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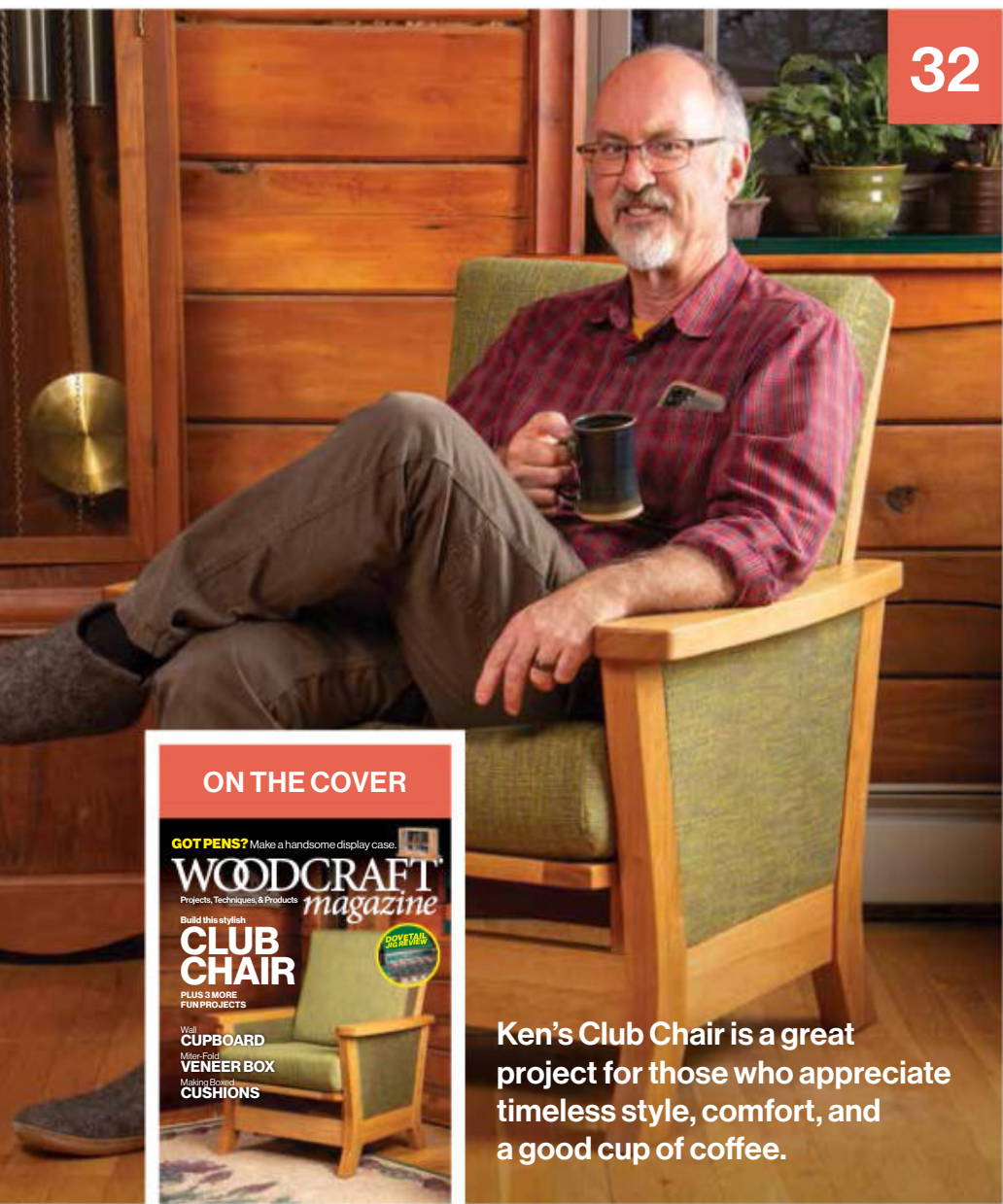
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Contributors



SAMANTHA KUCZYNSKI is the owner operator of Stuffed & Tufted, an upholstery service in Baltimore, MD. She focuses on residential work, but has upholstered furniture for museums, local shops, furniture makers, and designers. Sam loves working closely with clients to make sure they are thrilled when their furniture goes home again.

Read Samantha's article on page 20.



ELLEN KASPERN is a 2003 graduate of the North Bennet Street School where she is currently a full-time instructor in their Cabinet & Furniture Making program. In addition to teaching, she is a custom furniture maker and owns Ellen Kaspern Design in Boston, MA.

Read Ellen's article on page 26.



SCOTT GROVE is an award-winning self-taught woodworker known for layers of artistic expression and unconventional techniques. He has pioneered a number of alternative veneering techniques including asymmetrical matching and veneering extreme compound curves. He teaches and lectures internationally and has authored four books.

Read Scott's article on page 40.



ANGELA ROBINS is a woodworker and educator, inspired by Scandinavian and Japanese wooden crafts, particularly the boat and the bowl. From axe carving to turning, she works primarily with freshly cut wood. She is based in New York's Hudson Valley where she teaches woodworking.

Read Angela's Expert Answer on page 64.

There's always another way

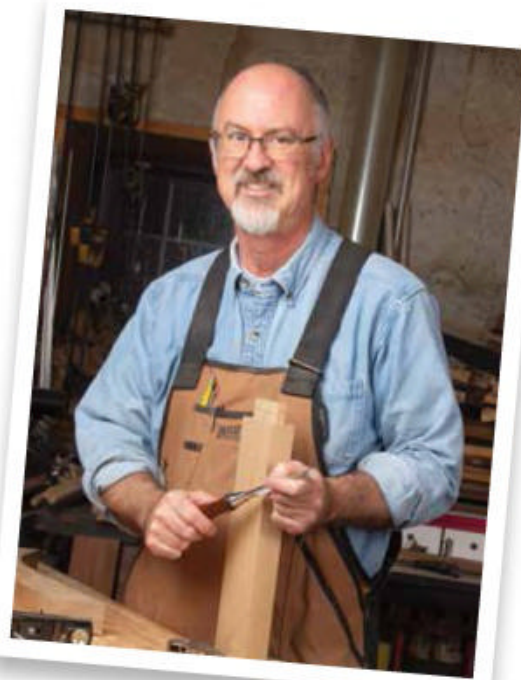
One of the wonderful things about woodworking is that there are so many different paths to success. Whether it's cutting a decorative profile, or a certain kind of joint, there are a lot of ways to get to that end result depending on what your skills are and what tools you have access to. I think that's one reason our Tips and Tricks department is so popular: there's always a new way to get things done. And it ties into the idea that we should all be lifelong learners. Personally, I enjoy the challenge of learning a new technique and weighing it against what I am already familiar with. For example, as I was building the club chair for this issue, I opted to cut the tenons on the table saw. I've done this innumerable times before, but for this project I used a follower block to guide the pieces along the fence instead of pushing them with the miter gauge. This is a technique I learned from working with contributor Ellen Kaspern and I'm pleased to report it worked quite well for me. I encourage you to give it a try, even if you're not building the chair.

As we put our stories together we try to keep this exploratory approach in mind, presenting a wide variety of techniques that make woodworking accessible to anyone who has an interest in the craft, regardless

of how big a budget they have for their shop. Whether you build a specific project or not, it's worth the time to go through the story to see if you could use those same techniques somewhere down the road. Conversely, if you find a project you do like, but lack a certain tool to build it as shown, there is bound to be another way to get the job done. This is also the approach I take in the woodworking classes I teach. I'll present how I do things, but will help students adapt those techniques to their own particular shop and skills. As long as a method isn't dangerous, I'm happy to help tweak it to fit the task at hand. And that goes for you, our valued readers, too. Please realize that we want you to be successful building the projects we present. So don't feel limited by the techniques we show in our photos; there are bound to be other paths to the same end result. And if you're having trouble finding an alternative, don't be afraid to reach out, we're happy to point you in the right direction. ■



Ken Burton, Coordinating Editor
ken_burton@woodcraftmagazine.com



Share your ideas.

We love hearing from readers! And there are all kinds of reasons to get in touch with the crew at *Woodcraft Magazine*. Find submission instructions in each of our departments or at woodcraftmagazine.com.

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Safety First! Working wood can be dangerous.

Always make shop safety your first priority by reading and following the recommendations of your machine owner's manuals, using appropriate guards and safety devices, and maintaining all your tools properly. Use adequate sight and hearing protection. Please note that for purposes of illustrative clarity, guards and other safety devices may be removed from tools shown in photographs and illustrations in this publication.



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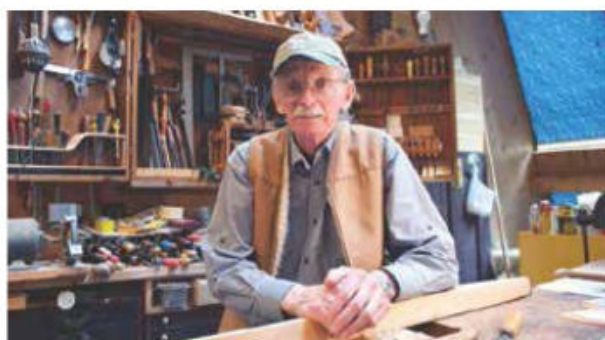
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Loss of a legend

Renowned studio furniture artist and teacher Jere Osgood passed away October 10, 2023 at his New Hampshire home. A graduate of the University of Illinois and RIT, he received national recognition in the 1970s after a series of *Fine Woodworking* articles exploring bent lamination techniques. He taught classes at schools including RIT, Boston University, and the Center for Furniture Craftsmanship in Maine. Clean lines and compound curves defined Osgood's work, which features in many public and private collections including the Museum of Fine Art Boston, the Museum of Arts & Design, and the Smithsonian American Art Museum. Osgood was 87.



Jere Osgood

Guiding light

I read Bob Berner's review of the Rikon 10-3061 (Oct/Nov 2023) and, having the same saw, agreed with him about the lack of lighting. I picked up a sewing machine light with a magnetic base and long flexible neck. Then I drilled a small hole in the saw's frame just above the power cord inlet, chamfered its edges, removed the plug end from the light, and connected the light to the motor function. Now the light comes on with the switch. And the magnetic base means it can be mounted anywhere on the saw for the best lighting.

Denny Mandeville
Sedona, AZ

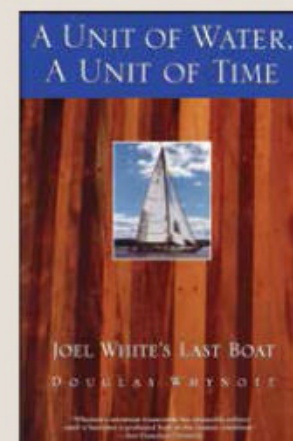


Turn for the troops

Woodcraft's 20th annual Turn for Troops National Turn-a-Thon brought in more than 12,000 handcrafted pens to be distributed to U.S. military personnel deployed overseas. Since 2004, the turn-a-thon event has distributed nearly 250,000 handcrafted pens to active-duty military troops around the world. For information on donating pens, visit woodcraft.com/pages/turn-for-troops.

Another one bites the sawdust

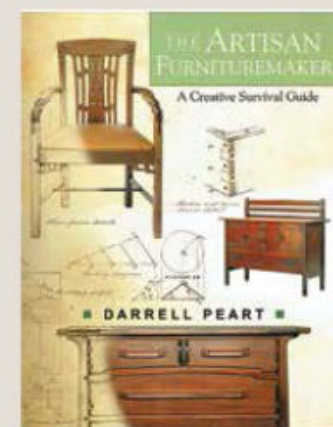
After 36 years and 215 issues, *Woodworker West* has announced the decision to stop producing the publication in print form. After missing only one issue since 1988, the editors of the bi-monthly event-oriented magazine have cited rising printing and postal costs, and declining subscribership and advertising rates, plus the health of its editors, Pam and Ron Goldman, in driving the decision. In a letter to readership in the Nov/Dec 2023 issue of *Woodworker West*, the Goldmans expressed hope that the publication may continue in an online format under new leadership, but had no definitive plans.



***A Unit of Water, A Unit of Time* by Douglas Whynott**

These days wooden boats are something of an anachronism, a throwback to an earlier, simpler time. But there are still a few places where highly skilled craftspeople can be found lovingly coaxing wooden planks into seaworthy vessels. Joel White's Brooklin Boatyard in Down East Maine is one of them. This book follows White as he designed and built his last boat, creating a portrait of a master craftsman and of the community in which he worked.

\$21.95 – Simon & Schuster 2000



***The Artisan Furnituremaker* by Darrell Peart**

At first glance, you might think this is simply another Arts and Crafts furniture book, but there is a lot more to it than that. The author uses his deep knowledge of the era to provide a masterclass in developing the creativity, design sense, and craft skills necessary to become a better furniture designer no matter what style you prefer. Clear writing backed with well-chosen photos and illustrations bring the subject to life and make for an enjoyable read.

\$26.95 – Linden Publishing 2023

Sliding dovetail

I'm building the Chimney Advent Calendar (Dec/Jan 2023). Page 51 says "switch to a dovetail bit," to cut the slot and wedge that Santa rides on, but doesn't specify size or angle. Does it matter what specific bit I use?

Mike Pilgrim, via email

Coordinating Editor Ken Burton replies:

You can really use any dovetail bit you have. As long as you use the same bit to cut both parts, the angles will match. If you need to purchase a bit, I'd go with a standard 14-deg. ½"-dia. one.



A jolly good fellowship

Boston's Society of Arts + Crafts awarded the prestigious 2023 Mineck Fellowship, a \$25,000 unrestricted prize to an early-career furniture maker, to Sarah Watlington. Watlington is a woodworker, artist, and educator based in Los Angeles, CA. Since 2016, Watlington has served as Project Manager at the Offerman Woodshop in LA, and plans to use her Mineck funding to shift her focus to her personal studio work and teaching practice.



Sarah Watlington

Layered solutions

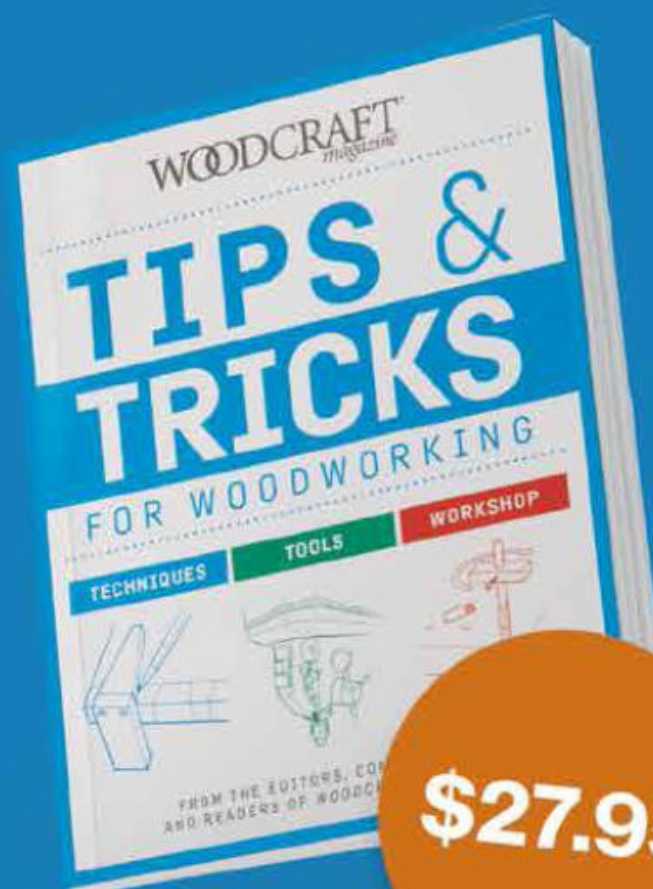
Garnica Plywood, a leading global plywood supplier, has published a guide detailing the impact of Russia's invasion of Ukraine on the availability and acceptability of Russian Birch plywood. Available on the company's website (or via the QR code above), the booklet outlines the sanctions levied by the U.S. and EU on Russian and Belarussian birch products, before suggesting alternative products that are available, sustainable, and legal. ■



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Reader Showcase

DAN GRAY COVINGTON, GA

Olive the pieces. When his brother gifted him an olive log, Gray milled it and combined it with cocobolo to create a 216-piece segmented blank. Then he turned this 16-inch tall, 10-inch wide vase “just for the enjoyment of doing so.” Gray says he’s been turning for 20 years and has displayed his award-winning work in galleries throughout the country. We think you’ll agree that Gray’s segmented vessel came together nicely and turned out even better.



GREGORY JAN BANDE ASHTABULA, OH

Turtle-y awesome! Bande carved this pond turtle as part of a series of critter carvings crafted from discards or firewood. His numbered series dates back to 1980 and includes whales, owls, frogs, and more. This turtle, inspired by baby turtles in his farm’s pond, is crafted out of walnut and finished with varnish. On the back of each carving, Bande includes a sequence number and date, plus a deep thought.



LARRY HINCKER BLACKSBURG, VA

From reassembly to redesign. Only after agreeing to help his brother “reassemble” a dining table did this Virginia woodworker discover the pieces had only been rough cut by a friend three decades before. Then they’d moved around the country, been through a flood, and become dog chew toys. Plus, dear brother had no plans or idea how they were meant to be assembled. Hincker swapped cherry bar-height legs, then replaced the tile-inlay top with patterns of pau rosa, poplar, and cherry.

MIKE MCKINNEY MAGGIE VALLEY, NC

Burl bowl. A fourth generation woodworker, McKinney says he enjoys turning projects that take advantage of the natural beauty of wood. This one-piece bowl-and-tray is turned from cherry burl. The natural-edge piece is meant as a showpiece, though McKinney admits it could be used as a serving dish. The piece, finished with lacquer after turning, measures 9 × 7 × 3 ½". ■



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their handcut counterparts. Leigh's latest iteration of this venerable jig continues to offer that kind of unmatched versatility. Out of the box, it comes with everything you need to rout variably-spaced through dovetails including an 8° dovetail bit which matches the dovetail angle built into the jig, a 5/16" straight bit, the guide bushing to attach to your router base, and a thorough, well-written instruction manual to guide you through the process. It also comes with a standard, 14° dovetail for halfblind joints for pin boards 5/16"-thick or larger.

Setting up the jig is a matter of clamping your stock in place via the crossbars and cam-action clamps, then adjusting the moveable fingers to suit the spacing you want. The fingers ride in a rack that attaches to a color-coded scale assembly at either end. The orientation of these scale assemblies tells you what kind of dovetails you're cutting (through, or halfblind) and its fore and aft adjustment coupled

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with the bit depth, helps determine the joint's fit. For joints with wide spacing, Leigh includes several lengths of filler material that you cut to bridge the gaps between the fingers to prevent inadvertent cuts. While the process is straightforward, there is a learning curve to it and you'll be glad the manual is as comprehensive as it is. If you are more of a visual learner, QR codes throughout the pages link to online videos that go over the steps as well. Once you have the jig set up, routing the joints is a matter of setting the appropriate bit to the right depth and guiding the router in and out of the fingers. Leigh recommends using a fixed-base router for ease of setting the bit depth, but a plunge router will work in a pinch.

