

TAUNTON'S **Fine
WoodWorking**
Teach • Inspire • Connect

- Smart router table
- Modern marquetry
- Cherry coffee table
- Weave a rush seat
- Ripping on a bandsaw



Shaker hanging shelf, p. 34



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Warranty

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- Digital readouts for blade height, blade angle and distance of fence to left or right side of blade
- 3 1/2" max depth of cut
- 5/8" arbor diameter



SB1110
\$2545⁰⁰ FREIGHT **\$289**

SB1111
\$2695⁰⁰ FREIGHT **\$329**

⚠️ **WARNING!** †¹
with extension rails

8" Parallelogram Jointer with helical cutterhead

- 3 HP, 230V, single-phase motor
- Heavy-duty center-mounted fence with rack & pinion lateral adjustment
- 4-row helical cutterhead with 36 inserts
- 83" table length
- Parallelogram tables with hand-wheel adjustment
- Digital readout for infeed table height
- Rabbeting table
- Pedestal-mounted switch controls
- Easy-to-reach knee stop for emergency hands free shut-off



SB1091
\$2795⁰⁰ FREIGHT **\$329**

⚠️ **WARNING!** †¹

12" x 87" Jointer with helical cutterhead

- 5 HP, 230V, single-phase motor
- Fence stops at 90° and 135°
- Parallelogram tables with hand-wheel adjustment
- Precision-ground cast-iron table
- Digital readout for infeed table height
- Anodized handwheels and fence handle
- Rabbeting table
- Pedestal-mounted switch controls
- Easy-to-reach knee stop button located below cutterhead
- Rack-and-pinion lateral fence adjustment



SB1113
\$4995⁰⁰ FREIGHT **\$449**

⚠️ **WARNING!** †¹

24" Industrial-Duty Bandsaw 16" resaw capacity



- 7 1/2 HP, 220V/440V¹, 3-phase motor
- Up to 24 3/4" of cutting width left of the blade
- Strongest rack-and-pinion table tilt mechanism in the industry maintains table squareness while supporting the heaviest loads
- Precision-ground cast-iron table with cast-iron trunnion
- Two 4" dust ports
- Computer-balanced cast-iron wheels
- Foot-operated brake system
- Quick-change blade release/tensioner

⚠️ **WARNING!** †¹ **SB1123**
\$4695⁰⁰ FREIGHT **\$369**

2 HP Cyclone Dust Collector



- 2 HP, 220V, single-phase motor
- 1132 CFM @ 1.1" SP airflow capacity
- Remote controlled magnetic switch
- 1-Micron canister filters with a filtering surface area of 29 sq. ft.
- Vacuum gauge indicates when filter needs to be cleaned or replaced
- Motorized filter paddle brushes automatically clean the filter at regular intervals
- Steel stand with built-in locking casters
- Rolling collection drum with quick-release lift handle

⚠️ **WARNING!** †¹ **SB1092**
\$1850⁰⁰ FREIGHT **\$239**

5 HP 3-Phase Spindle Shaper with Variable Speed



- 5 HP, 230V, 3-phase motor
- DRO for spindle RPM and height positioning
- 4 3/4" tall anodized aluminum fence with featherboard attachments
- Rack-and-pinion fence adjustment with 4" of travel
- Micro-adjustment knobs for fence alignment
- Power feeder attachment locations (power feeder not included)
- Variable speed, from 5000–10,000 RPM

⚠️ **WARNING!** †¹ **SB1120**
\$4495⁰⁰ FREIGHT **\$329**

15" Planer with Helical Cutterhead



- 3 HP, 230V, single-phase motor
- Digital table height scale
- Variable feed speed dial on control pedestal
- Extra-large ball bearing return rollers
- Heavy-duty precision-ground cast-iron extension wings
- Pedestal-mounted controls with magnetic switch and thermal overload protection
- Internally mounted motor
- Four heavy-duty support columns
- Anti-kickback fingers

⚠️ **WARNING!** †¹ **SB1108**
\$2895⁰⁰ FREIGHT **\$329**

9" x 138 1/2" Oscillating Edge Sander

- 3 HP, 220V, single-phase motor
- Two 4" dust ports
- Sanding belt speed of 4120 FPM
- Two large sanding tables
- Miter work stop
- End guards swing away for edge sanding long boards
- Quick-release belt lever
- Table height handwheel for easy and precise adjustment and maximum use of sanding surface area
- Conveniently located belt tracking and tension adjustment



SB1117
\$5395⁰⁰ FREIGHT **\$369**

⚠️ **WARNING!** †¹

6" x 48" Belt / 12" Disc Combination Sander



- 1 1/2 HP, 115V/230V (prewired 115V), single-phase motor
- 2690 FPM belt speed, 2630 RPM disc speed
- Two precision-ground cast-iron tables
- Heavy-duty cabinet stand
- Heavy-duty miter gauge
- Belt sander table tilts 0–45°
- Disc sander table tilts down 45° and up 15°
- US based customer service and technical support

⚠️ **WARNING!** †¹ **SB1093**
\$1495⁰⁰ FREIGHT **\$249**

¹To maintain machine warranty, 440V operation requires additional conversion time and a \$325 fee. Please contact technical service for complete information before ordering.

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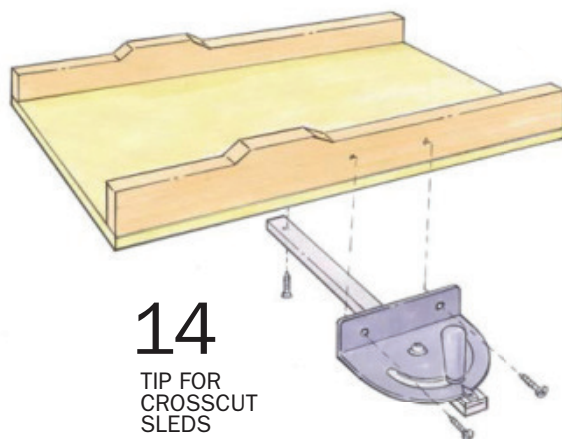
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READERS
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WOVEN
RUSH SEAT **74**

The
Legendary
Supermax

1938

Cast Iron Construction

- No Backlash when adjusting height
- Extra-Wide conveyor supports stock over 19" wide
- Received 5/5 Stars Wood Magazine, American Woodworkers magazine Editor's Pick



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Check in with us as we look at new woodworking tools coming to market and exciting industry news.

Woodshop robots

In our own shops, we've started making the technology work for us instead of against us. In this series, we discuss new ways of keeping woodworking a part of this robot uprising.

Online extras

Visit finewoodworking.com/302

VIDEO

A simple finish for cherry

Many of Christian Becksvoort's cherry pieces are brought to life with this beautiful hand-rubbed oil-and-varnish finish.

VIDEO

Reliable router table

Follow along as Larissa Huff builds a router table that is simple enough for any beginner to build, but versatile enough for a seasoned pro.



VIDEO

Feathers take flight

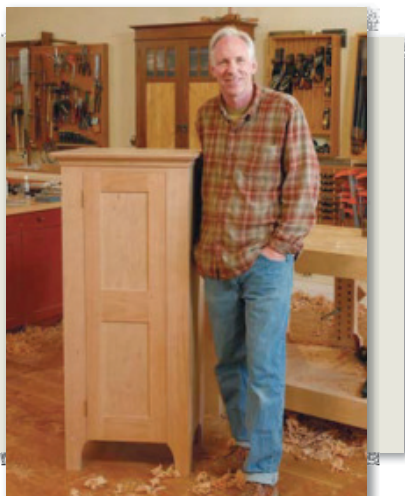
In this video, watch as high-flyer Brian Newell routs and assembles a flock of feathered veneers.

VIDEO WORKSHOP

Enfield cupboard with hand tools

Using only hand tools, Chris Gochnour builds a Shaker classic that is as solidly constructed as it is beautiful. You'll learn how to:

- Use a dovetail plane to cut tapered sliding dovetails
- Use tongue-and-groove planes and beading planes for backboards
- Cut mortise-and-tenon joints by hand
- Use molding planes to create custom profiles



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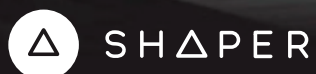
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uses Origin in his shop
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contributors

Though **Brian Newell** (“High-Flying Feather Veneer”) has been working with wood since he was a child, his love of the work has remained constant. “I try to make something beautiful that people like and that does not require an owner’s manual. My pieces should be simple enough for anyone to respond to and understand. I want people to look at my pieces and feel connected to something, and if that is different for each person, so much the better. If everyone has the same visceral reaction to a piece, and it reminds everyone of the same thing, then that’s a total failure.” Newell lives and works in Fort Bragg, Calif., where he has renovated a large dairy barn into his shop space and is working on turning the old milk house into living space.



Catch **Larissa Huff** (“Easy, Reliable Router Table”) if you can. When she’s not designing and building furniture in her Philadelphia workshop, she’s on the road at shops and schools around the country. She recently wrapped up stints as an artist-in-residence at Tennessee’s Arrowmont School and Maine’s Center for Furniture Craftsmanship. Even her days out of the shop are wrapped up in artful woodworking, as she works part-time at the Wharton Esherick Museum.



David Johnson (Master Class: “Weave a rush seat”) founded his business, Sidecar Furniture, in 2005. He specializes in the conservation of Danish Modern chairs with woven seats. Self-taught as a seat weaver from the definitive book, *The Caner’s Handbook*, David later worked for the book’s co-author, Jim Widess, at The Caning Shop in Berkeley, Calif. In his small shop in Los Angeles, he balances the work of making original pieces with the day-to-day activities of running a small business.

When he downsized from a rented shop space, **Tony O’Malley** (“The Bandsaw Is a Ripping Machine”), a specialist in custom built-ins, had to take over several parts of his home in Emmaus, Pa. An attached garage became the bench and assembly room, an adjacent area became the machine room, and a detached two-car garage is now the staging space where cabinets come together into larger assemblies. A full-size Sprinter van is the final piece of the puzzle for deliveries and installations.



We are a reader-written magazine. To learn how to propose an article, go to FineWoodworking.com/submissions.

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Spotlight

ISSUE NO. 301

January/February 2023

Star-knob stop

In the foreground of the cover photo and the top righthand photo on p. 51 (“Boxes in Bunches” by Doug Stowe), there is a star knob attached to a stop in the miter gauge slot. Would it be possible to have Mr. Stowe comment on what prompted him to introduce this stop into his work, when he uses it, and the structure of his stop?

Thank you for your time and assistance in this matter, and for being part of the team that helps me to learn more about woodworking.

D.G. COX, Rochester Hills, Mich.



Author's reply

The stop inserted in the miter gauge slot has two purposes. I often teach, and when the sled comes up against the stop, the student knows that the box has traveled far enough so that when it is lifted off the sled it will be beyond where the blade might accidentally touch an unintended part of the box. The second reason is that the sled and stop are designed so that when the sled is at its farthest point from the operator, the back side of the blade is buried in the sled, and not where it could be touched. The stop was inspired by one I saw in a catalog. I liked

it but knew I could make one myself, which is always a lot more fun for me than waiting for the UPS truck to arrive.

It uses a star knob with 1/4-20 thread and a threaded insert installed on the underside of a block of wood (in my case, white oak) shaped to fit in the miter gauge slot. When the star knob is tightened, it presses against the bottom of the miter gauge slot, lifting the block of wood to lock it in place. To position the stop, I observe the riving knife and make certain that the sled is beyond the blade as indicated by the presence of the riving knife in the sawkerf. I've found the stop useful for other operations as well. The photos tell a lot, and anyone could make one. For safety, the wood should be shaped as a much longer piece, which means you get to make several at the same time.

Sander safety

Could I offer a word of caution about using a sander—disk or band—for metal in a woodwork shop, as is shown on p. 13 of Workshop Tips of the December 2022 (FWW #299) issue? If the machine and dust extraction equipment are not cleaned of all sawdust before cutting metal, there is a high risk of fire. The illustration shows the table sloping down toward the belt so that the angle between the belt and the table is less than 90°. This can cause jamming between the workpiece and the table. It is safer to angle the table down from the belt so that the angle is greater than 90°. If a sander is being used in a workshop where wood, metal, and plastic are used, the machine should have a label stating which material the machine should be used for. I am aware of fires being started by metal and plastic being cut on machines that are usually used for wood.

LAURENCE PEPPER, Surrey, U.K.

Mortiser upgrade

Any woodworker who is a machinist or who has taken machine shop cannot look at a router and a drill press or a hollow-chisel mortiser and not think about a Bridgeport vertical milling machine. But a Bridgeport mill is big, heavy, expensive, and difficult to learn to use well.

Still, adding an X-Y table with a vise under the mortising chisel is a good compromise and is too big of an advantage to ignore. I am glad that Michael Chapman has come up with a way to do it. Thanks for publishing his tip in FWW #301 (Workshop Tips, p. 14). Now I am thinking of adding a cross-slide vise to my Delta mortiser. I can probably find one in a catalog from Harbor Freight or McMaster-Carr.

Like Mr. Chapman I am also a University of Missouri graduate—Rolla campus, BSME 1974.

RONALD CORRADIN, St. Paul, Minn.

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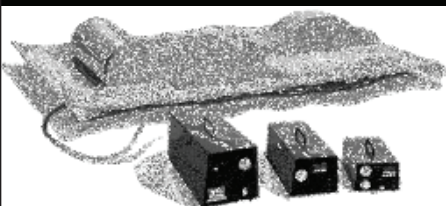
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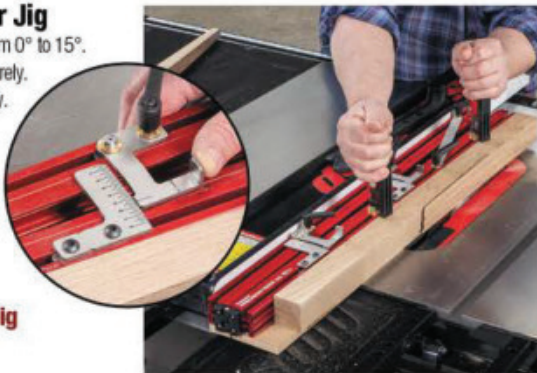
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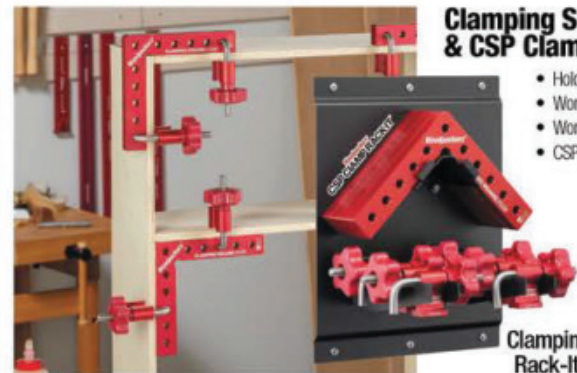
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workshop tips

Use a miter gauge to guide a tablesaw sled

The most difficult part of making any tablesaw sled is attaching the miter runner(s) accurately so that the fence is square to the blade. My approach makes this critical step much more straightforward.

If you have a spare miter gauge lying around the shop, you can attach it directly to the sled, creating a robust, adjustable guide system. You'll only have one runner guiding the sled instead of the usual two, but these bars are made of durable steel or aluminum and can be adjusted for a snug fit in the miter slot, either with built-in adjusters or by dimpling the sides of the bar with a center punch.

