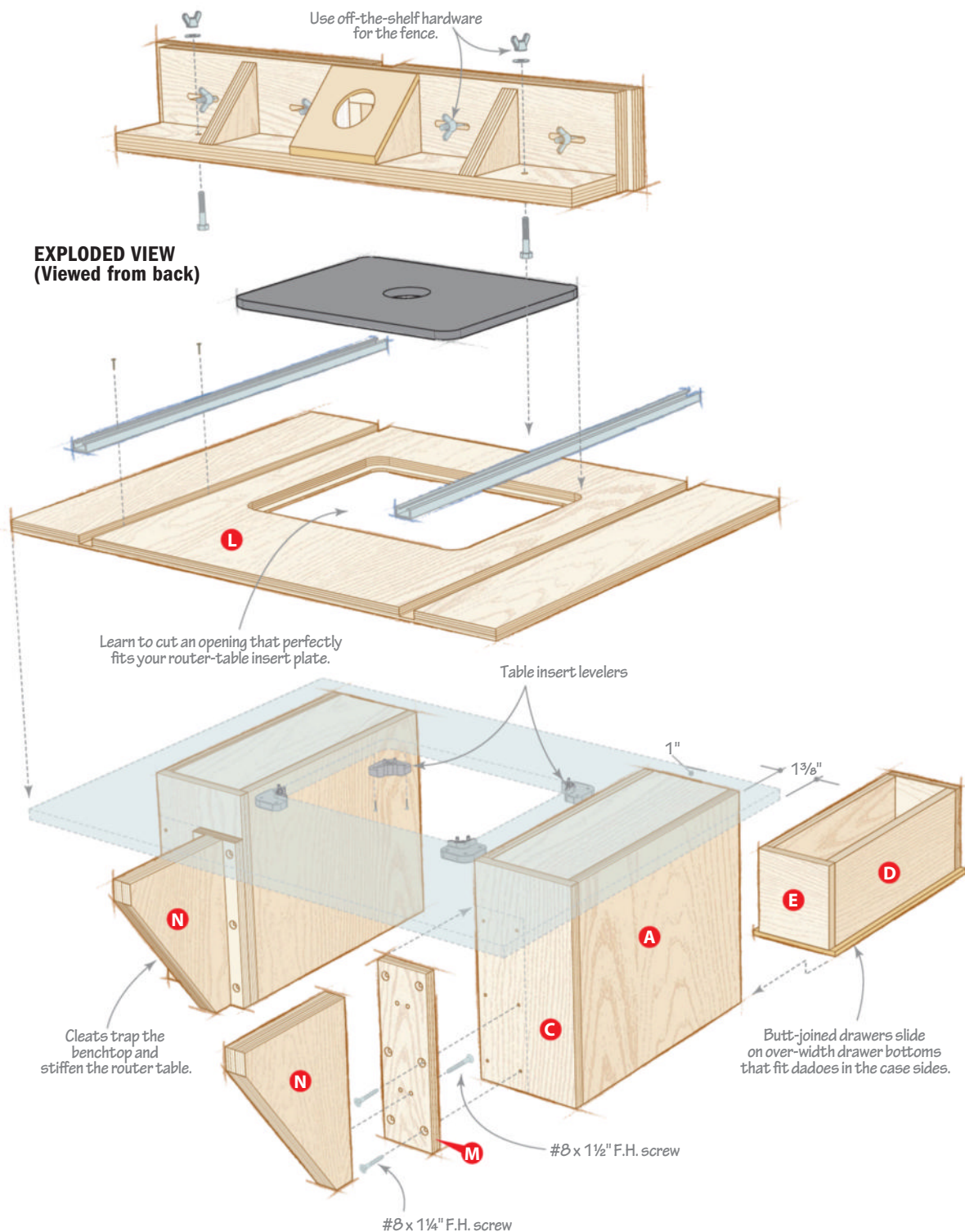
DIMENSIONS:
26" W x 20" D x 15 1/16" H

Approximate
lumber cost:

\$60

1"

Thickness
of top to
resist flex



Save the precious floor space you'd devote to a typical router table by making this model that clamps to the edge of a bench. You still get built-in storage for bits, wrenches, and push pads, and a fully adjustable fence with dust collection and sliding faces that reduce tear-out when routing.

woodmagazine.com

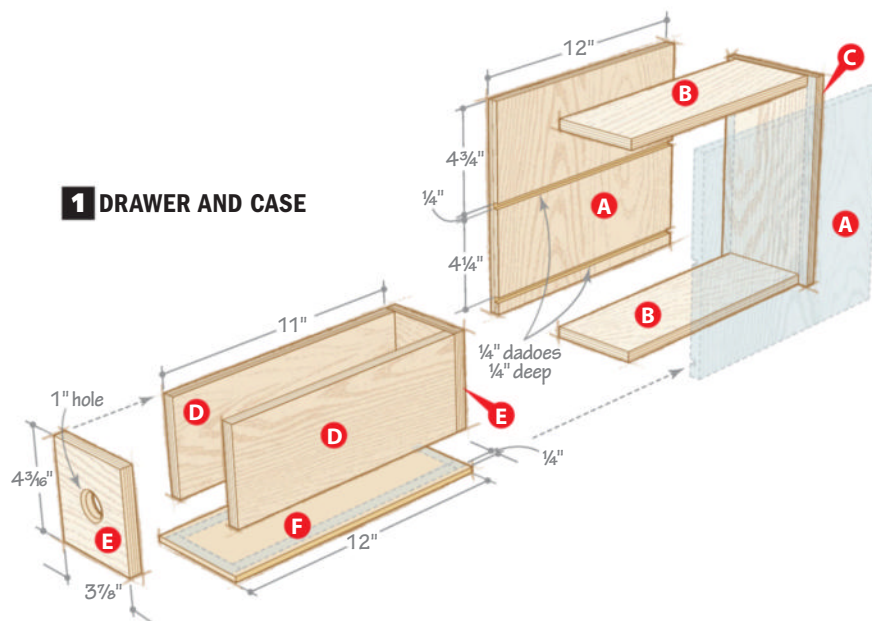
When you finish routing, stow the table away for full use of your bench. Building it requires less than one sheet of $\frac{1}{2}$ " plywood.

Note: The tabletop is sized for an $11\frac{3}{4} \times 9\frac{1}{4}$ " insert plate. For a larger insert, adjust the length of the tabletop (L) as needed to allow the drawer cases (A-C) to clear the opening in the tabletop.

► Buy the insert plate and levelers we used. woodmagazine.com/rinsert



1 DRAWER AND CASE



Build the cases and drawers

1 Cut the case sides (A), tops and bottoms (B), and backs (C) to size [Materials List]. Dado the sides (A) [Drawing 1], then glue the sides to the tops and bottoms. Glue on the backs (C).

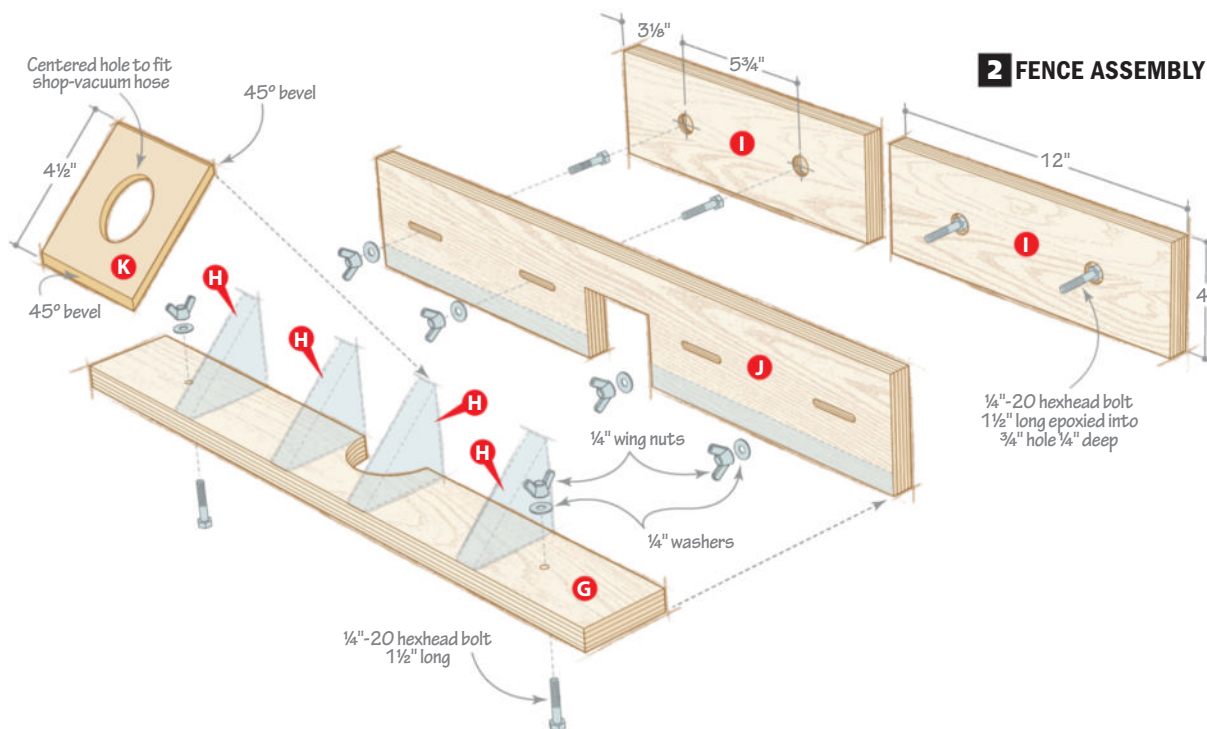
2 Cut the drawer sides (D) and fronts/back (E). Drill a centered hole in each front [Drawing 1], and glue up the drawers. Cut the bottoms (F) to size, and glue them to the drawers, flush at the front and back, and centered side-to-side. Check the fit of the drawers in the cases (A-C).

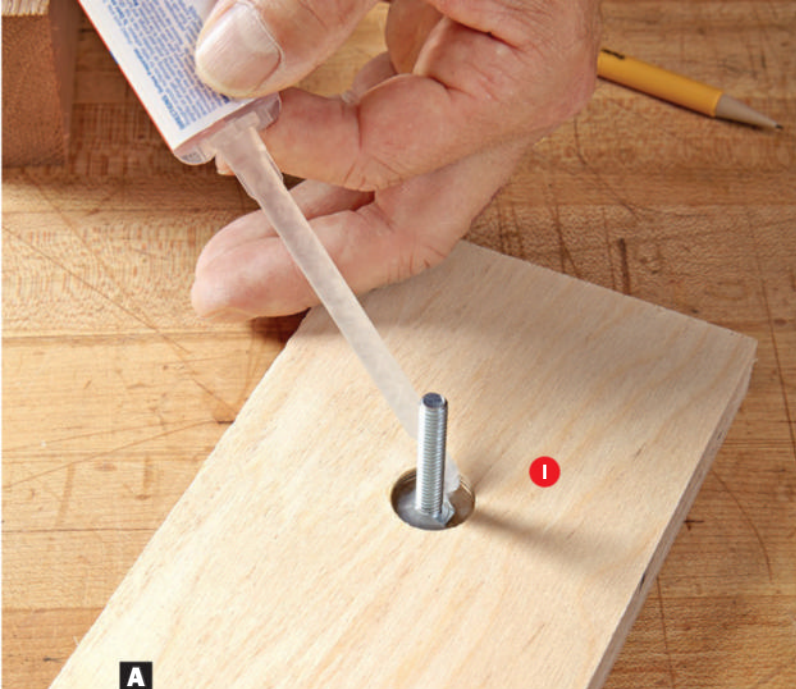
Fabricate a fence

1 Cut fence parts G-J to size. Form the fence cutout in the fence base (G) and drill the holes [Drawing 2a].

2 To make the slots in the fence (J), drill 1/4" holes at the ends of the slots [Drawing 2b]. Attach an edge guide to your router and rout between the holes with a 1/4" spiral upcut or straight bit. **Note:** Place a spoil board below the fence to prevent routing into your workbench. Then cut the rectangular opening in the fence.

2 FENCE ASSEMBLY





A

Cover the bottom of a hole with two-part epoxy, seat the head of the bolt, then add more epoxy, making sure the adhesive stays below the top of the hole.



B

Steady the bolt upright using a block that matches the width of the fence, with a centered $\frac{1}{4}$ " hole with a 1" counterbore $\frac{1}{4}$ " deep.

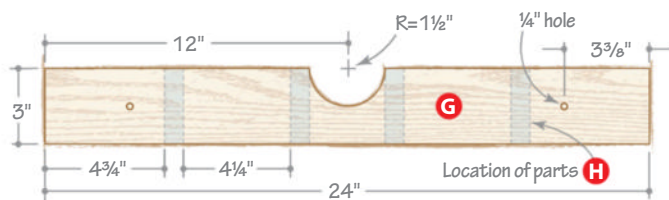
3 Drill the holes in the fence faces (I) [Drawing 2] and install the bolts [Photos A, B].

4 While the epoxy cures, glue the fence (J) to the base (G), and add the braces (H). Then cut the dust port (K) to size, beveling the ends. Drill a hole to fit the hose of your shop-vacuum and glue the port in place.

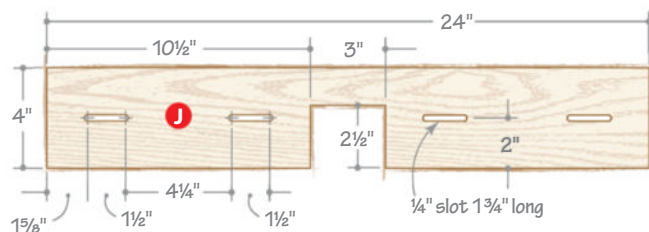
Tip! For the fence braces (H), cut 3" squares diagonally with a bandsaw or jigsaw.

Tip! Make a few extra fence faces (I) so you can quickly install a fresh set when the current ones get chewed up.

2a FENCE BASE



2b FENCE



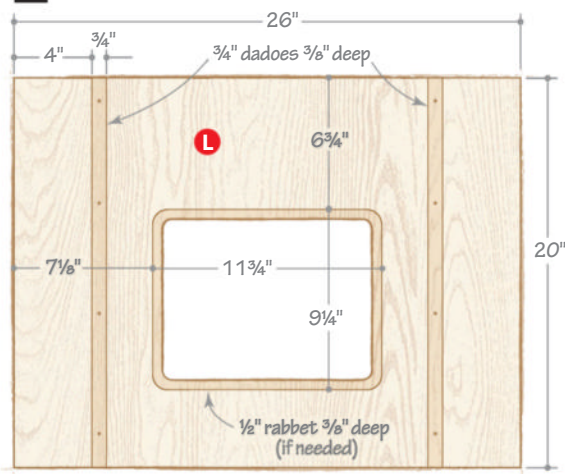
Now the table

1 Laminate two pieces of $\frac{1}{2}$ " plywood for the top (L) and cut the top to size.

2 Note: We used levelers to support the insert. This allows cutting an opening that matches the size of the router insert plate, as described below. If you choose not to use these levelers, cut the opening 1" narrower than the insert plate in each dimension, and rout a $\frac{1}{2}$ " rabbet for the plate to rest in. Drive a #6 $\times$ 1" flathead screw at each corner of the rabbet to level the plate.

Position your insert plate on the tabletop [Drawing 3] and trace around it. Drill $1\frac{1}{2}$ " holes at each corner. Jigsaw between the holes, staying just inside the lines. Then affix straight-edged scraps along the lines, using double-faced tape. Flush-trim the opening [Photo C].

3 TABLETOP





L

C

A top-bearing flush-trim bit shaves the opening flush with the edges of the scraps. Stop short of the corners to preserve the drilled corner radius.

3 Cut the dadoes for the T-track [Source] in the top [Drawing 3], but don't install the T-track.

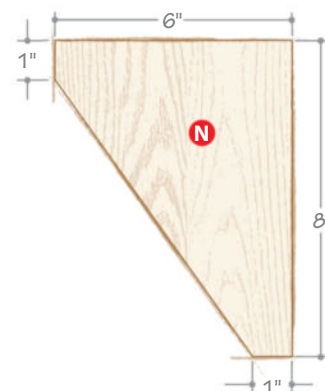
4 Cut the cleat mounts (M) [Exploded View]. Laminate plywood for the cleats (N), and cut them [Drawing 4]. Glue and screw the cleats and mounts together.