I made good use of this jig when I built the dresser featured in our Oct/Nov 2023 issue. Overall, I was very pleased with the results. After a few test cuts, I was able to cut all the same-size drawer joinery accurately and efficiently before resetting the jig to cut the next size drawers. To cut the custom-spaced halfblind dovetails on the 7/8"-thick drawer fronts, I did have to purchase a 10° dovetail bit which was not included with the original package. It's a small quibble, but it would have been nice to know this as I was making the initial purchase. On a more positive note, the included guide bushing is quite innovative. Instead of being perfectly round, Leigh's bushing is slightly oblong and is marked with a scale that allows you to adjust it to tighten or loosen the joint's fit as needed. The bottom line? If you only need to cut drawer joints for built-in cabinetry, this jig is probably overkill. But if your dovetailing ambitions include exposed case dovetails as well as box joinery along with drawer joints, the Leigh Jig should serve you well. ■

Ken Burton

Photos: Ken Burton

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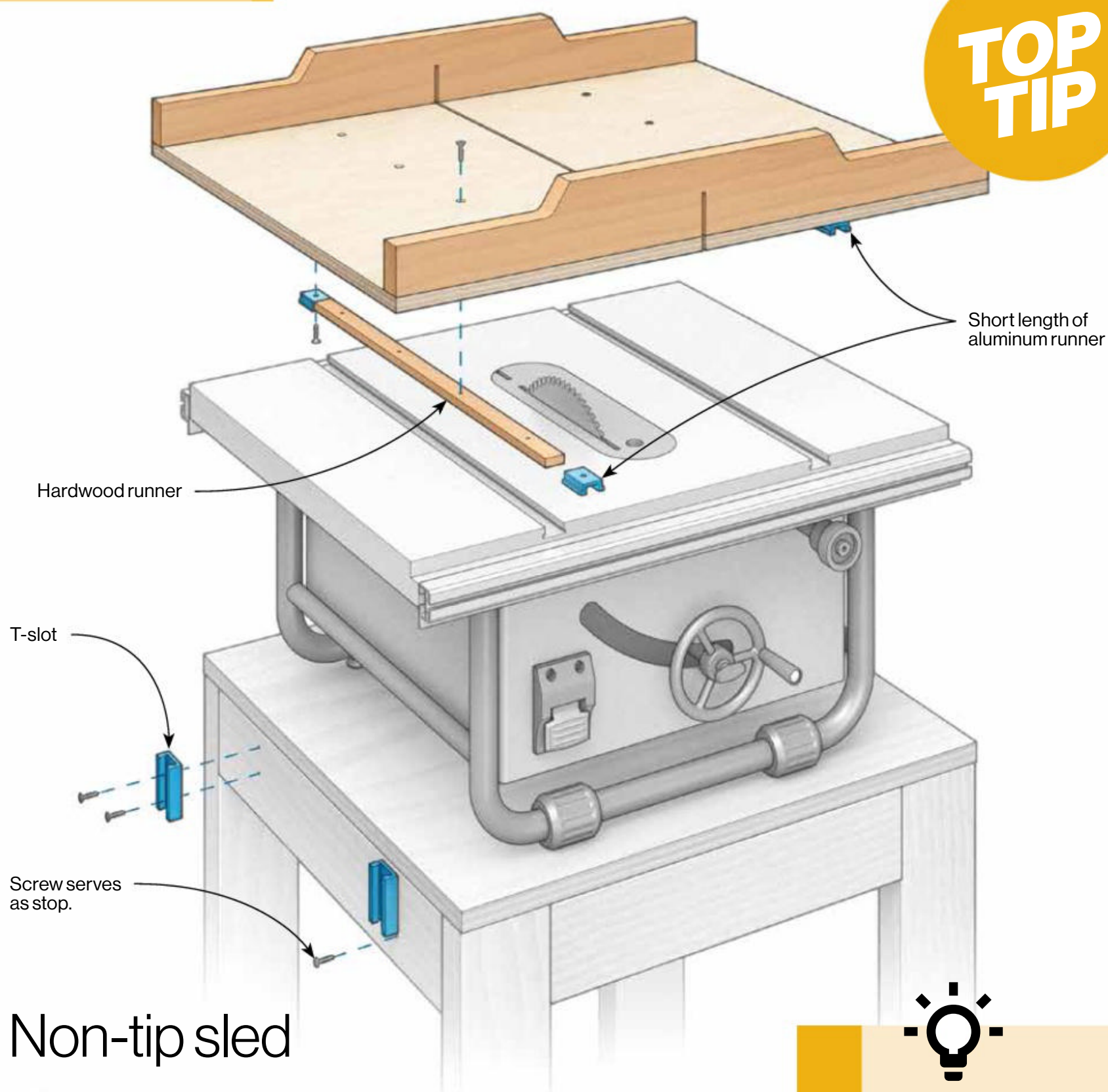
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Tips & Tricks



Non-tip sled



I only have enough room in my shop for a job-site table saw. It gets the job done, but its small table presents some challenges, especially with regard to my crosscut sled. When I first made it, I had trouble with the sled tipping both as I was starting a cut on the near side of the blade and again on the far side of the blade as I completed the operation. In looking at my saw, I realized that the miter gauge slots were “T-slots” with an undercut at the bottom. Therein was the solution to my problem. I bought

a short length of aluminum miter bar stock that had little wings that fit into the T-slots on my saw. From this, I cut four 1½" pieces and screwed them to the underside of my sled aligned with the ends of its carefully-fit hardwood runners. Now, once the sled is in place on the saw, it holds itself up on either side of the cut, making it much easier to control. As a side benefit, I added two 2" lengths of aluminum T-track to the side of my saw stand for hanging the sled when not in use.

David Riley

La Valle, Wisconsin



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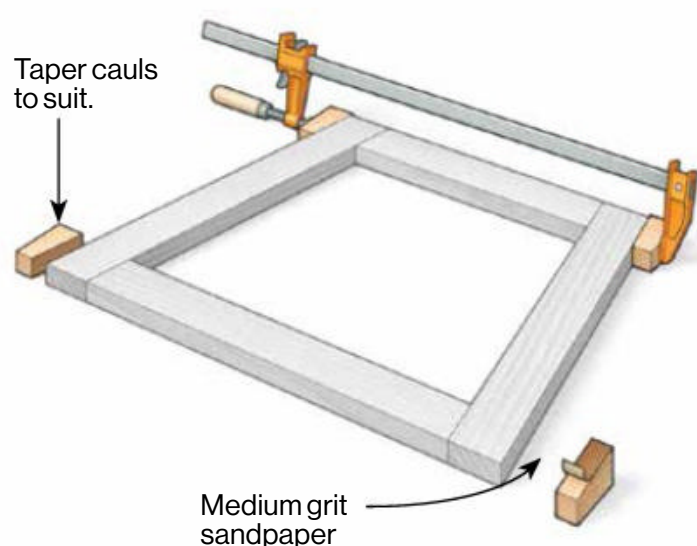
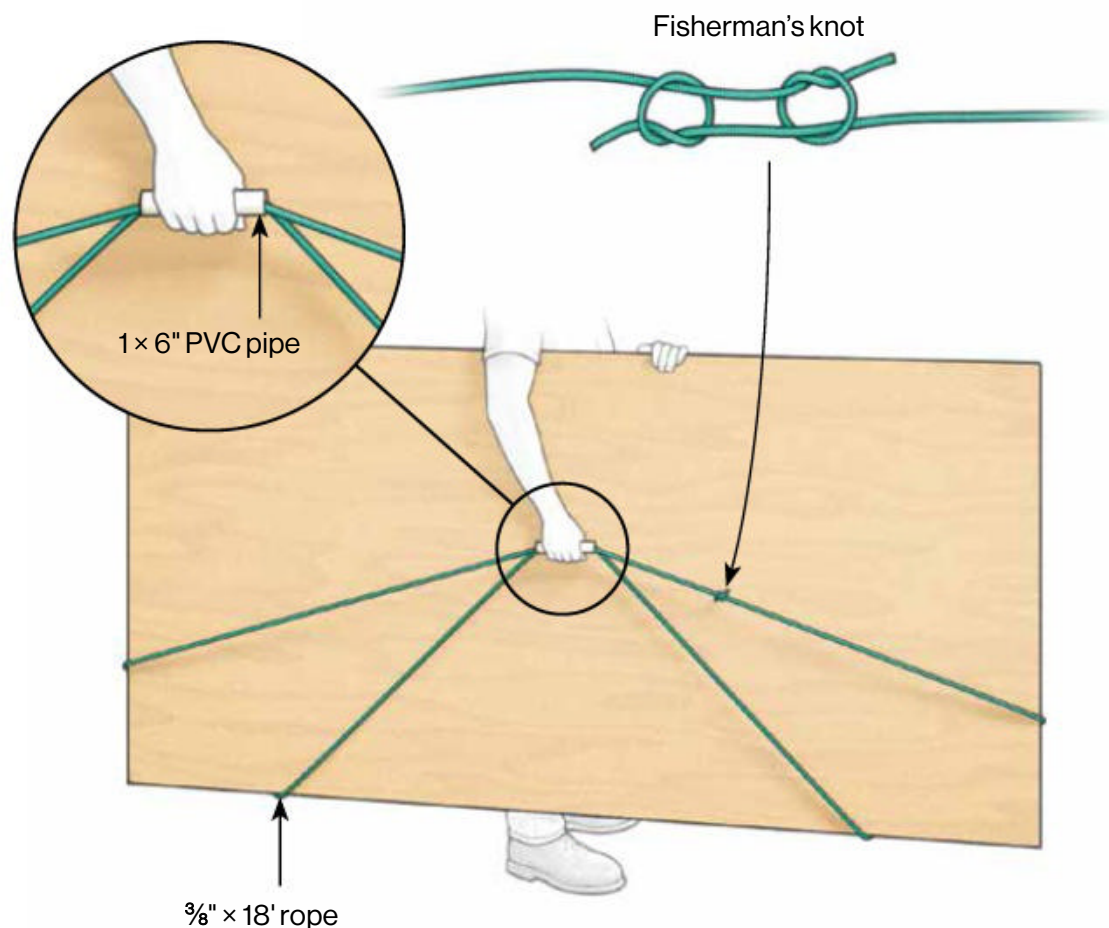
Tips & Tricks

Shop-made plywood tote

Let's face it, moving full sheets of plywood isn't fun, even if you have help. And if you have to do it alone, it can be a downright nightmare. The sheets are awkward to handle and can be quite heavy, a combination that makes a strained back and/or bruised edges likely. To make this onerous task easier, I made a plywood tote from an 18' length of $\frac{3}{8}$ " rope and a 6" piece of 1" diameter PVC pipe. To make the tote, tie the ends of the rope together with a fisherman's knot, then pass the doubled rope through the pipe which serves as a handle. Loop the ends of the rope around the lower corners of the sheet. Reach over the top of the sheet to grab the handle and lift.

Richard Entwistle

Highland Lakes, New Jersey

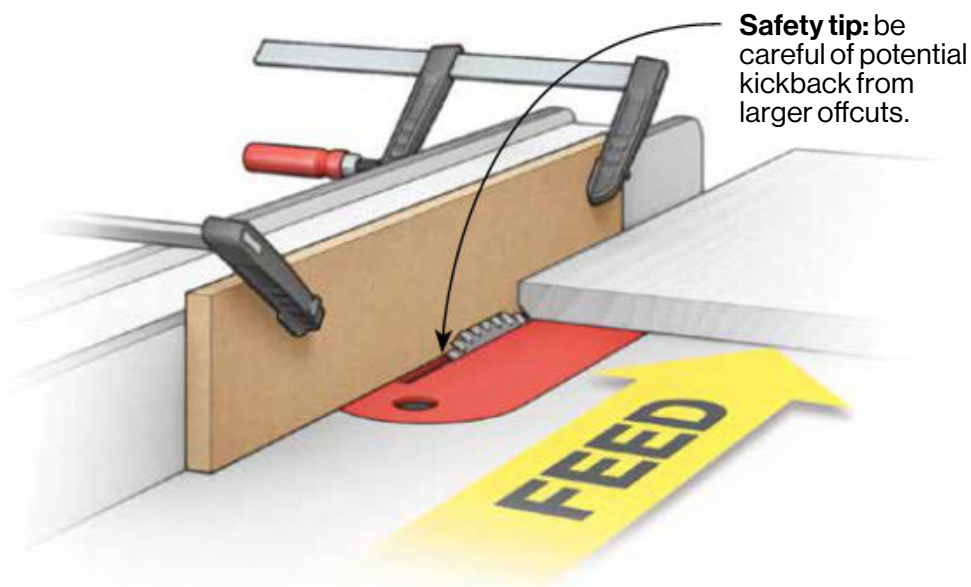


Adding traction to cauls

When gluing irregularly shaped, or angled pieces, I frequently make specially-shaped cauls to direct clamping pressure where I want it. Occasionally, I'll tape or glue these cauls to the pieces to keep them from slipping out of place. But often, all that is needed is to add medium grit sand paper to the face of the caul in contact with the work piece. Adhere the sandpaper with spray adhesive, or double-sided tape.

Sarah Marriage

Baltimore, Maryland

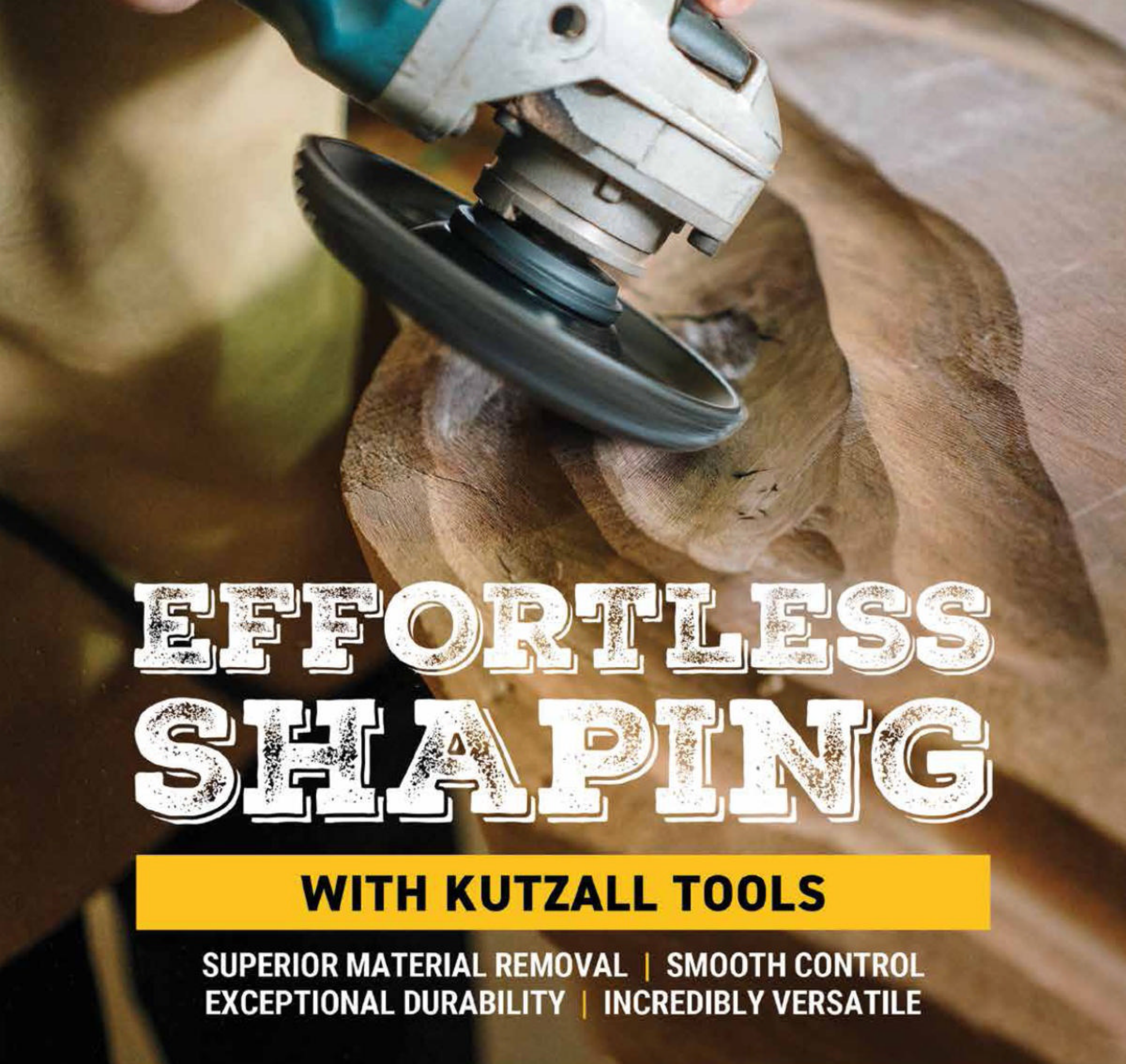


Fast and flawless chamfers

I make a lot of charcuterie boards with chamfered edges. I have found the fastest and cleanest way to cut this decorative detail is on the table saw. To get set up, position your fence on the side of the saw to which your blade tilts—to the left of the blade on a left tilt saw as shown above. Clamp a 3 x 18" length of sheet stock to the fence to serve as a spoil board. Tilt the blade to 45° and, with the saw on, raise it until it just barely cuts into the spoil board's surface. Adjust the fence position and the blade height to change the chamfer's width. Lower the blade before moving the fence closer for a narrower chamfer and vice versa for a wider one. To make a cut, simply run the workpiece along the fence. For safety when cutting across the ends of narrower boards, push them with a follower board.

Ethan Weiland

St. Augustine, Florida



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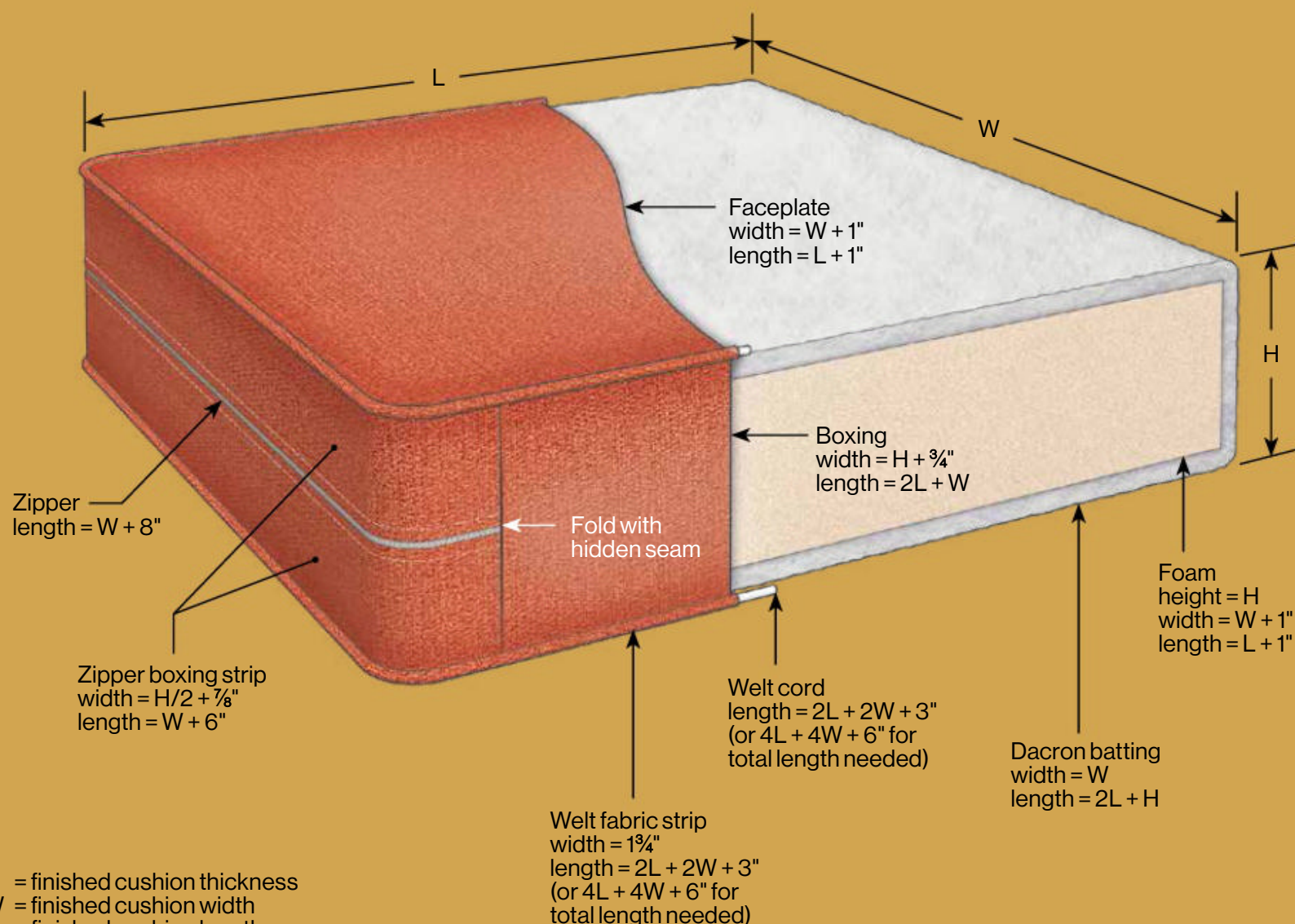
Making Boxed CUSHIONS

Customize your easy chairs with this versatile technique

By Samantha Kuczynski

Cushions found on armchairs, sofas, and other upholstered furniture vary in style and construction methods, but the most common and basic type is the boxed cushion. Boxed cushions are made with top and bottom fabric faceplates sewn to side panels called boxing. A fabric-covered cord called “welt” is typically sewn in the seams, creating a bead effect at the cushion’s edges. The fabric cover is sewn inside out, and turned

right-side out before stuffing with batting-covered foam, sized to fit. For simplicity, I am demonstrating rectangular cushions, but boxed cushions can be squares, rectangles, circles, or custom shapes. All you need to start making your own boxed cushions is a basic understanding of sewing and sewing machine functionality. For non-rectangular cushions, just throw in a little pattern-making skill, and these same techniques apply.