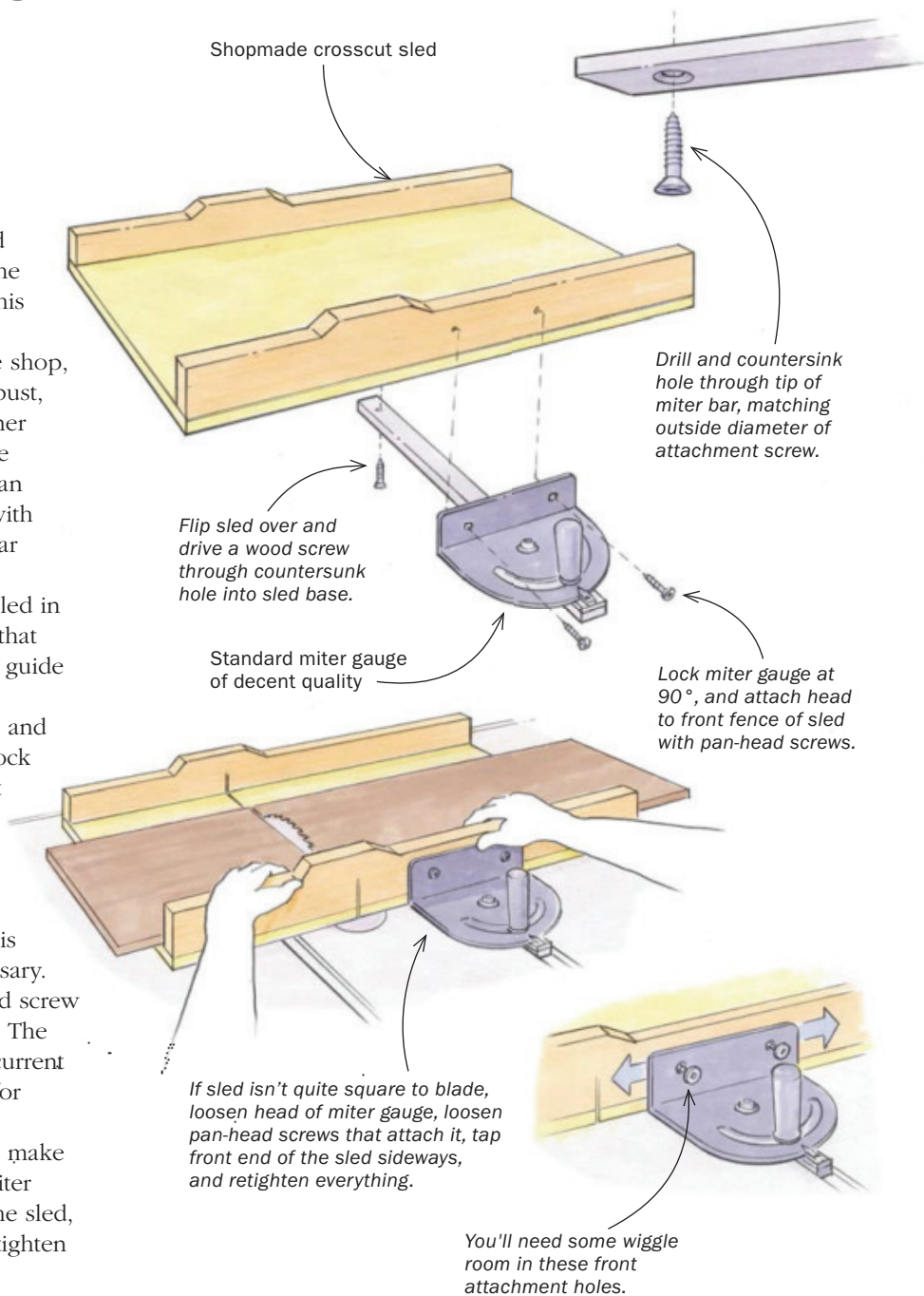
It's easier if you dedicate the miter gauge to the sled in question, adjusting it for squareness and leaving it that way, but you can also use the same miter gauge to guide multiple sleds.

To get the miter gauge ready for its new job, drill and countersink a hole in the leading end of the bar. Lock the miter gauge at 90°, and use the two attachment holes in its head/fence (drill them if they aren't already there) to screw it to the front fence of the sled, using pan-head wood screws. It's helpful to have a little bit of slop in these holes for later adjustment. Then make a test cut to see if the sled is square to the blade. Adjust its angle a little if necessary.

Next, flip over the sled and drive a standard wood screw through the tip of the bar into the base of the sled. The goal is to do this without the bar moving from its current position. Make a practice cut to check once more for squareness, and the sled is ready to use.

If the sled has moved slightly off square, you can make a small adjustment by loosening the head of the miter gauge as well as the front screws that attach it to the sled, and tapping the front end of the sled sideways. Retighten the screws and make another test cut.

—BRUCE LARSSON, Dudley, Mass.



Best Tip



High-school woodworking and metalworking classes “sparked an inner creativity that proved to be the most rewarding part of my education,” Bruce Larsson says. His woodworking hobby took off when he renovated his first home. Later, he received a patent for a device that cuts compound tapers. Larsson retired in 2020 after 46 years as a tractor-trailer driver and has since devoted himself to improving and organizing his workshop.

A Reward for the Best Tip

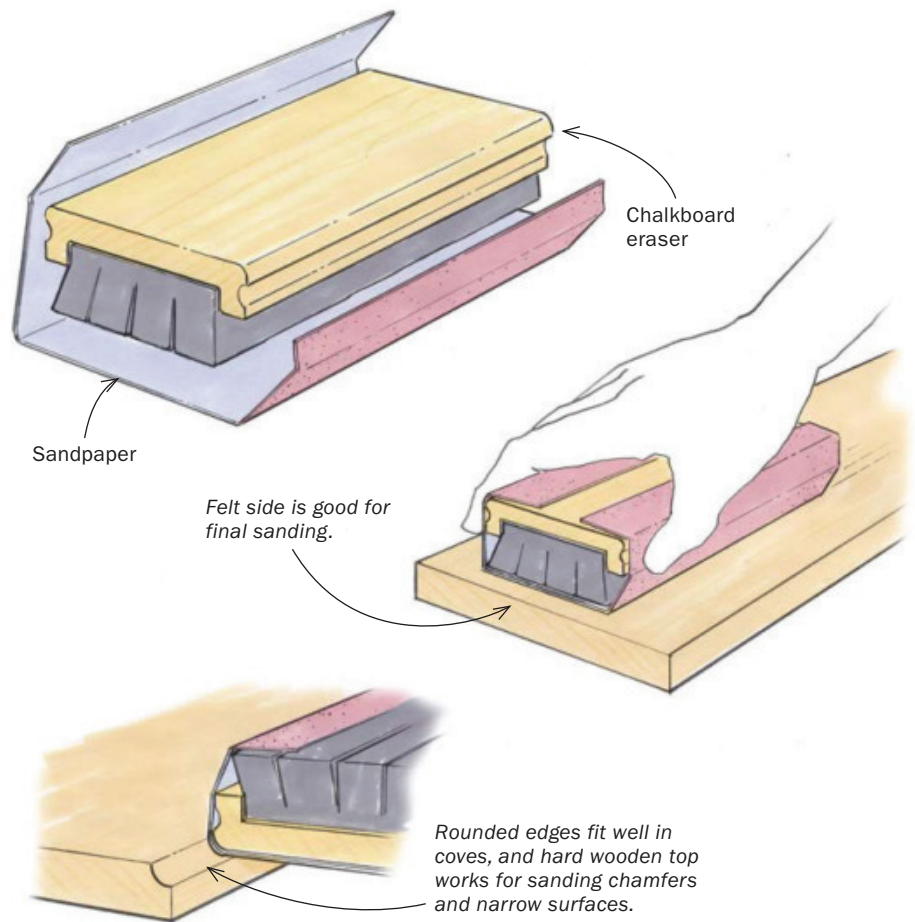


Send your original tips to fwtips@taunton.com. We pay \$100 for a published tip with illustration; \$50 for one without. The prize for this issue's best tip was a Starrett 12-in. Satin Chrome Combo Square.

Chalkboard eraser makes a versatile sanding block

One of my most versatile tools for surface prep is an old-school chalkboard eraser. I found a set of six for \$12 on Amazon. The felt side gets the most use for the last sanding pass with the finest grit, and also for smoothing the surface between coats of finish. The sandpaper is easy to wrap around the block and grip tightly, and I like the way the flared shape of the felt side gets into sharp corners. The rounded wood edges work nicely for sanding moldings and other small cove shapes, and when I need a flat or more aggressive block, I use the hard top side of the eraser. By the way, I keep one eraser separate for applying polishing compound, and another for applying wax.

—DAVID EMERSON, Southbury, Conn.





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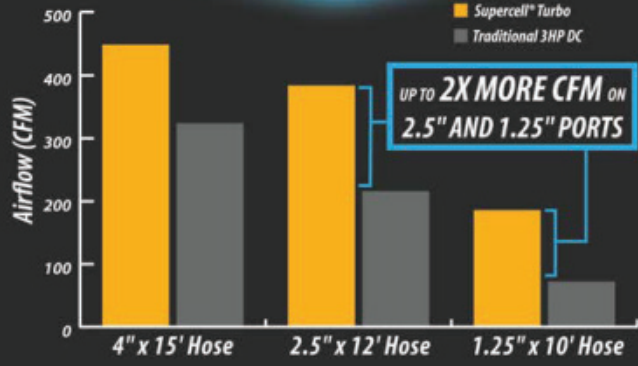


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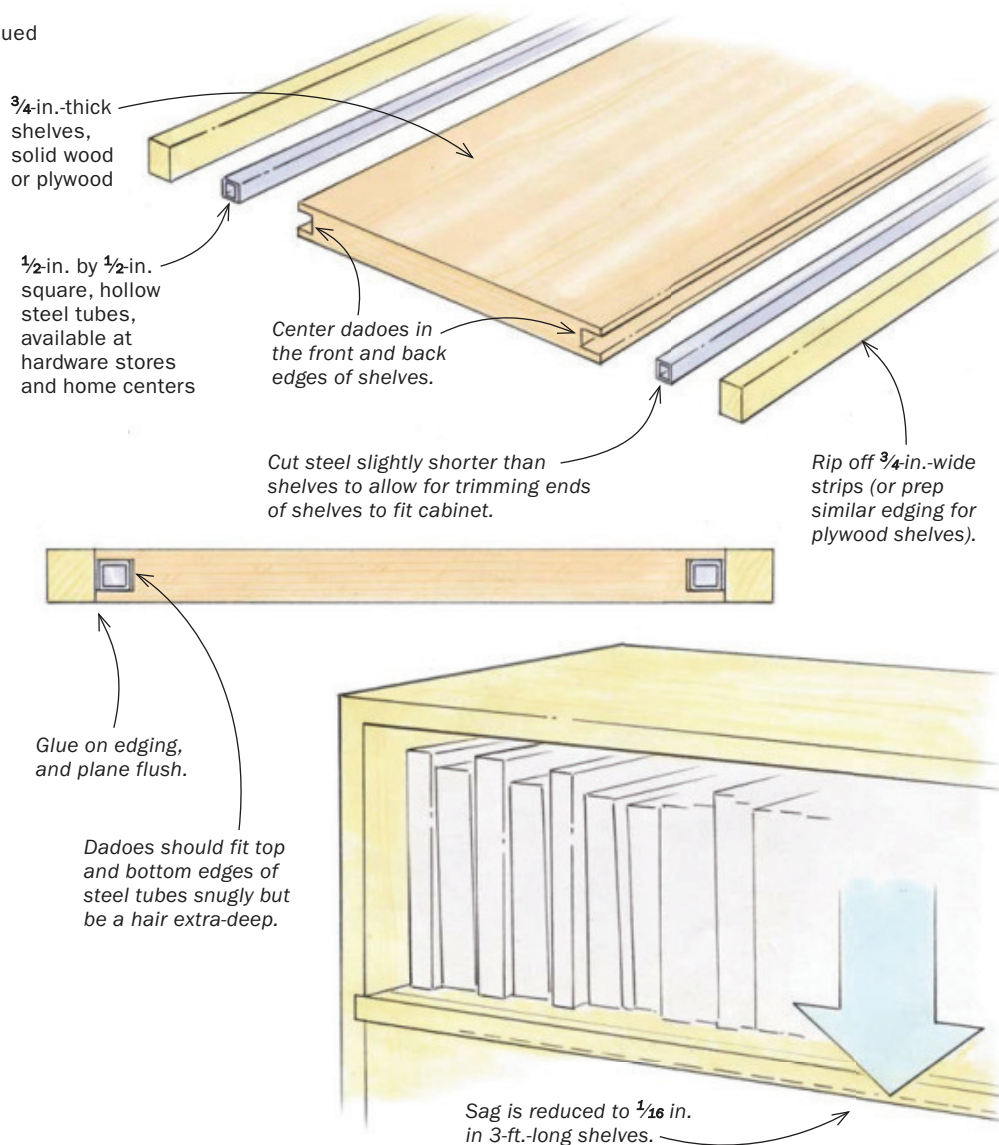
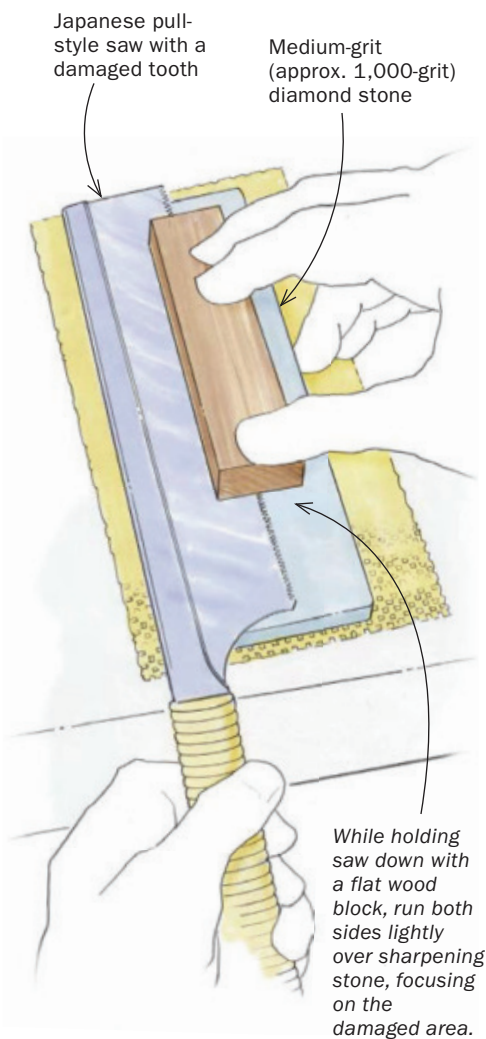
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Quick fix for a bent or damaged saw tooth

A bent or broken tooth on a Japanese pull-style saw can extend out beyond the kerf and drag or catch with each stroke, making the saw difficult or impossible to use. To bring the damaged tooth back into alignment, gently run the side of the blade over a medium-grit diamond stone (1,000-grit works well), applying even pressure with a block of wood. A few easy strokes on each side of the saw is all it takes to flatten the trouble spot. A saw can be repaired this way many times before it has to be retired.

—DENNY SPECTOR, Redding, Calif.



Hide steel tubes in thin shelves to prevent sagging

After building an oak bookcase with adjustable shelves that were $\frac{3}{4}$ in. thick by 11 in. wide by 36 in. long, I found that the weight of magazines and books made the shelves sag noticeably. I could have made the shelves thicker or added thick edging at the front, but I liked the look of the thinner shelves. I decided to try embedding steel in the shelves.

After experimenting with various types of steel stock, I found that square, hollow tubes— $\frac{1}{2}$ in. by $\frac{1}{2}$ in., inset along the front and back edges—worked best. Steel stock like this is available at hardware stores and home centers.

To embed the tubes in solid-wood shelves, start by ripping $\frac{1}{2}$ -in.- to $\frac{3}{4}$ -in.-wide strips off the front and back edges. If you're using plywood shelves, prepare

solid edging of the same size. Next, center dadoes in the edges of the shelves, sizing them to fit the square tubes. The fit should be snug along the top and bottom of the tubes, but a little loose side to side so the tubes don't inhibit you from gluing on the edging tightly. Also, cut the tubes a bit shorter than the shelves so you don't hit them if you need to trim the ends of the shelves. Drop the tubes into the slots, adding some yellow glue to keep them from sliding one way or the other. Then glue on the front and back strips, using cauls to line them up so you have a minimum of planing to do afterward.

The steel tubes reduced the sag under a fully weighted shelf to less than $\frac{1}{16}$ in., and you'd never know they are in there.

—RICHARD ROSS, Longmont, Colo.

Add a height dial to your tablesaw

Blade height is critical for a variety of joinery cuts on the tablesaw. In the past I would set the height as accurately as possible and sneak up on the precise depth with a series of test cuts. When I realized that one revolution of the handwheel moved the blade up $\frac{1}{4}$ in. on my saw, I decided to create a pointer system to make it faster and easier to set the height accurately, as well as to return to an earlier setting.

First, I made a wooden pointer that attaches to the saw cabinet with magnets. Using magnets lets me reposition the pointer when I make a bevel cut. That's necessary, since tilting the blade repositions the entire handwheel. I also attached small blocks to the cabinet, one on each side of the pointer, with double-stick tape; they let me return the pointer to its original location.

While you could mark the handwheel directly for various heights, I attached a ring made from thin white masonite to make the marks more visible. I divided the ring into quadrants to mark $\frac{1}{16}$ -in. height intervals.

I also make a mark on it whenever I need to return the blade to a specific setting. I use a grease pencil for all of these marks, so they're easy to redo if I change the blade to one with a slightly different diameter.

—JIM COX, East Aurora, N.Y.