5 Finish-sand all parts to 220 grit. Glue the drawer cases (A-C) to the top [Exploded View].

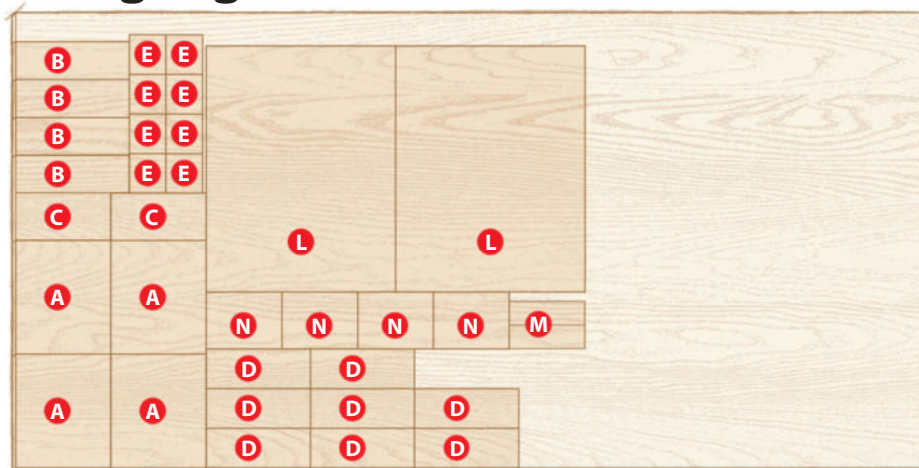
6 Clamp the table assembly to your bench and mark the underside of the benchtop onto the drawer cases. Remove the table from the bench and glue and screw the cleat mounts aligned with the marks. Apply a finish, if desired, install the T-track and your router, and put your router table to work. 🌳

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

4 CLEAT



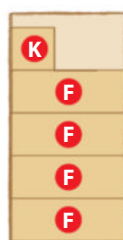
Cutting Diagram



1/2 x 48 x 96" Plywood



3/4 x 24 x 24" Plywood



1/4 x 24 x 12" MDF

Materials List

Part	FINISHED SIZE			Matl.	Qty.	
	T	W	L			
Drawer case and drawers						
A	case sides	½"	12"	10⅛"	Ply	4
B	case tops/bottoms	½"	4"	12"	Ply	4
C	case backs	½"	5"	10⅛"	Ply	2
D	drawer sides	½"	4⅜"	11"	Ply	8
E	drawer fronts/back	½"	4⅜"	3⅞"	Ply	8
F	drawer bottoms	¼"	4⅜"	12"	M	4
Fence						
G	base	¾"	3"	24"	Ply	1
H	braces	¾"	3"	3"	Ply	4
I	faces	¾"	4"	12"	Ply	2
J	fence	¾"	4"	24"	Ply	1
K	dust port	¼"	4½"	4½"	M	1
Table and mounts						
L	tabletop	1"	26"	20"	LP	1
M	cleat mounts	½"	2½"	8"	Ply	2
N	cleats	1"	6"	8"	LP	2

Materials key: Ply-plywood, M-medium-density fiberboard (MDF), LP-laminated plywood.

Supplies: #8 x 1 1/4" flathead screws, #8 x 1 1/2" flathead screws, 1/4"-20 x 1 1/2" hexhead bolts (6), 1/4" washers (6), 1/4" wing nuts (6).

Blade and bits: Dado set; 1", 1 1/2", 2" holesaws or Forstner bits, 3/4" Forstner bit; top-bearing flush-trim, 1/4" straight router bits.

Source: 48" T-track, no. 142806, \$20, Woodcraft, 800-225-1153, woodcraft.com.

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Parallel-jaw Clamps

*Up your assembly game
by adding some of
these to your shop.*

Ask any woodworker if he or she would like more clamps, and the answer will undoubtedly be a resounding “Yes!” Then follow up with “Which kind?” and they’ll likely want parallel-jaw clamps. These sought-after clamps have sturdy bars that resist flexing, deep jaws that close up parallel, and the mass and ruggedness to better clamp flat workpieces and case assemblies. They come with premium price tags, as well.

To find the best of the bunch, we brought together eight models—including a brand new design for the venerable Bessey K Body—to compare in head-to-head testing. The good news: You can’t really go wrong with any of them, but some will improve your time in the shop.

We tested each clamp in 2’ and 4’ versions where possible. (Although five models actually measure 50” between jaws, for clarity and convenience we simply

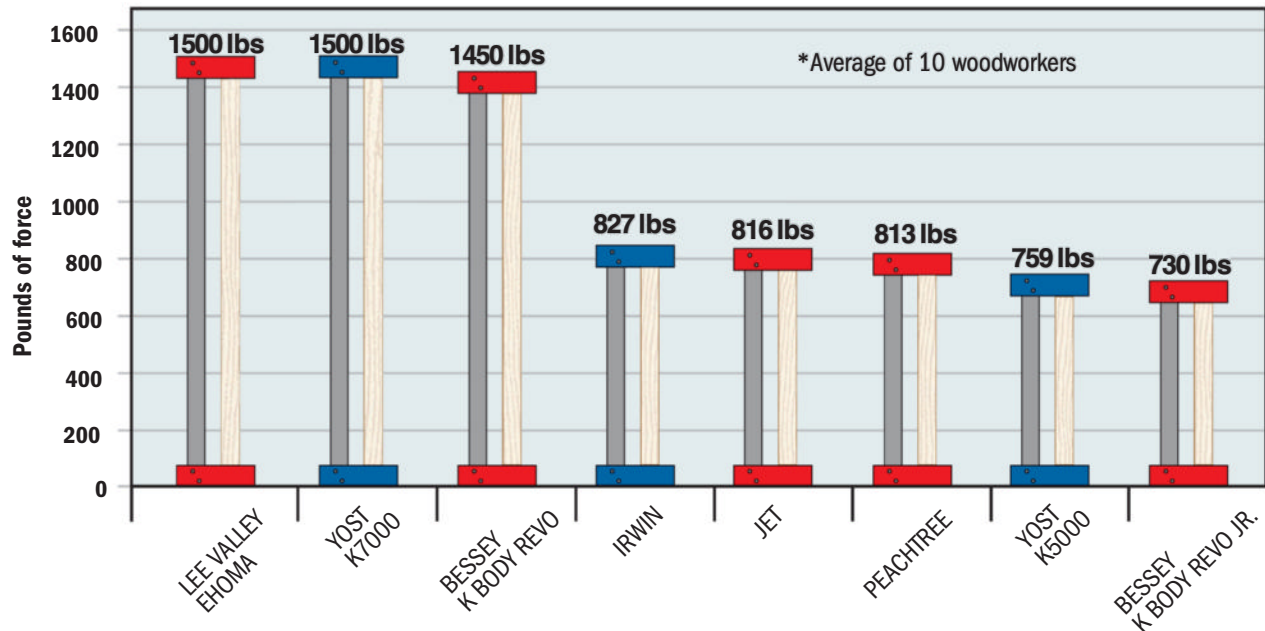
refer to them as four-footers.) One clamp, the Yost K5000 series, tops out at 36”, which we tested.

Parallel proves true for all

We measured the ability of each clamp’s jaws to close against workpieces and yet remain in the same plane. Five models (Bessey K Body Revo, Bessey K Body Revo Jr., Irwin, Jet, and Peachtree Woodworking) closed up with perfectly parallel jaws. The remaining three clamps canted outward by $\frac{1}{16}$ ” or less under pressure, which we found acceptable.

With almost every clamp, we discovered more deflection in the bars than in the jaws. Both Bessey K Body models, along with the Irwin, Jet, and Yost K5000 clamps, deflected the least. As long as the jaws remain parallel, an assembly should remain flat when clamped, provided you don’t knock it back down onto the bar with a mallet.

Comparison of maximum clamping force*



The force is strong in these

► Bessey Tools invented the parallel-jaw clamp, the K Body, in 1980.

A well-made joint typically requires about 100 pounds of clamping force to pull it tight. But there will be times when more force is needed, such as when clamping thin strips to a form for bent laminations. Even in those more-demanding applications, most of these parallel clamps will work fine.

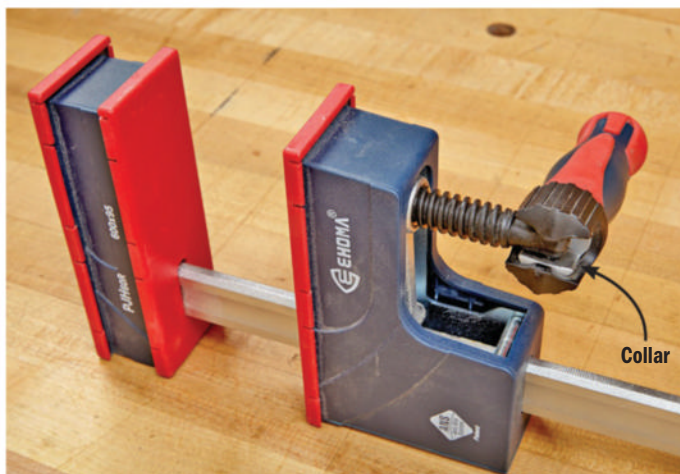
To compare clamping force among the test clamps, we had 10 woodworkers of various ages “max out” each clamp, measuring the force with a hydraulic ram, and then averaged the results. As you can see in the chart above, all the clamps can achieve sufficient force to do any typical assembly job in the shop, so don’t hang your buying decision on maximum force alone.

Instead, check out the ergonomics, which can suit people differently. For example, testers with large hands preferred the large-diameter handles on the Bessey K Body

Revo, Irwin, and Jet clamps, with the Irwin handles favored most because they’re slightly elliptical rather than perfectly round. But Irwin’s finer threads require about twice as many handle turns to create similar clamping force. Smaller hands might get better results on the smaller handles, such as those on the K Body Revo Jr., Peachtree, and Yost K5000 models. And some handles, with a combination of plastic and rubber inlay, become slick as you begin to max out the clamping force.

Two clamps, the Lee Valley Ehoma and the Yost K7000—virtually identical except for color and branding—have a unique handle system that helps you crank up the force, as shown *below left*. You can also gain added leverage with the Bessey K Body Revo clamps, shown *below right*. These methods prove helpful for anyone with limited hand strength.

Tip! To add grip to slick or too-small clamp handles, apply strips of adhesive-backed traction tape. Get it here: woodmagazine.com/tractiontape



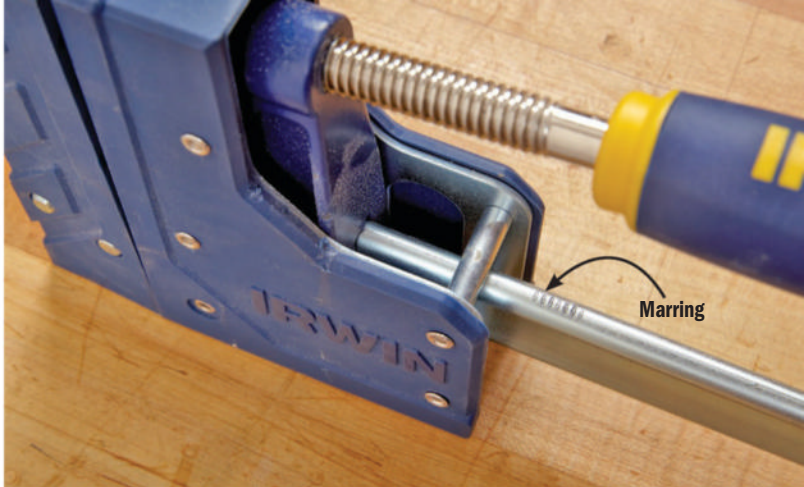
For added torque on the Lee Valley and Yost K7000 clamps, spin the collar a quarter-turn and rotate the handle 90°. We were able to double the clamping force in this manner compared to using the handle in its inline setup.



Gain clamping force with the Bessey K Body Revo clamps by inserting a 6mm hex wrench into the socket in the handle end and cranking it.



Jaw sleeves help prevent workpiece marring and provide a more glue-resistant surface compared to the actual jaws. You can replace these or remove them for cleaning.



Irwin's jaw clutch bites into the bar when clamped tightly, resulting in marks in the bar. Over time, these impede smooth movement of the jaw and must be filed off.

Jaw slide should work for you

With each clamp, the tail jaw is fixed to the bar, while the other jaw slides the length of the bar. On the best models, the jaw slides easily, yet grabs the bar when it's time to apply force. The Bessey K Body models (*above*) and Jet (*below*) work best in this regard. All three have thick, sturdy bars with serrated top edges that the sliding jaws engage without backsliding when positioned against a workpiece or assembly. The Irwin and Yost K5000 clamp bars lack serrations, and the jaws grip easily enough, but over time problems can arise. In our tests, the Irwin jaws marred the bar (*above right*), and the Yost bar's paint coating peeled off, creating a less-than-smooth slide.

More features you may (or may not) find helpful

► **Rear feet.** Each of the clamps has a support foot at the end of the bar. All the feet can be removed, allowing you to reverse the sliding jaw and use the clamp as a spreader.

► **Bar pads.** All but the Irwin, Jet, and Peachtree clamps come with a pair of removable plastic supports that straddle the bar to prevent glue contact. Nice idea, but

we found they can cause workpieces to misalign, especially during panel glue-ups. Plus, they can be easily misplaced when not used on the clamps. When steel and moisture combine with wood, stains often result in the wood.

Glue stains are reduced or eliminated when using the clamp bar pads. But without them, four clamps resisted staining better than the others, with the Peachtree and Yost K5000 clamps producing stains that required planing or scraping to remove.

► **Jaw sleeves.** The same clamps that have bar pads also have replaceable sleeves that provide a non-marring barrier between the harder jaws and the workpieces. These work fine, but they slip off frequently and become scratched or worn over time, needing to either be replaced or discarded.

► **Trigger release and measured bar.** Jet's clamps employ a unique trigger-style sliding-jaw catch that we really like. It keeps the jaw from sliding along the bar when you don't want it to, and it's easy to activate. And the bars are numbered in inch increments, making it easy—before adding your workpieces—to set the jaws near the position you'll need for clamping.



To keep the sliding jaw from dragging on the workbench, you can reposition the foot on the Jet and Irwin clamps, helpful when the clamp is longer than your worksurface.



Bessey K Body Revo
800-828-1004, besseytools.com

Bessey K Body Revo Jr.



Irwin
800-464-7946, irwin.com

Jet
800-274-6848, jettools.com



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



Peachtree Woodworking
888-512-9069, ptreusa.com



Yost K5000
616-396-2063, yostvises.com



Yost K7000



Parallel-jaw clamps perform under pressure

MODEL	PERFORMANCE RATINGS (1)								DIMENSIONS, INCHES			WEIGHT, LBS-OZ (2)		WARRANTY, YEARS (3)	COUNTRY OF ASSEMBLY (4)	SELLING PRICE (SHORTEST TO LONGEST) (5)
	CLAMPING FORCE	PARALLEL CLAMPING ABILITY	ABSENCE OF BAR DEFLECTION	EASE OF SLIDING/TIGHTENING HEAD JAW	ABSENCE OF WORKPIECE MARRING	EASE OF CLEANING GLUE FROM BAR	FLATNESS OF GLUED-UP PANELS	RESISTANCE TO GLUE/METAL/WOOD STAINING	JAW LENGTH (FROM TOP OF BAR)	JAW WIDTH	AVAILABLE LENGTHS (MAXIMUM OPENING BETWEEN JAWS)	24" CLAMP	48/50" CLAMP			
BESSEY K BODY REVO	A	A	A-	A	A	B	A	A-	3¾"	2"	12, 18, 24, 31, 40, 50, 60, 82, 98	6-2	9-8	5	G	\$40-\$105
BESSEY K BODY REVO JR.	B	A	A-	A	A-	C	B+	A	3¾"	1½"	12, 18, 24, 36, 50	3-9	5-0	5	G	\$30-\$50
IRWIN	B	A	A-	B	B	B-	A-	A	3⅞"	2"	24, 48	7-1	9-8	1	T	\$62-\$74
JET	B	A	A-	A	A-	B-	A	B	4⅜"	1⅞"	12, 24, 31, 40, 50, 60, 82, 98	6-9	9-1	L	T	\$40-\$120
LEE VALLEY EHOMA	A	A-	B+	A-	A-	A	A-	B	3⅞"	2"	12, 24, 31, 39, 48, 59	6-4	8-13	1	T	\$39-\$69
PEACHTREE WOODWORKING	B	A	B	A-	A-	B	A-	C	3½"	1½"	12, 24, 30, 40, 50	5-5	7-15	1	C	\$25-\$45
YOST K5000	B	A-	A-	B	B-	A-	A-	C	3⅞"	1¾"	12, 24, 36	3-12	4-7*	5	T	\$35-\$42
YOST K7000	A	A-	B+	A-	A-	A	A-	A	3⅞"	2"	12, 24, 32, 40, 50, 60	6-2	7-12	L	T	\$45-\$62

1. **A** Excellent 2. (*) 36" length 3. (L) Lifetime limited warranty 4. (C) China
B Good (G) Germany
C Fair (T) Taiwan

A parallel clamp for the lighter side

Bessey's UniKlamp is, by definition, a parallel-jaw clamp, but it acts more like a quick-grab one-handed bar clamp. This compact model, with 1¼×3¼" jaws, comes in 6", 12", and 24" lengths. Although we were able to generate an average of nearly 450 pounds of force with the UniKlamp, its jaws and bar flex too much for use with flat-panel glue-ups. But we like it for clamping jigs to a workbench or tablesaw rip fence, and for light clamping of small boxes and assemblies.