Getting Started

Cushion sizing. Measure your chair's seat opening from side to side to determine the finished width (W) of your cushion, and from front to back to determine its length (L). The cushion's finished height (H) will be a standard size equal to the thickness of the foam you order; consider comfort and aesthetics when choosing cushion height. Once you know the finished size of your cushion ($H \times W \times L$), use the formulas in the drawing on p. 20 to determine your part sizes.

Fabric selection. Look for fabric labeled "upholstery" or "home decor" with a 15,000 double rub count or more—although the budget-minded could go as low as 9,000 double rub count. Consider the cushion's intended use when choosing among optional features like UV-, stain-, or water-resistance. If you choose a patterned fabric, you'll need to order extra material to have room for pattern matching (see onlineEXTRAS).

Foam selection. Chain craft stores offer foam, but better quality materials are available from online and local foam specialists. For basic, indoor cushions, look for foam labeled high-density polyurethane.

What is welt? Welt is a decorative and structural accent made of fabric-covered cord. In boxed cushions it is added to the sewn seams to reduce the wear and tear at the edges of a cushion. Welt can be made of the same fabric as your cushion body, or choose a different fabric for a contrasting look.

onlineEXTRAS

Visit our site for a materials list and a calculator for patterned fabrics.



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1

Begin with the zipper panel. Cut faceplate, boxing, and zipper boxing pieces to size on the grain, and cut the welt strips—as many as needed to add up to your total welt strip length—on the bias. Sew the two zipper boxing strips together along their long side, with a $\frac{1}{2}$ " seam allowance. Iron this panel flat and pin the zipper to the underside of the panel. Be sure to place the zipper head down.



Align one end of the zipper to one end of the panel, centered on the seam, as you start pinning. The other end of the zipper will overhang the end of the zipper boxing by about 2".

2

Sew the zipper in place. With a zipper foot installed on your machine, sew along one side of the zipper and then the other, as shown.



Rip the center seam. Flip the zipper panel over to show the outside face and carefully rip the center seam, revealing access to the zipper teeth. Check to make sure you can freely open and close the zipper.

3

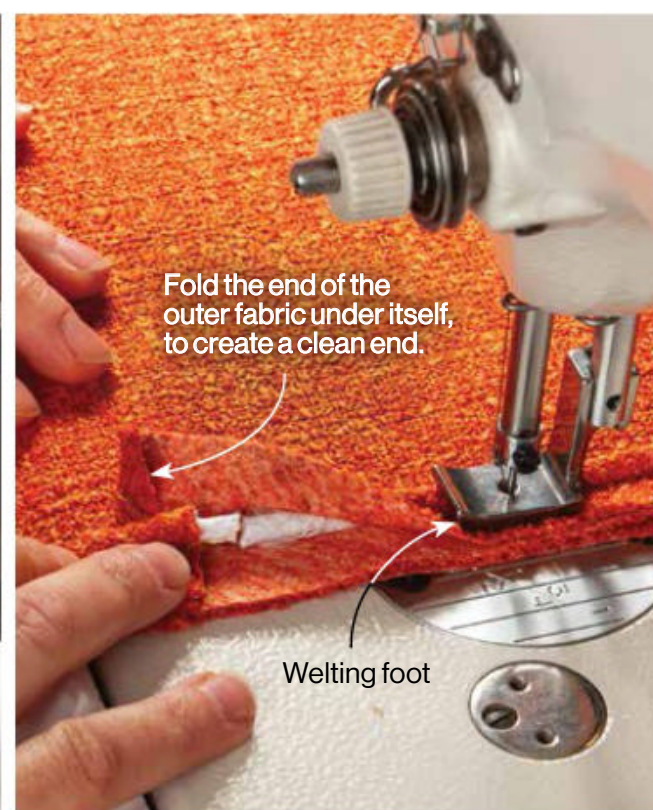
4

Attach zipper panel to boxing. Cut two small scraps of fabric to act as zipper stoppers. Fold the scraps in half and pin them at each end of the zipper panel. The fold should lay about $\frac{5}{8}$ " from the edge as shown. Using a $\frac{1}{2}$ " seam allowance, stitch the short ends of the zipper panel to the short ends of the boxing strip, to create one continuous loop of boxing.



5

Make the welt. Pin the ends of two welt strips face to face with the free ends extending out at 90° to each other. Then pin one of these strips' free ends to the end of a third welt strip in the same manner. Repeat until all the welt strips are pinned to create one long piece. Stitch each pinned joint at a 45° angle. Iron the seams open, and trim to $\frac{1}{4}$ ". Center your welt cord on the backside of the fabric, and fold the fabric strip over to encase the cord as you run it through the sewing machine. Create a $\frac{1}{2}$ " seam, stitching as close as possible to the cord without piercing it.



6

Attach welt to faceplates. For each faceplate, start by pinning the welt to one edge of the show face of the fabric, about 4" from the back corner, aligning the cut edges. When you reach a corner, snip the welt seam allowance from the edge of the fabric to just shy of the seam, allowing the cord to fold and continue along the faceplate's next edge. Continue until you arrive back where you started. Cut your welt cord a few inches long so it overlaps its starting position. Begin

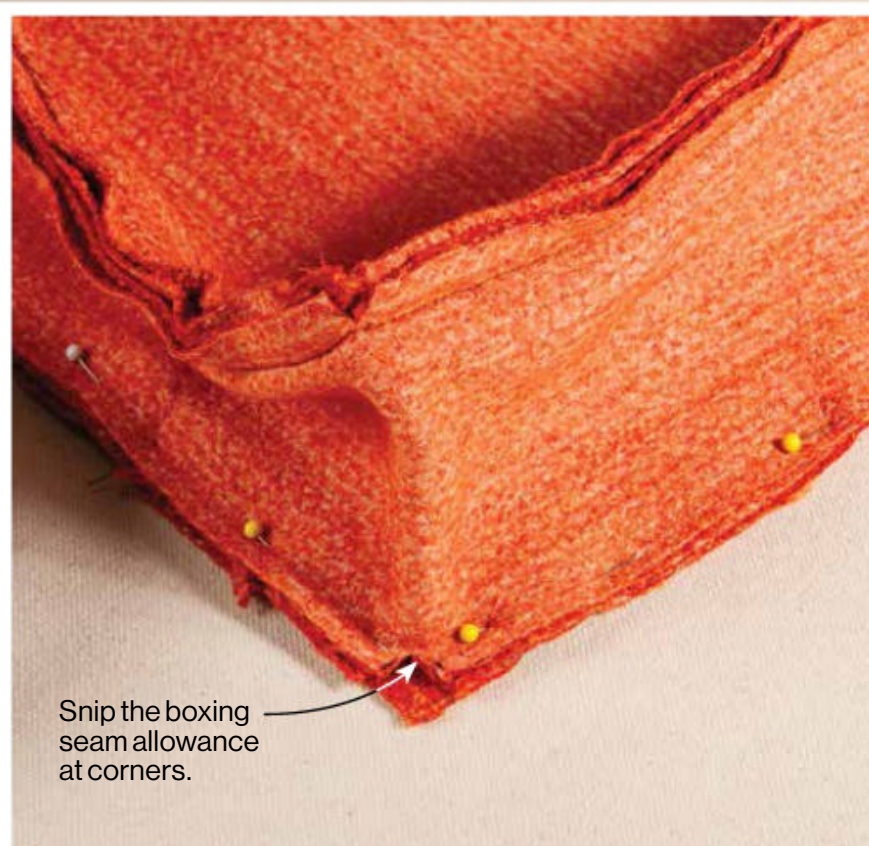
sewing the welt to the faceplate, starting 2" away from the first welt end, using a welt or zipper foot.

As you approach the spot where the two welt ends meet, rip open the fabric welt seams, exposing the raw cord. Trim the cord so the two ends meet, leaving the fabric ends longer and overlapping, as shown. Then fold the fabric back down over the butted ends of the cord to finish sewing the welt to the faceplate.



7

Pin boxing to faceplates. With the boxing strip on top of one faceplate and show faces of the fabric facing each other, pin the center of the zipper panel edge to the center of the faceplate's back edge. Place a pin every 3" expanding from center. When you reach each corner, snip the boxing seam allowance as shown right. Continue pinning, stopping 1½" short of each end of the zipper panel. Then spin the faceplate around and pin the center of the boxing edge to the center of the faceplate's front edge. Pin outward from center as before, until you reach the zipper. You will have more boxing than the length of the side of the faceplate. Fold the excess boxing fabric under the zipper panel ends, and finish pinning. This folded material will create neat pockets that cover the zipper ends.



Sew the final seams. With a welt (or zipper) foot still installed, stitch around all sides of the faceplate, once again keeping the seam as close to the welt cord as possible without piercing the cord. Repeat steps 7 and 8 for the second faceplate, making sure the zipper is open before finishing your stitching. Flip the cover right-side out and admire your sewing work!

8



9

Prepare the foam. Measure and cut your foam and Dacron batting (see p. 20 for sizing). Spray a light coating of fabric adhesive on one face of your foam. Align one end of your batting with the back edge of the foam face and apply light pressure to adhere. Flip the assembly over, wrapping the Dacron over the front edge of the foam, and adhere to the second face as shown.



10

Stuff the cushion. Unzip and open the cushion cover as wide as possible and insert foam, Dacron-wrapped end first. Incrementally shift the fabric until the foam is fully in the cover before closing the zipper and hiding the zipper head in its pocket. Then sit down and enjoy your new cushion!



Wall CUPBOARD

Simple cabinet techniques make for good storage

By Ellen Kaspern



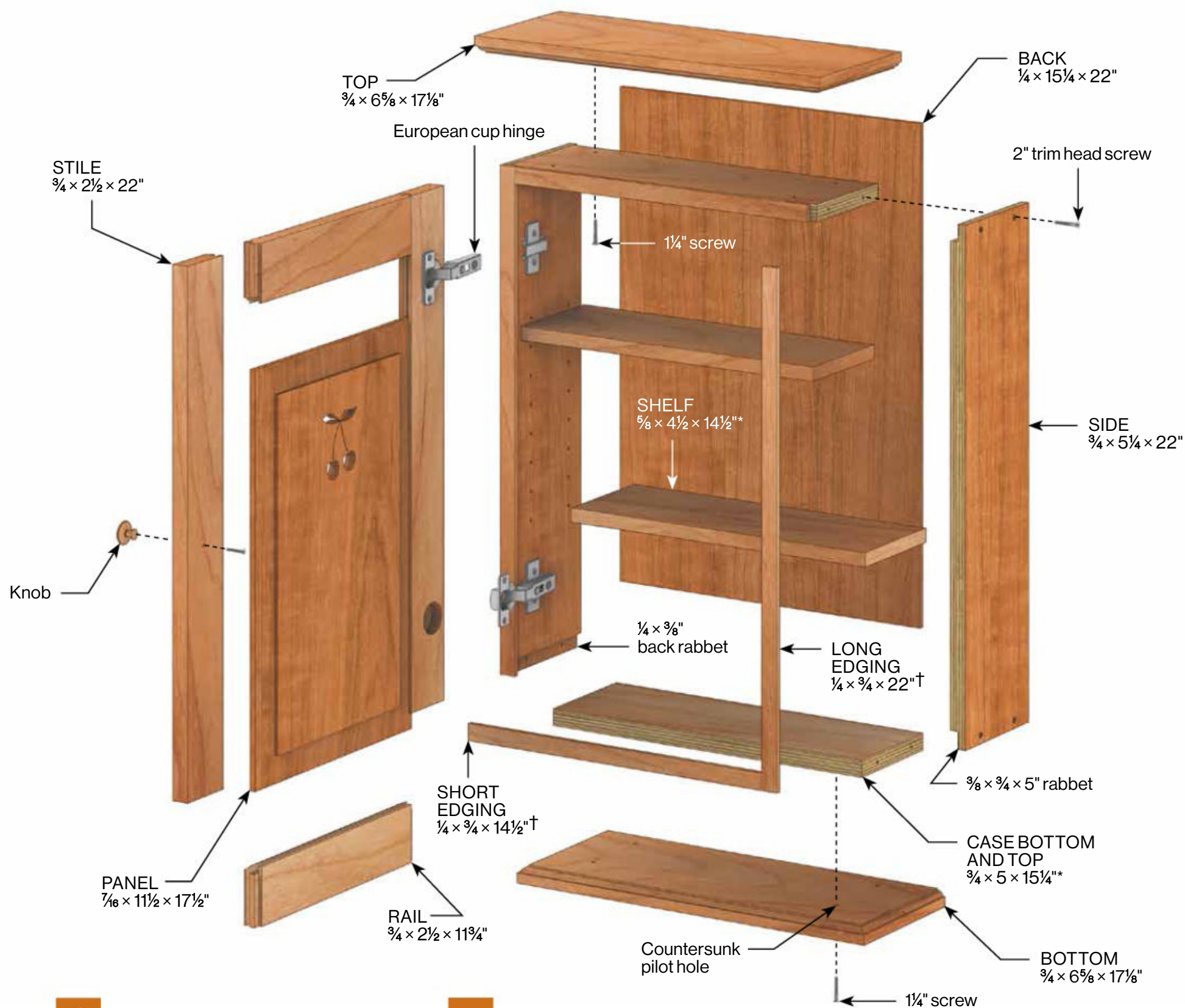
For most people, making your own kitchen cabinets can seem like a daunting task, so I designed this cherry cupboard as a sampler to show the basics of simple cabinet construction. The cupboard is perfect as a stand-alone wall cabinet for mugs and cups, but by modifying a few of the dimensions, you can easily turn it into an actual kitchen cabinet. The case is cherry plywood while the rest of the cabinet is made out of solid cherry. The full-overlay door

swings on cup hinges which are standard in most kitchens today. Not only are these hinges easy to install, but they are fully adjustable allowing you to tweak the door until it fits just right. I chose to have the raised panel face the inside of the case but you can have it on the outside too. The two cut-out cherries on the front of the door are a nod to the cherry wood. Hopefully, this project will give you the building blocks to design and make more cabinets in the future.

A simple box with a frame and panel door

The case is made from $\frac{3}{4}$ " hardwood plywood, joined at the corners with rabbet joints reinforced with trim head screws. The screw holes are then filled to hide the screw heads. The plywood back panel fits into rabbets and the forward edges of the plywood are covered with $\frac{1}{4}$ " thick edge banding. The solid wood, frame-and-panel door is assembled with cope-and-stick joints and is hung with

European-style cup hinges. Solid wood top and bottom pieces cover the ends of the plywood sides and add a little style. Inside, adjustable solid wood shelves sit on pins to provide flexible storage. I chose to install the solid wood door panel with its raised field facing the inside of the case to better showcase the pierced cherry cutout.