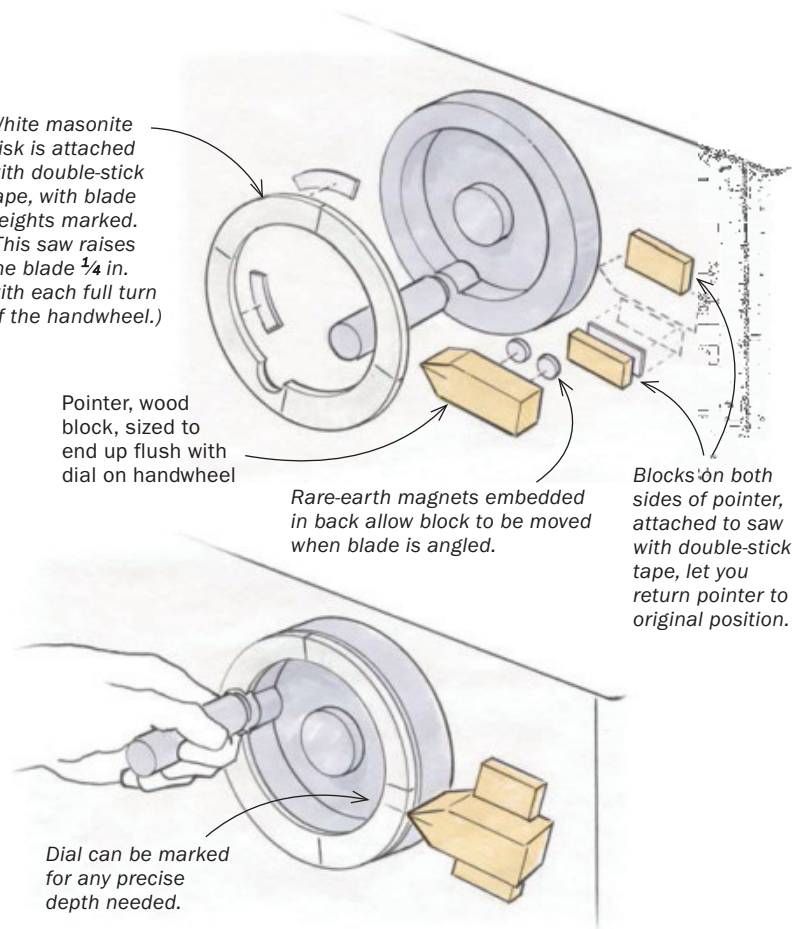
White masonite disk is attached with double-stick tape, with blade heights marked. (This saw raises the blade $\frac{1}{4}$ in. with each full turn of the handwheel.)

Pointer, wood block, sized to end up flush with dial on handwheel

Rare-earth magnets embedded in back allow block to be moved when blade is angled.

Blocks on both sides of pointer, attached to saw with double-stick tape, let you return pointer to original position.

Dial can be marked for any precise depth needed.



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■ CLAMPS

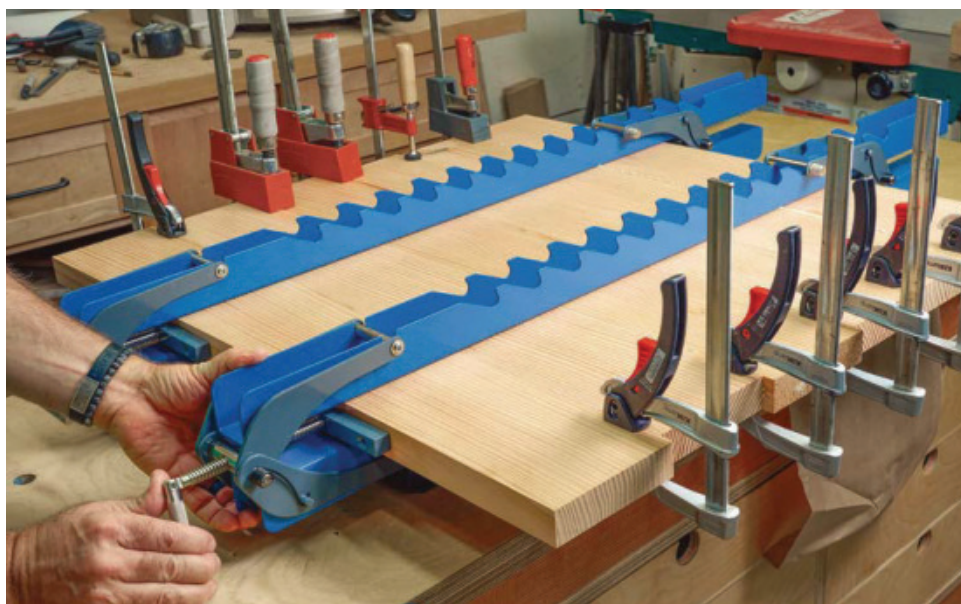
Panel clamps change the glue-up game

PANEL CLAMPS ARE DESIGNED to pull pieces flat and flush while applying pressure to edge-glued joints. I've tried a few in the past—from individual clamps to wall-mounted systems—and found that they were either too weak or unwieldy or that they consumed too much cash and wall space. So I was excited to try out Rockler's new Deluxe Panel Clamps, heavy-duty models that can be set up quickly and stored easily.

Made of thick steel plate, with U-channel construction, movable jaws, and sliding feet, they promised to sit solidly on my benchtop, adjust quickly, apply plenty of pressure, and stay flat and rigid in any situation. And that's exactly what they did. In fact, I now consider them to be the foundation of my clamp collection.

I put the new Rockler panel clamps through a variety of tough tests, on glue-ups both narrow and wide, with boards both bowed and straight. They worked beautifully in each case, pulling straight boards perfectly flush and bowed boards very close to it.

These clamps can handle glue-ups between 10 in. and 36 in. wide, and boards up to 3 in. thick. Sliding feet attach to the lower bars with magnets, letting you position them quickly for stability on any surface.



Start with a pair. Just two of these clamps will keep assemblies flat, drawing joints tight and flush so you can add bar clamps for additional pressure and F-style clamps to pinch ends flush. They work just as well on small glue-ups.

The spring-loaded jaws adjust easily, dropping into notches along the bars. And the powerful clamp handles clear the benchtop.

You set the bottom bars on your bench, adjust the feet for stability, and apply glue to and assemble the workpieces on top. Then you slide the top bars into place and tighten the handles. That pulls the joints flush and tight, at least near the clamp bars, and draws the panel dead-flat.

On small glue-ups and frame-and-panel assemblies, a pair of panel clamps will do the trick. On everything else, you can add as many of your normal bar clamps as you like to apply pressure along the full length of the joints. I usually also pinch the ends with F-style clamps to ensure they end up flush, too.

With the panel clamps as a flat foundation, glue-ups come together very quickly. There's no chance of the panel curving under clamp pressure, so all additional clamps can go on the top side. And if bowed boards are still misaligned a little, there is plenty of room to add curved cauls to bring them flush.

If you are tired of wrestling to keep bar clamps stable and piles of boards flat and flush as the clock ticks and the glue stiffens, you'll love Rockler's Deluxe Panel Clamps. I'll be using mine on almost every flat glue-up I do, from doors and door panels to cutting boards, cabinet sides, and tabletops. They aren't cheap, but they will pay for themselves many times over in time saved and frustration avoided.

—Asa Christiana is a frequent contributor to *Fine Woodworking*.



Panel clamps by Rockler
\$120 each

■ TOOL NEWS

Tools to look out for

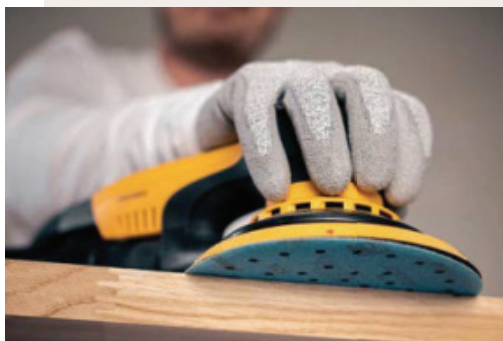
Dust adapter

Oneida's recently released Super Dust Deputy 4/5 is a cyclonic separator designed to fit nearly any 1- to 3-hp single-stage dust collector. Based on the company's original Super Dust Deputy, the 4/5 fits 4-, 5-, or 6-in. flex hose and can connect to ducting with additional adapters. It can also mount to any airtight drum or barrel.



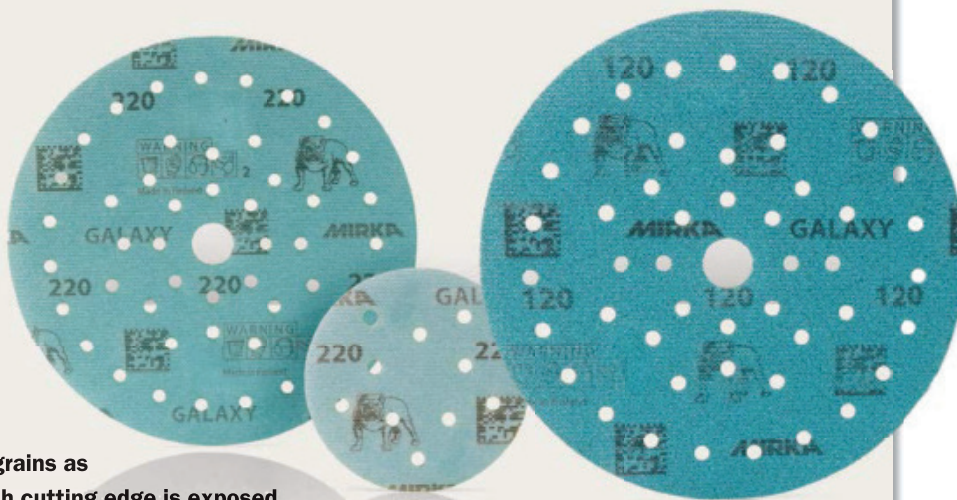
Helical head lunchbox planer

This 12½-in. benchtop planer from Oliver comes equipped with a Byrd Shelix cutterhead, which uses four-sided carbide inserts. The depth adjustment includes a digital readout. The motor is 2-hp, 15-amp, and 115V. The planer has built-in handles and a blower for chip ejection.



Ceramic sanding pads

Mirka's Galaxy sanding pads use ceramic grains as the abrasive. As the grains break off, a fresh cutting edge is exposed. The pads, which are perforated with many dust holes, also feature a clog-resistant coating to prevent dust from sticking to the abrasive.



■ ACCESSORIES

Versatile premium mallet

THE DELUXE MALLET BY HAROLD & SAXON TOOLWORKS is a high-quality tool with a good feel and great finish. This 16-oz. to 18-oz. mallet is approximately 9 in. long with a 2 $\frac{3}{4}$ -in.-dia. head at its widest and is made of dense Australian hardwoods. I have different requirements for a mallet depending on whether I'm carving wood or making furniture. I put the Harold & Saxon mallet to work in both scenarios. What I look for in a wood-carving mallet is a weighted head with a smaller overall profile. This mallet hit the mark. It performed well while setting in and roughing out a carving, and while making fine detailing cuts. For furniture making, a mallet should have good weight and medium size, and it must perform a multitude of tasks: assembling and disassembling project components, chopping joinery, and performing delicate work such as setting in inlay. The Harold & Saxon performed well in all of these aspects, and it was comfortable and allowed for good control whether I gripped it around the handle or the head. I recommend it as a great hybrid mallet for both wood carving and furniture making.

—Dan Faia is a carver, furniture maker, and instructor in Rollinsford, N.H.



Mallet by Harold & Saxon
Toolworks
\$135

■ DUST COLLECTION

Keep a cyclone close

SMALL DUST CYCLONES that connect to your shop vacuum can make life a lot cleaner. A cyclone helps keep the shop vacuum's typically small filter clean by diverting heavy sawdust and some fine particles into a separate bin, which means cleaner air and fewer messy filter-cleaning chores. Usually the big drawback is having to drag two separate units around the shop.

Mullet Tools has devised a slick single-piece cyclone/collection bin that hooks directly to a vacuum, allowing the cyclone to follow along like an obedient puppy. The two units can be quickly separated for cleaning. The Mullet cyclone bin is translucent, which makes it possible to see the sawdust level at a glance. And its 5-in. clean-out opening with a clear polycarbonate hatch makes emptying the bin quick and easy.

Setting up the Mullet with a connection customized for your specific vacuum is quick. You cut the vertical intake tube, made of rigid black PVC, at the height of your vac's inlet, and a T couples with a slip-fit adapter to attach the Mullet securely to the vac. A template is included to ensure an accurate pipe cut. If the Mullet is going to be used with vacs of different sizes, you can buy some extra PVC and make dedicated intake pipes, which are quick to change out.



Cyclone filter by M5
\$250

Wide casters and capable wheels let the Mullet move as easily as my vac. The intake elbow molded into the assembly doubles as a convenient handle to help lift the duo over hoses, cords, or scrap wood. And the same handle helps make emptying the dust bin easy.

—Roland Johnson is a contributing editor.

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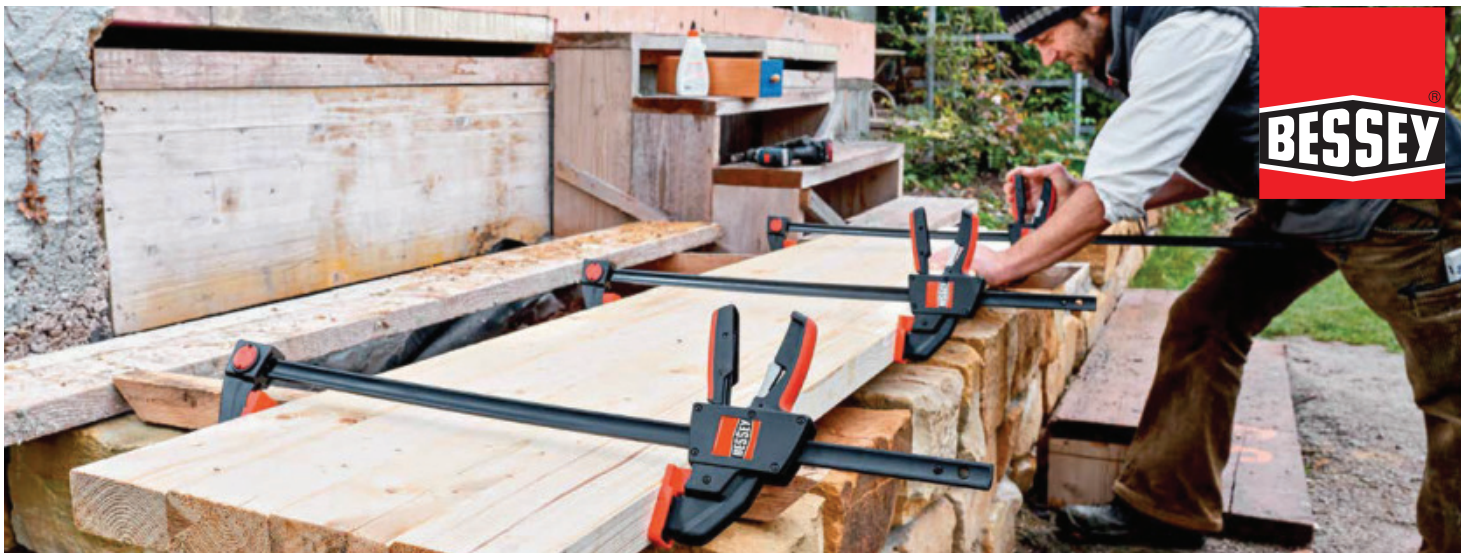
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Build a traditional frame-and-panel door

PART 1:

HAUNCHED MORTISE-AND-TENON FRAME

BY BILL PAVLAK

A frame-and-panel is a timeless solution to wood movement. Wood panels are prone to cupping and warping, but a frame mitigates this by capturing the panel in a grooved frame made from narrow stock. This construction offers the stability of the frame along with the beauty and efficiency of wide panels.

The frame has mortise-and-tenon joints, typically with the mortises on full-length stiles and the tenons on the rails. Both mortises and tenons seem so simple; one is a small rectangle of wood at the end of a board, and the other is the rectangular opening for that rectangle. Yet both can pose some serious challenges when executed by hand. It's easy to spend a lot of time fussing the joint only to have it wind up twisted, out of square, sloppy, or loose—or all of the above. Here, I will lay out tips for chopping and sawing, but I will also explain what to do before and after those steps to allow for more efficient, accurate, and controllable results.



Because making mortise-and-tenon joints by hand is complex enough, I will tackle here the frame alone. In part 2, I will address the other half of the equation: raising a panel by hand.