Clamp down on your budget and spring for the leader

As we said earlier, there were no duds in this group, but one clamp rose to the top: the Bessey K Body Revo. It earns Top Tool honors. This clamp works great at all the clamping chores we performed and comes in nine lengths.

But if you need to hold to a tighter budget, opt for the Peachtree Woodworking clamps, our Top Value. These clamps cost \$10-\$20 less per clamp without sacrificing meaningful performance. 🌱

Produced by **Bob Hunter** with **Peter Kasper**
 Illustration: **Tim Cahill**, **Lorna Johnson**

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WARRANTY



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- Heavy-duty bearings for super smooth cutting operation and long life
- Dual-bevel
- Up-front miter/bevel controls

**Available in
10" and 12" blade size.**

Waxing nostalgic Barn Lantern

Combine oak and copper in a rustic candle holder.

DIMENSIONS:
17" H x 5 5/8" D x 5 3/8" L

Approximate materials cost:

\$60

including copper and glass.

Basic copper-working skills yield custom hardware.

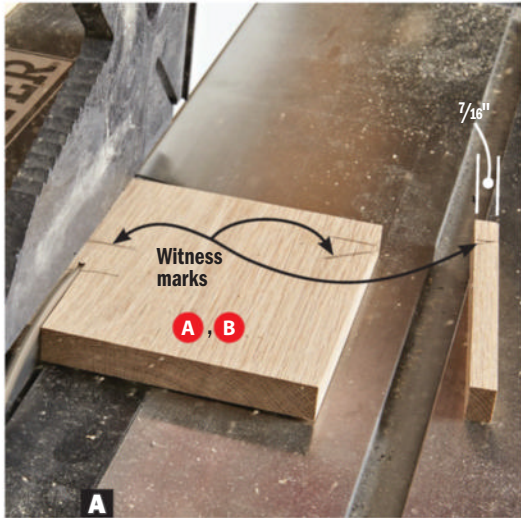
Reader design comes to light

Damon Vincent designed this lantern based on one he spotted while visiting Germany. Don't let the metal parts put you off; copper works easily and full-size patterns will guide you.

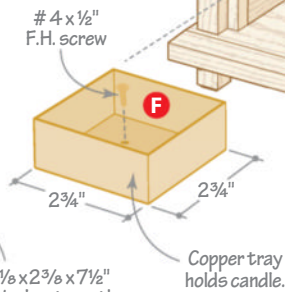
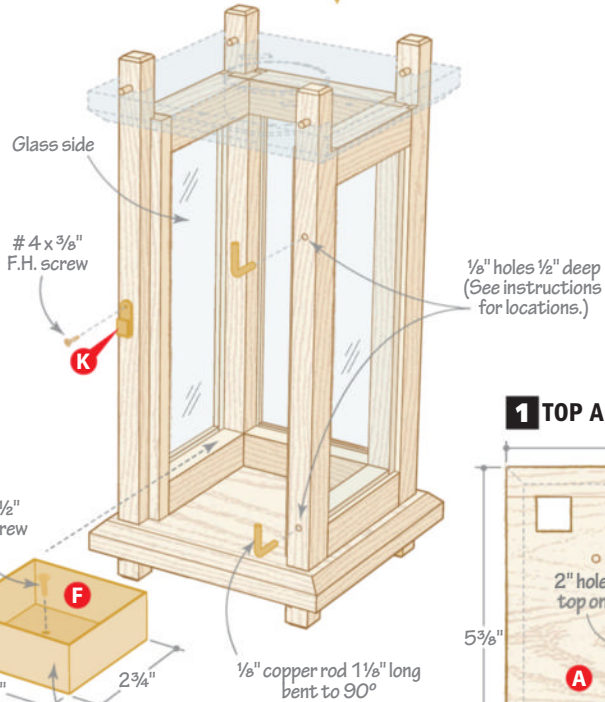
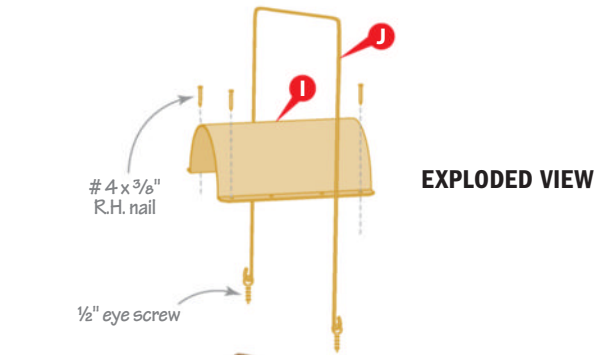
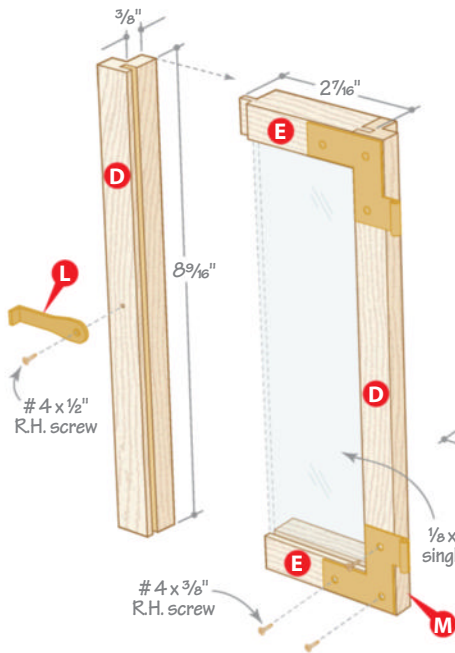
Machine the lantern parts

- 1** Cut two blanks $5/8 \times 5 5/8 \times 5 3/8$ " for the top and bottom (A). Rip $7/16$ " ($7/16$ " plus a $1/8$ " saw kerf) off both edges of each blank [Photo A].
- 2** Notch the edges of the top and bottom [Drawing 1 and Photo B]. Glue the edge strips back onto the blanks [Photo C].
- 3** Chamfer the top and bottom. In the top, bore a 2" hole using a holesaw and drill press. Drill pilot holes for the handle eyes.

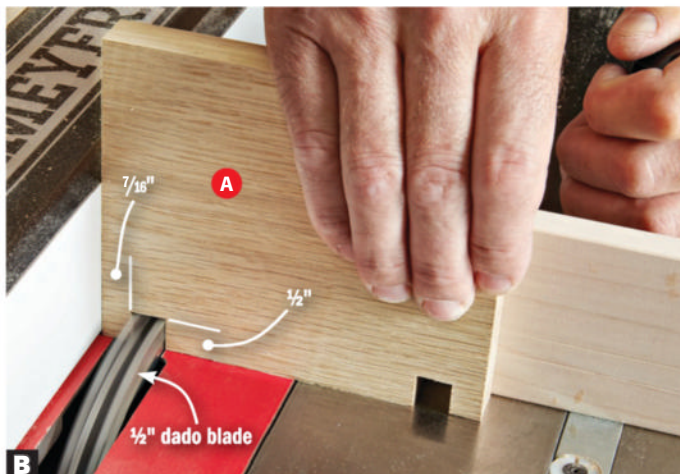
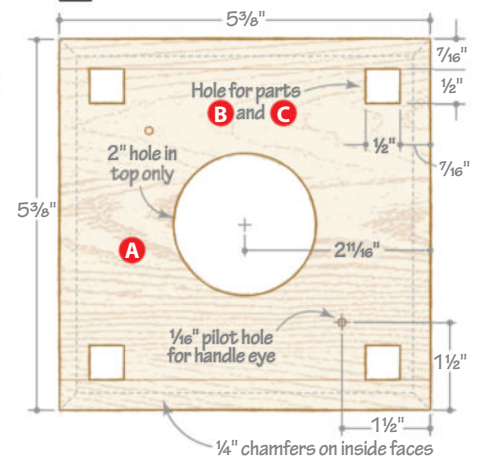
Note: If your tablesaw blade doesn't cut a $1/8$ " kerf, adjust the width of the blanks for parts A to $5 3/8$ " plus two kerf widths. Then, rip $7/16$ " plus one kerf width from each edge.



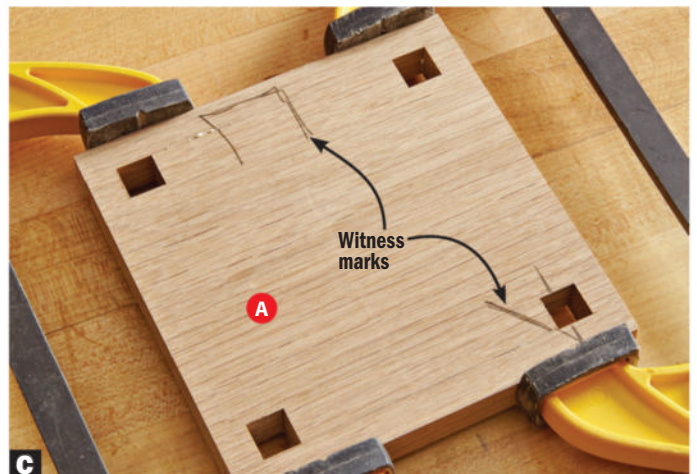
A
Draw witness marks before you rip the edges from the top and bottom blanks. The marks help you glue the $\frac{7}{16}$ " strips back onto the blanks in correct alignment.



1 TOP AND BOTTOM



Cut slots in both edges $\frac{7}{16}$ " from each end. Use an auxiliary miter-gauge fence to keep the top and bottom square and prevent tear-out.



Create square mortises in the top and bottom by gluing the ripped edge strips back onto the slotted blanks.

4 Cut parts B–E to size [Materials List, page 62]. Using a dado set, rabbet the ends of the posts (B) to form tenons [Drawing 2]. Sand slight chamfers on the tenon ends.

5 Cut $\frac{1}{8}$ " grooves in parts B–E [Drawings 3, 4], noting their orientation. Rabbet the front posts and door stiles (D) [Drawing 3].

6 Cut rabbets to form the offset tenons on the frame rails (C) and door rails (E) [Drawing 4]. Test-fit the tenons in the grooves [Drawing 3].

Assemble the body

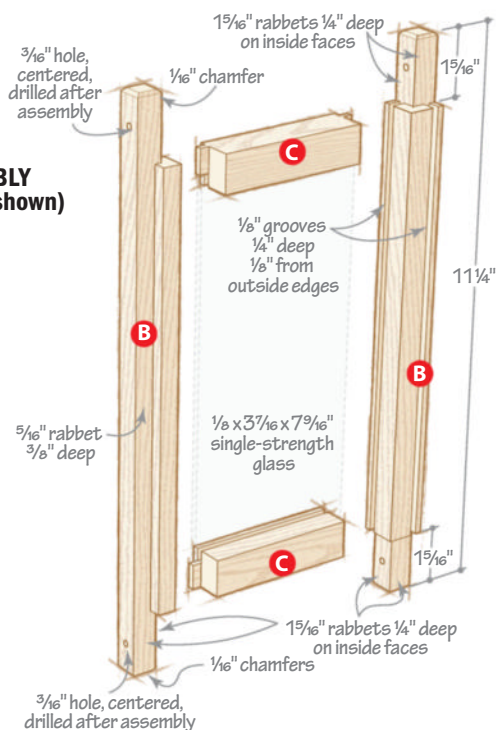
1 Cut the glass for the sides and door [Exploded View, Drawing 2]. Cover both sides of the glass with painter's tape. Apply glue to the tenons on two frame rails (C). Then, assemble a piece of glass, the rails, and two back posts (B) [Drawing 5]. Keep the rails flush with the post shoulders.



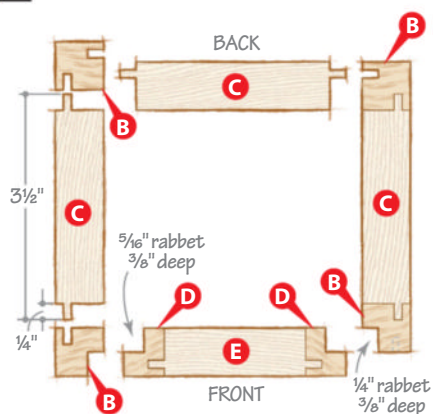
D

Partially insert the bottom tenons on the posts (B) into mortises in the bottom (A) to check the spacing and ensure square assembly.

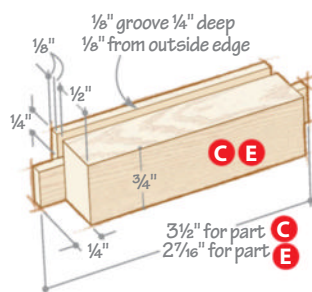
2 SIDE ASSEMBLY (Inside face shown)



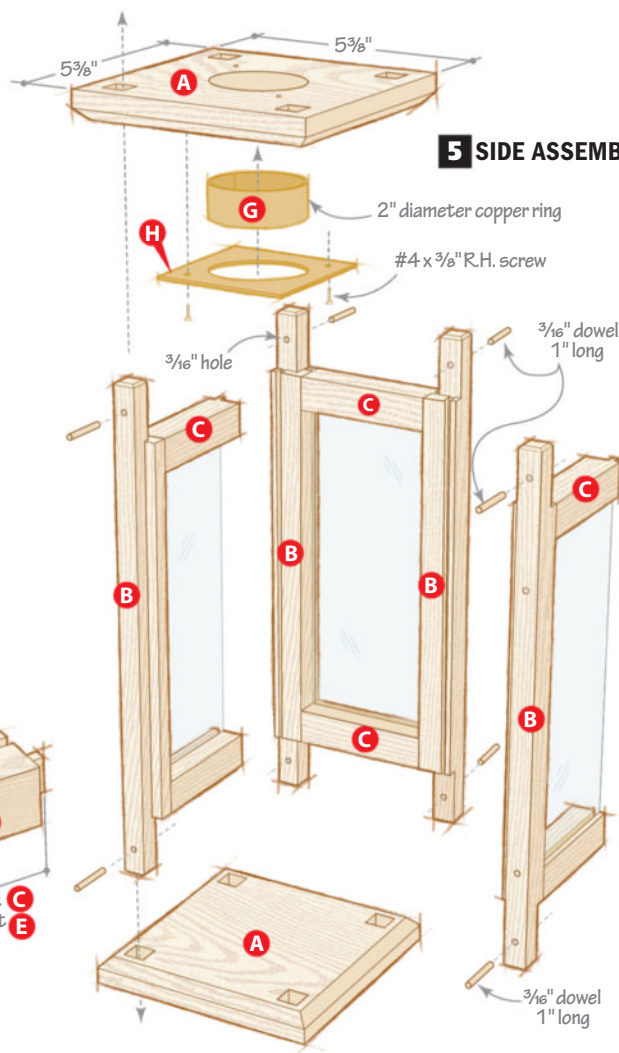
3 TOP VIEW

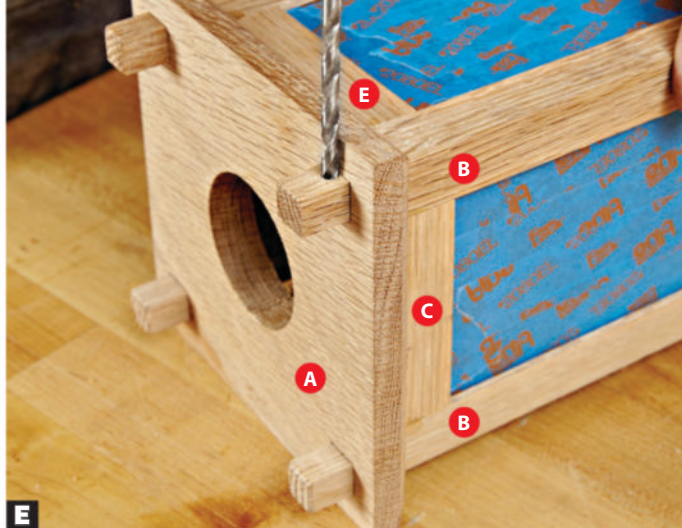


4 RAIL DETAIL (Inside face shown)

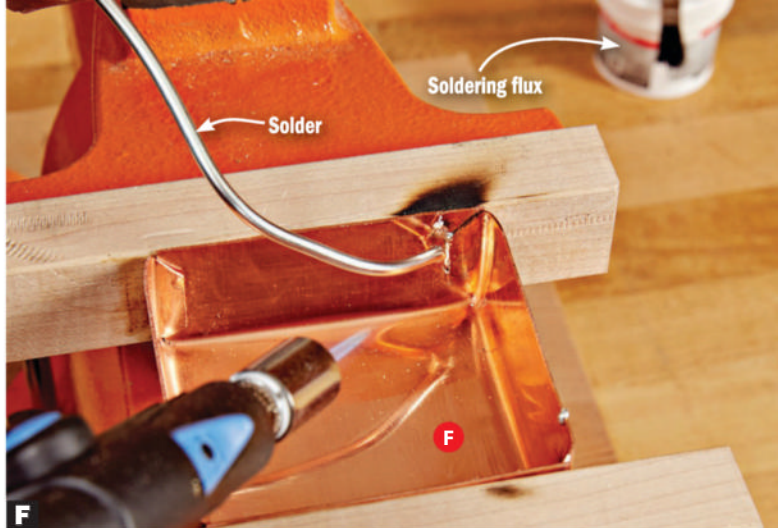


5 SIDE ASSEMBLY





E Drill accurate dowel holes in the post tenons by laying the drill bit against the top and bottom. Glue the pins in place [Drawing 5] with a spot of cyanoacrylate (instant) adhesive in each hole.