Order of Work

- ✓ Make the case
- ✓ Make the door
- ✓ Hang the door
- ✓ Add the top, bottom, and shelves
- ✓ Finish



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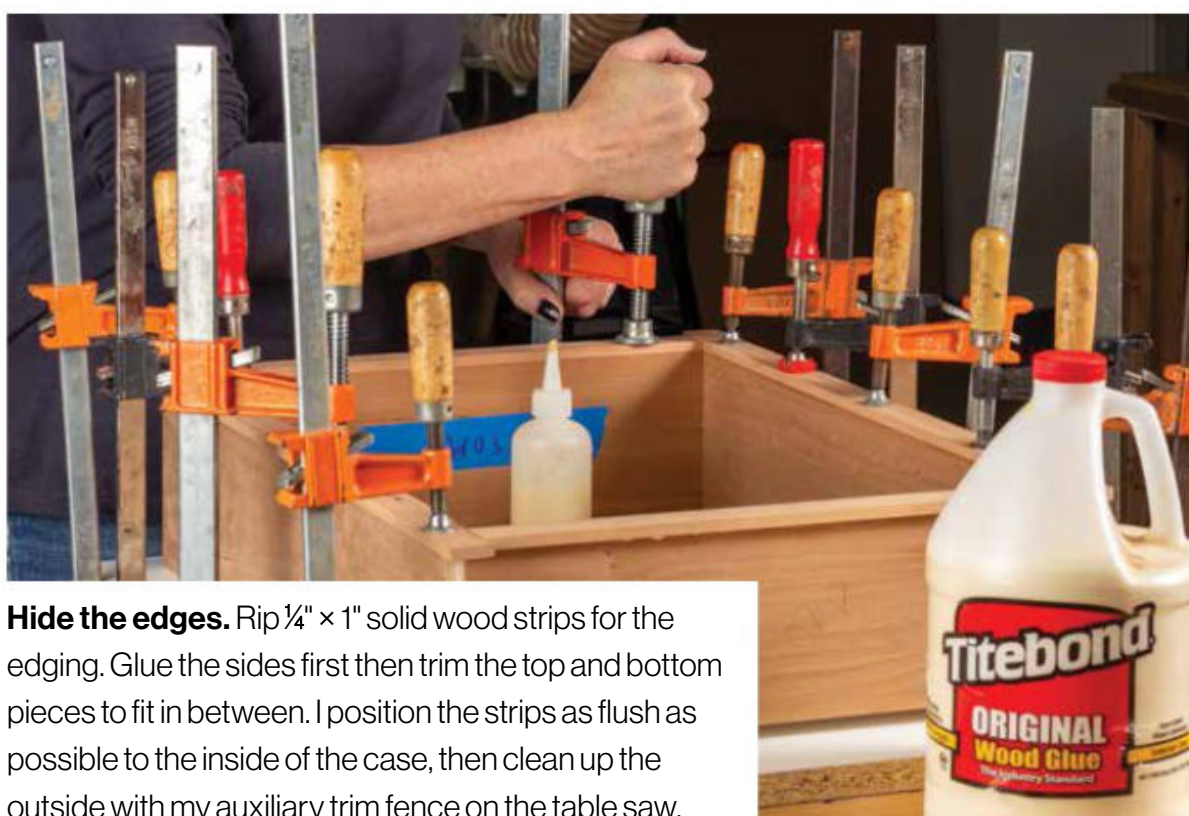
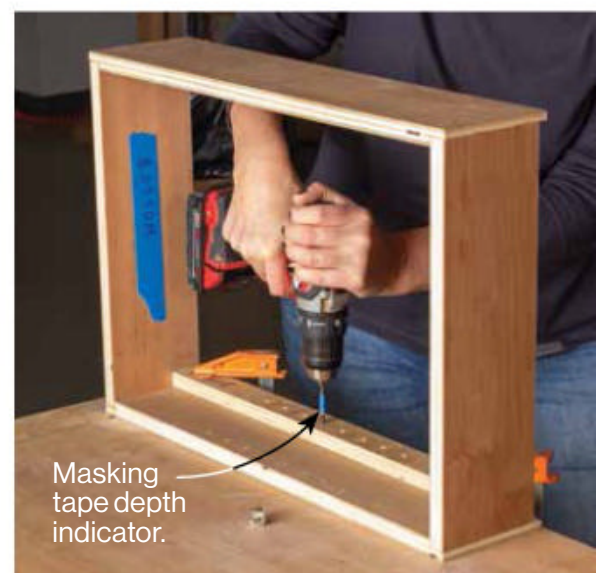
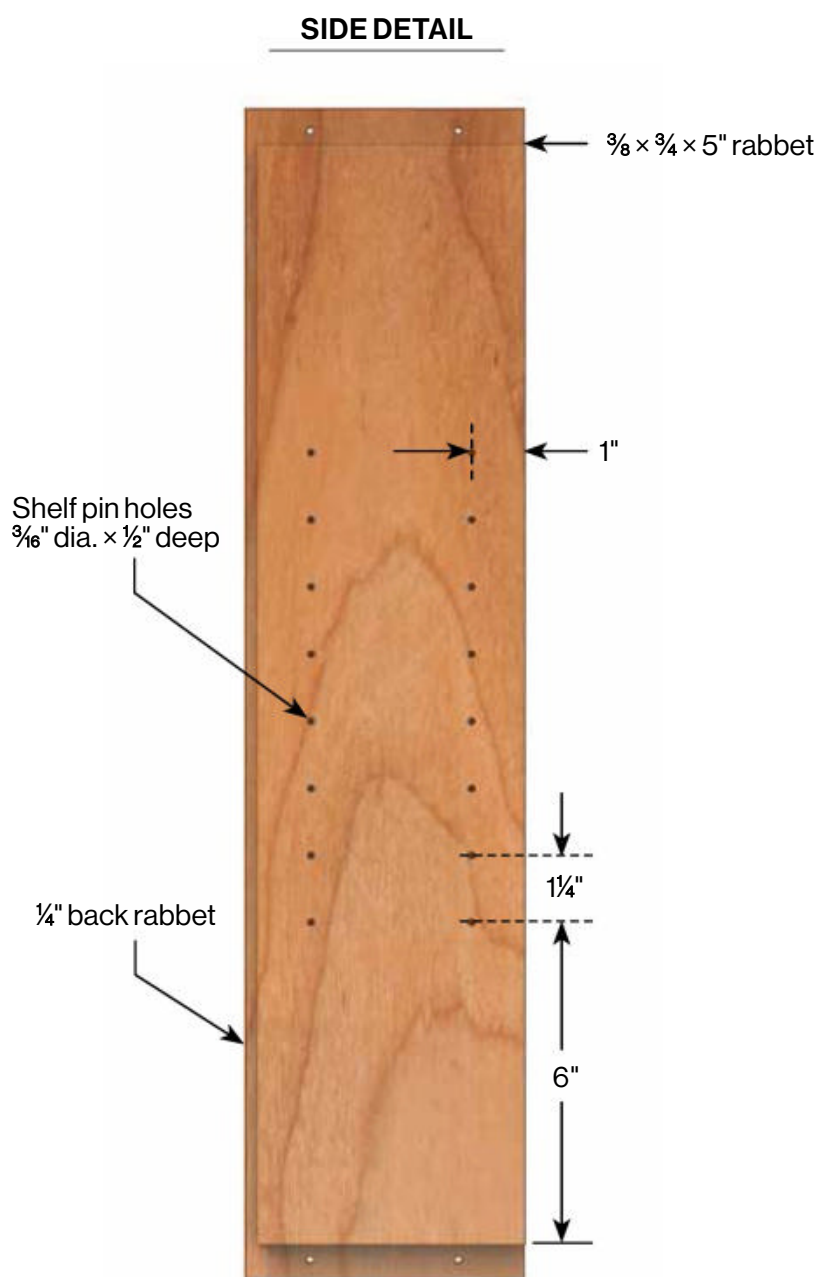


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* Cut at $\frac{5}{4}$ " wide to begin
† Cut oversize in width and length

Make the case

As you cut the plywood parts to size, leave the pieces a little oversize as you break down the sheet. Then rip all four pieces to $5\frac{1}{4}$ " wide and set stops on your crosscut sled or miter gauge as you cut them to final length. Rabbet the sides for the corner joints and the sides, case top, and case bottom to receive the back. Dry fit the case together before gluing it up. After the glue sets, reinforce the joints with screws. Then drill for the shelf holes. Finally mill four strips of edge banding to $\frac{1}{4} \times \frac{7}{8} \times 22\frac{1}{8}$ " and cover the forward edges of the plywood.

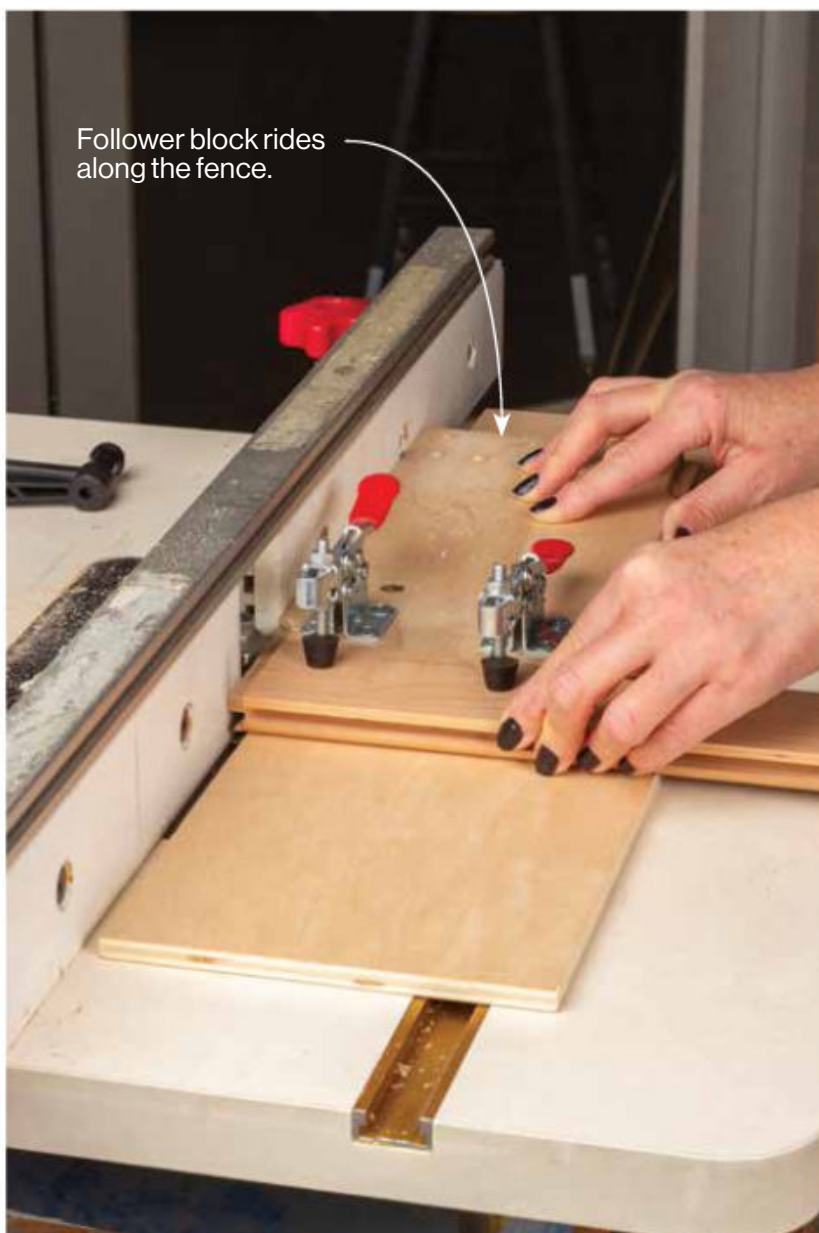




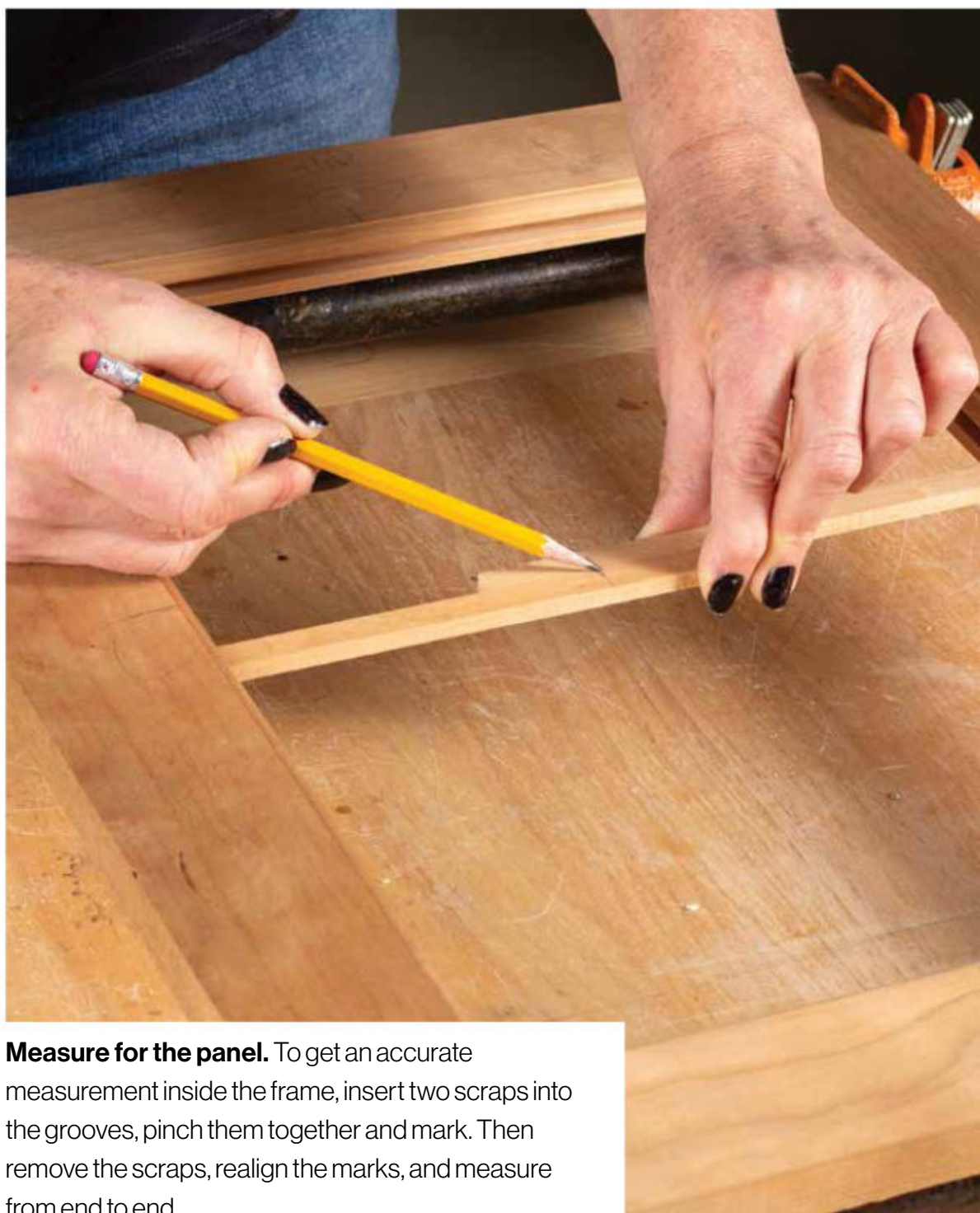
Long sides first. Rout the inside edges of the stiles and rails with their good face down on the table. The fence should be positioned so its face is tangent to the bit's bearing.

Make the door frame

Measure your case and mill the rails and stiles to size. Cut the rails so the frame will be about $\frac{1}{16}$ " wider than your case to allow for trimming. Mark the rails and stiles for orientation. With a rail and stile bit set (see Buyer's Guide p. 62), profile the inside edge of all four pieces at the router table, then cut the mating profile on the ends of the rails as shown. Dry fit the door frame and measure for the panel.



Then the ends. I like to make a simple, two-piece sled for routing the ends of the rails. Load the rails so the end you're cutting butts against the fence and close the toggle clamps for stability.



Measure for the panel. To get an accurate measurement inside the frame, insert two scraps into the grooves, pinch them together and mark. Then remove the scraps, realign the marks, and measure from end to end.

Make the door panel

Edge glue enough stock to make a wide piece for the panel. Cut the panel to size. Then score and bevel around the edges to create a raised field.



1/8" deep cuts define field

Edge should slip into frame grooves.

Clamp positioned to ride along top of fence.

Tall auxiliary fence, make sure the top edge is parallel to the table.

Blade slightly tilted to cut bevel.

Clamp a handscrew to the panel to stabilize it when cutting across the ends.



Check for square. Before gluing up the door, dry fit it together and measure the diagonals to check for square. The measurements should match.



Drill for the hinges. Mark the door and drill the 35 mm holes for the hinges, placing them according to the manufacturer's instructions. In a pinch a 1 $\frac{3}{8}$ " drill bit will work.

Hang the door and finish

Trim your door to match your case with either a handplane or perhaps by running it across the table saw. Drill the back of one stile for the cup hinges. Mark the inside of the case and install the mounting plates. Then mount the hinges in the stile, clip the door in place, and tweak the adjustment screws to make it straighten up and fly right. Mill the shelves and the decorative top and bottom to size. Profile these pieces at the router table before screwing the top and bottom pieces in place and adding the back. Scroll saw the cherry cutout in the door if desired. Putty the screw holes and apply your favorite finish. I used General Finishes' Arm-R-Seal. Screw through the back to hang the cabinet. ■



Install the hinge plates. Draw the center lines for the hinges on the inside of the case. Mark for the mounting plate screws. Blum makes a nice template for this, or you can use one of the plates as a guide.



Add the decorative top and bottom. With the case lying on its back, center the top and bottom laterally and attach them, driving screws through the bottom into the case, and through the case into the top to hide the screw heads.

Side frames support the seat and back

Each side frame consists of two identically-shaped legs joined near the bottom by a lower side stretcher which will show, and at the top by an upper side stretcher which will be concealed. After assembly, additional liner pieces are added to the frames to help support the upholstered plywood side panels. Those panels attach with nylon push-in rivets. A front and a rear stretcher join the two side frames to complete the base. The back cushion is supported by a frame with two intermediate slats and a separate upholstered plywood panel. The seat cushion is supported by the seat frame crossed with rubberized webbing. The seat frame rests on a cleat attached to the back frame and two supports glued to the insides of the front legs. Be aware that both the back and seat frames are removable and actually get installed after the side panels are pressed into place.

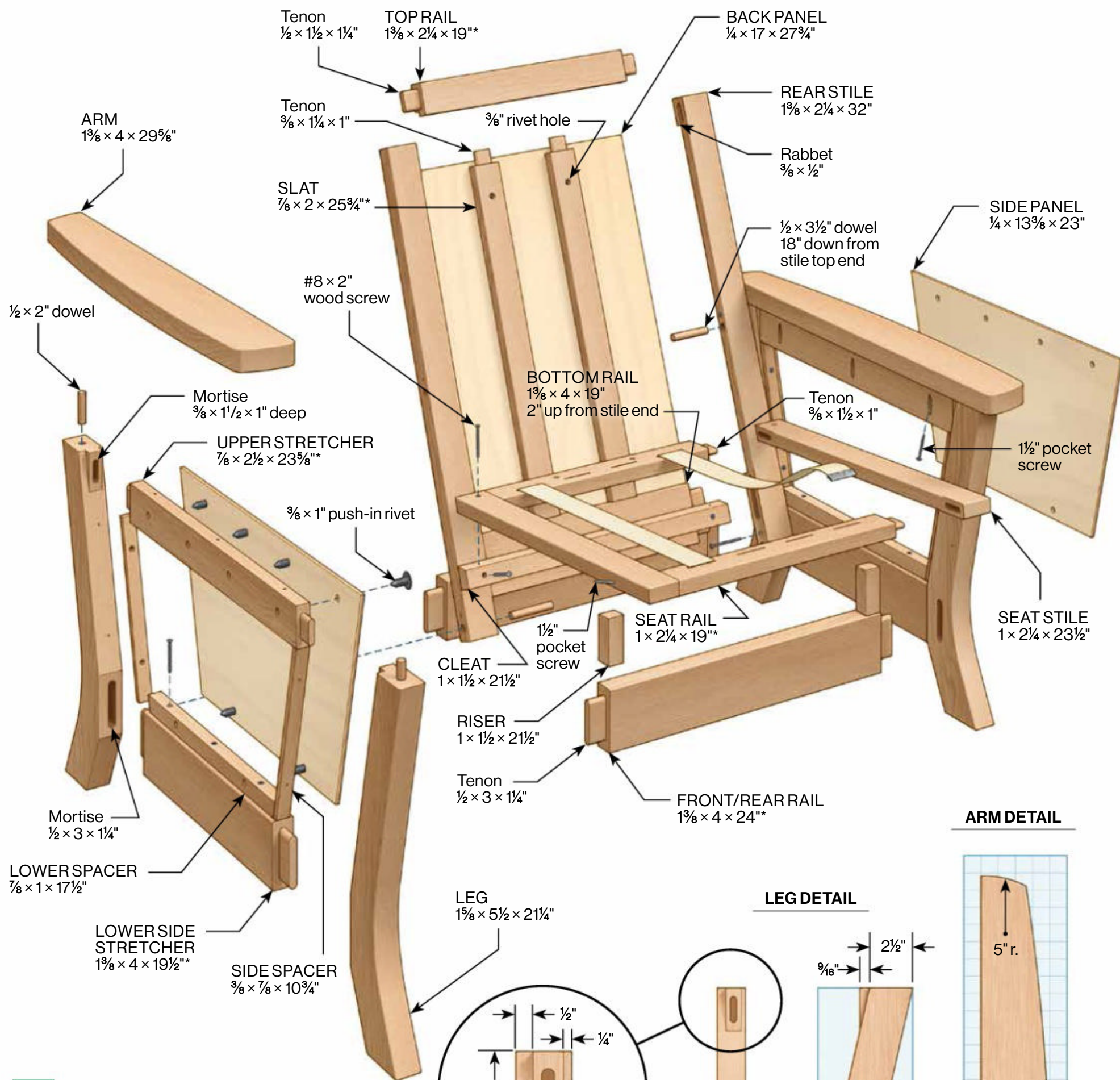
Upholstered CLUB CHAIR

Cushioned comfort, exposed woodwork

By Ken Burton

As much as I like all-wood chairs, when I want to relax after a long day in the shop, I look for something with a little padding. But as a woodworker, I still like to see some of the material I love. A bit of a conundrum, perhaps, but not an insurmountable one. When I set out to develop this club chair, I knew I wanted to design a piece that had comfort at the forefront, but also showcased wood from which it is made. After several pages of sketching followed by building a full-sized mock-up screwed together from 2× lumber, I

arrived at the design presented here. Its soft box cushions provide ample comfort while the solid white oak provides nice contrast with both the cushions and the fabric-covered side and back panels. Construction involves pattern-routing the legs, then assembling the side, seat, and back frames with mortise and tenon joints. I ordered the cushions online, but upholstered the side and back panels myself. If you have some basic sewing skills, making the cushions isn't that difficult as Samantha Kuczynski explains in Making Box Cushions on page 20.