Mortise first

Repeatedly beating a stout chisel into a block of wood with a hefty mallet is loud and violent. To the uninitiated, it also makes little sense. How could such brutality lead to the precision required for a well-fitting joint? To address that question, I have adopted two principles for working smarter, not harder.

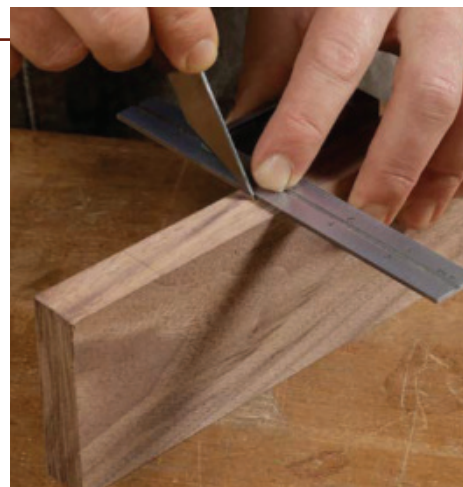
LAYOUT



Set the pins on the mortise gauge to the width of your mortise chisel. Use this setting when scribing the mortises and the tenons, as well as the panel grooves.



Scribe the stile's entire inside edge. This piece gets mortised and grooved. The scribe lines are crucial layout for the mortises. For the groove, the lines' function is to cut the edge fibers, minimizing tearout from the plow plane.



Knife the top and bottom of the mortise. Register your knife against a square, and mark these lines deeply in several passes. A deep knife wall not only is clear but also will help you register your mortise chisel.



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MORTISING



Chop a large right triangle to depth. Start close to the near end. With the bevel away from you, chop straight down. Then slightly advance and angle the chisel to chop a triangular chip. Chop the vertical cut deeper, and then remove a larger chip. Repeat till you hit full depth.



Turn the chisel around, chop, and pry. With the bevel toward you, work toward the middle of the mortise by chopping straight down and levering away from you to remove waste.



The lengthening mortise will eventually guide your chisel. The growing side walls will steer the chisel very well, speeding up the work. The final chops are on your layout lines and should be perpendicular.

First, the bottom of a mortise doesn't need to be flat. Everybody knows that, but I suspect most folks assume that means the bottom can have slight undulations and a little overcut here or there. That's what I thought until I started studying antiques. By not flat, think of the Himalayas silhouetted by the setting sun. As long as you don't leave wood behind that will prevent the joint from closing, or chisel all the way through when you don't want to, you're good.

Second, a mortise doesn't need to be perfect right off the chisel. I beat myself up over this for a long time for no reason. Chop your joint as true as possible. I trust my sense of square for 90° and then sight against a bevel gauge for everything else. I'm rarely dead-on, but I'm usually off by only a few degrees. How do I check? As my colleague Brian Weldy showed me, the answer is dummy tenons—stock that fits snugly in the mortise and reveals its trajectory.

After sighting the angle, use a wide paring chisel to tweak the offending areas of the mortise wall to get the angle right. A beginner's mistake is to chop undersize mortises and then rely on paring. If you chop mortises the correct size first—I recommend matching the width of your mortise to the width of your chisel—you will still be able to pare a little away without opening the joint too much, and you will work much faster. Remember, you'll cut your tenons to fit your mortises, so you'll have a chance to account for any extrawide mortises later.

Before running the panel groove along the stiles, scribe the joint with the mortising gauge at the same setting you used to lay out the mortises. This scores the



Dummy tenon is a smart gauge. The block, thickened to match the mortise chisel and press-fit into the mortise, lets you see if the mortise is square to the stile's edge and, if it isn't, where to adjust the mortise. This tester lets you perfect the mortise before cutting actual tenons, and avoid the risk of harming the actual tenons with multiple test assemblies.



Mortising tips



Clamping scrap stock to a thin workpiece prevents damage. Thin boards are prone to blowout during mortising. Clamping stock to both sides fools them into thinking they're thicker and therefore better supported to endure chopping's forceful blows.



Drill before chopping and paring when a mortise is over ½ in. wide. Removing this much waste with a chisel and mallet alone is incredibly strenuous; drilling out much of the waste saves energy. For anything ½ in. and under, Pavlak prefers simply chopping with a mortise chisel. He finds it easier and more accurate at this scale than drilling by hand first.

fibers to limit tearout from the plow plane. I repeat this step on the rails for the same reason. However, I mortise before grooving to maintain my mortise's layout lines. Plus, an unsquare groove would tip my chisel off 90°.

Size the tenon to the mortise

For tenons, I've learned to work systematically to make sure they fit tight and square to their mortises.

When you're working by hand, there is no need to square the ends of your tenon stock. If the bottoms of mortises don't need to be flat, then the ends of tenons don't need to be square. Save your time. Simply get your shoulder-to-shoulder measurements right, and leave enough wood beyond for a suitably sized tenon. At layout, use a square and a marking knife to mark the shoulder rather than a gauge registered off the end.

A quick note about tenons on chairs and aprons: Often, period versions were not shouldered on the bottom edge. This spares work but leaves the area exposed. Usually the area winds up out of sight, so I omit this shoulder, too. If I want a cleaner look, I add a little shoulder, maybe ⅛ in.

When cutting a tenon, I use this order of operations: (1) saw the cheeks, (2) saw the shoulders, (3) pare the shoulders, (4) pare the cheeks, and (5) cut the tenon to width. I used to do all of the sawing at once, but keeping the tenon the full width of your stock as long as possible has some serious benefits. Sawing to width early removes any remnants of your layout lines, and that puts a lot of guesswork into paring. These lines describe the relationship of your tenon to your stock's reference surface; that's a crucial relationship, so keep it visible as long as you can. The extra width also maximizes the bearing surface for your chisels and planes to ride as you pare.

GROOVES



Fit the plow plane's iron in the mortise to set the plane's fence. You want the groove to be in line with the mortise. It's worth finding a plane iron that's the same width as the mortise.



Plow a through-groove. When you're working by hand, a through-groove is far more convenient than a stopped one. A haunch on the rail is easy to form and will fill the short length of groove beyond the mortise.

TENONS

Scribe the tenon shoulders and cheeks. Lay the shoulders out using a reference edge and face rather than the end of the stock. Then, with the same marking gauge setting used when mortising, scribe the tenon thickness.



Saw the cheeks, then the shoulders. When sawing tenons, get close to your lines. Leaving a little waste to pare away later can be a good idea. Pavlak aims to leave his gauge line and about $\frac{1}{32}$ in. more.



When you pare, think of the tenon as a tiny board that you must check for cup, bow, and twist. For 90° tenons, verify that their faces are parallel to the board's faces, too, or at least its reference face. Check the entirety of each shoulder for square, since any bump can keep the joint from closing and throw it out of alignment.

The second phase of checking your work is the one that arises when you first test-fit the joint. The back and forth of this phase is what gives a lot of woodworkers the most trouble. By following the aforementioned checks while creating the tenon, you should find this second phase far easier—but there are a few matters to keep in mind.

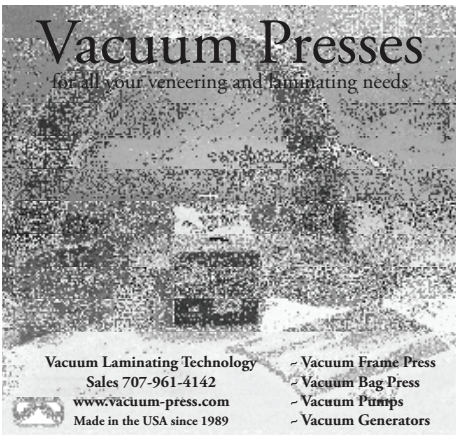
When you start sliding a tenon into its mortise, look for two things: a snug fit and a square entry. You want a tenon that requires a good amount of hand pressure



Pare the shoulders. To create a clean, square shoulder, register a wide chisel in your line and pare down. As you advance across the shoulder, engage only half of the chisel in cutting; use the other half to ride against the last cut you made.

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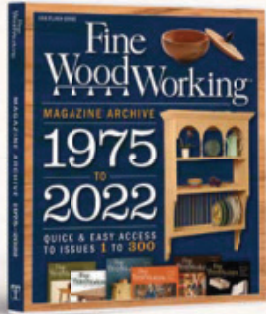
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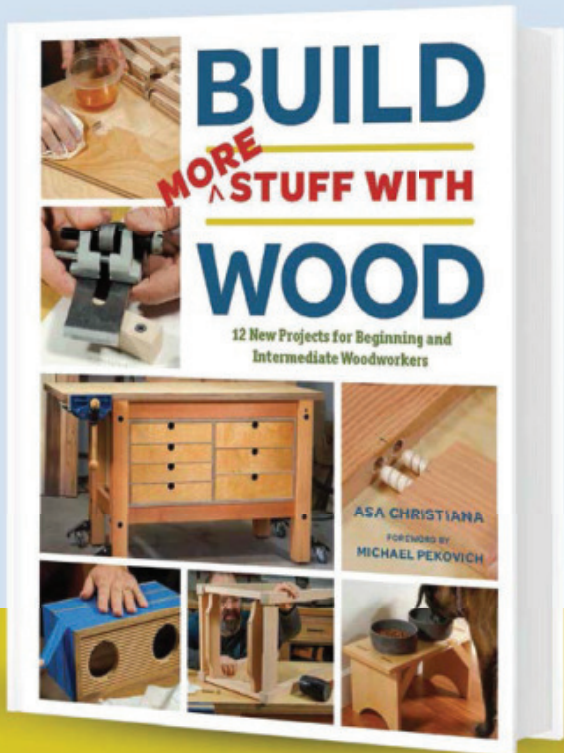
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FIT THE TENONS

Refine the cheeks to thickness. Use the layout lines to guide your work as you pare carefully across the grain. Again, use previous cuts to register subsequent ones.



Save the shoulder plane for wide tenons. For the shoulders and cheeks of larger tenons and breadboard ends, a shoulder plane is a godsend. On smaller tenons, however, it sometimes creates more problems than it solves because of the decreased reference surface and the potential of blowing out a shoulder.

Check the tenon's accuracy with a small straightedge. Move a small straightedge along the cheek to look for high spots. To look for twist, use the straightedge like a winding stick and sight it against the top of the shoulder. Finally, use the straightedge to ensure that the tenon's cheeks are parallel with the board's faces. If you milled the stock by hand and your nonreference face is unreliable, use the reference face to sight both cheeks.



A fix for thin tenons



Patch a too-thin tenon with a thick shim, then recut. Sometimes for a tenon it's death by a thousand cuts; it's been pared and adjusted so much that it becomes too loose. To fix it, glue on a flat, oversize block and recut it. This works better than trying to glue on a thin veneer.

CUT THE HAUNCH

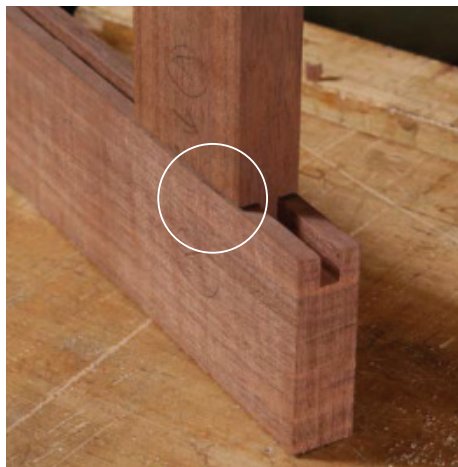
Rip the tenon to width, and cut the haunch. Keeping the tenons wide till now has distinct advantages. For one, it maintains the mortise gauge's critical layout lines, which help direct paring. The extra width also creates a better bearing surface for chisels and planes to ride as you pare.



with the shoulders themselves—either that they are not square or that one protrudes further than the other—square them by knifing a new shoulder line about $\frac{1}{32}$ in. away from the current shoulder, and then pare with a chisel or shoulder plane. In these situations, a new line is far superior to guessing by removing a little wood here or there.

Little discrepancies often reveal themselves when you fit the whole frame. Before gluing, check the assembly for square, twist, and coplanarity. Repeat with clamping pressure. Repeat the above steps to remedy any slight problems that might still be present.

Bill Pavlak is the supervisor at the Anthony Hay Cabinet Shop at Colonial Williamsburg in Virginia.



Leave the haunch long at first before paring to a perfect fit. The gap where the haunch bottoms out is the amount you need to pare back the haunch.

to fit. It shouldn't just drop in (or out), and you shouldn't have to beat it in with a mallet, although a few light hammer blows are acceptable. When I can fit a tenon at least a third of the way into the mortise, I check for square like I did with the dummy tenon. This tells me where I should pare the too-tight tenon.

If the shoulders don't close, look for debris in the mortise or along the shoulder, sloping walls in the mortise, or a too-long tenon. Confirm that the shoulder is 90°. A slightly angled mortise or tenon will keep a shoulder from closing. To fix this, pare a little off the lower half of the mortise wall opposite the gap. A light shaving or two should correct the problem without loosening the joint. In the rare cases when this fails to solve the problem, double-check the squareness of the mortised edge and plane accordingly. If you determine there is a problem



Plow the groove. Reference the fence off the same face as when you grooved the stiles, ensuring that the grooves will line up around the frame.

Turning out of context

BY ANDREW FINNIGAN

Developing work is absolutely my favorite aspect of building handmade furniture for a living. For me, it's not a rigid process that starts with paper and pencil and ends with the first version of a piece; instead, it's a destination for daydreaming, something and somewhere to go to work through ideas. It pushes me to learn and practice and explore and experiment. It doesn't require words or language, just the pursuit of applying an idea to wood and stepping back to see how close I came to what was in my head.

My work is filled with highs and lows, successes and failures,

pretty little sanded and finished scale models as well as broken spindles, frustration, confusion, and annoyance. What it all has in common, the good and bad, is that it's all-consuming. It's pure problem-solving, a rare space for me where complete attention, observation, and imagination converge easily and naturally.



THE POMMEL CUT EXPLORED

We're likely all familiar with how a large group of turnings that incorporate the pommel cut appear; most any staircase with turned spindles would be a fine example. Some even contain pommel variations within their patterns. But how does a group of pommel cuts present in closer proximity? How can this detail be used outside its usual context? How can different arrangements and positions of this one little detail lead to wildly different designs? What can be accomplished through careful and simple repetition of this single feature? This table affords me that ongoing conversation; the design is a rough template, and each iteration of the table is slightly different depending on my answers.



The Pommel Table. This concept comes from the pommel cut, a turner's simple bread-and-butter transition from square stock to a turned portion of wood. This one transition can lend itself to a lot of design liberty.



The Budding Table.

Cutoffs and waste pieces from the lathe that had piled up in the burn bin over the years began to interact interestingly when Finnigan stared at them long enough. Eventually, he took those musings to a finished design.



A STUDY IN SHAPE AND RELATIONSHIP

Designing this table was a way for me to more formally study the interactions of disks and to challenge myself mentally. I fitted disks of various sizes into one another, the interactions between them technically the same—always an arch of one circle cutting through at least one other. The interest for me in this design was in how the details came together in a group. The nuances of their interactions can be exploited through playing with scale and position to create an entire piece. The design allows for endless variation, and depending on the arrangement, each version can tell a different story.

THE POMMEL EVOLUTION

I wanted to see if I could expand the Pommel Table geometrically, not limiting myself to a square or rectangular form. After many sketches, models, and mock-ups, I was left with an array of unsatisfactory results. I couldn't manage to merge rectangular components with hard-edged pommel cut lines with other, softer-edged shapes naturally. The details competed for attention, resulting in a design that didn't seem to know what it wanted to be.



The Colonnade

Table. This design was born of the desire to further explore and push the general approach of the Pommel Table.

After much head scratching and tribulation, it became obvious to me that the solution was to further reduce and focus. The rectangular stock, the pommel cuts, the straight hard lines, and the chamfered edges on the top were all unnecessary within a cylindrical space. I found that I could accomplish what I was going for by losing the pommels entirely and simply modifying the length of the cylinders, terminating them with half-rounds at various heights. The result is a cascading series of tiered columns.

A FRESH FOOT LEADS THE WAY

The Bourrée Series, named for a ballet step, began as a search for a soft-edged design that would work well with various color treatments and surface textures. As I worked through the concept and built models, the results kept boring me. Cigar-shape legs felt too bulky and cumbersome, as did cylinders. Tapered legs led to a visual lightness that didn't support the top. So I began to veer from these initial simple shapes to a turning experiment that created a very rough "heel" shape. Focusing on that heel, refining the turning technique and hand-tool work, led to the development of what would become the piece's ballet-style foot.



The Bourrée Tables. Time spent developing the shapes, curves, and lines of the foot helped to inform the style of the rest of the leg, which in turn led to the edge profile of the top and the piece's overall sense of motion and animation.