F Solder neat and tight corners by pressing the tabs against the mating sides using vise jaws.

2 Apply glue to two more rails. Assemble a piece of glass, the rails, and a front post to the back assembly [Photo D]. Similarly, assemble the remaining rails, glass, and front post. Make sure the top and bottom (A) slide easily over the post tenons.

3 Glue and clamp the door stiles (D) and rails (E) with the glass in place.

4 Finish-sand all parts and assemblies to 220 grit.

5 Glue the top and bottom to the back-and-side assembly.

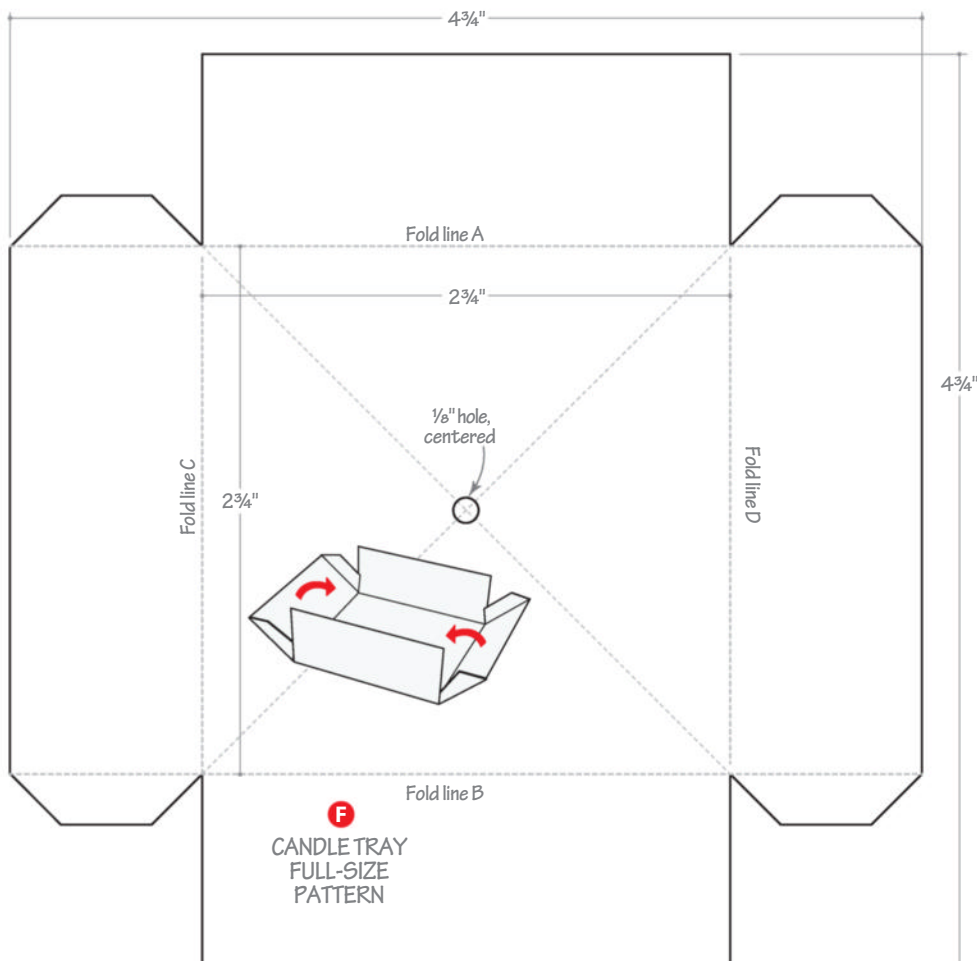
6 Drill holes for the dowels [Photo E] and insert them. Apply a clear finish (we sprayed on three coats of satin lacquer).

Make the metal pieces

Soft 14 (.062")- and 22 (.027")-gauge copper used for the lantern parts [Sources, page 62] works easily with common tools. You can

Note: In gauge sizing, larger gauge numbers denote thinner sheets.

6 CANDLE TRAY





G Solder the **butted chimney (G)** ends together inside the form hole. A slight solder bead on the inside of the chimney ring is OK.



H Bore the **chimney plate** using a drill press and holesaw. The screws prevent the copper from spinning—do not attempt to hold the metal by hand.

cut it with metal snips, a scrollsaw, or a bandsaw with a fine-toothed $\frac{1}{4}$ " blade.

Cutting thin metal with a scrollsaw goes more smoothly if you first, using double-face-tape, secure the metal to a scrapwood carrier. Lubricate the blade by cutting into a candle. Sand or file the edges after sawing.

For soldering, we used a Bernzomatic ST2200T butane detail torch [Sources], $\frac{1}{8}$ " wire solder, and paste flux. Similar to sweating copper pipes, you'll use the flux to draw solder between the pieces of heated copper.

1 From 22- and 14-gauge copper sheets, cut blanks for parts F-I and K-M. Cut the chimney blank (G) $\frac{1}{2}$ " longer than listed.

2 Copy the pattern for the candle tray (F) [Drawing 6] and attach it to its copper blank. Cut around the outside line.

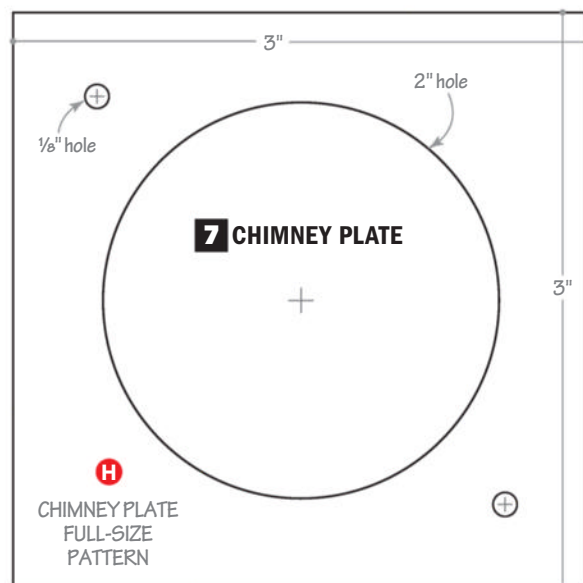
3 Fold the edges up 90° along fold lines A and B, followed by lines C and D [Skill

Builder, below]. Remove the pattern and solder the tabs at the corners [Photo F].

4 Bore a 2" hole in a scrap of $\frac{3}{4}$ " plywood to make a form for the chimney (G). Bend the chimney blank around the holesaw; then, trim it to fit snugly inside the form hole and solder the ends [Photo G].

5 Copy the chimney plate pattern (H) [Drawing 7], and adhere it to its blank. Drill the $\frac{1}{8}$ " holes, and fasten the blank to scrapwood with screws through the holes. Drill the 2" centered hole [Photo H].

6 On the chimney cover (I) blank, use the scrapwood brake to fold the edge flanges [Drawing 8]. Form the curve by bending the copper around a 2" hole saw. Drill mounting holes



SKILL BUILDER

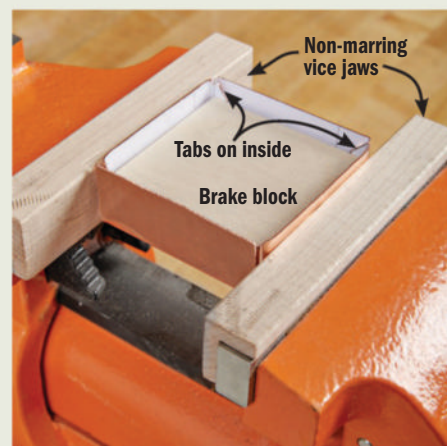
Brake stops flawed folds

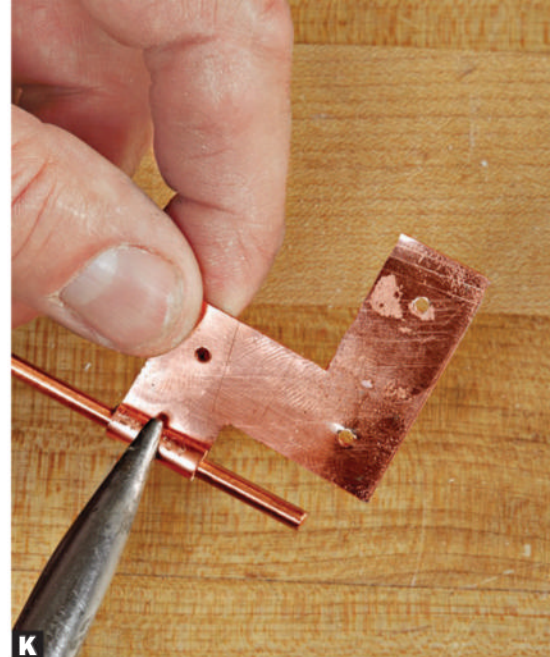
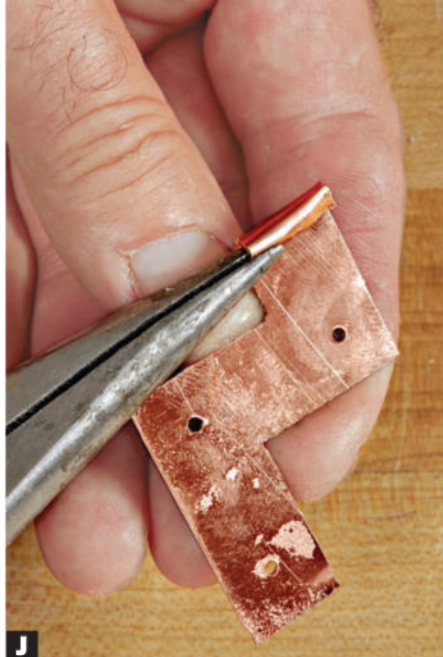
For sharp, straight folds along the pattern lines, make a simple folding brake. First, cut three pieces of $\frac{3}{4}$ " scrapwood about 4" square. (Harder wood makes sharper bends; we used Baltic birch plywood.)

Clamp the patterned copper between two of the wood pieces in a vise, with fold line A right at the top edge [Photo, below, left]. Use the third piece of wood to apply downward pressure evenly all along the fold

line. Then, clamp the copper between the blocks at fold line B and repeat [Photo, below, center].

To fold the remaining sides of the tray, cut a piece of scrapwood that fits snugly between the two folded sides—it should measure about $2\frac{1}{2}$ " square. Place it between fold lines C and D (you could hold it with a C-clamp) and fold the remaining sides up. Once you get them started, squeeze the piece in the vise to finish the fold [Photo, below, right].





I Form the hinge barrel, working from the outside edge, by folding the copper upward [Photo I] at the bottom of the hinge tab. Similarly fold the copper at the top of the tab [Photo J]. Work back and forth folding until you can slide a length of $\frac{1}{8}$ " rod into the roughly shaped barrel [Photo K]. Complete the barrel by working it around the rod.

Tip! Form the end of the catch (K) over a piece of $\frac{1}{8}$ " copper rod.

Tip! Round-nose pliers work best for forming the hinge barrels, although you can use needle-nose pliers in a pinch.

in the flanges, and snip chamfers on the corners.

7 Cut $\frac{1}{8}$ " copper rod [Sources] for the handle (J). Bend the top to the shape shown in Drawing 9. Bend the bottom ends 90° to the handle for now.

8 Cut and bend the catch (K) and latch (L) to shape and drill the attachment holes [Drawing 10].

9 Cut the hinge blanks (M) to shape and drill the mounting holes following the patterns [Drawing 11]. Following Photos I-K, form the hinge barrels to make the upper and lower hinges [Exploded View].

Put the lantern together

1 Drill the mounting screw hole at the center of the candle tray (F) [Drawing 6].

Attach the tray to the base (A) with a copper screw [Shop Tip].

2 Slide the chimney (G) into the hole in the top (A) and screw the chimney plate (H) to the inside of the top [Exploded View]. Attach the chimney cover (I) with $\frac{3}{8}$ " copper-plated brass nails.

3 Drive two copper-plated screw eyes into the pilot holes on the top (A). Align them so you can spring the handle (J) into place. Bend the ends of the handle up to secure it.

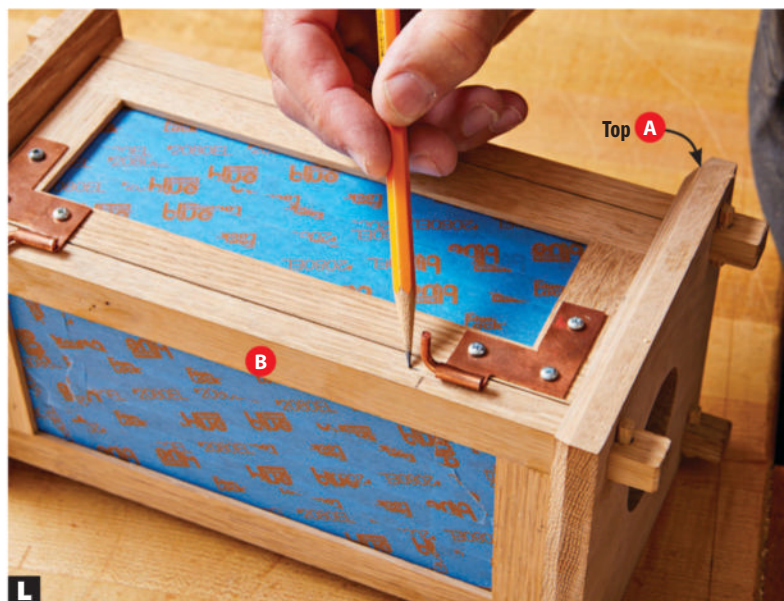
4 Attach the hinges (M) to the door (D/E) [Exploded View]. Bend two $\frac{1}{8} \times \frac{1}{8}$ " copper rods 90° at their midpoint, and insert one leg into each hinge. Place the door in position, and mark the hinge locations [Photo L].

Note: Drill pilot holes in the top (A) to make driving the soft copper nails into the hard oak easier. Pre-thread the pilot holes for the brass handle eyes using a steel screw eye the same size. That will help prevent snapping the softer brass eyes.

SHOP TIP

Copper hardware is almost a slam-dunk

Copper screws and eyes are hard to find. To make steel or brass nails, screws, and eyes match the lantern parts, hang them from paper clips or fine wire and dunk them in copper-plating solution [Sources]. A good finish may take several applications.