Order of Work

- ✓ Make the legs
- ✓ Assemble the side frames
- ✓ Glue up the base
- ✓ Make the seat and back frames
- ✓ Finish the solid wood parts
- ✓ Upholster and install the side and back panels
- ✓ Install the back and seat frames
- ✓ Have a seat



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Make the side frames and base

Mill stock for the legs, arms, front, back, and side stretchers to size, leaving the upper side stretchers about $\frac{1}{2}$ " overlong for now. Mortise the legs for the lower side stretchers with a $\frac{1}{2}$ " spiral upcut bit in a plunge router equipped with an edge guide as shown. Then cut the mortises for front and back stretchers with the same router configuration, this time with the legs lying flat on your bench. Make a pattern for the legs, then shape them at the router table. Rout

the upper mortises with a $\frac{3}{8}$ " spiral upcut bit as shown. Cut the tenons on the front, back, and lower side stretchers at the table saw and fit them to their mortises, rounding their edges with a chisel and/or rasp. Rabbet the upper ends of the legs to create the triangular-shaped bosses where the upper side stretcher lands. Chuck a $\frac{3}{16}$ " roundover bit into the router table and profile all the long edges of the stretchers and most of the long edges of the legs, leaving the inside shoulder

where the lower side stretcher attaches square. Dry clamp the legs to the lower side stretchers and measure to determine the shoulder-to-shoulder length of the upper side stretchers. Add enough extra length for the tenons and cut those stretchers to final length. Cut the tenons at the table saw and fit them to their mortises. Glue up the side frames, then add the front and back stretchers to glue up the base.



Clamps serve as stops to control mortise length.

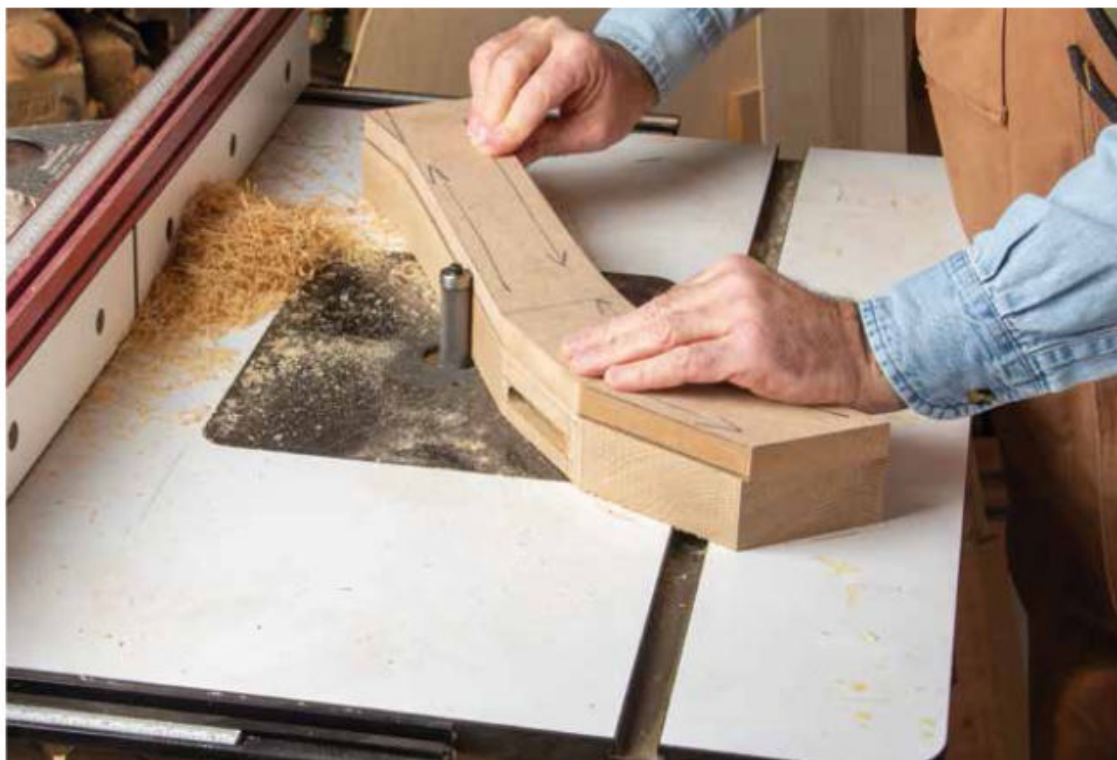


Blade raised so end of cut is as vertical as possible.

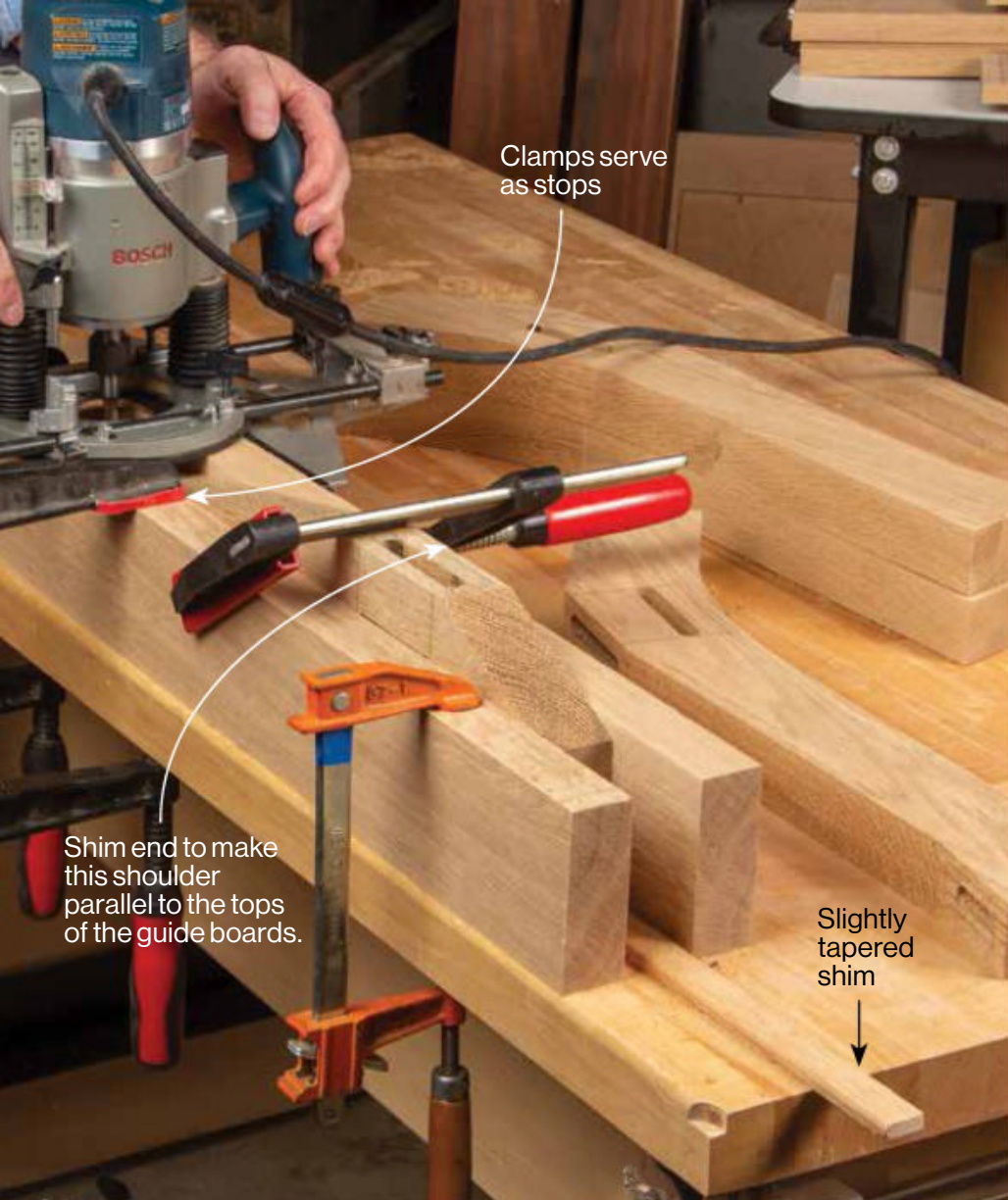
Stop cut here

Gang and rout. The paired legs make a stable surface for the router to ride on. Reference all cuts from the legs' inside face. Rout one leg, then swap positions before routing the second.

Parallel is paramount. Lay out the leg shape on a piece of MDF. To ensure the shoulders for the stretchers are parallel, make a short stopped cut as shown before bandsawing the rest of the pattern to shape and fairing the curves.



Cut with the grain. After bandsawing away most of the waste, adhere the pattern to the leg blanks with double-faced tape and trim them to shape with an over-and-under bit. Feeding from right to left, cut the upper part of the leg with the upper bearing and the pattern on top. Then cut the lower part of the leg with the lower bearing and the pattern underneath.



Clamps serve as stops

Shim end to make this shoulder parallel to the tops of the guide boards.

Slightly tapered shim

Make a sandwich. Clamp the legs between two 4" wide pieces (I used the two arm blanks) and shim to make parallel. When cutting, be sure to reference from the same face on all four legs.



Follower board

Table saw tenons. Set up a wide dado blade. Measure from the outside of the blade to the fence to set the tenon length. Push the pieces through the cut with a sacrificial follower board, adjusting the blade height to control the tenon thickness.



Rabbet the legs. Clamp a straightedge aligned with the upper inside edge of the leg. Rout along this guide with a straight bit, adjusting the cut depth to leave a 1/4"-deep rabbet to the inside and a 1/2"-deep rabbet to the outside of the leg.



Leg off cuts serve as cauls.

Clamp up. After dry fitting, apply glue and clamp the side frames together. I used the off cuts from the legs as clamping cauls, reshaping them slightly for a better fit.

Make the arms, seat and back frames

Cut the arms to shape. I didn't bother to make a pattern. Instead, I cut and sanded the first one to shape then traced it to make the second. Profile all but the lower inside long edges with a $\frac{3}{16}$ " roundover bit at the router table. Drill dowel holes in the tops of the legs, then mark and drill mating holes in the underside of the arms at the drill press. Attach the arms with pocket screws driven up through the inside surfaces of the upper side stretchers. Mill the stock for the back and seat frames to size. Measure the distance between the legs on the base and adjust the rail lengths if necessary. Predrill $\frac{1}{2}$ " dowel holes and $\frac{3}{16}$ " screw holes through the rear stiles. Mark

the inside of the base and clamp the stiles in place. Drill the dowel holes into the base. Also push a 3" screw through the screw holes to mark the screw locations and drill pilot holes for use later. Cut the frame joinery and glue up the seat frame. Dry fit the back frame without the slats and rout a $\frac{1}{2}$ " deep rabbet around the inside. Square the rabbet's corners with a chisel, then glue the back frame together with the slats in place. Profile all the frame edges with a $\frac{3}{16}$ " roundover bit at the router table. Rout the webbing slots in the seat frame. Temporarily install the back frame and mark it for the cleat. Cut the cleat to size and rip one edge of it as well

as the back edge of the seat frame to a 75° bevel. Screw the cleat to the back frame. Set the seat frame in place and clamp it to the front legs so the place where its top surface intersects the front of the leg is 12 $\frac{1}{4}$ " above floor level. Cut the support blocks to hold it at this position, roundover their inward-facing long edges, and glue them to the legs. Drill the underside of the seat frame for a pocket screw to attach it to the leg just in front of the support block. Finally cut the spacers to fit inside the side openings and screw them in place. Finish all the woodwork with a durable finish. I used General Finish's Arm-R-Seal.



Drill straight. Make a simple drilling guide to help you drill the $\frac{1}{2} \times 1$ " deep dowel holes straight into the tops of the legs. The exact location isn't important, somewhere near the center is good enough.



Transfer the center points. Pop dowel centers into the holes, locate the arms flush with the insides of the legs and press down to mark the center points.



Locate the back stiles. Mark the base as indicated and clamp the rear stiles in place. Drill the dowel holes into the base through predrilled holes in the stiles.



Webbing slots. Rout four equally spaced $\frac{1}{8} \times \frac{1}{2} \times 2\frac{1}{8}$ " long slots in both the front and back seat rail for the seat webbing. On mine, the spacing between the slots is $1\frac{1}{16}$ ".



Locate the cleat. The top of the cleat should be $9\frac{1}{2}$ " above floor level. Pinch two squares together to mark this measurement on the sloping back frame.

Upholster the side panels

Cut the side panels about $\frac{1}{8}$ " smaller than the trapezoidal openings in the side frames. Center them in the openings and drill the $\frac{3}{8}$ " holes for the push-in rivets. Be sure to offset the holes for the rivets in opposing panels. Repeat the process for the back panel. For each panel, cut a piece of $\frac{1}{2}$ " foam slightly oversize. Push the rivets through the panel and stick it to the foam. Staple the fabric along the top of the panel. Then pull it tight and staple it along the bottom edge. Check periodically for uneven puckers, restapling as necessary. Then pull and staple the fabric around the sides.

Cut the $\frac{1}{2}$ " foam slightly oversize. Spray both it and the panel with adhesive and wait for the adhesive to become tacky before pressing them together.

Fold the corners as you would with gift wrap.

If you're lucky, you'll get to use the good sewing scissors.

$\frac{3}{8} \times 1"$ push-in rivet

Wrap things up

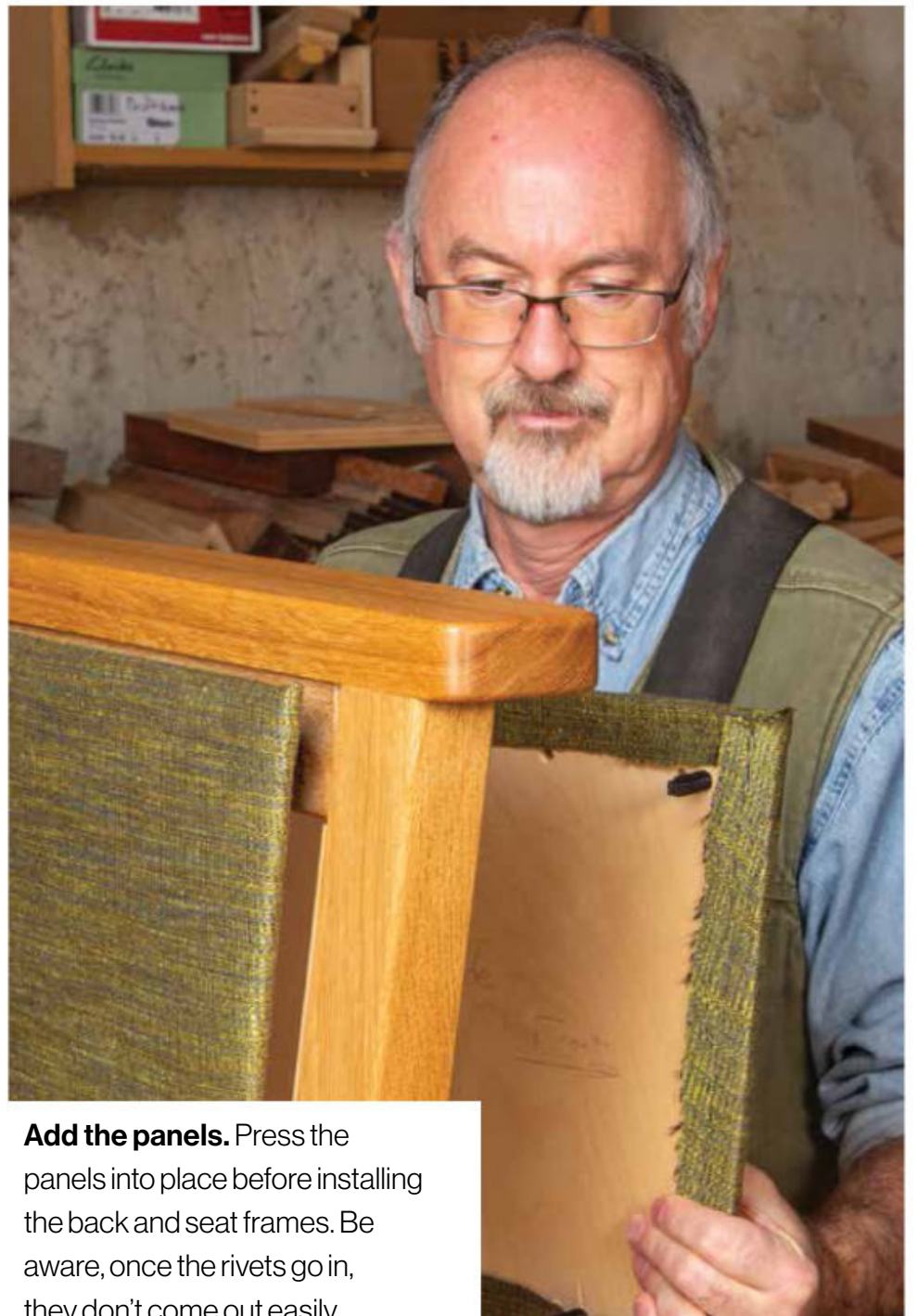
Cut the webbing to length, add the metal end clips and press them into the slots you routed in the seat frame. Trim about $\frac{1}{4}$ " off the length of the rivets and press the side panels into place. Slip the back frame in place, tap the dowels home and fasten it to the base with 3" screws. I found having a close-quarters drill really helped with driving the upper screws. Set the seat frame in place and screw it to the cleat. Clamp it to the support blocks as you drive the pocket screws home to fasten it to the legs. Add the back panel and cushions then have a seat. You deserve it. ■



Crimp in place. Squeeze a metal clip on the end of the webbing with a machinists vice. Be sure the webbing is fully seated in the clip, or it won't run straight across the frame.



Stretch to measure. With one clip installed, press that end into its slot and pull the webbing across the frame. Hold it taut, but not stretched and mark the other end $\frac{3}{8}$ " past the slot. Cut the webbing and install the second clip. Test to be sure the webbing isn't slack when installed then cut the remaining pieces to match.



Add the panels. Press the panels into place before installing the back and seat frames. Be aware, once the rivets go in, they don't come out easily.