A meandering path

I find the particulars of designing and making new work to be a moving target. Rarely, a well-formed idea will present itself. Quick sketches will lead to a plan, a plan to a prototype, and a prototype to a finished product and debut.

More often, however, the process is much less linear. I'll struggle to work through mock-ups and scale models to get closer to something I had pictured in my mind, only to find that I've fallen short, simply don't like the piece, or that my pursuit is off-course.

One consistency I've managed to find in all of this has been designing from details. Much of my work and aesthetic originates from tiny features and their minutiae. Focusing on them allows me to work aesthetically from the micro to the macro.

When I lose myself in circular thought, when I don't know where to begin, when I've hit a wall, the answer is usually to chase after whatever it is that makes the little burnished facet left from a sharp knife so inviting, to wonder what about a piece makes it seem to float above the floor, or to see how far I can take the hexagon. □

Andrew Finnigan designs and builds furniture in Stone Ridge, N.Y.

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Hanging Shelf with



Pegboard

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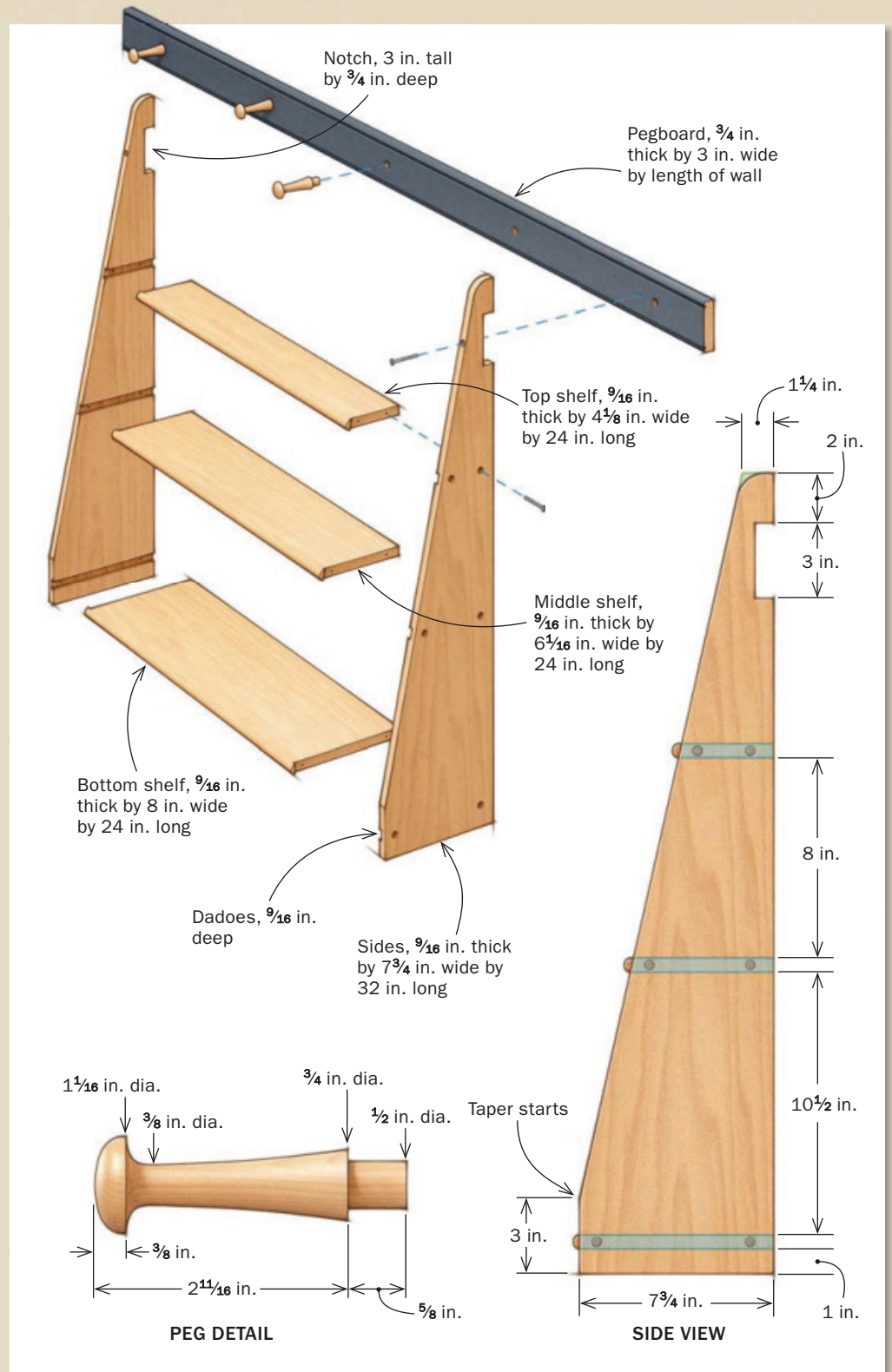
BY CHRISTIAN BECKSVOORT

The Shakers made a variety of shelves, including hanging shelves. These are seldom shown in the literature. However, they make a very useful and interesting project, offering a range of options as to size, materials, methods of attaching the horizontal shelves to the sides, and even how to hang them. This shelf is not an exact copy of a Shaker original; rather, it's a composite of several styles. You can use your wood of choice and adjust the sizes to suit your needs.

My shelf is relatively small; consequently, I mill my stock to $\frac{9}{16}$ in. thick instead of a typical $\frac{3}{4}$ in. It's worth mentioning that the shelves are about $\frac{1}{4}$ in. deeper than the sides are wide, since they have a profiled front edge that extends across the front of the sides. That's not necessary, but I think it's a nice design feature.

Start on the sides

It is much easier to cut the dadoes before you taper the sides. Cut the dadoes on the tablesaw with a dado blade, then tackle the tapers on both sides at the same time. Tape the two sides together, with the dadoes facing each other, and cut the taper on the bandsaw. Clean the saw cut with a block plane, and refine the curve at the top with a file, sandpaper, or spokeshave. Cut a notch into the



Get your side work done

The tapered sides set the stage for the graduated shelves and the hanging mechanism.



Dadoes first. Before tapering the sides, cut three dadoes per side. Becksvoort uses a miter gauge and the fence with a dado blade.

Shape and notch. Tape both side pieces together, inside faces in. This allows you to bandsaw the taper and round the top of the sides as well as cut the notches on both sides at the same time.



Refine the shape. Smooth the bandsaw cuts using whatever method you prefer: a block plane, file, or sandpaper.



Pilot holes. Before moving on to the shelves, go to the drill press and drill two small holes per dado in the sides. Later, when you attach the shelves, you'll know exactly where to screw and plug through the sides.

back of the sides if you plan to hang the shelf from a pegboard.

Round out the shelves

Next, round the front edge of the shelves with a router or block plane. The profile is not quite half-round, but more of a shallow bullnose. Then notch the ends of the shelves so the profiled front edge overlaps the sides.

Because the taper on the sides begins a few inches above the bottom shelf, the bottom shelf has a 90° notch, but the upper two shelves get notched at an angle. Mark all the notches directly off the sides. Slide the shelves into their dados so that $\frac{1}{4}$ in. protrudes in the front, and mark the angle of the side taper on the edge of the shelves. On the tablesaw (or handsaw if you're so inclined), cut $\frac{7}{16}$ in. off both ends, to within



Beyond a basic shelf

The three shelves, each a different depth, are rounded on the front edge and notched at the ends.

Accommodate the taper. Because the sides are tapered, you must angle the notches in the top two shelves to match the taper. After rounding the front edge of the shelves, either at the router table or by hand with a block plane, set each shelf in its dado and trace the side piece to mark the angle on the shelf (above).



Tablesaw first. Use the tablesaw to cut most of the notch. Then use a pencil (right) to extend the tablesawn notch line to the angle line.



Finish the notch by hand. Two handsaw cuts, one an angled rip and one a 90° crosscut (using the tablesaw cut as a guide), will give you the final notch. You can clean up those cuts with a chisel.



$\frac{1}{4}$ in. of the front. Cut the marked angle with a hand-saw, and clean the intersection of the two cuts with a chisel. Repeat on both ends of all three shelves. Slide the shelves into position, making sure that the back edges are all flush with the sides.

Bring the shelves and sides together

The original Shaker shelves were nailed; mine are glued, screwed, and plugged. With screws and plugs, you can opt for either face-grain plugs of the same wood, or end grain of a different wood. I usually just put a tiny dab of glue at the front overhang of the shelves. Glue in the dado works, too. The screws do most of the holding, so any glue is merely a good backup; just be sure that there is no squeeze-out.

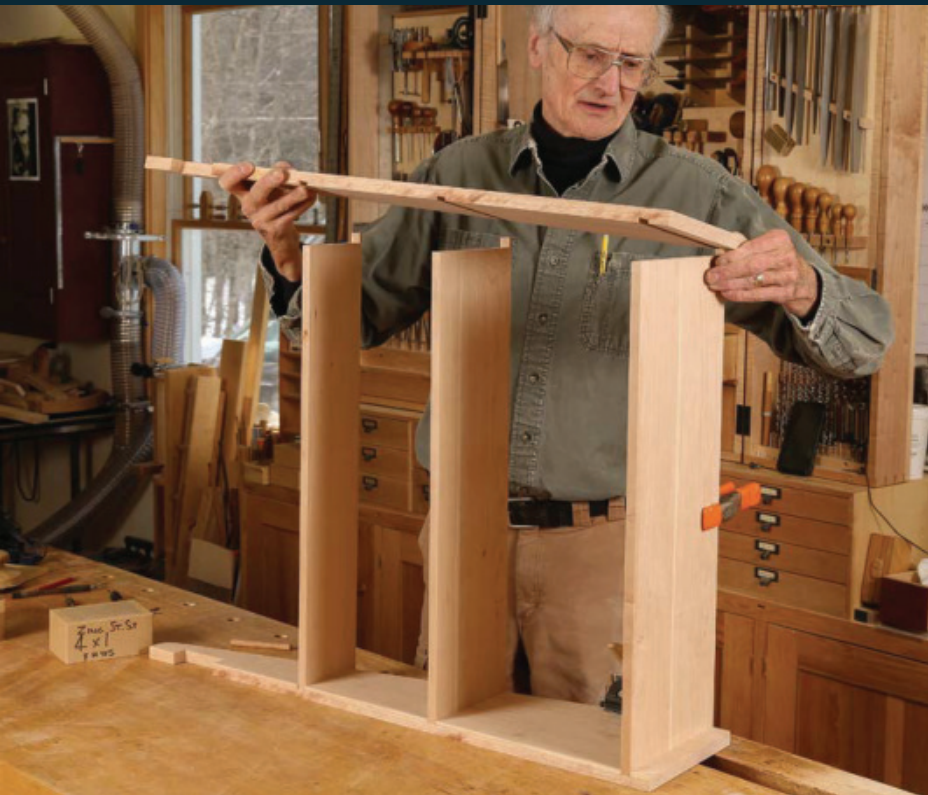
Sand the sides to clean them up whether you're using plugs, filled nail holes, or dowels. Complete them with the finish of your choice. I use an oil finish.

Pegboard aesthetics

Traditionally, Shaker pegboards doubled as an architectural feature, as part of the trim, and were run along the full length of the wall and around the entire room.

Assembly required

Becksvoort attaches the shelves to the sides using glue, screws, and plugs.



Keep things square. With one side on your work surface, set the shelves in their respective dadoes. Clamp a square to one side and the bottom shelf. Add the second side to the assembly.



Glue and screws. Using the small holes for location, drill pilot and clearance holes for the screws, and counterbores for the plugs. Glue and screw the side to the shelves.

To make them more attractive, a small bead was often cut into the top and bottom edges of the boards. They were painted, and often the pegs were painted as well. I much prefer a painted pegboard with natural pegs. The contrast is stunning, especially on white walls. If you turn your own pegs on the lathe, you can save a lot of anguish by cutting the tenons with a 1/2-in. tenon cutter or plug cutter on the drill press while the peg blanks are still square. I have turned many a peg in my day.

That said, ready-made pegs are available in a variety of shapes and sizes at most wood-supply outlets. I am not against efficiency and will also buy ready-made pegs when the sizes and shapes work for a project. In my opinion, the nicest ones are made by Nice Knobs. Here I'm using the Ashfield Peg from niceknobs.com, available in maple, cherry, and walnut.

Hanging the board and shelf

Originally, most Shaker pegboards were attached directly to wall lath or studs prior to plastering and were flush with the plastered wall. That is seldom an option today, so they are applied over drywall, as I did here. Most often, pegboards are nailed onto the



Add plugs. Once the entire assembly is screwed together, glue in plugs to cover the screws, and then trim the plugs flush to the case side with a handsaw.



Pegboard possibilities

Profiles, color options, and peg design all work together to create the pegboard allure and utility of the Shaker style.



Just the board. A $\frac{3}{4}$ -in.-thick by 3-in.-wide board is how it all begins. The length is dictated by the wall the board will be mounted on. At the router table, Becksvoort uses a beading bit to create profiles at the top and bottom along the length of the board.



Holes in the board. At the drill press, bore mortises to accept the pegs.



Pegged. While Becksvoort has turned hundreds of pegs, he sometimes purchases them. These are from niceknobs.com (item no. PG338MP). Becksvoort chucks them in the drill press to sand them with 220-grit paper. Then he glues and clamps them in place on the board.



Pegboard profiles



Eased edges. For a very plain aesthetic, just ease the edges of the board with a block plane.

Bead with a roundover. A beading bit, run along the top and bottom of the board, gives a delicate roundover into a bead.

One bit, two looks. The $\frac{1}{2}$ -in. roundover bit can create just a roundover (above left), or—if set to take a deeper cut—it can produce a roundover with a fillet.

drywall and into the studs. They also can be screwed and plugged.

I've seen several methods the Shakers used to hang wall shelves from pegboards. The simplest way was to drill a hole near the top of each upright, make loops out of string, and then hang the loops over the pegs. Another option the Shakers used was to cut notches at the very top back edge of the uprights (so the tops of the uprights were flush with the top of the pegboard), and screw or nail the uprights to the pegboard. A slight change to this method is to cut the notch a few inches below the top of the uprights so that the uprights extend above the pegboard. With this arrangement, the notch takes the weight of the shelf, but it must still be secured with screws. □

Christian Becksvoort is a longtime contributing editor who makes furniture in New Gloucester, Maine.

Modern installation

Affix the board on top of the drywall.



Seek level. After finding the studs and marking them with blue tape on the wall, level the pegboard. Then nail it in place.



Attach the shelf. Set the shelf in place on the pegboard, use an awl to mark its location, drill, and then screw the shelf into place on the pegboard.



The Bandsaw Is a Ripping

Strategies for safe, straight cuts in solid stock

BY TONY O'MALLEY

Bandsaws come with a fence for a reason: They aren't just for curves and rough cuts. Indeed, they can make quality, accurate rips as well. Provided you have a good saw that's set up and equipped with the right blade, you can stick with this safe, efficient machine from stock breakdown to near finish cuts. The only limit is your bandsaw's rip capacity. Because bandsaw tables are small, infeed and outfeed supports are helpful.

While I'd never give up my tablesaw, the bandsaw is the better way to go for ripping solid wood in my shop. For one, it is

quieter and much safer. You will never experience kickback on one. It also wastes less wood because its kerf is about half that of a tablesaw's. And last, I find that working at a bandsaw is just more comfortable.

Rip wide to give the wood room to move

I work with kiln-dried, roughsawn lumber from one of several trusted local mills. Even though the wood has been dried well, I still anticipate some movement when I rip boards into narrower pieces. This is where the bandsaw's safety advantage shines the most, because there's no possibility of kickback when tension in the wood is relieved and the wood binds against the blade. You can always just keep pushing the workpiece through the cut.

To begin, I joint one edge of a rough board, then set the fence on the bandsaw and rip my pieces $\frac{1}{8}$ in. to $\frac{1}{4}$ in. over their final width. If the edge is very irregular, like a natural edge, I first mark a straight line and bandsaw to the line before jointing that edge.



Machine

The longer the part, the more extra width I leave in case the part develops crook—a curve along the edge—which is common. There's no need to joint between rips at this stage.

I then give the rough-ripped parts a day to settle before continuing to mill them. I stack the pieces on edge with space between to allow air to circulate.

Once the wood has acclimated, I continue milling it to final size. I start by jointing a face. If there is any bow, I joint the concave face for safety and practicality, then plane to final thickness. Next, I joint one edge, again choosing any concave edge. With both faces planed, I can edge-joint with either face against the jointer's fence.