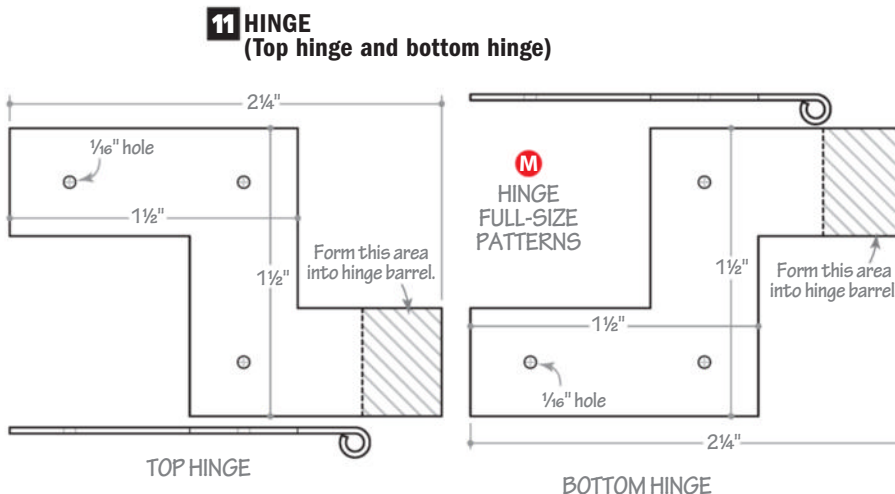
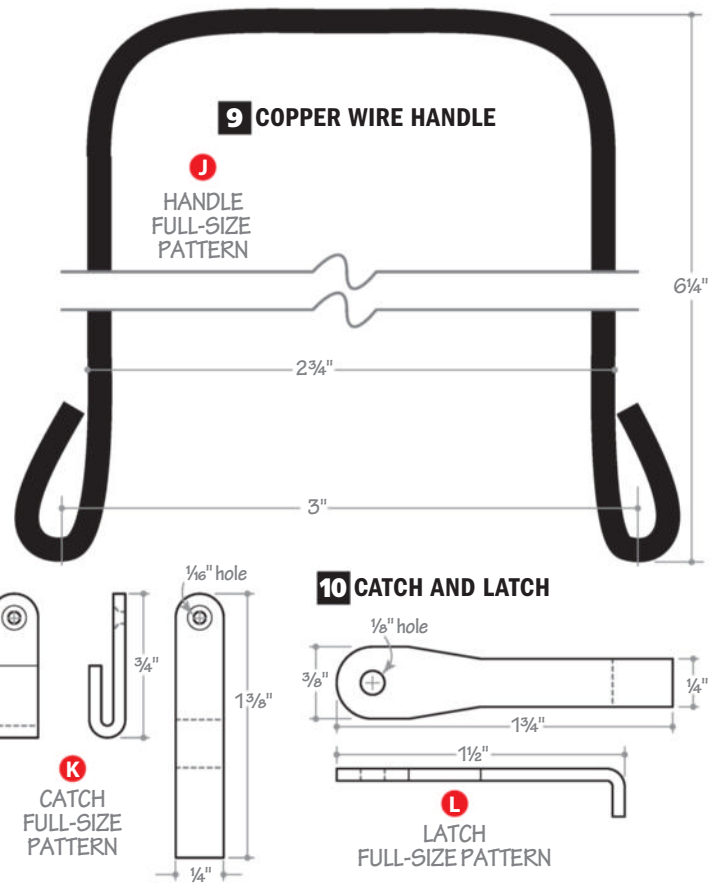
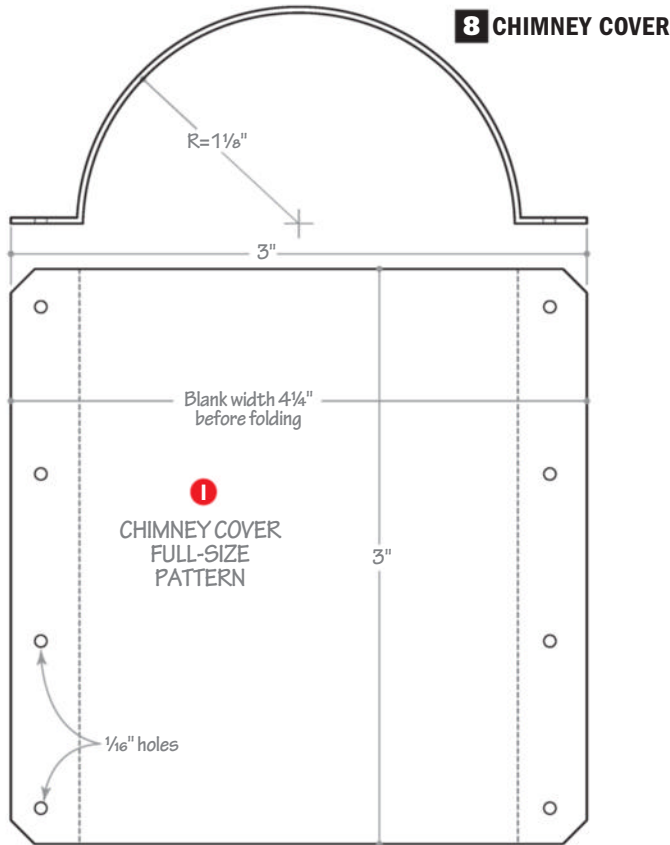


L To install the hinge pins, mark where they meet the front post (B). Drill a $\frac{1}{8}$ " hole at each point, insert the pins pointing toward the top (A), and secure them with a drop of cyanoacrylate adhesive.

5 Place the door on the hinge pins and adjust its fit as needed by bending the hinges. Attach the catch and latch (K, L) [Exploded View], and remove the masking from the glass.

6 Set a votive candle in the candle tray, light it, and close the door. Now, bring cozy, rustic illumination to any interior. 🌿

Produced by **Larry Johnston**
with **Kevin Boyle**
Project design: **Damon Vincent**
Illustrations: **Roxanne LeMoine,**
Lorna Johnson



Materials List

Part	FINISHED SIZE			Matl.	Qty.	
	T	W	L			
Lantern						
A	top/bottom*	5⁄8"	5 3⁄8"	5 3⁄8"	O	2
B	front/back posts	3⁄4"	3⁄4"	11 1⁄4"	O	4
C	frame rails	3⁄4"	3⁄4"	3 1⁄2"	O	6
D	door stiles	3⁄4"	3⁄4"	8 9⁄16"	O	2
E	door rails	3⁄4"	3⁄4"	2 7⁄16"	O	2
Copper blanks						
F	candle tray	22 gauge	4 3⁄4"	4 3⁄4"	C	1
G	chimney*	22 gauge	5⁄8"	6 3⁄16"	C	1
H	chimney plate	22 gauge	3"	3"	C	1
I	chimney cover	22 gauge	3"	4 1⁄4"	C	1
J	handle	1⁄8" diam.		16 1⁄2"	C	1
K	catch	14 gauge	1⁄4"	1 3⁄8"	C	1
L	latch	14 gauge	3⁄8"	1 3⁄4"	C	1
M	hinges	22 gauge	1 1⁄2"	2 1⁄4"	C	2

*Parts initially cut oversize. See the instructions.

Materials key: O-oak, C-copper.

Supplies: 1/8x3 3/16x7 1/16" glass (3), 1/8x2 3/8x7 1/2" glass (1), 3/16x1" oak dowels (8), solder, flux, #4x1/2" flathead brass screws (2) #4x3/8" roundhead brass screws (9), 1/2" screw eyes (2), 3/8" roundhead brass nails (8).

Blade and bits: 1/2" dado set, 2" holesaw.

Sources: 22-gauge (.027") 110 copper sheet, no. 8963K305 (6x24"), \$21.98; 14-gauge (.062") 110 copper sheet, no. 8963K604 (6x6"), \$16.17; 1/8" 110 copper rod, no. 8966K71 (24"), \$2.86; McMaster-Carr, 630-833-0300, mcmaster.com. Jax Copper Plating Solution, 2 oz. \$7, jaxchemical.com. Bernzomatic ST2200T micro flame butane torch, woodmagazine.com/torch.

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We honor these eight tools and accessories as the most innovative in the field of woodworking for the coming year.



Easy-to-store miter saw finds a fit in any shop

One of the biggest knocks on miter saws is their size. They require a big footprint in a shop, and can be difficult to transport. This 10" compound miter saw from Porter-Cable defeats both issues by folding almost flat. The saw comes with a plastic storage base (below) that helps it stand upright when folded, and can also be used for work-piece support during use. The saw has a miter range of 55° right and 47° left, with a left bevel tilt of up to 47°.

10" compound miter saw

no. PCXB115MS, \$180
Porter-Cable
Available at Lowe's
lowes.com



Sharpen Forstner bits with repeatable precision

Forstner drill bits, especially the wavy-rim type, have always been a challenge to sharpen. By using the diamond sharpening stones (two included) in a drill press, this jig makes it easy to dial in the precise angles needed to hone the wave-cut rim and the center-cutting knives of a Forstner bit.

Forstner-bit sharpening jig

Price not yet determined
Fisch Tools (distributed by Affinity Tool Works)
866-588-0395, affinitytool.com





Never reach below the table again

Controlling the router in your router table just got a lot easier. JessEm's Pow-R-Tek pairs a 3/4-hp, 15-amp router motor with a controller that lets you turn it on and off and make speed changes from the front panel. The soft-start motor has a speed range of 10,000–21,000 rpm, adjusted by the knob on the controller; a digital readout indicates the speed. (You'll need to add a router lift to hold the 4 1/4"-diameter motor.)

Pow-R-Tek router with remote control

no. 05200, \$350
JessEm Tool Co.
800-436-6799, jessem.com



Make adjustments quickly and precisely with this "drummer"

Supermax's new drum sander has a quick-adjust lever to let you instantly move the drum to the workpiece thickness without having to tediously turn the crank. And a digital readout tells you the precise thickness of your workpiece. It sands up to 16" in one pass; 32" by rotating the workpiece.

16–32 drum sander

no. 71632, \$1,200
Supermax Tools
888-454-3401, supermaxtools.com



Pneumatic capability from battery power

These oil-free, brushless-motor air compressors from Ridgid and DeWalt use lithium-ion batteries, letting you work with pneumatic nailers and other small tools without an AC power source. The DeWalt compressor has a 2 1/2-gallon tank and uses one 60-volt FlexVolt pack. The Ridgid compressor has a 1-gallon tank and uses either one or two (for longer runtime) 18-volt battery packs. Neither compressor comes with a hose.

Battery-powered air compressors

18 volt, no. R0230, \$180 (bare tool), \$300 (with 1 battery and charger)
Ridgid
866-539-1710, ridgidpowertools.com

60 volt, no. DCC2560T1, \$300 (with 1 battery and charger)
DeWalt
800-433-9258, dewalt.com





A new angle on pocket holes

The Castle 100 machine uses a Bosch Colt trim router (included) to rout a fuzz-free $\frac{3}{8}$ " slot at a 6° angle, which is a lower angle than holes made with most drill-type pocket-hole jigs, allowing deeper purchase within the mating workpiece. Then, you use the included drill bit to bore the screw-shank hole. The Castle 100 can be used clamped to a benchtop, as shown, or clamped directly to a stationary workpiece.

Pocket-hole machine

no. 100, \$479

Castle

800-282-8338, castleusa.com



Hybrid collector tackles high static-pressure losses

Oneida's Supercell dust collector combines the best of a shop vacuum with a larger cyclone collector. Rather than an induction motor, it uses three universal motors like those found in shop vacuums. This makes it possible to combine high airflow (500 cubic feet per minute) with high suction power and the ability to overcome much higher static-pressure losses than a regular cyclone. So it can pull debris through up to 75' of duct, according to Oneida. The unit can be used for small portable tools as well as larger machines. Dust is contained in an internal three-stage cyclonic separation system, and air exits through a HEPA-media filter rated to catch dust particles as small as .3 microns. This 4½'-tall unit has a 4" inlet and a pulse filter cleaner.



220-volt portable dust collector

(model numbers and pricing not yet determined)

Oneida Air Systems
800-732-4065, oneida-air.com



Problem-solving lift makes routing easier

This router lift solves two common router-lift problems: slow height adjustments, and difficult-to-use insert rings. First, it has a two-speed gearbox for adjusting the bit height. One leadscrew makes large adjustments four times as fast for changing bits. The other leadscrew, using the same hex-wrench crank, raises the bit in small increments for setting a precise bit height. Another innovation is a push-button quick-release for the bit-

opening inserts—no tools needed. The Pro-Lift fits 3½-hp router motors (4¼" diameter) out of the box, and also many midsize motors using the included adapter sleeve. 🌲

Pro-Lift router lift

no. 52429, \$350

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



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Tactics for Successful Project Procrastination

Thoughts I meant to share several issues ago...



I put the “pro” in “procrastinate.”



As I travel the country speaking with woodworkers, I've learned that putting off requests to build projects is a familiar theme. Having decades of experience honing this skill, I thought I should share my “Tactics for Procrastination.” Playing the part of the patient requester is my lovely wife, Donna.

Tactic 1: Never give a definite NO to any request.

Jim: Come up with as many excuses and reasons as you can muster for why the project will not work.

Donna: Choose this one wisely. It only works a couple of times.

Tactic 2: Ask questions. Lots of questions.

Jim: If you execute this roadblock well, questions can easily give you a year or more to finish a project.

Donna: So that's the reason the bar cabinets took five years to build. Let's remember that it only took me nine months to build a whole human being. No questions asked!

Tactic 3: Always appear to be listening.

Jim: Nod frequently. If you find your mind wandering, just tell your partner he or she speaks too quietly.

Donna: Now that he has hearing aids, this one is a lot less persuasive.

Tactic 4: Take advantage of the communication differences between men and women (i.e. *Men Are from Mars; Women Are from Venus*).

Jim: This is not an excuse, because truly, all too often I don't understand what she is talking about.

Donna: Give me a break. This doesn't sound like it came from Mars. Sounds more like it may have come from Uranus.

Tactic 5: Always have excuses available.

Jim: Things like: “I ran out of material,” “I've got the wrong bandsaw blade,” “It's too humid/dry/hot/cold to put the finish on,” “My chisel is dull.”

Donna: Well, at least you didn't call them good excuses. Your chisel is dull? I'm not going there.

Tactic 6: Prioritize project requests from children and grandchildren.

Jim: Their requests are so heartwarming and cute. Besides, how can she get mad at me for doing something for the kids?

Donna: Okay, this one actually works.

Tactic 7: Admit and accept that there are things you would rather not make.

Jim: In my case it's chairs. Boy, I hate chairs. All that upholstery and everything. And, it's never just one.

Donna: That's why I *buy* chairs. It's the one thing I can get on *my* timeline. I'll also add lamps to that list.

Tactic 8: Don't overprocrastinate.

Jim: If stalling goes on too long, you may lose pieces needed for completing the project.

Donna: Speaking of which, have you found those special cabinet pulls yet? Now, stop procrastinating, my love. My number one tactic is, “Be ready to be overruled.”

Jim: Thank you. I promise I'll start on your project next week. 🌲



► This classic book can help the sexes better understand each other.

woodmagazine.com/marsvenus

Only put off until tomorrow that which you are willing to die having left undone.

Pablo Picasso

Iron age Display Shelf

Blend classic wood shelves with steel legs for an industrial, yet refined, contemporary look.

First, pump out the iron legs

You'll need no fancy metalworking tools or special skills to create the legs, just a drill, hacksaw, and a bit of elbow grease. A grinder and a countersink designed for cutting steel come in handy, but aren't essential.