Miter-Fold VENEER BOX

A four-way grain match makes for stunning effect

By Scott Grove



Veneer offers a wider variety and higher quality of species and figures than hardwood, creates stable panels with minimal movement, and allows for tighter tolerances. I always use the highest quality veneer because my labor is the same and the finished product is well worth the investment. For this project, it's best to pick veneer that has a non-linear grain like a burl so the figure will be a close match on the box's vertical corners.

The miter fold method starts with a single panel and a few special cuts. When you add veneer into the mix, the grain aligns continuously around the top corners and down the sides to create a stunning effect. Although you can use a single piece of veneer, you can create more dramatic patterns by matching sapwood or figured accents within the grain. A single seam book match or a four-way match can generate a mirrored design element, while radial, random, or

spiral matches create the most unique boxes. For this box, I used a simple four-way match.

With a few tools and a router table, this process produces deceptively simple but dramatic boxes. And with the many veneer and hardware options available, and the possibilities of storing jewelry, cigars, and untold knickknacks, learning this technique will never leave you feeling boxed in.

Sizing and sequencing

The function of the box helps define its size. Will the box hold keepsakes, memorabilia, and tchotchkes, or will it hold something specific like #10 envelopes, cigars, or jewelry? These considerations will define the minimum interior size. From there, add $\frac{7}{8}$ " to the width and length to allow for a $\frac{3}{8}$ " wall thickness and a $\frac{1}{4}$ "-thick bottom panel with $\frac{1}{4}$ " reveal. From there, tweak the measurements until the proportions look right. When in doubt, employing the golden ratio (1:1.6) is a good place to start.

To calculate the size of the veneered mdf panel, add twice the height of the box to both the width and length. For example, for a box that is $6 \times 9 \times 3$ ", cut a panel that measures 12×15 ", that is: $(3" \times 2 + 6" = 12")$ by $(3" \times 2 + 9" = 15")$.

As you match the pieces, you'll notice the grain changes subtly from leaf-to-leaf. If you sequence the four leaves in numerical order, then seams 1-2, 2-3, and 3-4 will look good, but where leaves 1 and 4 meet, the grain alignment will be off. Equalize the difference by sequencing 1-2-4-3. When cutting a four-way match, cut and seam two sets of leaves first, leaving the next cutting edge long. Then cut the two sets for a final matching straight seam.



Order of Work

- ✓ Size MDF panel
- ✓ Lay out and adhere veneer
- ✓ Rout and v-groove panel
- ✓ Glue up box with bottom
- ✓ Cut off lid
- ✓ Veneer edges
- ✓ Customize and finish up



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Watch this video on how to condition and flatten veneer.

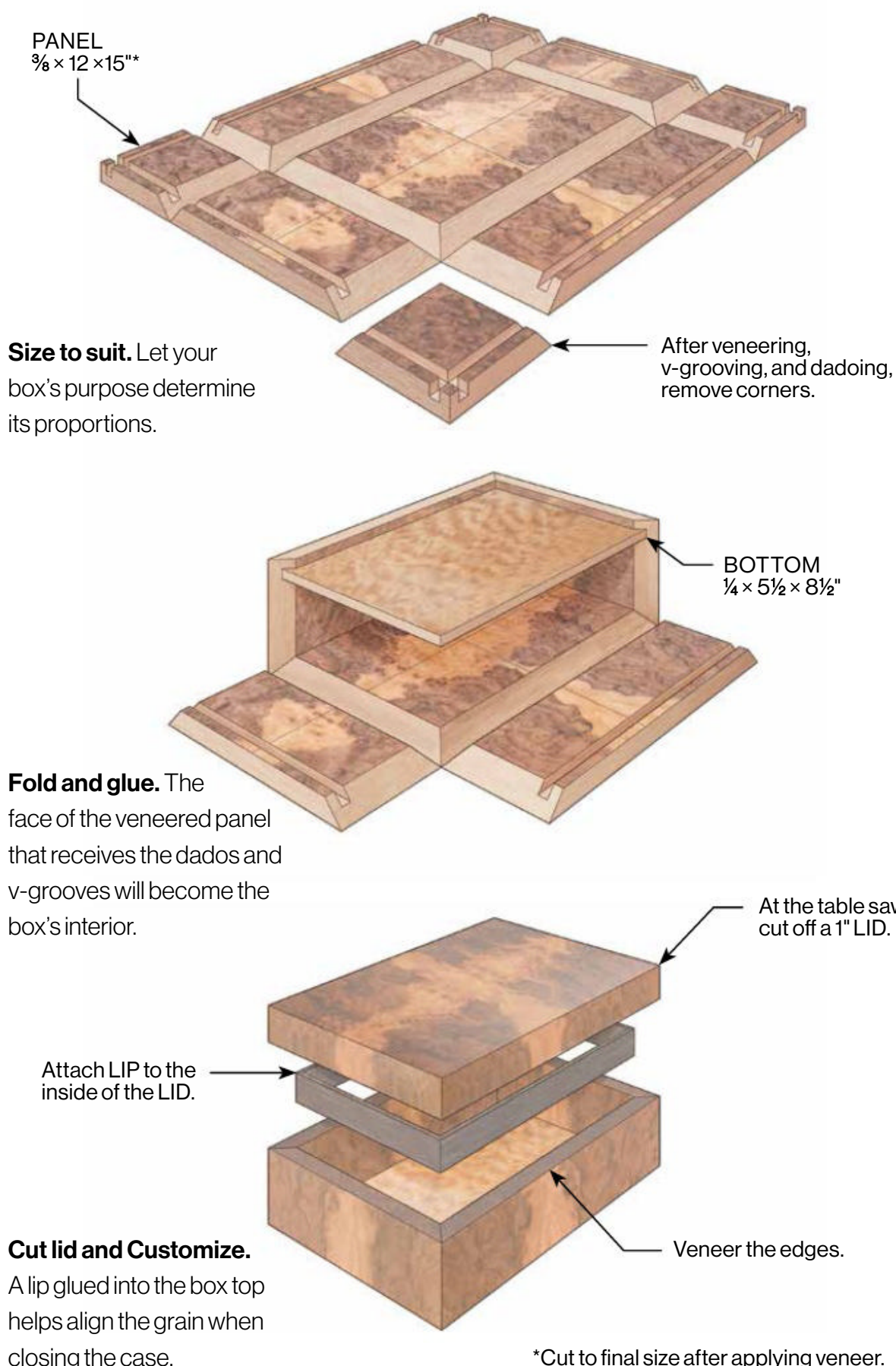


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Upside-down and inside-out

An MDF panel veneered on both sides forms the body of the box. Sized to fit its intended purpose, V-grooves cut just through the panel create sides that fold to form the box while maintaining a continuous veneer wrap on the outside. A groove around the panel's perimeter holds the veneered plywood bottom.

After glue-up, the box top is sawn off and additional veneer added to cover the MDF edges. A small lip installed in the box top helps align it to the box when closing. Different veneers inside and out create a unique effect—or try abalone or mother-of-pearl veneer for a surprise interior.

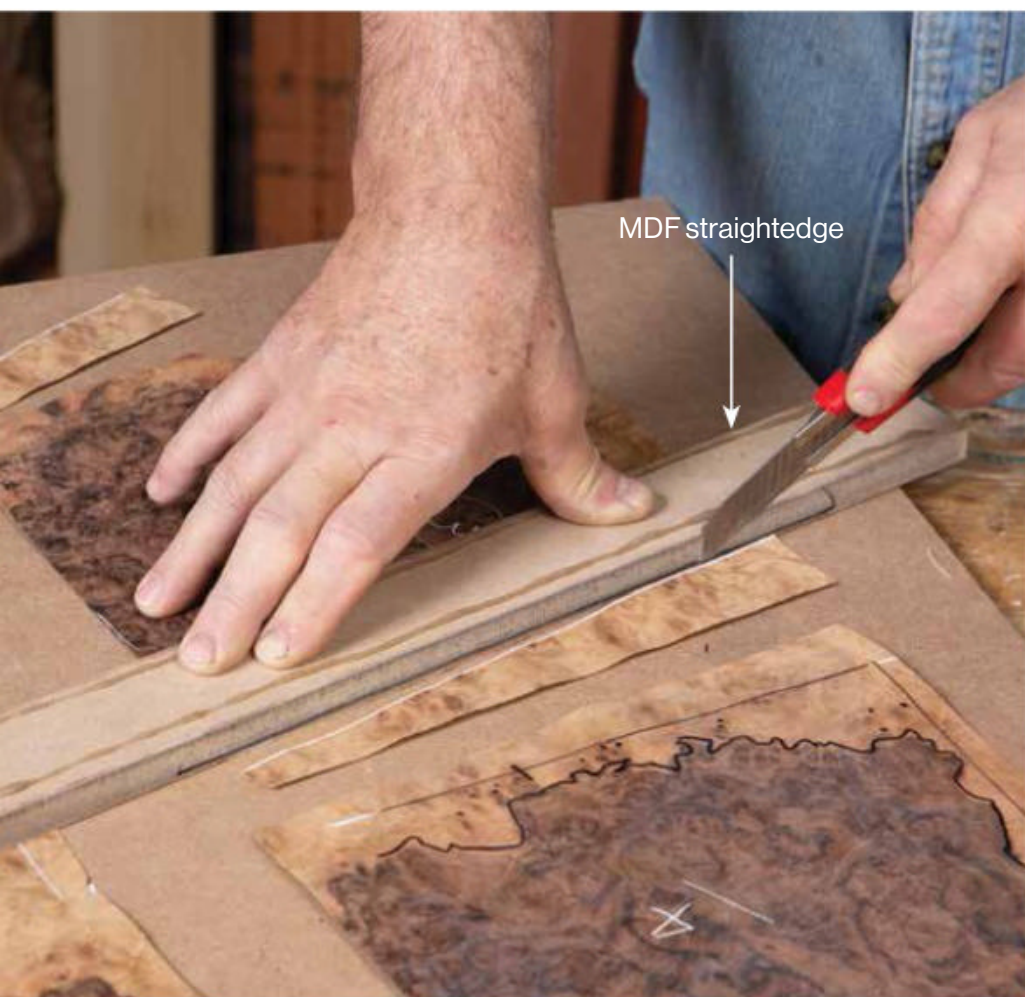


Prepare the veneer

Number your veneer leaves right out of their packaging to keep them in order—the closer the leaf numbers, the more similar the grain. After locating the seams for an attractive grain match as shown, cut each leaf oversized using a utility knife. If you find the veneer too brittle, soft, or warped to cut easily, a simple conditioning process will get that unruly burl back in line (see onlineEXTRAS). Then tape the veneer to create an oversized sheet (see Sizing and sequencing, p. 41), the center of which will become the box top's center. The best tape is paper veneer tape (see Buyers Guide, p. 62), because it is very thin and has a moisture-activated adhesive. Light tack painter's tape will also work, but is harder to remove and, if overlapped, builds up in thickness, leaving an impression during pressing.



Select the best grain. Use a pair of mirrors held at 90 degrees to each other to visualize what a grain match will look like on adjacent veneer leaves.



Cut the face veneer. Slice veneer sheets using a breakaway utility knife and a straightedge. In a pinch, a straight length of MDF reinforced with a bit of cyanoacrylate (CA) adhesive to harden the fibers makes an excellent straightedge. Adhere some sandpaper to the face of the straightedge to keep it from shifting while cutting.



Tape and iron. After taping a seam together, use a household iron to quickly remove excess moisture and set the tape adhesive. Do not use an iron on painter's tape.



Apply glue and veneer. Lay the interior veneer tape-side down atop a flat surface (platen), apply a thin even coat of glue to the MDF panel with a roller or $\frac{1}{8}$ " notched trowel, and carefully lower the MDF onto the veneer. Then repeat the process for the face veneer, laying it atop the glue-coated MDF.

Prepare the box

After sawing an oversized MDF panel, glue on veneer as shown. Be sure to veneer both sides to avoid warping. Consider choosing a contrasting interior veneer for a surprise when the box is opened, or use inexpensive veneer inside a box that will be lined with leather, velvet, flocking, or Spanish cedar. Apply glue to the MDF—never to the veneer, which may curl. Use cauls to apply even pressure to the veneered panel while the glue dries. After unclamping, dampen the veneer tape to loosen its adhesive, then peel the tape off carefully. Remove any remaining adhesive with a card scraper, then gently sand and pre-finish both sides of the panel.



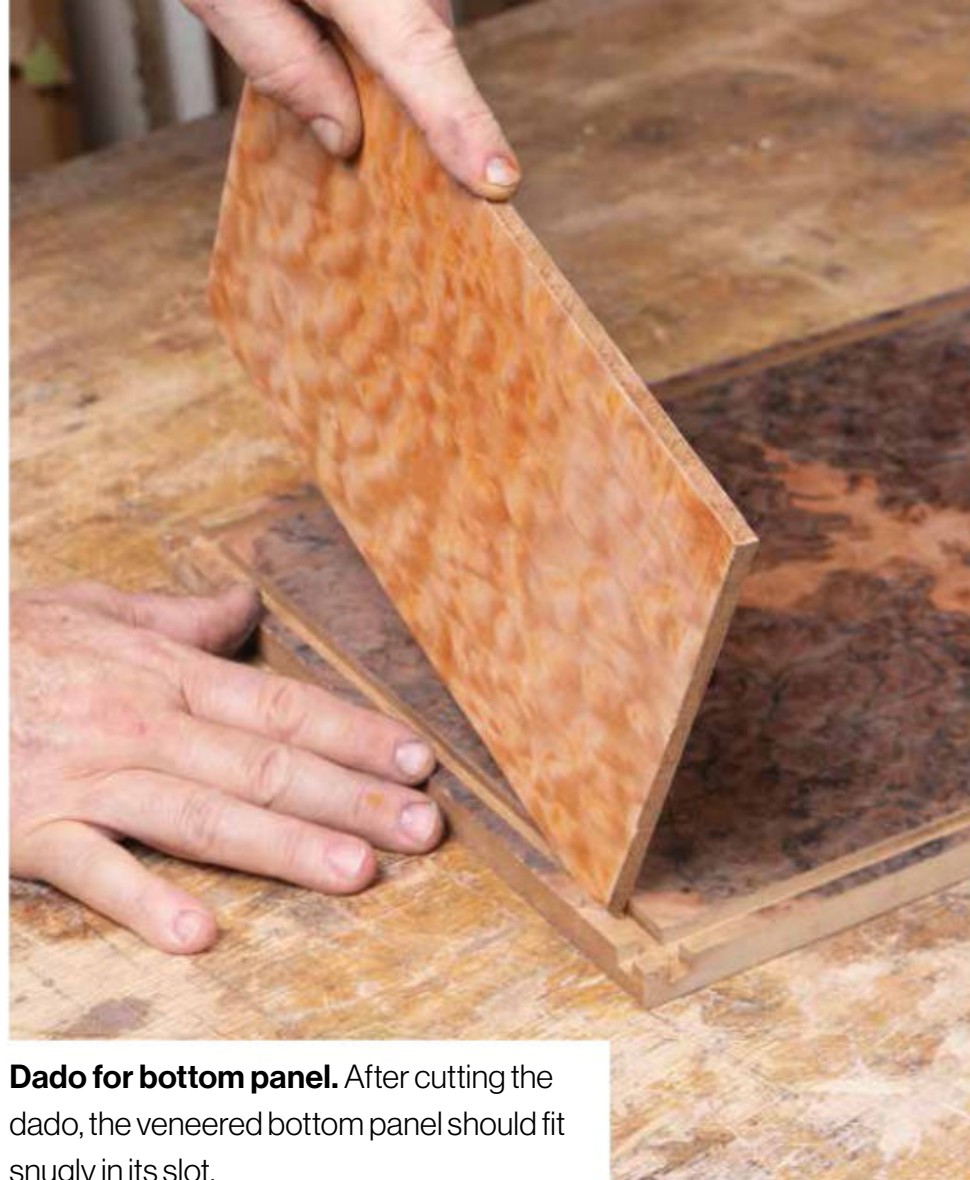
Clamp the panel. With veneer glued to both sides of the MDF, sandwich the panel between two large flat surfaces called platens, then add cauls and clamps to apply even pressure to the panel. Allow to dry overnight.

Melamine platens distribute pressure and their non-stick surface prevents accidental adhesion to your panel.

Caul

Form the box

Lay out and cut the veneered panel to its final size, locating the center of the veneer match in the center of the panel, and keeping the panel's sides parallel to the veneer seams. Cut a piece of ¼" hardboard 1" larger in length and width than the box's interior. Veneer both sides as above. At the table saw, raise the blade to ¼" and cut a dado around the perimeter of the veneered panel's inside face, ¼" from the edge. Adjust the fence as necessary to widen the slot. At the router table, cut a V-groove just through the outside veneer of the MDF panel. The distance between the fence and the bit's point should be the same as the box's height. Remove the small squares in all four corners of the panel, then fold the box to shape. Cut the bottom panel to size, measuring from the bottom of one dado to the bottom of its opposite. Glue up the box's sides around the bottom panel. Tape and clamp the box until the glue dries.



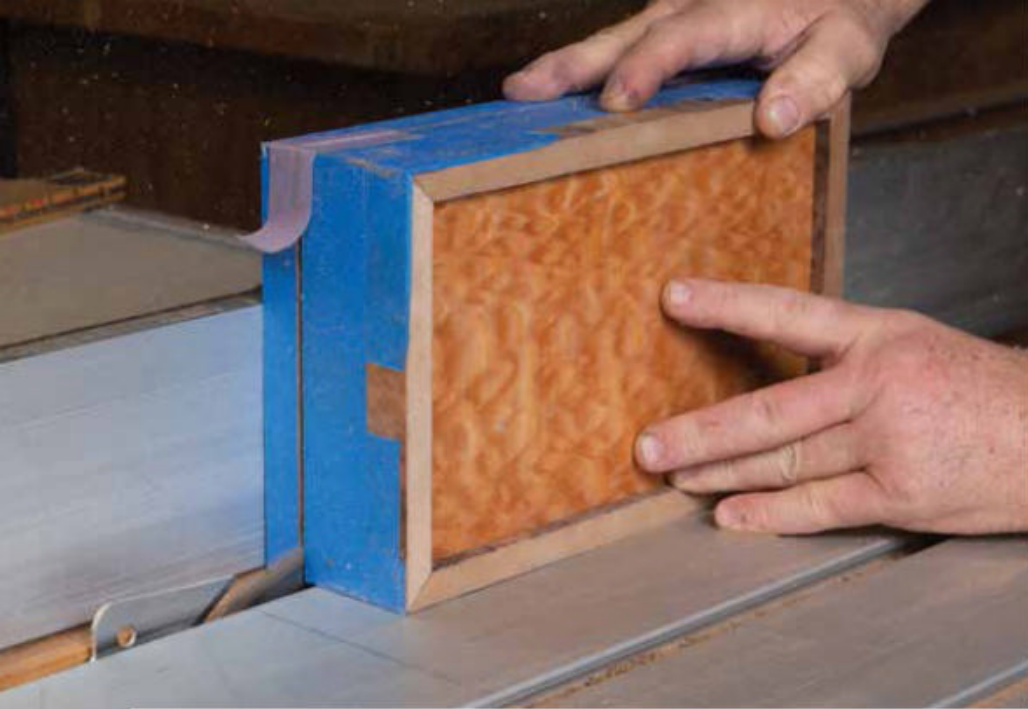
Dado for bottom panel. After cutting the dado, the veneered bottom panel should fit snugly in its slot.



Cutting the miter-fold. Adjust the router height so the V-groove bit's point just barely cuts through the veneered panel. A few layers of masking tape applied to the outside of the veneer keeps the panel from fully separating when the cut is completed, and acts as a hinge for later assembly.