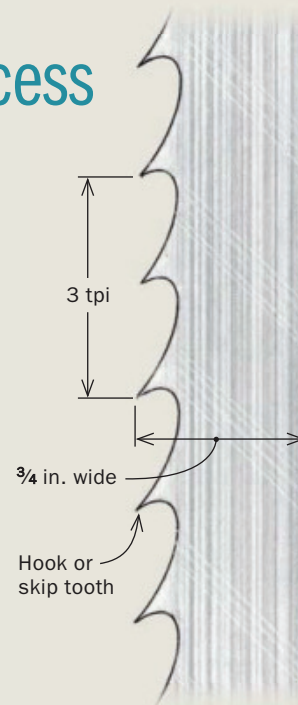
Second rip is just shy of final width

At this stage, people often turn to the tablesaw and rip the board to width. I stick with the bandsaw, but with an assist from the planer—or if need be, the jointer—in the next step. The bandsaw's benefits still stand for this end-stage ripping, but the bandsawn

Set up for success

Blade

A $\frac{3}{4}$ -in.-wide blade is perfect for ripping lumber to width. I use one even though my saw will accept blades up to $1\frac{1}{4}$ in. If you frequently alternate between rips and curved cuts, a $\frac{1}{2}$ -in. blade is a good compromise. Regardless, you want an aggressive tooth profile, the best being hook tooth and skip tooth. And fewer teeth, like 3 tpi, are better than more. Both the profile and smaller tooth count prevent the blade from bogging down under load.



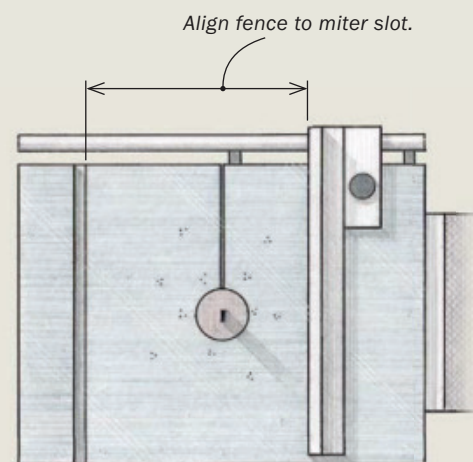
Tension

I've had my saw for over 15 years, but early on I wasn't tightening the blade sufficiently. This can let the blade wander during the cut and lead to more friction between the blade and guides. Friction causes heat, which can break blades prematurely. Now I tighten the blade fully and adjust the guides carefully to minimize friction.



Alignment

For a quality cut, you need the blade to track correctly. Because the fence is critical for straight rips, I ensure its alignment with the blade by aligning it with the miter slot at the front and back of the table. To control drift, I feed slowly to avoid sending the blade off course.



RIP WIDE, THEN WAIT

Joint a reference edge before ripping wide.

Joint an edge of a roughsawn board (right), and then rip it into pieces $\frac{1}{8}$ in. to $\frac{1}{4}$ in. wider than their final dimension (below). The longer the part, the more extra width you should leave in case the part develops crook when ripping.



Let the boards acclimate. The rough rips release stress in the wood, causing workpieces to move. To let them work out this movement, O'Malley lays the parts on edge with space between them. He comes back the next day to continue milling.



edge will need cleanup and refining. So I rip my finished parts $\frac{1}{16}$ in. to $\frac{1}{8}$ in. wider than final width, again depending on the part's length. If I'm ripping thinner strips from a wider board, I rejoin a reference edge between passes. The result is multiple pieces of the same width, with one edge jointed and the other edge bandsawn.

Plane (or joint) to width

This may sound surprising, but I run my parts through the planer on edge to size them to final width. It works great provided there's enough bearing surface on the tables. For thinner parts of the same width, I group multiples and pass them through the planer together, letting them act like one thick workpiece. For example, I would never try to run a single $\frac{3}{4}$ -in.-thick by 3-in.-wide piece on edge through the planer. The piece is too likely to tip, and the planed edge probably won't come out square. But if I gang four pieces of the same width and hold them together as one larger block, they will stay vertical and their edges will be square. For longer stock, I set up infeed and outfeed roller stands to support the work.

When I need just one part or when the piece is too wide to plane on edge, I rip it on the bandsaw $\frac{1}{16}$ in. wide and then joint

JOINT AND PLANE

Joint a face, and then plane. If a workpiece has any bow, joint it with the concave face down. Then use the planer to thickness the board and bring the opposite face parallel.



BRING TO FINAL WIDTH



Square an edge to a face. After the rough rip, the board is likely to have crook. If it does, place the concave edge against the table for better stability. This jointed edge will go against your bandsaw fence when ripping.

Rip a touch wide.

O'Malley rips his finished parts $\frac{1}{16}$ in. or more over width, going wider as the parts get longer. If he's ripping multiple narrow strips from a board, he joints the board's bandsawn edge between passes.



the final edge. Be aware of your jointer's depth of cut; don't go past your desired dimension.

Jointing the edge may be another surprise. Returning to the jointer goes against common milling practice, but I think we should reconsider. For one, whether you rip with a bandsaw or tablesaw, that edge will have machine marks that need to be cleaned up. Some people do this with a handplane, but I argue that my jointer works just as well and is quicker. Plus, when are perfectly parallel edges crucial? Not with boards glued up for a tabletop, since you'll bring the whole top to dimension, including making its outer, unglued edges parallel after gluing. Perhaps perfectly parallel edges are important for a floating raised panel in a larger door, but I believe that less than perfect is fine. Because floating panels need room to move, there is also room for slight variation in the width from one end to the other. While there is always the ideal to strive for, there is also acceptable reality. □

Tony O'Malley makes custom cabinetry in Emmaus, Pa.



Plane parts to final width. To stabilize narrow parts of the same width, hold them together so they act like a single block of wood. Hold them tightly as they come out the outfeed side, too.

ON WIDE BOARDS, JOINT A SECOND EDGE



Rip slightly wide before cleaning up the bandsawn edge at the jointer. If a board's too wide to be planed to width, simply rejoin the ripped (and rough) edge. Just watch your jointer's depth of cut to make sure you don't go past your desired dimension.





Easy, Reliable Router Table

This router table was born because I was sick of devising ad hoc ways of securing my compact router upside down when I wanted to do some quick roundovers on small pieces. A big router table isn't part of my workflow, but I became sold on the benefits of a small one without all the fancy bells and whistles. So I designed this one, which requires a small amount of materials and doesn't take much time to build. Although

A versatile and effective design that won't rob you of time or materials

BY LARISSA HUFF

I made it for my compact router, it will also suit midsize models.

I designed this router table so the sides are solid but the front and back are open. The lower stretchers provide an easy way to clamp the table to a work surface. The open area is sized so I can easily change the bit height or remove the motor from the base; if you'll use a different router than the one I use, measure yours and adjust the dimensions. Similarly, if you

BASE

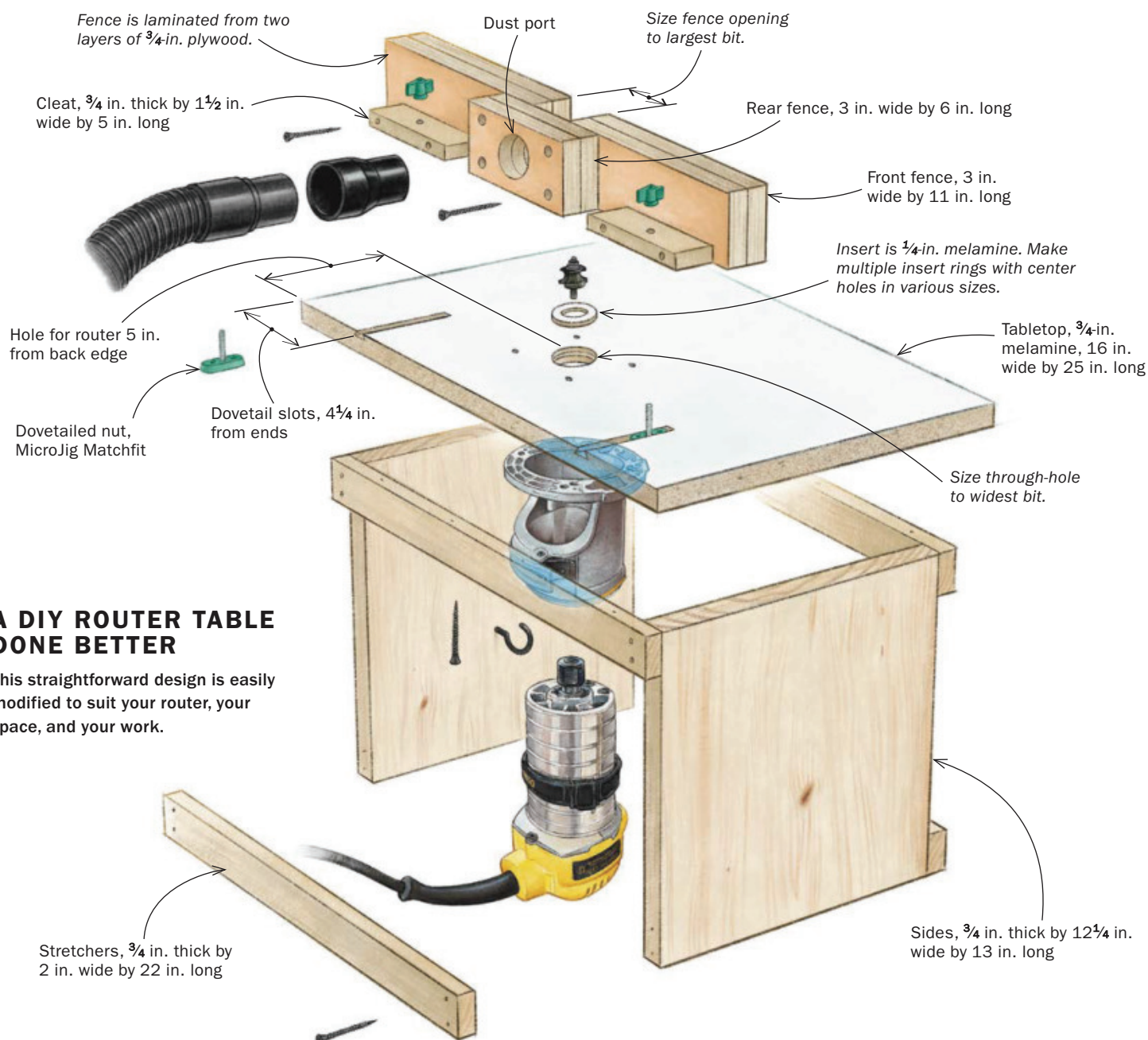
Simple open base



Use the stretcher's predrilled holes to mark the side, then drill. Locate these holes in the stretchers so they fall in the center of the side's thickness. The upper stretchers should also be drilled now for screws that will secure the top later.



Assemble the base. Having the sides predrilled makes it easy to align the stretchers and lightly hold them in place while you drive screws. As you assemble, make sure the stretchers are flush with the top and bottom ends of the sides.



A DIY ROUTER TABLE DONE BETTER

This straightforward design is easily modified to suit your router, your space, and your work.



Use the router's fixed base to mark the top for mounting screws. Huff places the center of the base roughly one-third the distance from the back edge of the top and centered along the length. If possible, orient the router so the on/off switch faces the front and the power cord goes out the back. If your router's mounting holes are asymmetrically arrayed, mark them on the top's bottom face, then transfer those locations to the top by drilling small through-holes.



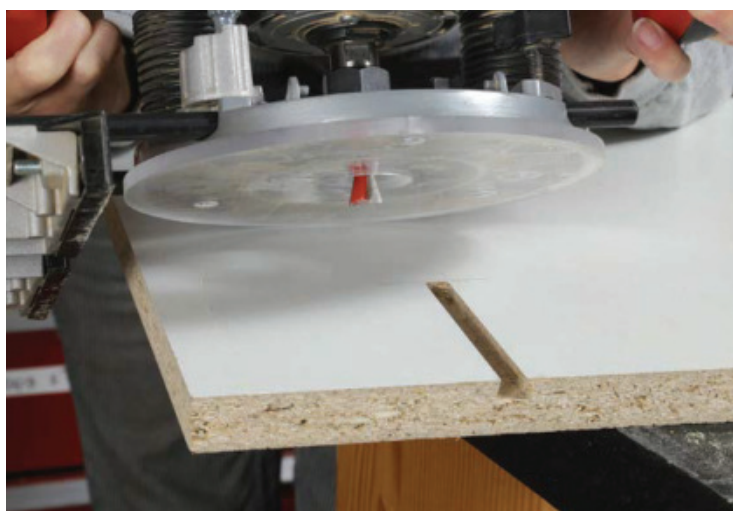
Drill holes and counterbores for the mounting screws. Drill counterbores deep enough that the screw heads sit below the tabletop. With a twist bit, finish with through-holes, using the dimple left by the Forstner bit to line up your bit.



Use a straight bit and fence to remove most of the waste for the dovetail slots. Clearing most of the waste with a straight bit minimizes wear on your dovetail bit and router motor. Huff routs both slots by pushing forward and with the fence to her right, using the bit's rotation to help keep the fence tight to the board. This requires plunging in at the start of one slot.



Dovetail slot fits Matchfit hardware. Another reason to excavate the waste with a straight bit is to make the dovetail cuts easier to control. In one of the cuts (shown at right) you'll be routing with the bit's rotation, which will encourage the bit to wander. You minimize this risk by minimizing the material to remove.



tend to work with larger workpieces or sled-style jigs, you may want to increase the size of the top or the width of the stretchers. Part of the beauty of this design is its adaptability. All the parts go together quickly with screws.

I recommend making the top from melamine for friction-free routing. Plus, its white surface clearly shows pencil lines, which are also easily erased. Just be sure to ease the edges to reduce the risk of those horrible melamine cuts and splinters.

An upgraded top

Although the top could be just a board with a hole drilled in it for the bit and a clamped-on fence, I improved mine with removable inserts for the bit opening and special hardware for a sliding fence.

Begin by locating the router base. I trace the base's mounting holes onto the top before counterboring and drilling for the screws. If your base's hole pattern is symmetrical, you can mark these locations on the top face of the tabletop. If the pattern's not symmetrical, mark the bottom face (since that's where you'll mount the router), then drill small through-holes from the bottom to the top. Use these holes to locate your Forstner bit as you counterbore for the screws.

The next step is to create the opening for the bit. Before drilling a through-hole big enough to fit your largest bit, drill a large counterbore to accept the ring-shaped

Drill stepped holes for your inserts and biggest bit. First, drill a counterbore so the inserts sit precisely flush with the top. Then drill a through-hole to fit your biggest bit. Center these holes within the router base area.



Create the blanks for the inserts. This is ideally done with a hole saw or fly cutter, but cutting at the bandsaw and sanding to fit works in a pinch. Huff uses $\frac{3}{4}$ -in. melamine for insert stock.



Drill out the middle of the insert blanks to suit your router bits. Use the hole from the previous step to center the drill bit. These blanks are small, so Huff uses a hand screw to hold them both securely and safely.



Inserts must fit snugly and flush. If the inserts are undersize, they'll dangerously move around during a cut. If they sit above or below the table's surface, they'll interfere with the cut.

Screw the base to the top. With the top and base done, it's time to secure them together. Four screws in each upper stretcher keep the top tight to the base and ensure a rigid structure.



FENCE

Stout split fence



Cut the laminated fence blank into sections. Make three sections for a split fence, two longer ones for the bearing surface, and a shorter one for dust collection and bit clearance.

Assemble the fence so the bottom edge is flush. While gluing and screwing the short section to the longer ones, Huff presses all three tight to a flat surface, ensuring the assembly remains true along its bottom edge.



Add cleats with Matchfit hardware. To work properly, the cleats must be positioned accurately. To locate one, install the dovetailed nut, insert it in the slot, and press the cleat to the fence. Mark the screw locations with an awl. Then drill the fence and mount the cleat.



Drill the short section for dust collection. Choose a bit that allows for a snug fit with your vacuum hose or hose adapter. Place the hole high enough from the bottom edge that the hose or adapter doesn't catch on the router table's top.

inserts. The inserts shrink the opening when you're using smaller bits, improving both safety and usability. I make the counterbore's diameter $\frac{1}{4}$ in. larger than the through-hole will be. Since the inserts need to be flush with the top, drill the counterbore precisely to the thickness of your insert stock. Be finicky here. Then cut the through-hole.

For the inserts themselves, I create disks using $\frac{1}{4}$ -in. melamine or MDF. You want them to fit snugly. Once they fit, drill holes through their centers sized to suit your collection of router bits.