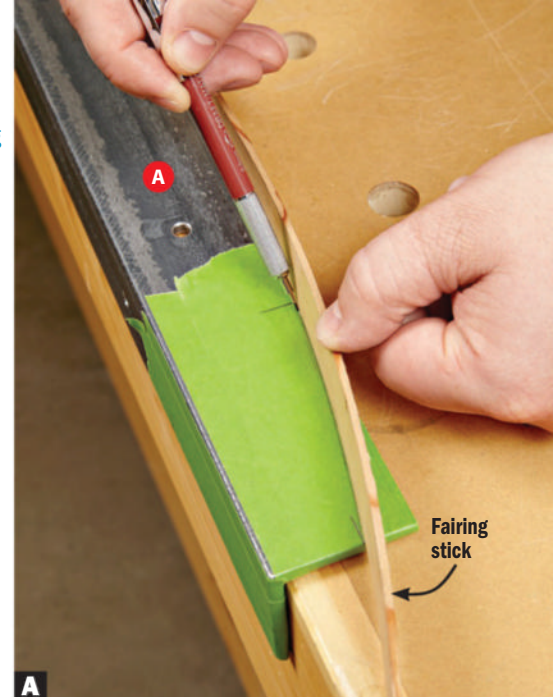
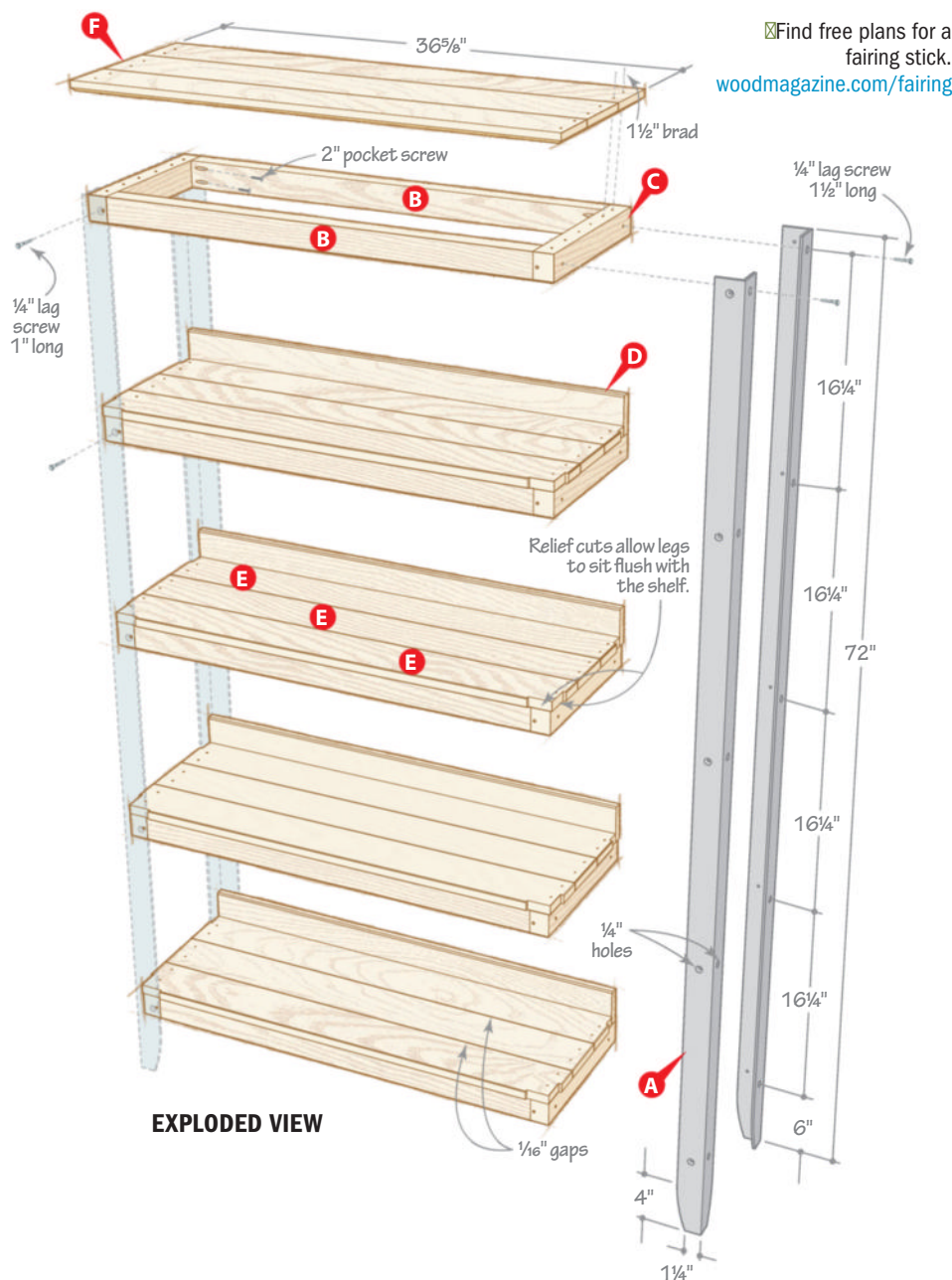
1 Cut the legs (A) to length or order precut ones [Materials List, Sources]. Mark, tap with a center punch, and drill holes through both faces of each leg, centered on the face width [Exploded View]. Use a few drops of oil to lubricate and cool the bit. Deburr the holes—we used a steel-cutting countersink [Sources].

Tip! The exact radius of the curved tapers at the leg bottoms isn't critical. But you do want them to be consistent. So, while marking the first taper using the curved midsection of a fairing stick, mark the taper endpoints on the fairing stick as well as on the leg.

DIMENSIONS:
36 1/2" W x 13 5/8" D x 72 3/4" H

Approximate materials cost:
\$350
including four steel legs and hardware

Super-simple joinery requires only metal fasteners



Curved tapers add finesse. For good visibility, apply masking tape at the leg bottoms. Then mark the endpoints of the taper and connect them using a fairing stick.

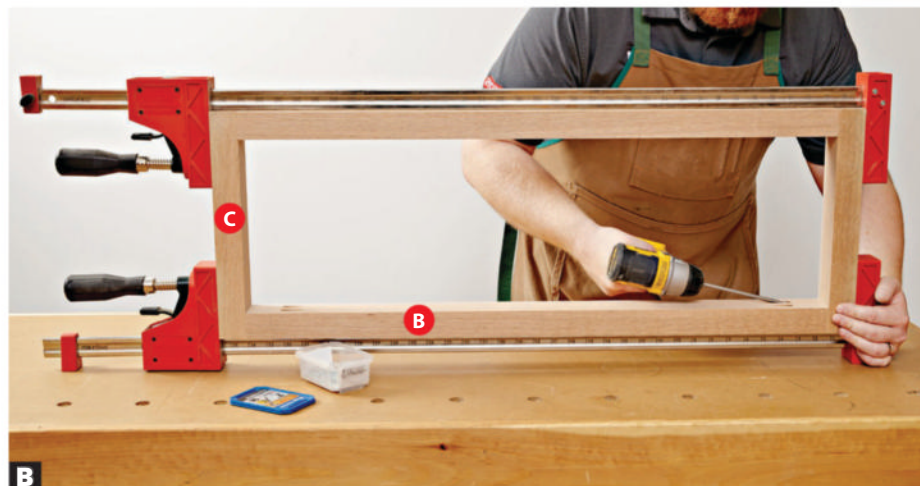
2 Mark curved tapers on the leg bottoms [Photo A]. Hacksaw the taper and smooth the cut edge—we used a handheld grinder with an 80-grit flap disc.

3 Clean the legs thoroughly using denatured alcohol. To enhance their look we applied gun bluing solution [Sources], and topped that with spray lacquer to prevent rusting.

Next up, the shelves

1 Cut the shelf fronts, backs, and ends (B, C) [Drawing 1]. Join them with glue and pocket screws [Photo B].

2 Plug the pocket holes. We used a Kreg Pocket Hole Plug Cutter System [Sources, Photo C], but you could buy ready-made plugs or cut your own from dowels.



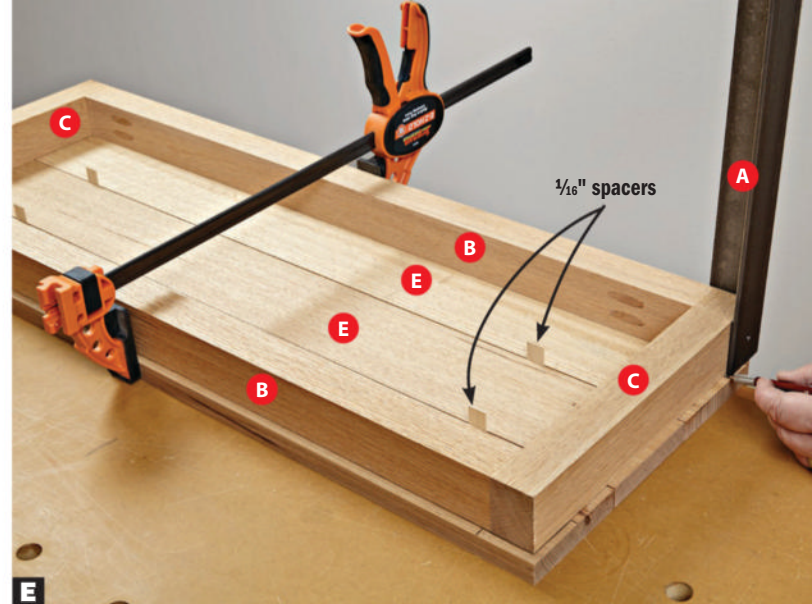
Hardwood frames can creep slightly when you drive home pocket screws, so glue and clamp the shelf frames, and then let the glue dry, before driving the pocket screws.



Make pocket-perfect plugs by clamping the jig to a board having grain and color similar to your workpieces. Crosscut the end of the board to release the plugs.



D Glue and clamp the backsplashes flush with the back and ends of the shelf-frame assemblies.



E Mark the outside shelf slats to fit the legs. With the shelf slats spaced, and the shelf frame centered and dry-clamped to the slats, mark around a leg on each corner of the assembly.

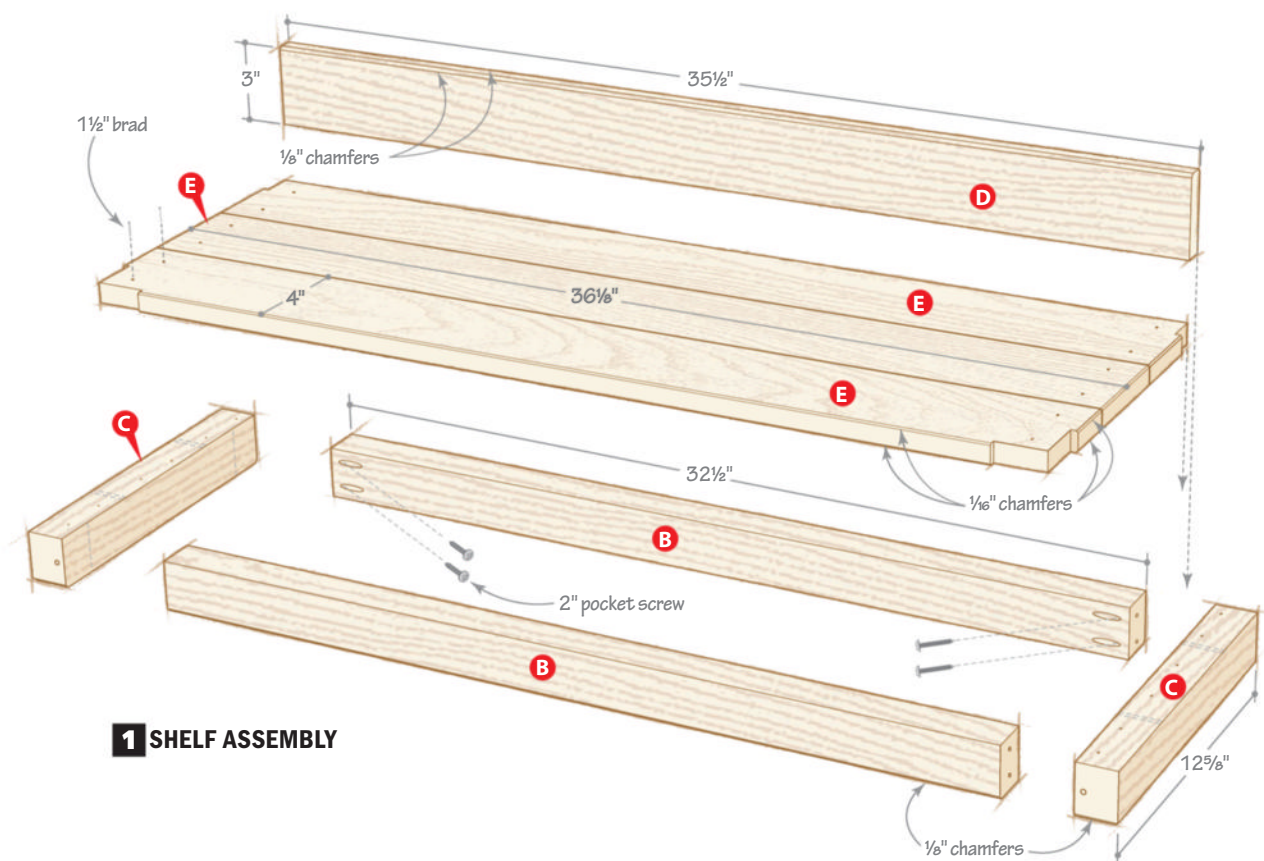
3 Cut the shelf backsplashes (D), shelf slats (E), and top slats (F) [Drawings 1, 2]. Chamfer the top edges of the backsplashes, then install them [Photo D]. You'll have one shelf-frame assembly left for making the top later.

4 Cut 1/16"-thick spacers, dry-clamp an upside-down assembly of the shelf slats and frame assemblies, and mark the leg

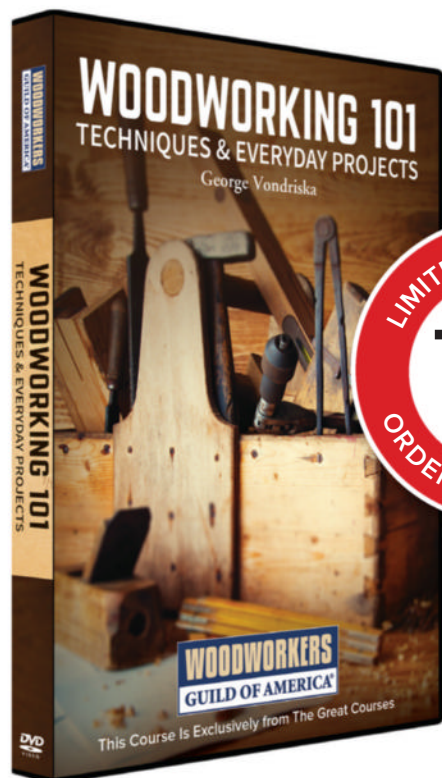
reliefs [Photo E]. Unclamp the assemblies and use a jigsaw to cut the reliefs.

5 Chamfer the slats, then glue and brad-nail the slats to the frame assemblies.

6 Chamfer the bottoms of the frame assemblies, as well as the edges and ends of the top slats. Then glue and brad the top slats, centered and spaced, to the remaining shelf frame.



1 SHELF ASSEMBLY



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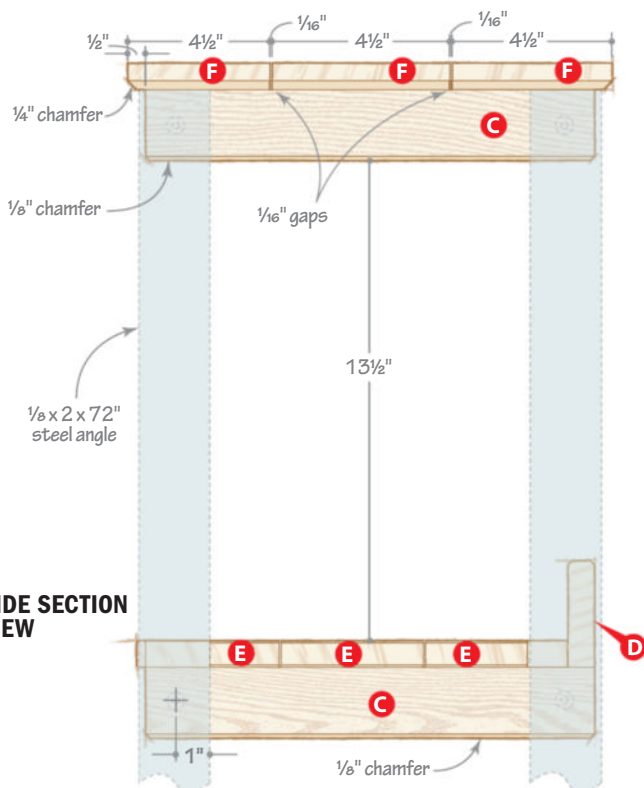
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Finish it up

1 Apply stain and clear finish to the wood assemblies—we used Varathane red chestnut oil-based stain followed by three coats of lacquer.

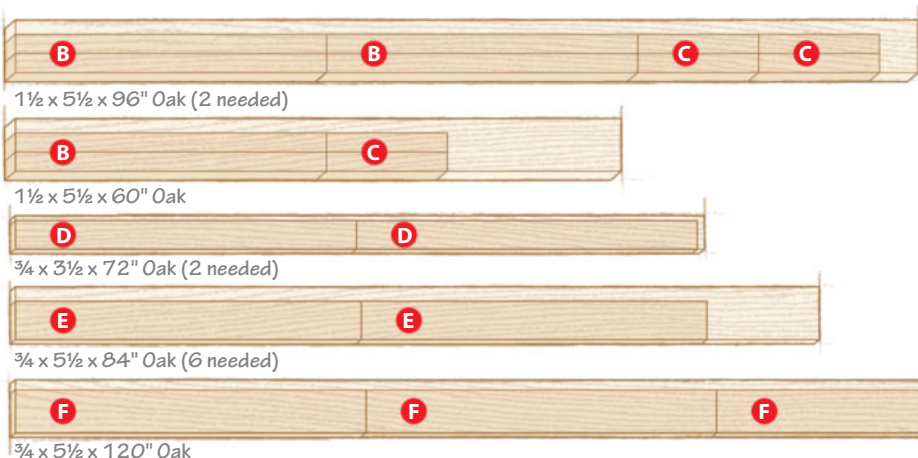
2 Assemble the project upside down so that the legs butt against the top slats [Drawing 2]. Use the legs to mark pilot holes in the top-shelf assembly. Drill $\frac{3}{16}$ " pilot holes and drive the longer lags into the ends of the top, and shorter lags into the front and back. If the screw tips butt into each other, grind down the tips of the short lags. Add each successive shelf [Photo F].