Folding. After removing the corner pieces and sizing the bottom panel, apply glue to all the beveled edges and fold the box up around the bottom panel, and tape the corners to hold tight while the glue dries. The bottom panel floats in its dados.



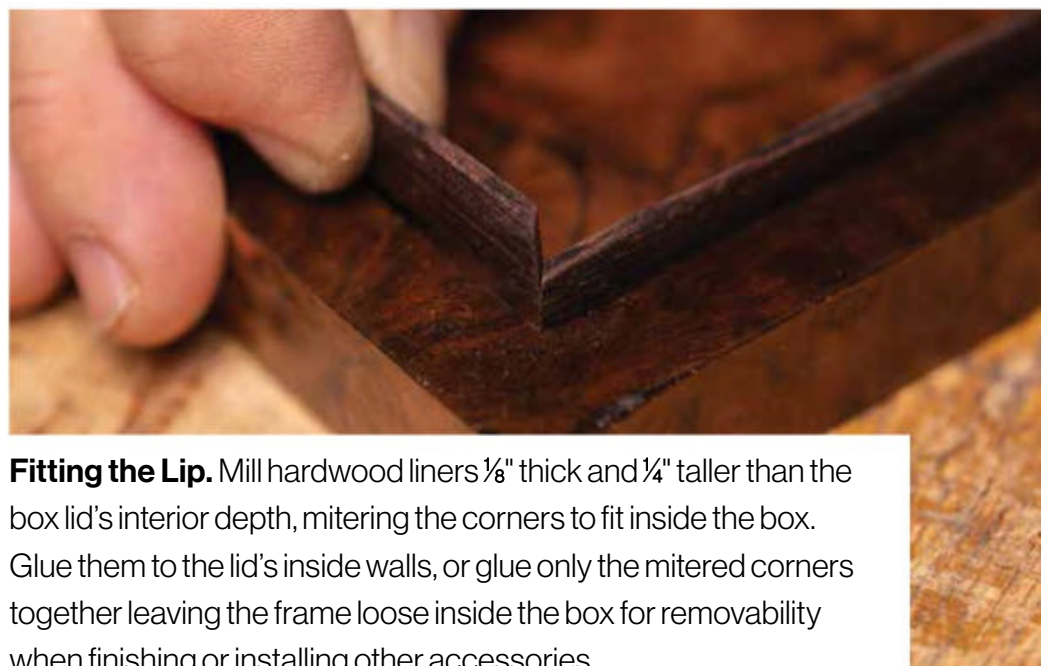
Cut off the lid top. Raise the table saw blade to about $\frac{9}{16}$ " and set the fence at 1", then cut the box top off with smooth, steady passes around each side of the box. Keep the box top against the fence, and protect the veneer with a layer of masking tape.



Veneer the edges. Apply glue to the raw MDF edges and press against a sheet of veneer laid on a flat surface. Clamp until dry, then trim the veneer flush to the edges of the box with a sharp knife.

Finish up

When the glue has dried, cut the box open at the table saw. Apply veneer to the exposed edges at the top and bottom of the box, and the bottom of the lid. Fit a $\frac{1}{8}$ " thick lip frame inside the lid as shown. Hand plane or sand a slight bevel on the outside face of the lip, leaving about a $\frac{1}{16}$ " of vertical face exposed above the bevel. The bevel helps guide the lid into the box, while the last $\frac{1}{16}$ " square face perfectly aligns the closed lid in the box. Glue the lip frame into the lid, or keep the frame loose, gluing only the mitered corners together for removability for finishing and other accessory installations. Inspect the entire box for any veneer chips and patch with wood filler. Sand gently and apply finish.



Fitting the Lip. Mill hardwood liners $\frac{1}{8}$ " thick and $\frac{1}{4}$ " taller than the box lid's interior depth, mitering the corners to fit inside the box. Glue them to the lid's inside walls, or glue only the mitered corners together leaving the frame loose inside the box for removability when finishing or installing other accessories.

Designer's Notebook

After building dozens of miter-fold boxes, I still enjoy each and every one. The build process is enjoyable, and the grain patterns make each one unique, but just as enjoyable are the subtle and sometimes not-so-subtle additions that make each box special. I've included a few ideas here, but make your miter-fold box your own with hardware, handles, lining, and the like. ■



A flocked, felt, or leather lining creates a soft surface for jewelry, while dividers organize items. Or veneer the interior with mother of pearl, opal, or paua shell for a surprise reveal.



Add even more pop to the outside by incorporating additional veneer elements. Here, I added a compass rose and Fibonacci's golden spiral.



Do something unexpected outside, like lopping off the top at a wonky angle or adding a stylized handle – I put mine on the lid, but you could put handles on the box sides.

Pen DISPLAY

A handsome case for your handmade quills

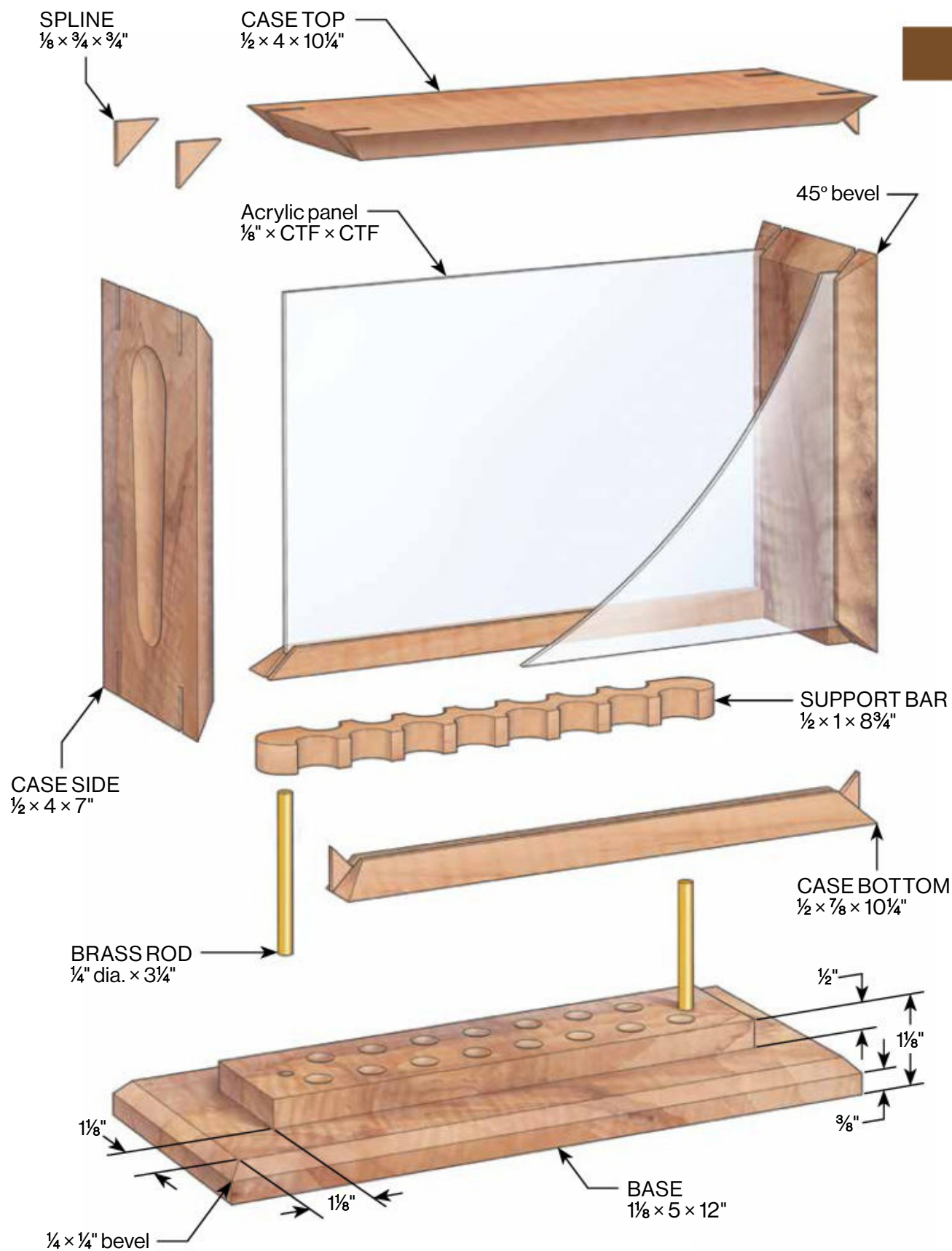
By Derek Richmond

Like many turners, a pen was one of the first items off my lathe. My first effort was ugly to put it nicely: the plainest wood, bulbous in shape, sanded badly and finished worse. But somewhere, my mother still has it though my ego hopes she doesn't use it. Since then, my pen turning skills have improved, as have the quality and availability of pen kits, blanks, and finishes. While that first pen doesn't merit a second look, its more recent brethren deserve a display case befitting their fit and finish.

I chose figured maple for my pen case, finished with a hard-wax oil to highlight the grain. But any hardwood will work. Pale-colored woods work best to let in ambient light through the acrylic panels. There's not much material to this case, so consider splurging on something exotic or highly-figured. As designed, the case holds 15 pens, but can be sized to fit your collection—just add or remove one inch increments to the lengths of all parts except the case sides.



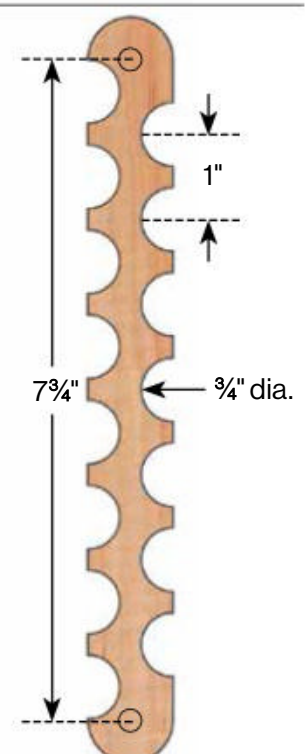
Room with a view



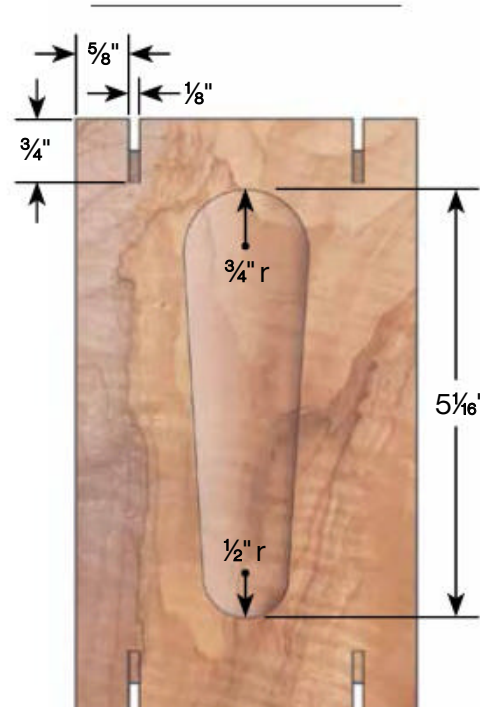
Rabbets on the tiered base keep the lift-off protective case in place. The case is assembled with splined miter joints. It frames two large acrylic panels that provide a panorama displaying your work, while keeping dust and little fingers at bay. Subtle, tapered finger grooves are routed into its sides using a horizontal crown bit (see Buyer's Guide, p. 62). They add a decorative flourish and make accessing the pens inside easy. The case's angular facets contrast nicely with the roundness of the pens, while inside, a scalloped leaning post—held up by brass rods accentuating the pens' metal components—supports pens of all size and shape.

CTF = Cut to fit

SUPPORT BAR DETAIL



CASE SIDE DETAIL



Order of Work

- ✓ Assemble lift-off case
- ✓ Create base
- ✓ Form pen support bar
- ✓ Assemble and finish



onlineEXTRAS

Scan here for a lesson in pen-turning 101, and plans for the splining sled used here.



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Create the case

Mill enough stock for two case sides and two case tops and cut the pieces to size. The second top will become the two narrow case bottoms after mitering and beveling the wide piece. Cut a $\frac{1}{8}$ " wide $\times$ $\frac{1}{8}$ " deep groove to receive the acrylic panel along both long edges of all four case pieces, located $\frac{5}{8}$ " from the edge. Chuck the crown bit in your router table and adjust the fence so it is 2" from the bit's center. Then clamp stop blocks to the fence on both sides of the bit, $5\frac{1}{2}$ " from the bit's center. Tape a $\frac{1}{4}$ " thick spacer to the bottom end of each side panel. Lower the pieces onto the bit and feed from the right stop to the left as shown. Miter both ends of one top piece, and the upper end of the case sides. Then use a miter gauge to cut a partial-width miter $\frac{7}{8}$ " deep at the bottom corners of the case sides and all four corners of the second top piece. Cutting these partial width miters requires two setups, the first with the miter gauge angled away from the blade and the second with it angled toward the blade. After mitering, bevel the long edges of all case parts as shown. Then rip the edges off the second top to create the case bottoms, and pre-finish the inside faces of all the case parts. Size the acrylic panels, then glue up the case around them. Finally, cut slots in each case corner and install splines to support the glued miters.



Rout for finger grooves. Make several passes, raising the bit between each, to establish the tapered, $\frac{1}{4}$ "-deep finger grooves in each side.



Install the panels. Apply glue to the mitered faces and wrap the case pieces around the panels using painters tape. Then apply a band or picture frame clamp to secure.



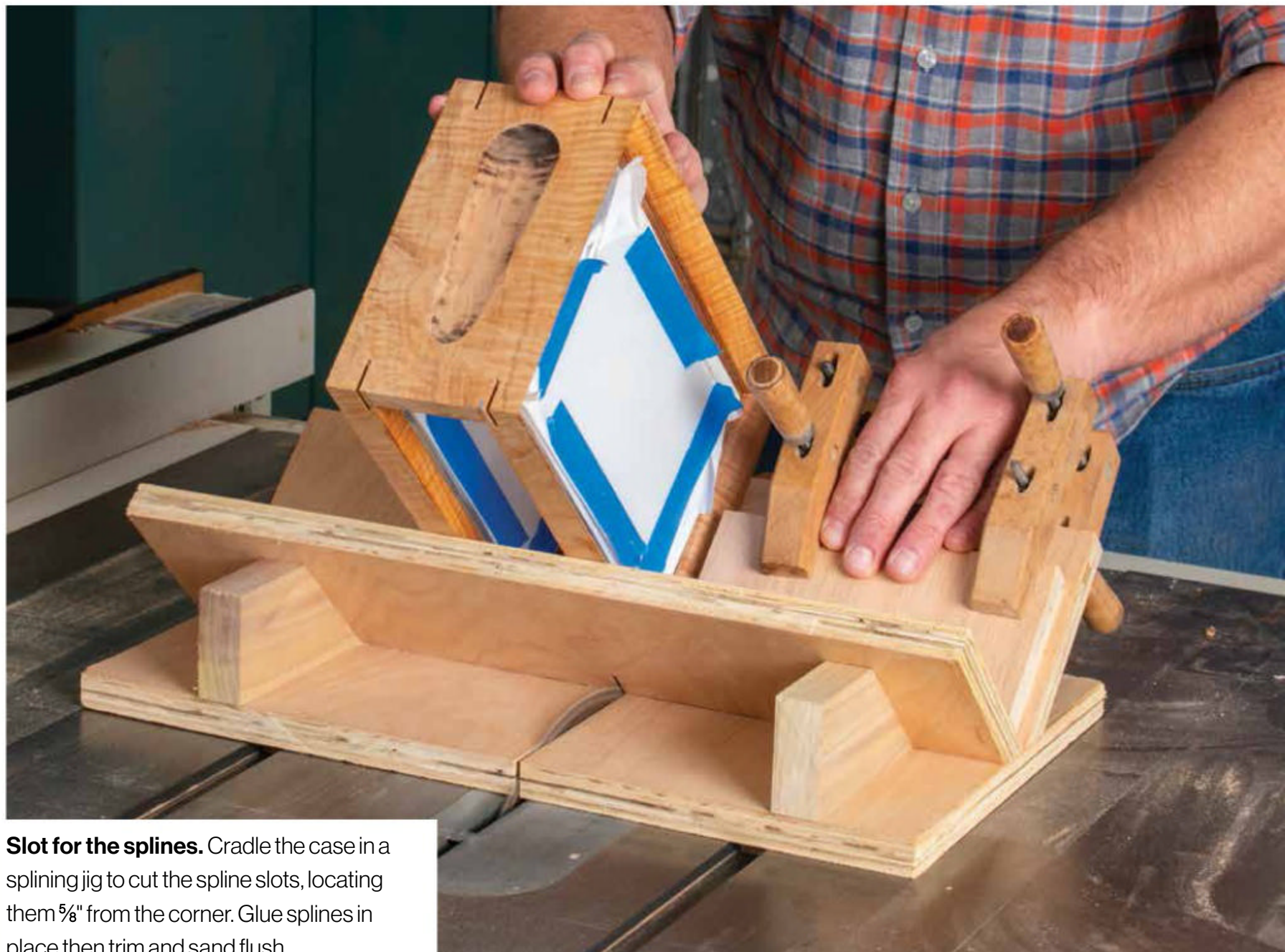
Cut partial miters. Use a stop to cut partial-width miters. After making the first cut, remove the stop and nibble away the rest of the material.



Bevel the edges. Tip the blade and rip a bevel along each edge of the case pieces, leaving the unbeveled face 4" wide.



Rip the bottom. Set the fence so the narrower beveled edge falls away from the blade, then make the cut, creating the first of the bottom pieces. Reset the fence for the second cut.



Slot for the splines. Cradle the case in a splining jig to cut the spline slots, locating them $\frac{5}{8}$ " from the corner. Glue splines in place then trim and sand flush.

Prepare the base and the support bar

Install a dado blade and cut a wide step around the perimeter of the base so it fits snugly into the case. Then install a combination blade tipped to 45° and use the same setup to chamfer the lower step's corners. Make the support bar from the remainder of the second top. Cut it to length now, but leave it overwide until after drilling. On a plywood scrap, lay out and drill ½"-dia. holes for the pens, and ¼"-dia. holes for the brass rod, spacing them as shown in the Support Bar Detail on p. 47. Clamp or tape the template to the over-wide support bar blank, then poke the appropriate brad point bit through each hole to mark its center on your support bar. Remove the template and use those marks to drill ¼" deep blind holes for the rods, and ¾"-dia. through-holes for the pens. At the table saw, trim the support bar to width to create a series of scallops, then round its ends at the disc sander. Then attach the template to the base as shown, and use a ½" twist bit to bore shallow divots to hold the pen tips. Also drill ½" deep holes in the base to receive the brass rods. Cut the brass rods to length. Glue them into the base and support bar with CA glue, making sure the scallops on the support bar match the divots in the base. If your pens need more lean, bevel the scallops with a round file. Apply your choice of finish, then display your nicest nibs. ■



Dado the base. Support the base with a sliding fence that rides atop your standard fence as you cut the rabbets that create the raised center area.



Trim the rail. Trim the support bar to width, removing material from each side to bisect the through-holes.



Drill for the pen tips. Set the drill press depth stop to make consistent, shallow recesses that will hold the pen tips in place.