I used to just clamp the fence to the top, but I've upgraded to MicroJig's Matchfit hardware. It works similarly to T-track, but instead of track, it uses dovetail slots you rout into the top and dovetail-shaped

USING

Setting up and using



All router adjustments are done under the table. Changing bits requires removing the motor from the base, which stays fixed to the table. Changing the bit height is done via the router's onboard height adjustment.



Pick the right insert. The insert closes up the space around the bit, increasing the table's bearing surface and, more importantly, your safety, since stock could tip into this otherwise large opening.



Clamp the table to your bench. Clamps keep the table from scooting around while you're routing. The open base with lower stretchers on the front and back allows for options when securing the table.



Don't skip the dust collection. The dust port is an easy addition that will keep particulate out of your lungs, eyes, and shop.

nuts that slide in the slots. The depth of the slots must be precise, so home in on your cut in a scrap before routing the top.

Laminated fence with dust collection

The fence is simple but considered. To start, I laminate two long pieces of $\frac{3}{4}$ -in. plywood, which I prefer because solid wood can warp. Laminating them makes the fence beefier and gives it more reference surface on the bottom, helping it stay square to the tabletop. The fence's bottom edge needs to be straight and square.

After the glue dries, crosscut the laminated blank into two long pieces and a short one. Screw the short piece to the

longer pieces to create the break in the fence for router bits. Use your widest bit to determine that opening.

The cleats for the Matchfit hardware need to line up exactly with the slots on the table. To ensure that they do, first clamp the fence to the table. Install the hardware in the cleats, insert the dovetail nuts in their slots, and slide the cleats up the fence. Then mark their locations on the fence.

As a final step, I wax the fence's front face so workpieces slide smoothly. Then I rout away. □

Larissa Huff is a woodworker and teacher based in Philadelphia, Pa.



Add a hook for cable management. This keeps the power cord tidy and out of the way when you store your router in the table.

Classy Coffee Table



Adaptable design opens up
elegance no matter your
skill level

BY CHARLIE DURFEE

I've built a few of these coffee tables over the years, all to good reviews. Most have been in cherry, including the one here, but I've also used maple, walnut, and even butternut. While it's quite straightforward as a build, there are interesting challenges in the variety of techniques involved. The design is very adaptable, however, and can be simplified if you don't want to tackle all of these techniques at once. The dimensions can easily be modified as well. Indeed, I've

used essentially the same design to make several full-size dining tables.

Adaptable design

The straight lines of the legs contrast with some gentle sweeps in the top and aprons. The base, despite its curves and tapers, is actually all squared up, greatly simplifying the joinery. The aprons join to the legs with mortise-and-tenons, and there is a small center brace that has sliding dovetails at each end to discourage bow-

ing. Simple dado joints there are a viable option if you prefer. The legs are square in section, with the two inside faces below the apron tapering toward the floor. This is standard Hepplewhite design, which was adopted in Early American and Shaker styles. Finally, the top is small enough to provide an opportunity to use that special board you've squirreled away, or one that emerges from a stack at the lumberyard.

Ever since beginning my woodworking life as a boatbuilder, I've been drawn to

COFFEE TABLE IS A CANVAS

This coffee table opens up many options for wood selection, tooling, joinery, and shaping, making it an excellent choice both for those just entering the craft and those looking to dive a little deeper.



ONE BIT, TWO CUTS



Pair a dovetail bit with a jig and guide bushing to cut the slot. Line up the jig via a centerline. The opening on the jig's base snugly fits a 1-in. guide bushing. A layout line on the jig's base signals when to stop routing.



Install the bit in a router table for the tail. By using the same bit, you ensure that the tail and socket have matching angles. Support the workpiece with a square push block.

Legs are mortised, then tapered

CUT THE MORTISES

Lay out the leg blanks. Mark the top and bottom of the mortises, as well as the top of the tapers. All of these fall on the inside faces. The tapers begin just below the bottom of the apron.



Drill press accurately excavates most of the waste.

These holes go a long way to starting straight, even walls. Overlap the holes as you march down the mortise.



Finish with a chisel. Take careful paring cuts to remove the peaks between the drilled holes. Chop the ends square, too. Be careful near the fragile short grain at the top end.



using curves in my designs, and this table is no exception. After all, curves add a lot of interest to a small piece of furniture. If you find them daunting, by all means just go with straight lines. You'll still have a lovely and serviceable table. These curves are easy to fashion, though, so I encourage you to give them a try.

Tapered legs, timeless style

Typically, I start with the base assembly—the legs and aprons—because it's the largest time investment. Then I move to the top. However, if you are using special boards, begin by making the top in case you need to change the base's dimensions.

It's easier to size tenons to mortises than vice versa, so I begin with the legs. When planning a construction sequence, I like to remember the maxim "Joinery before shaping." For example, in this project, leave the legs square until the mortises are cut. Do the same for the aprons and their tenons.

For the legs, choose stock with the straightest grain possible. It's also nice if the blanks are riftsawn (their annual rings running diagonally on the endgrain) to avoid too much contrast between plain-sawn and quartersawn faces. But I would not waste much stock trying to achieve this effect. Just do the best possible, and orient the best faces out.

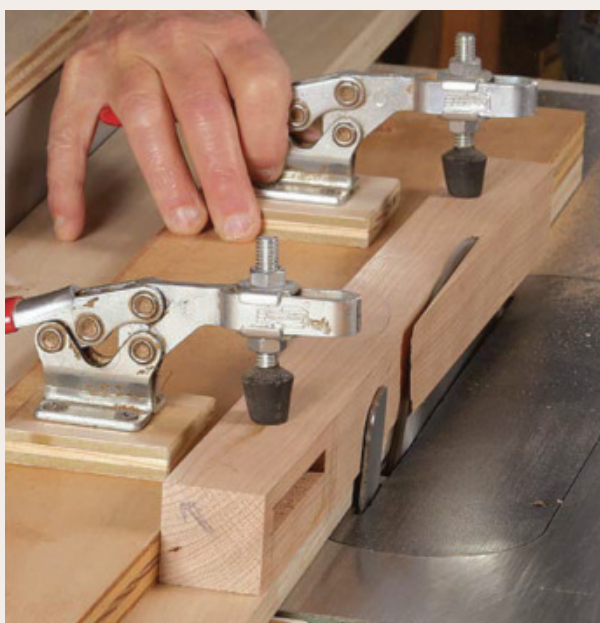
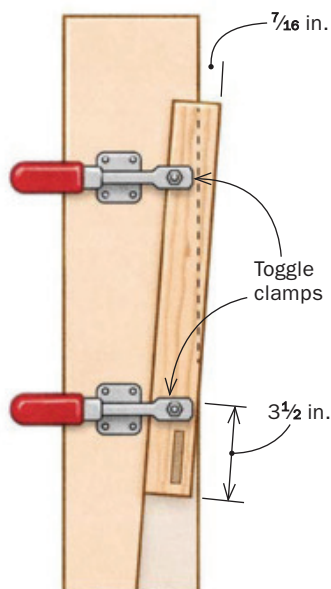
Four-square the pieces, including cutting them to length. Next, lay out the mortises

MORTISER IS AN UPGRADE

A hollow-chisel mortiser is an excellent choice for quality, quick, and repeatable results. It plunges a square bit with an auger inside. The auger bores out most of the waste, and the square chisel cuts clean, straight walls.



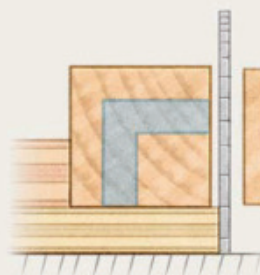
TAPER THE INSIDE FACES



A single sled makes safe, speedy work of eight tapers. The sled rides against the table saw's fence, which you should position so the cut begins slightly below your layout line for the taper. This leaves room to clean up the cut by hand.

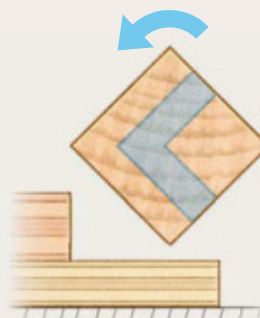
Cut in the correct order

1. One mortise facing down, the other out.



Rotate the tapered face up, and use the offcut as a clamping shim. Because of the taper, the rear toggle clamp will no longer reach the workpiece. A shim made from the initial tapered cutoff solves this problem.

2. Rotate workpiece.



on the inside faces of the legs. Mark the top of the tapers on those same faces.

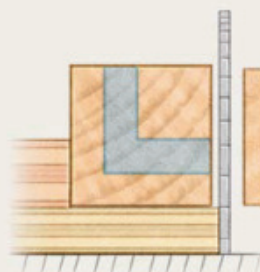
There are more ways to fashion mortises than stars in the sky. A common route is roughing out the openings on the drill press and finishing them by hand with a chisel. My top choice, however, is using a hollow-chisel mortiser. If you have the budget and plenty of mortises ahead of you, I highly recommend one. A plunge router works nicely, too.

The next step is to taper the legs at the table saw using a sled. A version like mine is simple to build, making it well worth the time. Just be sure to begin the taper



Rip the second taper. Because of the sled's fence and end stop, the two tapers will match perfectly. The rear toggle clamp doubles as a handle, keeping your hand away from the blade.

3. One mortise facing up, the other out.



Aprons get tenons, then arches

TENONS AT THE TABLESAW

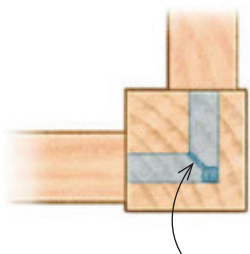


Cut centered tenons using a dado stack. Hold the stock tight to the miter gauge fence and press firmly to the saw table. The saw's fence position determines the tenons' length. A miter gauge with a fence keeps the stock square and limits blowout. Because the tenons are centered, you can flip the stock face-for-face between passes.

Cut the tenons to width with the same fence setting. Make the cut in several passes, and hold the stock tight to the miter gauge. Raise or lower the dado stack as necessary for the upper and lower edges.



Intersecting tenons need a heavy chamfer. To prevent the two tenons in each leg from bumping into each other, significantly bevel their inside corners. This lets you keep deep mortises for plenty of glue surface.



Remove these corners so the tenons don't interfere with each other.



Aim for a press fit. Firm hand pressure is the Goldilocks fit you're after. If the tenon just drops into the mortise, it's too loose; if you need a hammer, it's too tight.

below your layout line. That leaves you room to clean up the sawmarks without tapering above your line, which would create a gap where the apron meets the leg. Depending on the wood, I usually handplane the tapered faces and then finish with light sanding.

Approachable aprons

Mill the aprons and cut them to length, remembering to include the tenons on each end. I cut the tenons on the table saw with a dado blade. For my full process, see my article "How to Cut Accurate Tenons on the Tablesaw" (*FWW* #283).

The aprons also need dovetail slots (or dadoes, if you prefer) for the center brace.

Now that the joinery's done, it's time to fashion the curves along the lower edges of each apron. For only one table it's perhaps easiest, after bandsawing close to the line, to do the final shaping by hand. But because I've made this design many times, I have patterns for these curves and for the top. They help me pattern-route for quick, accurate results. If you prefer to forgo pattern-routing, fair the curves with a rasp, file, scraper, or even sandpaper wrapped around a dowel.

The final step for the base is cutting the holes and slots that are needed to fasten the top. I prefer to use pocket screws at the center of each short apron, and mor-

tised slots for buttons on the long aprons. It's crucial for the slots to be at the same height. This makes it easier to fit the buttons, which should sit slightly below the top edge of the aprons; this will let them cinch the top down without interference. Also, the tongue of the button should not bottom out in the slot.

The center brace has a screw hole also, but I don't make the brace until after I assemble the base. To get ready for assembly, clean up the mill marks on the base parts and ease the edges.

Bring the base together

My standard method for assembling leg-and-apron bases is to work on the short ends first. Give the tenons a thin coat of glue, and add a bead of glue just inside the mouth of each mortise. Glue up the ends on a flat surface (I like to use my bench), and check for square before the glue sets. Clean up any squeeze-out.

After the glue sets, you can bring in the two side aprons. Put the glued assembly upside down on a flat surface, and clamp the joints. Check that the upper edges of all the parts are flush on the benchtop and that the whole assembly is square. I use diagonal measuring sticks for this. They're the same ones in my article "Making and Using Squaring Sticks" in *FWW* #301.



CURVES ADD LIFT

Trace the curves onto the aprons. Durfee's templates have layout lines at the shoulders, allowing for easy positioning. A drawing bow also works.



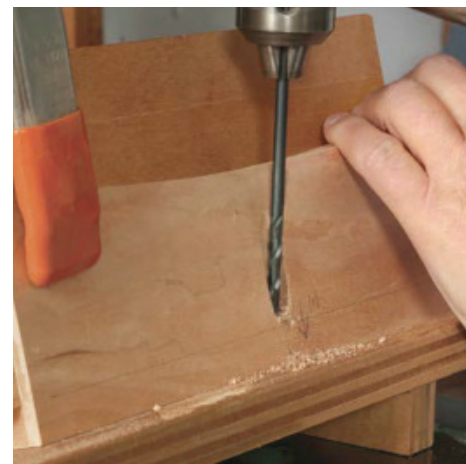
Bandsaw close to your line. Don't take the line. Leave a small amount of waste for cleanup afterward, and use the layout line as guidance.



LONG APRON



SHORT APRON



Shopmade cradle holds short aprons for pocket holes. The jig holds the apron at 14°. Drill first with a Forstner bit to create a flat-bottomed counterbore for a round-head screw; switch to a long twist bit for the clearance hole.

Assemble the base

Start with the end assemblies. Give the tenons a thin coat of glue, and add a bead of glue inside the mouth of each mortise. Then clamp the assembly together on a flat surface to prevent wind. Have a mallet nearby in case you need to tap the apron and legs flush at the top.



After the end assemblies cure, glue on the long aprons. Before the glue sets, Durfee uses his squaring sticks. If the table's corner-to-corner dimensions are equal, the assembly is square.



Add the dovetailed brace. Seat this joint gently using a clamp. It's a better tool here than a mallet, since it provides more even pressure and doesn't stress the base assembly.



When the base is all set, make and install the center brace, which helps keep the long aprons parallel and provides another spot for securing the top.

Cut the brace to length. The distance between the dovetail shoulders should be the same as from long apron to long apron. Get this dimension by measuring near the short aprons in case the long aprons are bowed. Add the depth of each dovetail socket to get the brace's overall length.

To cut the dovetails at each end, use the router table and the same dovetail bit used to make the sockets. Slide the brace into the sockets with a bit of glue, and the base assembly is complete.

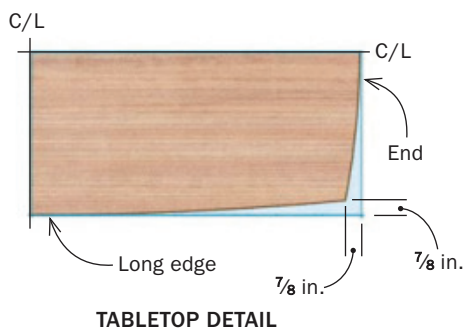
Curvy top mirrors the base

I prefer to make the top of the table with two pieces if possible. More boards are fine if they are nicely matched, but avoid narrow boards at the edges to prevent an unsightly glueline within the curve. Glue up the top a bit oversize, then lay out the curves. Because of the top's size, a jigsaw is a great tool for cutting these. Keep as close to the line as possible before refining. Chamfer the edges before attaching it to the base.

Fantastic finish

My standard for this table in cherry is to sand to 220 grit. Use a random-orbit sander where possible, but always finish

Top it off



Curved all around. To lay out the top's curves, Durfee uses MDF templates with marriage marks that line up with those on the tabletop. He has one template for the ends, another for the sides.



Use a jigsaw to rough out the cuts. Because the top is so large, it's safer to use a jigsaw than to try to wrangle the panel through the bandsaw. Afterward, clean up the cuts.



Attach the top using pocket screws, then buttons. Start on the short aprons, centering the top and using the fixed pocket screws to keep it there. Then attach the long aprons via buttons, which are mortised into the long aprons and allow the top to move seasonally.

by hand-sanding with the grain. The finish itself is a couple coats of an oil/varnish mix, topped with two or three coats of gel varnish for better surface protection. I used to mix my oil/varnish, but for many years now I have used Minwax Antique Oil. Cherry and walnut, among others, respond well to this treatment. The grain and color look natural, without a lot of surface buildup. □

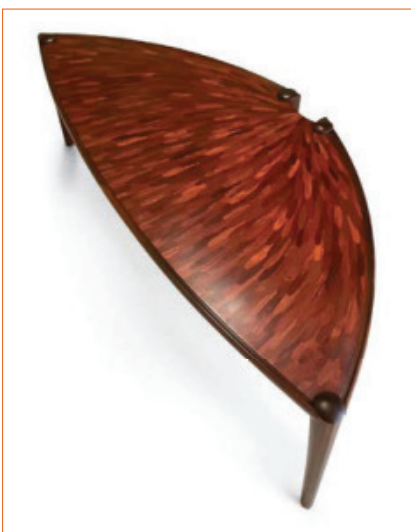
Charlie Durfee is a woodworker in Woolwich, Maine.