2 SIDE SECTION VIEW



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

Cutting Diagram



F Work from the top up attaching the shelves, using spacers to accurately position each shelf before drilling pilot holes and driving the lag screws.

Materials List

Part	FINISHED SIZE			Matl.	Qty.
	T	W	L		
A legs	$\frac{3}{16}$ "	2x2"	72"	S	4
B shelf fronts/back	1 1/2"	2"	32 1/2"	O	10
C shelf ends	1 1/2"	2"	12 5/8"	O	10
D shelf backsplashes	3/4"	3"	35 1/2"	O	4
E shelf slats	3/4"	4"	36 1/8"	O	12
F top slats	3/4"	4 1/2"	36 5/8"	O	3

Materials key: S—steel angle, O—oak.

Supplies: 2" pocket screws (40), 1 1/2" brad nails (60).

Bit: Chamfer router bit.

Sources: $\frac{3}{16}$ x2x2" low-carbon steel 90° angle, no. 9017K184, \$23.06 each (4 required); $\frac{1}{4}$ " black zinc-plated hexhead (lag) screws 1 1/2" long, 50-count, no. 92371A416, \$8.22; $\frac{1}{4}$ " black zinc-plated hexhead (lag) screws 1" long, 100-count, no. 92371A412, \$12.57; 1/2"-dia., 6-flute, black oxide cobalt steel countersink, no. 3285A661, \$16; all from McMaster Carr, 630-833-0300, mcmaster.com.

Birchwood Casey Gun Super Blue, 3 oz., \$8.44,
woodmagazine.com/superblue

Kreg Pocket Hole Plug Cutter System, \$69,
woodmagazine.com/kregplugcutter

Shown in opening photo on p.70:

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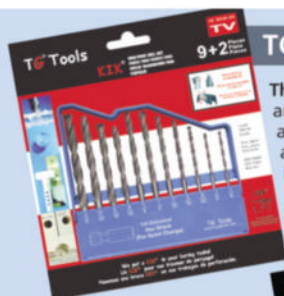
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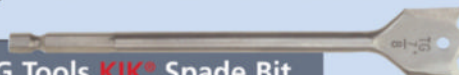
TG Tools KIK® HS Brad Point Bit

The KIK® HS Brad Point Bit has a unique tip design allowing it to bore wood, plastics and sheet metals exceptionally fast, clean and easy. The tip contains 20% more cutting surface. To accommodate the speed with which this bit drills, the flutes have an additional extraction ridge to clear the bore continuously and efficiently. The tip design permits plastics, laminates and even acrylic sheet to be drilled without melting, clogging or melting. Sheet metals are drilled with no burr left behind. KIK® HS Brad Point Bit are available in standard jobber lengths and 8-1/4 extended length. The extended lengths have a hole near the tip for pulling wires through the hole with the bit that made the hole!



TG Tools KIK® Spade Bit

Conventional spade bits can only drill holes in wood and can only go in a single direction. The "revolutionary" design of the KIK® Spade bit from TG Tools allows it to drill, wood, laminates, plastic and even non-ferrous sheet metal. In wood, the KIK® Spade bores faster due to 30% more cutting surface. By eliminating the brittle tang found on common spade bits, the KIK® Spade can even bore curved holes for those tight plumbing and electrical installations. On plastics and laminates, the KIK® Spade bores efficiently without melting the material and will not "slip" or "skate" from the start. With six cutting edges and more cutting surface, Chrome Vanadium 40 Steel was chosen for manufacture to allow the bit to flex when necessary in those tough situations when others simply bend and break.



KIK® Forstner Bit

Made from 60 Carbon Steel and Titanium-coated, the KIK® Forstner Bit from TG Tools drills, routs and channels wood, plastic, acrylic and more. The bit operates smoothly in any direction—even curves—making it easy to control. Bore the hole the way the conduit or pipe bends. Correct misaligned inlets. Bore blind holes without piercing thin laminate. It's a great bit for hinge or anchor inserts. Plus, the open cap design prevents clogging, and the three-flat shank means less chuck slippage. Also, the bit includes a free heavy-duty protective case.



Call 800-687-4122 • www.mytgtools.com

TOOLS & MATERIALS

SHOP-TESTED

Unsung Hand-tool Heroes

Planes and bench chisels get all the glory, but we find indispensable some hand tools that live quietly in the shadows of the big two. Here are three of our favorite unsung tools that simply get stuff done.

◀ 6-piece handsaw file set

no. 62W33.20, \$44.50

If you use handsaws, you must either learn to resharpen them or pay someone else to do it. We recommend the former, especially with this kit that works on any Western-style saw with 4–14 teeth per inch (tpi). Simply clamp the saw in a saw vise, such as the one shown, make a few strokes on each tooth with the corresponding file, and you'll be cutting wood again in no time. (The included guide attached to the file helps you keep a consistent angle when filing.)

Lee Valley
800-871-8158, leevalley.com



▲ Gramercy rasps

6"×25 tpi, no. GT-MRASP.MR-150-10, \$39.95; 6½"×18 tpi, no. GT-CMRASP.B1, \$66.95; 10"×25 tpi, no. GT-CMRASP.CM-250-10, \$109.95; 10"×16 tpi, no. GT-CMRASP.CM-250-8, \$104.95; 12"×8 tpi, no. GT-CMRASP.CM-300-4, \$109.95

Rasps work great for shaping wood, typically after you've roughed out a workpiece on a bandsaw, as you would for cabriole legs. These Gramercy rasps cut quickly without loading up with debris. We like the nicely shaped handles and good balance that gives precise control. If you can buy only one or two rasps—a likely scenario given their premium prices—start with the 10"×16 tpi, then add the 6½"×18 tpi. (Other sizes of rasps available but not shown here.)

Tools For Working Wood
800-426-4613, toolsforworkingwood.com



▲ Joinery floats

⅛" Bed float, no. 1-FB-1-8-T, \$60; Face float, no. 1-FF-T, \$70; ¼" Mortise float, no. 1-FM-1-4, \$60

Floats work similarly to rasps in that they hog away material, but they do it with full-width rows of cutters to peel away the wood and flatten surfaces better than rasps. Their smooth edges let you cut right up against a shoulder without damaging that shoulder. We use them for fine-tuning joinery, such as mortises, tenons, and half-laps. The bed float and face float are available in push or pull versions, but we find the push floats easier to use and more versatile. The mortise float comes in push version only, and is sold in five widths; the ¼" version is our favorite.

Lie-Nielsen Toolworks
800-327-2520, lie-nielsen.com

woodmagazine.com

continued on page 80

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CENTRAL MACHINERY **SUPER COUPON**

16" VARIABLE SPEED SCROLL SAW
Customer Rating ★★★★★

SAVE \$79

\$699

ITEM 62519/63283 93012 shown

\$999 Compare \$149

35480408

LIMIT 3 - Coupon valid through 3/21/18

CENTRAL PNEUMATIC **SUPER COUPON**

18 GAUGE, 2-IN-1 NAILER/STAPLER
WE CARRY A FULL LINE OF NAILS

SAVE 77% Customer Rating ★★★★★

\$159

\$229

Compare \$69.98

ITEM 63156/68019 shown

35487112

LIMIT 3 - Coupon valid through 3/21/18

SUPER COUPON

FREE WITH ANY PURCHASE

3-1/2" SUPER BRIGHT NINE LED ALUMINUM FLASHLIGHT

\$497 VALUE

ITEM 69111
63589/62522/62573
63875/63884/63886
63888/69052 shown

39477456

LIMIT 1 - Cannot be used with other discount, coupon or prior purchase. Coupon good at our stores, HarborFreight.com or by calling 800-423-2567. Offer good while supplies last. Shipping & handling charges may apply if not picked up in-store. Non-transferable. Original coupon must be presented. Valid through 3/21/18. Limit one FREE GBT coupon per customer per day.

SUPER COUPON

20% OFF

ANY SINGLE ITEM

39467001

LIMIT 1 coupon per customer per day. Save 20% on any 1 item purchased. *Cannot be used with other discount, coupon or any of the following items or brands: Tractor Club membership, Extended Service Plan, gift card, upon last item, 3-day Parking Lot Sale item, contractors, floor jacks, tire inflators, storage cabinets, chains & parts, trailers, headlamps, vehicles, Admiral, Bauer, Cabela, Corefoot, Daytime, Earthquake, Hercules, Jaxxon, Lysol, Pledge, Power, Storm, Tidy, Vaseline, Vicks, Zest, but valid on prior purchases. Non-transferable. Original coupon must be presented. Valid through 3/21/18.

U.S. GENERAL **SUPER COUPON**

56" 11 DRAWER INDUSTRIAL QUALITY ROLLER CABINET

SAVE \$2845 Customer Rating ★★★★★

\$6499

\$7499

Compare \$3495

ITEM 69395/67681 shown

39487293

LIMIT 3 - Coupon valid through 3/21/18

- 25,363 cu. in. of storage
- 3458 lb. capacity
- Weights 400 lbs.

CHICAGO ELECTRIC POWER TOOLS **SUPER COUPON**

10" SLIDING COMPOUND MITER SAW
Powerful 15 amp motor

SAVE \$94 Customer Rating ★★★★★

\$8499

\$11499

Compare \$179

ITEM 61971/61972/98199 shown

39488690

LIMIT 3 - Coupon valid through 3/21/18

Blade sold separately

CENTRAL MACHINERY **SUPER COUPON**

10", 12 SPEED BENCHTOP DRILL PRESS

SAVE \$67 Customer Rating ★★★★★

\$10999

\$13999

Compare \$177.59

ITEM 63471/60237 shown

39489703

LIMIT 3 - Coupon valid through 3/21/18

PREDATOR **SUPER COUPON**

2000 WATT SUPER QUIET INVERTER GENERATOR

SAVE \$569 Customer Rating ★★★★★

\$42999

\$49999

Compare \$999

ITEM 62523

39498170

LIMIT 4 - Coupon valid through 3/21/18

CENTRAL PNEUMATIC **SUPER COUPON**

3/8" x 25 FT. RETRACTABLE AIR HOSE REEL

SAVE \$100 Customer Rating ★★★★★

\$3999

\$4999

Compare \$139.99

ITEM 69266 69234 shown

39516933

LIMIT 4 - Coupon valid through 3/21/18

PITTSBURGH **SUPER COUPON**

12" RATCHET BAR CLAMP/SPREADER

SAVE 80% Customer Rating ★★★★★

\$299

\$399

Compare \$14.97

ITEM 46807/68975/62123/63017/69221/69222 shown

39522546

LIMIT 3 - Coupon valid through 3/21/18

HERCULES BEATS DEWALT **SUPER COUPON**

20 VOLT LITHIUM CORDLESS 1/2" COMPACT DRILL/DRIVER

• 576 in. lbs. of torque
• 2.5 amp hour battery
• Weighs 3.6 lbs.

SAVE \$78 Customer Rating ★★★★★

\$9999

\$10999

Compare \$179

ITEM 63381

39525519

LIMIT 3 - Coupon valid through 3/21/18

SUPER COUPON

DUST AND PARTICLE MASK 5 PACK

SAVE 60%

99¢

Compare \$2.48

ITEM 62606/63723/50027 shown

39529186

LIMIT 9 - Coupon valid through 3/21/18

SUPER COUPON

TWO TIER COLLAPSIBLE EASY-STORE STEP LADDER

SAVE 50% Customer Rating ★★★★★

\$1999

\$2999

Compare \$39.99

ITEM 67514

39529207

LIMIT 6 - Coupon valid through 3/21/18

CENTRAL MACHINERY **SUPER COUPON**

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

SAVE \$215 Customer Rating ★★★★★

\$16999

\$18999

Compare \$384.99

ITEM 61790/97869 shown

39532059

LIMIT 4 - Coupon valid through 3/21/18

WINDSOR DESIGN **SUPER COUPON**

60" HARDWOOD WORKBENCH WITH 4 DRAWERS

Tools sold separately.

SAVE \$265 Customer Rating ★★★★★

\$12999

Compare \$395

ITEM 93454/69054/63395/62603 shown

39546078

LIMIT 3 - Coupon valid through 3/21/18

drill master **SUPER COUPON**

80 PIECE ROTARY TOOL KIT

SAVE 61%

\$699

\$17.99

Compare \$17.99

ITEM 63292/63235/68986/69451/97626 shown

39548600

LIMIT 6 - Coupon valid through 3/21/18

PITTSBURGH **SUPER COUPON**

50" CLAMP AND CUT GUIDE

Tools sold separately.

SAVE 57% Customer Rating ★★★★★

\$1499

\$2299

Compare \$34.99

ITEM 66581

39549059

LIMIT 6 - Coupon valid through 3/21/18

Lifetime CARBIDE **SUPER COUPON**

ALUMINUM OXIDE SANDING SPONGES PACK OF 10

Customer Rating ★★★★★

\$399

\$499

Compare \$399

ITEM 46751 63918
ITEM 46752 63915
ITEM 46753 63912

39557691

LIMIT 8 - Coupon valid through 3/21/18

HARDY **SUPER COUPON**

MECHANIC'S GLOVES

SIZE ITEM

MED	62434/62426
LG	62433/62428
X-LG	62432/62429

Customer Rating ★★★★★

SAVE 75%

\$399

\$599

Compare \$16.12

Item 62429 shown

39561128

LIMIT 3 - Coupon valid through 3/21/18

Lynxx **SUPER COUPON**

40 VOLT LITHIUM CORDLESS BRUSHLESS BLOWER

Customer Rating ★★★★★

SAVE \$29

\$11999

\$12999

Compare \$149

ITEM 63284

39574695

LIMIT 3 - Coupon valid through 3/21/18

CENTRAL MACHINERY **SCISSOR SUPER COUPON**

4" x 36" BELT/ 6" DISC SANDER
SAVE 35% Customer Rating ★★★★★
 • Powerful 3/4 HP motor

\$599
 Compare ~~\$799~~ \$92.59
 ITEM 62502/97181 shown

39595926
 LIMIT 4 - Coupon valid through 3/21/18*

SCISSOR SUPER COUPON

7 FT. 4" x 9 FT. 6" ALL PURPOSE WEATHER RESISTANT TARP
SAVE 65% Customer Rating ★★★★★

\$299
 Compare ~~\$8.58~~ \$4.89
 ITEM 69249/69115/69137/69129/69121/877 shown

39599484
 LIMIT 5 - Coupon valid through 3/21/18*

Bauer **SCISSOR SUPER COUPON**

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

\$2499
 Compare ~~\$2899~~
 ITEM 63445

39618296
 LIMIT 3 - Coupon valid through 3/21/18*

CENTRAL PNEUMATIC **SCISSOR SUPER COUPON**

3 GALLON, 100 PSI OIL-FREE AIR COMPRESSORS
 A. HOT DOG
 B. PANCAKE
 ITEM 69269/97080 shown
 ITEM 60637/61615 95275 shown

YOUR CHOICE \$399
 Compare ~~\$599~~ \$98.62

SAVE 59%
 Customer Rating ★★★★★
 • Air delivery: 0.6 CFM @ 90 PSI, 1 CFM @ 40 PSI

39630114
 LIMIT 5 - Coupon valid through 3/21/18*

CENTRAL MACHINERY **SCISSOR SUPER COUPON**

350 LB. CAPACITY FOLDABLE SAW HORSE
SAVE 49% Customer Rating ★★★★★

\$899
 Compare ~~\$1329~~ \$17.97
 ITEM 60710/61979/69446 shown

39631491
 LIMIT 3 - Coupon valid through 3/21/18*

PREDATOR **SCISSOR SUPER COUPON**

6.5 HP (212 CC) OHV HORIZONTAL SHAFT GAS ENGINE
Customer Rating ★★★★★

\$999
 Compare ~~\$1199~~ \$329.99
 ITEM 60363/69730
 ITEM 69727 shown
 CALIFORNIA ONLY
 ITEM 62915/60600 shown

39635566
 LIMIT 3 - Coupon valid through 3/21/18*

SCISSOR SUPER COUPON

FOLDABLE EAR MUFFS
SAVE 50% Customer Rating ★★★★★

\$499
 Compare ~~\$699~~ \$9.99
 ITEM 94334

39642924
 LIMIT 3 - Coupon valid through 3/21/18*

KRAUSE & BECKER **SCISSOR SUPER COUPON**

AIRLESS PAINT SPRAYER KIT
SAVE \$124 Customer Rating ★★★★★

\$7499
 Compare ~~\$2199~~ \$299
 ITEM 62915/60600 shown

39656934
 LIMIT 3 - Coupon valid through 3/21/18*

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

RAPID PUMP® 1.5 TON ALUMINUM RACING JACK
 • 3-1/2 Pumps Lifts Most Vehicles
 • Lifts from 3-1/2" to 14-1/8"
 • Lightweight 34 lbs.