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American Chestnut

Down, but not out

By Robert J. Settich

It's been said that in Colonial times, a squirrel could travel from Maine to Georgia solely on the intertwined branches of the American chestnut (*Castanea dentata*). But one of the first things European settlers unpacked were axes that felled those trees for cabins, barns, split-rail fences, and a host of other needs. Water- and steam-powered sawmills accelerated the availability of the lumber until it was a literally a cradle-to-grave proposition: using chestnut for baby beds, adult caskets, and everything in between.

At the same time, wildlife, farm animals, and humans all enjoyed eating chestnuts. The trees were so bountiful that Appalachian residents talked of "summer snows," when the chestnut's yellow-white flowers covered the forest's floor, and excess nuts became a cash crop in autumn.

Enter the blight

Human destruction of chestnut trees paled in comparison to the epic annihilation caused by a parasitic fungus accidentally introduced with chestnut trees imported from east Asia for commercial cultivation. The fungus arrived in about 1904, and by 1940 virtually every mature chestnut tree in the United States—an estimated four billion—was dead.

As a result of the blight, the American chestnut tree is functionally extinct. The trees simply don't survive to maturity.

But don't be in a hurry to sign the death certificate. As Miracle Max explained in *The Princess Bride*: "There's a big difference between mostly dead and all dead." The still-healthy roots often push up shoots that can grow about 15 feet tall before succumbing to the fungus—over and over. But there are several teams working hard to break that cycle and restore the tree to American forests.

Side-stepping the blight

The American Chestnut Foundation has been pursuing multi-prong strategies to overcome the blight. In one effort, they are using traditional hybridization techniques to retain most characteristics of the American chestnut while adding the blight-tolerant advantage from the Chinese chestnut. Meanwhile, the State University of New York has genetically modified an American chestnut cultivar that can survive the blight. Interestingly, should a traditional hybrid prove successful, it can be immediately planted in the forest, but the DNA-altered cultivar must pass regulatory scrutiny by multiple Federal agencies to help ensure that there are no potentially catastrophic unintended consequences.

It's a character-building experience

Despite the fact that virtually no living chestnut trees have been harvested for a generation, the wood is remarkably available, though the price is relatively high for a domestic hardwood. Extremely durable and rot resistant, dead chestnut trees can survive standing for a long time, but often suffer damage from borers. Demolished barns, industrial buildings, and other structures serve as another chestnut source. This salvaged lumber may also be wormy and/or have holes and mineral staining from extracted nails and other fasteners. This defaced wood is called "wormy" chestnut and usually commands a premium price. Go figure.

Chestnut in use

These days, chestnut sees use as paneling, wainscoting, interior millwork, cabinetry, furniture, and small projects such as boxes. Some dealers intent on selling chestnut by the truckload tout its use for flooring, but given the wood's softness,



Sawtooth edges. The oblong shape of the chestnut leaf features numerous sharply curved teeth along the edges.

Chestnut trivialities



A keepsake box. This lift-off lidded box was finished with two coats of wipe-on polyurethane, adding protection and a subtle sheen in keeping with chestnut's rustic character.

I question the wisdom of that.

Chestnut has a Janka hardness rating of 540, identical to poplar, but less than half of red oak's 1220 mark.

In my mind, chestnut's relative softness and coarse grain structure, combined with the fact that it's ring-porous, rule it out for cutting boards and kitchen utensils. The open grain structure also means that you would likely need to fill the pores if you want a glossy surface (see Pore Filling in the Feb/Mar 2023 issue of *Woodcraft Magazine*). But I personally feel that chestnut's rustic character would be out of step with a slick finish.

Note that chestnut's coarse grain makes it vulnerable to splitting—great

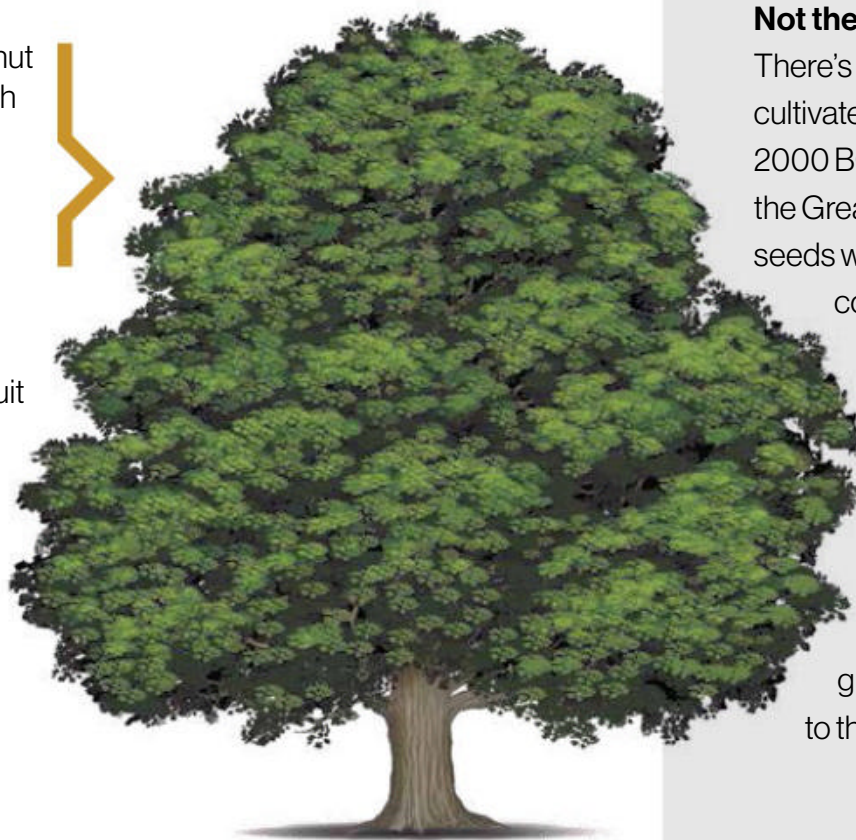
for fence rails—but a potential problem in smaller woodworking projects.

Exercise caution with nails, make sure screw pilot holes are properly sized (or even slightly oversized), and dial back on your driving torque.

As I was making the box pictured above, I was pleasantly surprised with the smooth surface I got from running boards through my thickness planer, and the chestnut worked easily with both hand and power tools. I didn't use any stain on the wood, but it's reported to readily accept colorants without problems. There are no acute allergic or respiratory cautions linked to chestnut, but you'll be wise to follow your usual best shop practices. ■

A stately giant. During its heyday, chestnut trees routinely grew 60 to 100 feet tall, with trunk diameters of 2 to 4 feet. But vintage photos also show massive specimens that would have intimidated any pioneer woodcutters not named Paul Bunyan.

Bristly pods. The spiked exterior of the chestnut fruit often cracks open while still on the tree, spilling two or three seeds ½- to ¾-inch long that develop a deep brown color.



Composing a cool song. *The Christmas Song*, commonly subtitled "Chestnuts Roasting on an Open Fire" was written during a blistering heat wave in July, 1945. Originally, Bob Wells and Mel Tormé were merely trying to think of winter scenes to cool themselves. They began by scribbling four lines into a notebook, but forty minutes later, both music and lyrics of the classic song were virtually complete.

On the Red List. The American chestnut tree is listed as critically endangered by the International Union for the Conservation of Nature (IUCN).

It's a truly towering

mountain. You can see small groups of living American chestnut trees along the Blue Ridge Parkway near Mount Pisgah, North Carolina. That landmark is easy to identify because its summit sports a 339-foot television transmission tower.



Not the new kid on the block.

There's evidence that humans have cultivated chestnut trees since 2000 BCE. Soldiers in Alexander the Great's army reportedly planted seeds when they weren't busy conquering the world.

Not in the family tree.

The American chestnut tree is not related to the horse chestnut (*Aesculus hippocastanum*), nor the Ohio buckeye (*Aesculus glabra*), and definitely not to the water chestnut.



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3102 Walnut Conference Table

3103 Kitchen Plank Stool

3104 Turned Clock Spinning Time

3105 American Ladder-back Rockers

3106 The Ultimate game Table Chest

3107 Infused Resin Door Cabinets

3108 Arts & Crafts Oak Stand

3109 Willow and Elm Furniture

3110 Live Edge Display Shelves

3111 Finishing Like a Pro

3112 Furniture Repairs and Restorations

3113 Live Edge Stands

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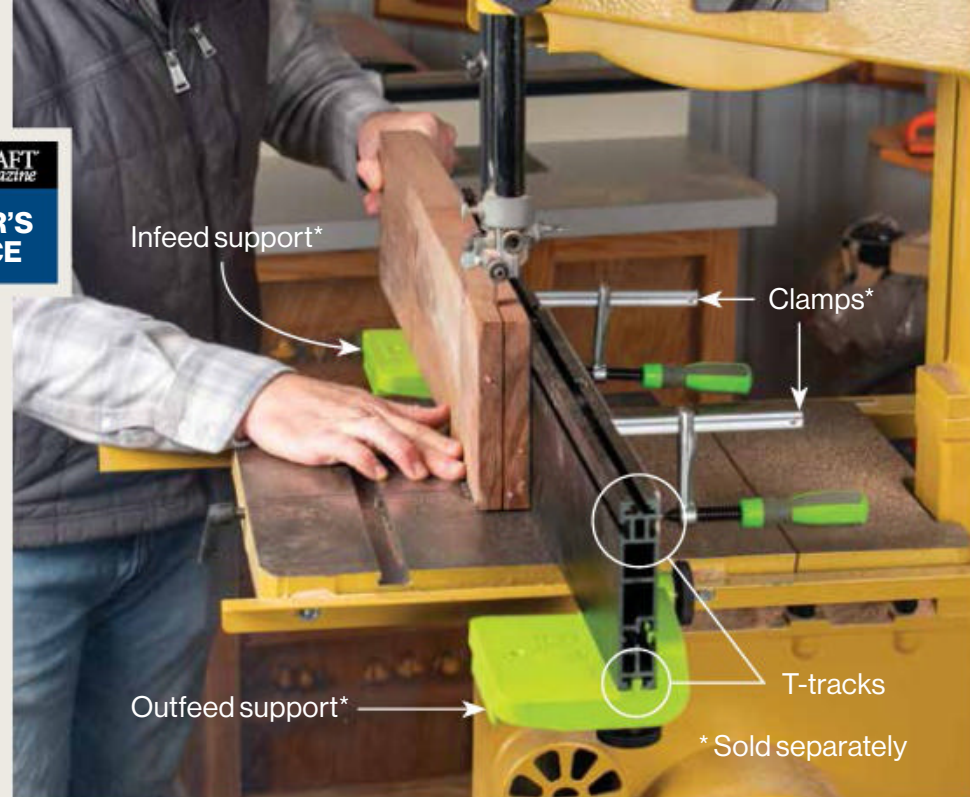
RUST-OLEUM BRANDS

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A fence that holds up

Bow XT XTENDER Fence

Bow's XT Xtender is an excellent auxiliary fence that attaches to your machine's existing fence, enhancing its functionality. Five inches tall, made of extruded aluminum with integral T-track slots, and available in lengths of 24, 36, or 46 inches, it's all you could want in a fence. But Bow's fence is better thought of as the backbone of a full system that includes the fence, T-track clamps, and Bow's XT1 feed supports. I like the system on my bandsaw, where the feed supports effectively increase the table size and the tall fence makes resawing more accurate. Or mount it on the existing fence of a contractor, jobsite, or cabinet table saw. Even on a quality fence, it's useful for adding height, and its 1-inch thickness maintains your built-in rule through some quick mental math. T-track slots on the fence face and top accept featherboards, jigs, and accessories. And multiple slots in the fence back let you easily attach Bow's fence to your standard fence with T-track clamps. Once the Bow fence is clamped in place, consider adding feed supports for extra support. Split them between infeed and outfeed, or employ them on



PRICE 24" \$79.99, 36" \$129.99, 46" \$149.99, bow-products.com

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the same end as needed. The feed supports attach securely to the fence with three large knob-controlled bolts; one engages the T-track on the backside of the fence, and two connect to its underside. The feed supports are stout and don't bend under most loads. But they do have a cavity that accepts a 2×4 crutch for additional stability if needed. My only complaint is that the system isn't available as a package, and instead has to be purchased as separate components.

Derek Richmond

Photo: Derek Richmond

Practically perfect screw holes

WL Fuller #8 Countersink Set

For nearly 100 years, the WL Fuller Company has been making high-quality drill bits, plug cutters, and countersinks here in the U.S. I recently picked up their #8 countersink set and have been very pleased with it. The set includes five tapered drill bits that make holes perfectly-sized for #6, 8, 10, 12, and 14 screws respectively and the accompanying countersinks leave crisp, clean $\frac{3}{8}$ " or $\frac{1}{2}$ " diameter holes ready for plugging. I can cut those plugs with the two included plug cutters that make what are perhaps the best-fitting plugs I've ever encountered. The set also includes a $\frac{3}{8}$ " and a $\frac{1}{2}$ " stop collar along with the necessary Allen keys for setting them. Everything fits neatly in a hinged wooden case with a secure latch that will prevent the set from dumping out in the bottom of my traveling tool bag. It's nice to know there



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Easy acrylic turning

Sorby Modular Micro Resin Pen Set

Acrylic and resin blanks have vastly expanded the array of colors and materials available to pen, ring, and handle turners. But the tough, brittle nature of those materials calls for sharp tools and a steady hand. Renowned British toolmaker Robert Sorby has introduced a set of pen-turning tools designed specifically for manmade materials. The set includes a shallow-fluted spindle roughing gouge for initial shaping, and a scraping cutter with a replaceable four-sided high-speed steel tip. Both tool shafts attach securely to the 7 $\frac{3}{4}$ " long anodized aluminum handle by way of two set screws. The traditional gouge is easily sharpened and its shallow flute reduces chipping while rounding the blank. The scraper's four sides are gently radiused and make incredibly smooth cuts, peeling off long strings of the solid-surface material. When one edge dulls, use the included hex key to rotate to the next; when they're all dulled—it will take a while—they're easily sharpened by running a diamond file across the cutter's top surface. I find



PRICE \$99.99, woodcraft.com, #187708

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Tool Reviews (p. 12)

1. Leigh D4R PRO Dovetail Jig #148154, **\$989.00**

Making Boxed Cushions (p. 20)

1. Dacron Wrap, 30" regular *foamorder.com*, **price varies**
2. EverFlex V44 Foam *foamorder.com*, **price varies**
3. Wax Tailor's Chalk *wawak.com*, #CK320WH, **\$8.85**
4. #4.5 Aluminum Upholstery Zipper *wawak.com*, **price varies**
5. Décor and Upholstery Weight Fabric *sailrite.com*, **price varies**
6. CushionRite Foam & Fabric Spray Adhesive *sailrite.com*, #125476, **\$9.95**
7. Medium Welting Cord, $\frac{5}{32}$ " *sailrite.com*, #107035, **price varies**

Wall Cupboard (p. 26)

1. Blum 120° Full Overlay Clip Top Hinge w/Cam Plate, Pair #142852, **\$11.99**
2. Kreg 35mm Forstner Bit #162027, **\$19.99**
3. WoodRiver 5mm Shelf Pin Drill Bit #153219, **\$9.99**
4. Hafele 5mm Shelf Support Pins Round Nickel, 20 pk. #130339, **\$5.99**
5. Whiteside Round Stile and Rail Door Router Bit Set,
 $\frac{1}{2}$ " SH, $1\frac{5}{8}$ " OD, 1" CL #150803, **\$152.99**

Upholstered Club Chair (p. 32)

1. Pirelli Rubber Webbing, 10' *onlinefabricstore.com*, #63107, **\$4.60/ft.**
2. Rubber Webbing Clips, 10 pk. *onlinefabricstore.com*, #63006, **\$6.95**
3. Flush Trim Pattern Router Bit with Top and
Bottom Bearing *hvalleytools.com*, 117-1305B, **\$56.93**
4. Push-In Rivets, 25 pk. (2 needed) *mcmaster.com*, 90221A226, **\$10.48**
5. Cushions *cushionxpress.com*, **price varies**

Miter-Fold Veneer Box (p. 40)

1. Freud 2"-dia. V-grooving Bit #847182, **\$90.97**
2. Sauers Veneer Tape, $\frac{3}{4}$ " 2-hole, 650 ft. #153092, **\$11.99**

Pen Display (p. 46)

1. Yonico Horizontal Crown Bit,
 $1\frac{1}{2}$ " R, $\frac{1}{4}$ " SH *homedepot.com* #306082745, **\$13.97**
2. Brass Round Bar, $\frac{1}{4}$ " dia., 12" *onlinemetals.com*, #18246, **\$4.50**
3. Acrylic Sheet Clear, 0.118" thick,
12 × 24" *onlinemetals.com*, #7451, **\$14.47**

Great Gear (p. 56)

1. Sorby Modular Micro Pen Turning Set #187708, **\$99.99**
2. Fuller No. 8 Countersink Set *jamestowndistributors.com*, **\$117.26**
Following available from bow-products.com
3. XT XTENDER Fence, 24" XT524, **\$79.99**
4. XT XTENDER Fence, 36" XT536, **\$129.99**
5. XT XTENDER Fence, 46" XT546, **\$149.99**
6. XT T-track Clamps XT2, **\$29.99**
7. XT1 Feed Supports XT1, **\$39.99**

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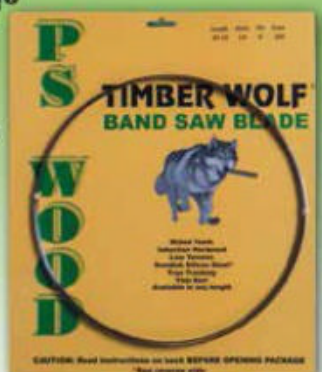
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Angela Robins is a woodworker and educator, inspired by Scandinavian and Japanese wooden crafts, particularly the boat and the bowl. From axe carving to turning, she works primarily with freshly cut wood. She is based in New York's Hudson Valley where she teaches woodworking.



Photos: Angela Robins and Chelsea Van Voorhis

Harvesting green wood by season

Is there a best time of year to harvest green wood, and how should I store it?

Remy Johnston
Lewiston, ME

Fortunately, green wood can be harvested and worked at any time of year. That said, I generally prefer to harvest in late fall or winter.

Harvesting in the colder months helps ensure the longevity of the material: once nature freezes over, the wood has little chance of rotting or drying out. At these colder temperatures, if my cut logs are longer than the intended project, I don't bother sealing the ends. There's plenty of wiggle room for checking on the end grain. If I'm going to turn a bunch of bowls or plates on the lathe within a few weeks, I'll rough-cut my blanks, stack them, cover the end grain with chainsaw wood shavings, and place them under a tarp to slow down drying and mitigate cracking. Once it's time to turn, I find that it's good to defrost the

blanks at room temperature for about an hour.

In the warmer months, or warmer climes, harvesting green wood can be a bit fussier, and cut wood will lose moisture more quickly. I'll leave logs full-length until I actually plan to work with them, and I seal the ends with a wood glue and water mixture, or scrap latex paint. Once sealed, I'll place them in a shady spot atop 2×4's to keep them off the ground, and cover with a tarp. A good trick for storing smaller pieces of wood is to wrap them in plastic bags, then place in a chest freezer.

I haven't noticed significant differences in the workability of the wood depending on the season, but harvesting in the spring brings the delightful perk of being able to easily peel bark off of the logs of some species. The bark can be used to weave baskets or sew bent-bark containers. Even if you don't weave, peeling bark is so satisfying it just has to be good for you. Although if you're turning bowls in the spring, you'll find the wood is saturated with sap, so you'll be in the splash zone as you turn, and you might wish your faceshield came with wipers. ■



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