\$599
 Compare ~~\$109.99~~ \$799
 ITEM 68053/62160/62496/62516/60569 shown

39663305
 LIMIT 3 - Coupon valid through 3/21/18*

HaulMaster **SCISSOR SUPER COUPON**

1000 lb. capacity MOVER'S DOLLY
Customer Rating ★★★★★

\$799
 Compare ~~\$1899~~ \$19.97
 ITEM 61899/62399/63095/63096/63098/63097/93888 shown

39669460
 LIMIT 6 - Coupon valid through 3/21/18*

U.S. GENERAL **SCISSOR SUPER COUPON**

30" 5 DRAWER TOOL CART
 • 8100 cu. in. of storage
 • 704 lb. capacity
 • Weighs 120 lbs.

\$1599
 Compare ~~\$1150~~ \$1799
 ITEM 61427/63308/69397/95272 shown

39669937
 LIMIT 3 - Coupon valid through 3/21/18*

luminar OUTDOOR **SCISSOR SUPER COUPON**

NEW 24 FT., 18 BULB, 12 SOCKET OUTDOOR STRING LIGHTS
SAVE 63% Customer Rating ★★★★★

\$1999
 Compare ~~\$2499~~ \$54.98
 ITEM 63483

39678895
 LIMIT 3 - Coupon valid through 3/21/18*

drill master **SCISSOR SUPER COUPON**

1/4" TRIM ROUTER
 • Cutting depth adjusts easily for accurate cuts

\$199
 Compare ~~\$99~~ \$299
 ITEM 61626/62659/44914 shown

39685434
 LIMIT 7 - Coupon valid through 3/21/18*

CHICAGO ELECTRIC POWER TOOLS **SCISSOR SUPER COUPON**

2.5 HP, 10" TILE/BRICK SAW
Customer Rating ★★★★★

\$299
 Compare ~~\$499~~ \$2799
 ITEM 62391/69275 shown

39691664
 LIMIT 3 - Coupon valid through 3/21/18*

VOYAGER **SCISSOR SUPER COUPON**

15" TOOL BAG
Customer Rating ★★★★★

\$699
 Compare ~~\$1099~~ \$16.97
 ITEM 62348/62341 61469 shown

39693043
 LIMIT 6 - Coupon valid through 3/21/18*

WINDSOR DESIGN **SCISSOR SUPER COUPON**

DOVETAIL JIG
Customer Rating ★★★★★

\$2799
 Compare ~~\$51.72~~ \$3499
 ITEM 34102

39695806
 LIMIT 3 - Coupon valid through 3/21/18*

PITTSBURGH **SCISSOR SUPER COUPON**

32 PIECE SCREWDRIVER SET
LIFETIME WARRANTY
SAVE 56% Customer Rating ★★★★★

\$599
 Compare ~~\$799~~ \$13.67
 ITEM 61259/90764 shown

39703125
 LIMIT 9 - Coupon valid through 3/21/18*

EARTHQUAKE **SCISSOR SUPER COUPON**

1/2" INDUSTRIAL QUALITY SUPER HIGH TORQUE AIR IMPACT WRENCH
 • Weighs 6 lbs.

\$199
 Compare ~~\$8099~~ \$269.99
 ITEM 62627/68424 shown

39703710
 LIMIT 5 - Coupon valid through 3/21/18*

CHICAGO ELECTRIC POWER TOOLS **SCISSOR SUPER COUPON**

10", 15 AMP BENCHTOP TABLE SAW
Customer Rating ★★★★★

\$1199
 Compare ~~\$179~~ \$1399
 ITEM 68827/63117 63118 shown

39704453
 LIMIT 3 - Coupon valid through 3/21/18*

CENTRAL PNEUMATIC **SCISSOR SUPER COUPON**

3" HIGH SPEED AIR CUT-OFF TOOL
SAVE 50%

\$599
 Compare ~~\$799~~ \$12
 ITEM 60243/47077 69473/60374 shown

39705480
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At Harbor Freight Tools, the "Compare" or "comp at" price means that the same item or a similar functioning item was advertised for sale at or above the "Compare" or "comp at" price by another retailer in the U.S. within the past 180 days. Prices advertised by others may vary by location. No other meaning of "Compare" or "comp at" should be implied. For more information, go to HarborFreight.com or see store associate.

TOOLS & MATERIALS

SHOP-TESTED



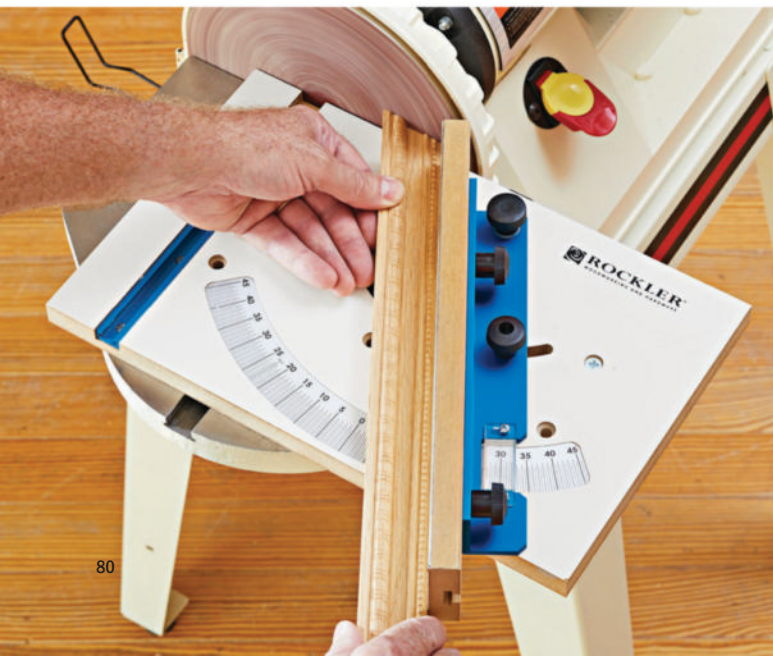
Raise your color game without raising the grain

Water-based wood stain, quart \$25, gallon \$50

Water-based stains have been around a while, but until now they all caused wood surface fibers to fuzz after drying (raised grain). These Pure Color stains eliminate that pesky issue without sacrificing color. I applied all the colors in the palette to red oak boards, and love the vibrant colors and tones, as well as the absence of bad smell. I was also able to create custom colors by blending two or more stains. Sold in plastic bags with pourable spouts, these stains must be dispensed into a cup for application. (Be careful not to spill as you get used to this unique system.) Because the colorant settles, mix up the stain first by simply squeezing the bag until blended. And when you close the bag, squeeze out any air to keep the stain vibrant and fresh.

—Tested by Kevin Boyle, Senior Design Editor

Pure Color
855-729-7873, purecolorinc.com



Gain table surface and precision with this jig

Disc sander angle jig, no. 54963, \$130

Nearly all disc sanders (including belt/disc combo models) come with an underwhelming miter gauge, making it difficult to accurately sand non-90° angles. Rockler's disc sander angle jig fits into your sander's miter slot, and locks firmly in place with an expandable miter bar. The fence and scale—marked in wide single-degree increments up to 45° left and right—provide dead-on accuracy. The jig also includes a circle-sanding pivot and stop that I used to create perfect circles.

—Tested by Bob Saunders

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

continued on page 82

WOOD magazine December/January 2017/2018

Steel Yourself

At \$59, this blade of legendary Damascus steel is a real steal

Damascus steel is the stuff of legend. Using a technique first mastered in the ancient city, swords made from Damascus steel were known to slice gun barrels in half and separate single strands of hair in two, even if the hair simply floated down onto the blade.

Now, you can be a part of the legend. The 7 1/2" *August Knife* features a blade of modern Damascus steel, inspired by the production techniques and legends of history. Damascus steel blade knives can cost thousands. So, at \$59, the price itself is also legendary.

Once a lost art, we sought out a knifemaker who has resurrected the craftsmanship of Damascus steel to create the *August Knife*. The elusive, ancient production technique mixes different steel alloys to form a super steel—the outcome is a beautiful one-of-a-kind pattern of banding and mottling reminiscent of flowing water.

Limited availability. Only a handful of artisans make these blades, with each handcrafted knife taking months to perfect. We currently can get less than 1500 this year,

so we can't promise they'll stick around for long—especially at this price. Call today!

Your satisfaction is 100% guaranteed. If you don't feel like we cut you a fair deal, send it back within 30 days for a complete refund of the item price. But we believe once you wrap your fingers around the *August's* handle and experience the beauty of its Damascus steel blade, you'll be ready to carve out your own legend.

August Knife

non offer code price ~~\$149~~*

Offer Code Price Only \$59 + S&P

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Your Insider Offer Code: AGK184-01

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

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Burnsville, Minnesota 55337
www.stauer.com

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

What customers are saying about Stauer knives...

★★★★★

"Very hefty, well-built knife and sheath. Extremely good-looking and utilitarian."

— R., Lacey, Washington

Limited Collector's Edition

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

Not shown actual size.

- 7 1/2" overall length • Genuine Damascus steel blade • Stainless steel guard • Leather handle • Includes genuine leather sheath

Stauer...Afford the Extraordinary.™



✓Yes



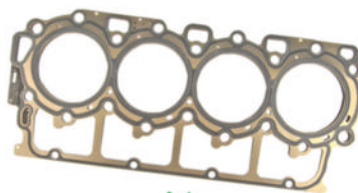
✓Yes



xNo



✓Yes



✓Yes



✓Yes

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ALL THE PARTS YOUR CAR WILL EVER NEED.

New slider sports a small footprint

10" compound sliding mitersaw, no. LS1019L, \$510

Makita's newest sliding mitersaw is designed to take up less room on your workbench or in your truck due to a stacked-rail sliding mechanism. The 10" saw provides a maximum crosscut capacity of 12", and 5¼" vertical cut capacity. It pivots 60° left and right, and tilts 48° each direction. Features include a direct-drive soft-start motor, up-front tilt lock, 11 miter detents, and a cutline laser.

Makita

800-462-5482, makitatools.com



Woodcraft launches line of socket chisels

Based on classic designs, Woodcraft's new bevel-edge socket chisels provide an alternative to tang-style chisels. The handles are made of bubinga, and can be custom-fit to the blades after purchase. You can buy a set of four chisels (¼", ½", ¾", and 1") for \$150 (no. 161640W), or individually. Also available in ⅛", ⅜", ⅝", and 1¼" widths, priced from \$35 to \$45 each.

Woodcraft

800-535-4482, woodcraft.com



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- Metal Working
- Auto Body & Marine

**KING ARTHUR'S
TOOLS
NOW IN STOCK**

Belts: Best Quality Resin/Resin, A.O., "X" Cloth 100 grit, 10/box

Size	Price/ea.
1 x 30	\$0.85
1 x 42	0.90
2 1/2 x 14	1.00
3 x 18	0.90
3 x 21	1.00
3 x 23 3/4	0.90
3 x 24	1.05
4 x 21 or 21 3/4	1.30
4 x 24	1.50
4 x 36	2.25
6 x 48	4.00
6 x 80	7.50
6 x 89	7.95
6 x 108	10.60
6 x 186	17.60

Spindle Sander Sleeves

Wide Belts

Heavy "X" Weight	
37" x 60"	\$30
37" x 75"	\$38
all other sizes	

Weiler

(USA) Wire Cups & Wheels

Nitrile Gloves

\$17.50/100

A/O Cabinet-Brown or Garnet-Orange 9" x 11" Sheets

Grit Size	Sheets/Pack	Price/Pk
40D	50PK	\$20
60D	50PK	\$17
80D	50PK	\$16
100C	100PK	\$24
120C, 150C	100PK	\$26
180A, 220A, 320	100PK	\$23
A.O. Sampler - 10 Grits		
40-320A	100PK	\$23

Black Waterproof S.C.

9" x 11" Sheets
Grits 150-2500\$32/100

White No Load S.C.

9" x 11" Sheets
Grits 220-600\$28/100

Drum Sander Cloth Rolls

1", 2", 3", 4", 4 1/2", 6",
Wide JWT and XWT

Gator (USA) Sanding Sponges

3" x 5" x 1"
Assorted Grits
\$9/10

Hook & Loop

2" Kit.....	2 Holders.....	\$18
3" Kit.....	+ 50 Discs.....	\$20
Size.....	No. of Holes.....	Price/50
4 1/2".....	8.....	\$14
5".....	5 or 8.....	\$15
6".....	6, 8, 16.....	\$17
7" Solid "E" wt.....		65¢
8" Solid "E" wt.....		90¢
9" Solid "E" wt.....		\$1.50
12" Solid "E" wt.....		\$2.50

Mirka Abralon

6" H&L Disc - Grits 180,
360, 500, 1000, 2000, 3000,
4000 — \$60/20

PSA Discs

5" Mirka Gold.....	\$27/100
6" Indasa White.....	\$24/100
8" Indasa White.....	\$24/50
Solid or with Vac Holes	
Prices Quoted 80 Grit	

Abranet Discs

2".....	\$20/50
3".....	\$25/50
5".....	\$32/50
6".....	\$38/50

Dust Collection Hose,
Fittings, Adapters

Red Hill Corp., P.O. Box 4234, Gettysburg, PA 17325
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HOWARD



Finish Fixer

Semi-Hard Putty Sticks

A quick and easy way to fill nail holes and repair minor nicks and abrasions.

- May be used before or after Restor-A-Finish when used on a wood finish
- Great for fixing Furniture, Antiques, Paneling, Veneer, Vinyl, Hard Leather, etc.
- Simply rub in, scrape excess and buff smooth, no heat or special tools required
- Available in 7 fade-resistant, non-bleeding, permanent colors that can be mixed

Before



After



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g. Copies not Distributed (See Instructions to Publishers #4, (page #3)): 50,241
h. Total (Sum of 15f and g): 353,355
i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100): 85.0%
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f. Total Distribution (Sum of 15c and e): 274,509
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h. Total (Sum of 15f and g): 322,301
i. Percent Paid and/or Requested Circulation (15c divided by 15f times 100): 84.6%
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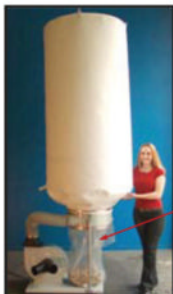


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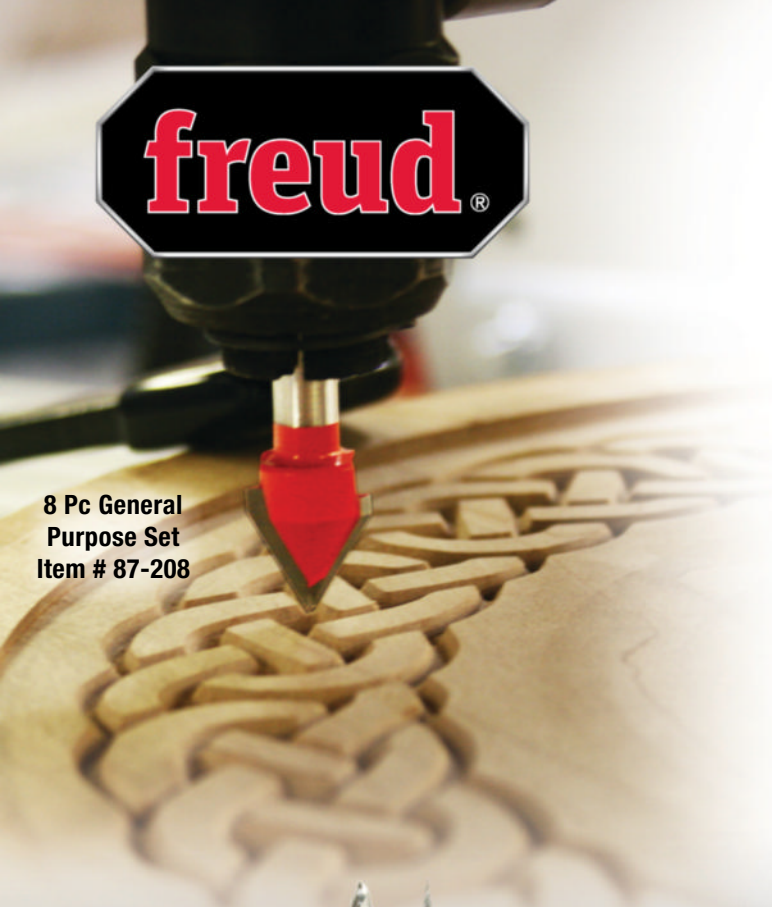


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