High-Flying Feather Veneer

This intricate-looking pattern uses a simple, repetitive method

BY BRIAN NEWELL



The process I use to make this feather veneer evolved out of necessity and the need for efficiency. For years I made abstract marquetry patterns for small tabletops, including a feather pattern. A scrollsaw served the purpose perfectly. I used the double-bevel cutting method to piece together the entire sheet of veneer, and I was able to cover a whole surface using the smallest of scrap veneers.

However, the overall size of the surface sheet is limited by the throat depth of the scrollsaw, because to bevel cut a single

feather into an ever-larger sheet, the sheet must be rotated 180° during the cut. And swinging around a fragile sheet of veneer is a risky operation anyway.

In making a dining table with the feather pattern, I had to rule out using the scrollsaw because the top was to be 3 ft. by 6 ft. I needed to find another way, so I came up with this router-template jig. My technique works with any shape. Once I made the jig, I had a lot of meditative, repetitive work ahead of me, but the final product was worth the effort.



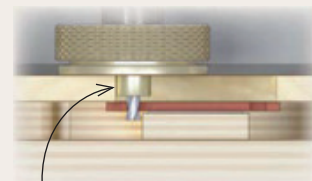
Simple method, stunning results

All that's required is a trim router with a straight bit, a guide bushing with a removable collar, and a shopmade template-routing jig. You will need a lot of feathers. Making them is a simple process that you will repeat endlessly, but the result is worth it. Routing the recesses for the feathers is done with the same template.

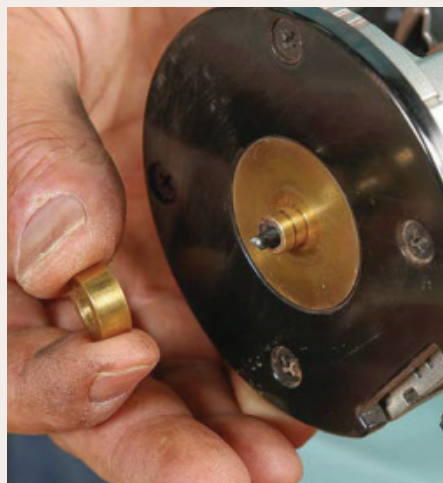


FEATHER PRODUCTION, NO COLLAR

To cut the feathers out of the blank, use a trim router with an inlay bushing and bit, without the removable collar installed. Mount the feather blank in the routing template jig, rout, and remove.

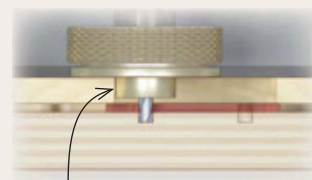


Guide bushing



FEATHER RECESSES, ADD THE COLLAR

To create the recesses for the feathers, add the collar to the bushing, position the same routing template used to make the feather blank on the inlay sheet you are creating, and rout the recess.



Collar



FEATHER INSTALLATION

Dot some CA gel glue around the edge of the feather, position it in the recess, and press it into place, holding it for 20 seconds to set.

One template does double duty

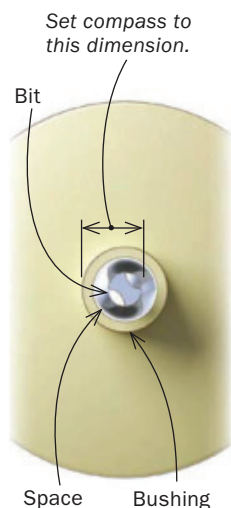
You will use the same template to create the feathers and cut the recesses that hold them. What makes the difference, and the perfect fit, is the guide bushing's removable collar. Without the collar, you cut the feather; with the collar, you cut the recess. If you want different-size feathers, you make multiple templates. Newell uses three to four different templates for each design.



Paper first. To lay out the opening in the router template, start by drawing your feather shape on a piece of thick paper, and then cut out that shape.

Relationship between bit and guide bushing.

When you lay out the opening in the router template, you'll need to add an offset to your paper feather template so the router without the collar cuts the feather to the exact size. To find the offset, measure the distance from the outside of the bit to the outside of the bushing. Transfer that distance to a compass.



Small scale scribing. Lay the paper feather template on the blank for the router template, and scribe around the feather with the compass set to the dimension of the bit to the bushing.

Scrollsaw and smooth. At the scrollsaw, carefully cut the shape out. Then smooth it with sandpaper. Newell glues sandpaper to a small scrap for more control.

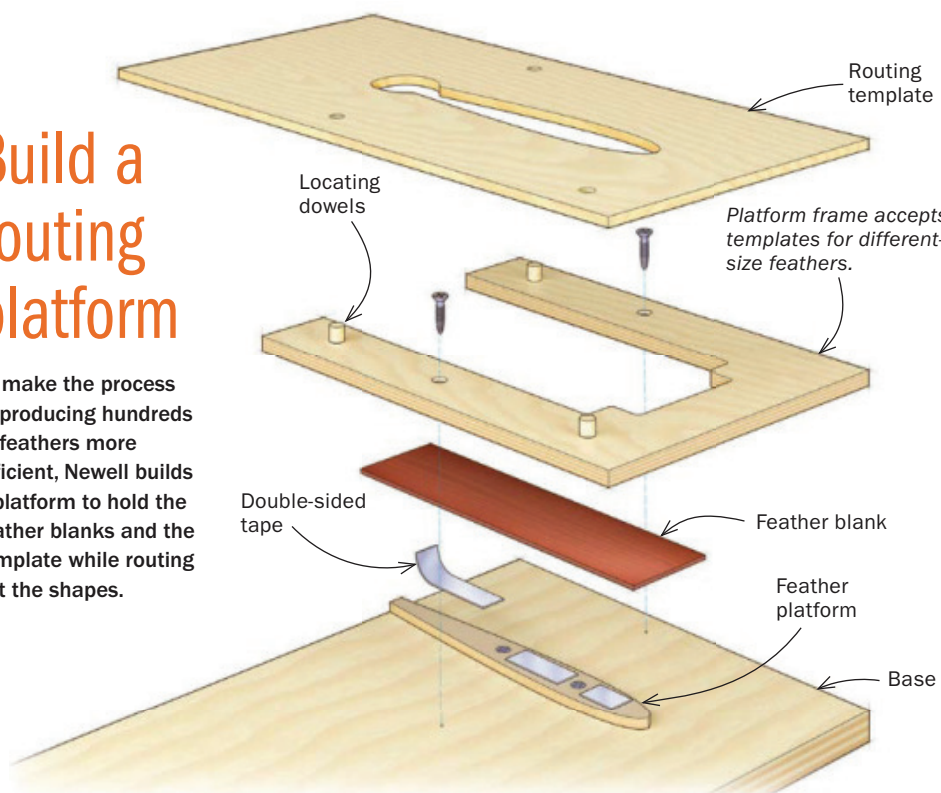
How it works

A guide bushing with a removable collar is the little thing that makes this all happen, along with a trim router, preferably one with a standard sub-base hole of $1\frac{3}{16}$ in., which will fit the inlay jig without modification. The jig requires a $\frac{1}{8}$ -in. spiral router bit. The diameter of the bit and the thickness of the collar need to be the same. The $\frac{1}{8}$ -in. bit and the guide bushing with a removable $\frac{1}{8}$ -in.-thick collar are often sold as an inlay kit. You can get them online or at woodworking-supply stores. (Item no. 27593 at rockler.com is one example.)

The system is designed to do true inlay, which involves excavating a recess in a solid background and then inserting inlay veneer. Both the recess and the inlay are cut using the same shopmade template. My method is a variation on this technique. I use all veneer, but rather than inlaying

Build a routing platform

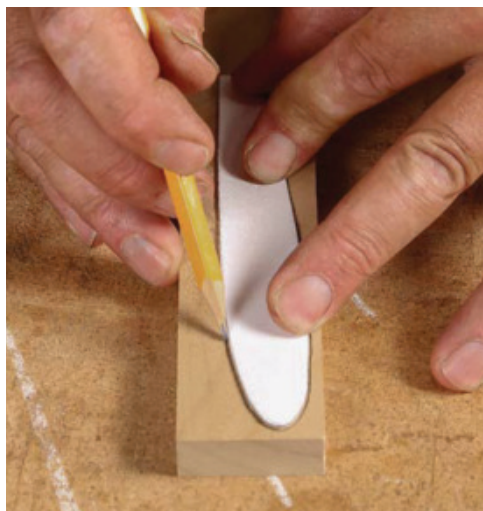
To make the process of producing hundreds of feathers more efficient, Newell builds a platform to hold the feather blanks and the template while routing out the shapes.



Bandsaw the platform frame. A simple U-shaped frame that's the same overall size as the routing template surrounds the feather platform and holds the template in place.



Dowels locate template to frame. Tape the template to the frame, and drill dowel holes in both. Then glue and tap dowels into the frame. The dowels hold the template still during routing, but it's easy to pop the template on and off.



Feather platform. Trace the paper template you started with onto a scrap of wood, and cut the shape on the bandsaw to make the platform that holds the feather blank while routing. Finally, drill and screw it and the frame to a piece of plywood or other sheet good.

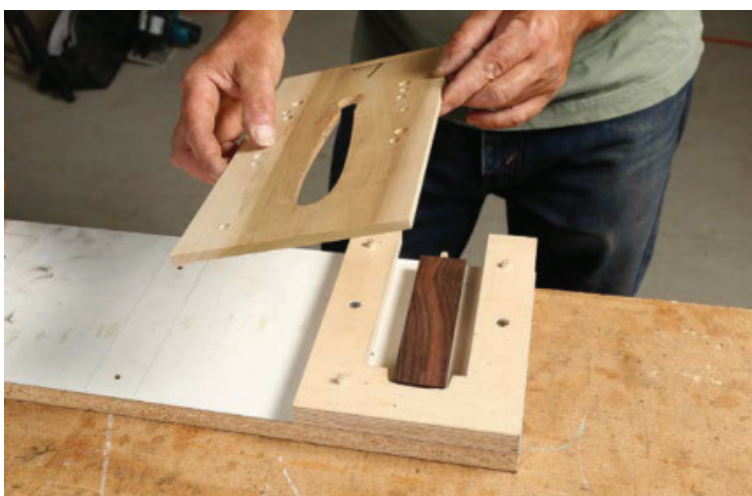
Batches of feathers

The first step is to make lots of feathers. Newell makes templates for feathers of different sizes, and he cuts all the feathers for a project before starting to put them together.

Double-sided tape holds the blank. Intertape, with the crepe backing paper, works well for this task because it is strong and isn't flexible. Put a few small pieces down the length of the platform, and press your blank onto it. You'll have to change the tape every few blanks when the stickiness wears off.



Ready to template-route. Place the routing template over the blank and onto the locating dowels. Using the trim router with the bushing but not the collar, rout around the template.



One down, dozens more to go. After routing around the perimeter of the template opening, remove the template, gently pry the newly cut feather off the platform, vacuum the dust and debris, and then do it all again 100 or more times.



into a solid background, I create the background as I go along, excavating and rebuilding on itself as I move outward. I inlay a full feather and then rout away about half of it for the next feather, repeating until I have a sheet of veneer.

Get going with a starter row

To begin, I need a row of small pieces that I cut and edge-glue to make the first stretch of background into which the feathers will be inlaid.

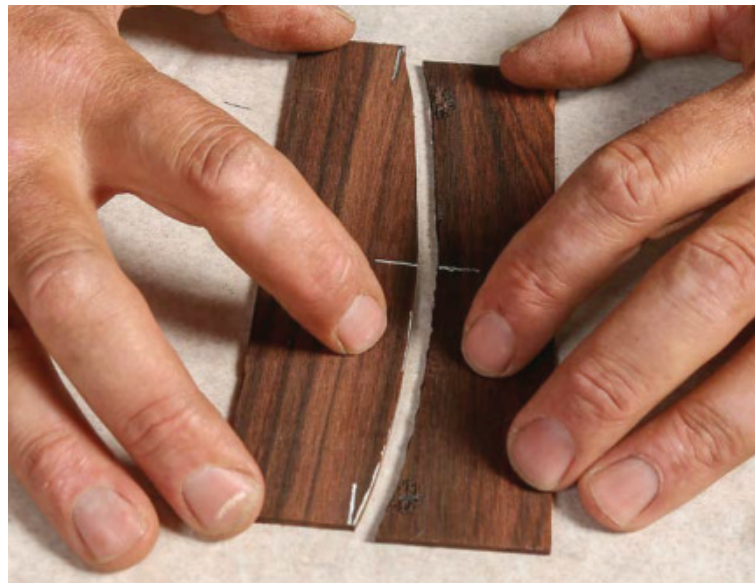
Then I cut a whole bunch of rectangular feather blanks and move on to the inlay process, which begins with the scroll-saw because the parts are small and thin; more importantly, there is barely any kerf to think about, and the fine teeth make very clean cuts. Using small scraps of shop-sawn veneer ($\frac{1}{32}$ to $\frac{3}{64}$ in. thick), I glue one

Create the sheet

Putting the feathers together creates a sheet of veneer that will get glued to the substrate. First, as shown here, establish a starter row; once that's complete, move on to inlaying the feathers.



Work in pairs.
After attaching two slightly overlapped blanks with a few dots of CA gel glue, draw a freehand curve along the overlap. With a scrollsaw, cut through both pieces at once along the curved line.



Put the pieces back together. Use a chisel to gently remove waste. Then with a few dots of CA gel glue along the curve, attach the mating pieces. A horizontal line helps with location. Starting with a line of gentle curves mimics the shape of the feathers to come.

piece on top of the other. With rosewood at least, this glue sets instantly and holds very firm. The cyanoacrylate (CA) gel glue I use may not work on all woods. It doesn't stick well to oak, which may be because of the tannins, but I haven't had trouble with any other species.

With a fine scrollsaw blade, I cut along the line and then split off the waste. The scrollsaw table is at 90° because this is not beveled inlay. What's left is a joint that fits nicely. I edge-glue the two pieces together and move on to the next.

Making the feathers

Since I am working with a precious wood, I love making use of scraps that are only slightly larger than the feather itself. To make the process somewhat efficient—since for this table there may end up being a thousand individual inlays—I make a platform onto which I can tape the feather blank for cutting. The router template itself is registered with dowels on the U-shaped

Join the pairs.
Once you have a bunch of pairs glued together, begin joining the pairs using the same process you used to join singles together.



Route recesses

Working one recess at a time, rout for and place one feather after another. When you've routed a recess and placed the feather in it, you'll next be routing out part of the work you just completed.



Trace first. Look at the pieces already in place, and determine by eye where you want the next feather to land. Trace its location on the sheet of veneer that's forming.



Place the template. Again by eye, center the template over the outline you just traced, and use a couple of screws to gently fasten it down in an area that isn't part of the veneer.

Install the collar, and rout. Adding the collar to the guide bushing adjusts the spacing so the recess is exactly the size of the feather. Using the template to guide the router, cut the recess. Work with a sacrificial sheet of plywood underneath; the bit will cut into it over and over.



Clean it up. Remove the waste piece, and vacuum out the dust and debris.

platform frame and can be removed easily for taping on the feather blank. The process is simple: Tape the blank on the feather platform, put the template in place, rout the feather without the collar on the guide bushing, remove the template, pop off the feather, repeat forever.

For this table I used three sizes of feather. Visually, it's nice that the feathers get smaller as they move toward the focal point. Mentally, it's difficult to accept that the closer you get to done, the smaller the pieces are. At times you believe you will never arrive. But you do, and the crowd goes wild.

Routing recesses

The recess procedure is similar to the feather-making process. I use the same

template to cut the recesses for the feathers. With the sheet on sacrificial plywood, I position the template just right and screw it down to the plywood so it won't move. I install the collar on the guide bushing and rout the recess. Then I slide waxed paper under the recess and glue in the feather. After that, I move on to the next recess and repeat it all again.

In the end

This is where the excitement stops. Once you create a large-enough veneer sheet of feathers, you revert back to typical woodworking practices for gluing the sheet of veneer to the substrate and applying finish. □

Brian Newell builds furniture in Fort Bragg, Calif.

Gluing the feathers in place

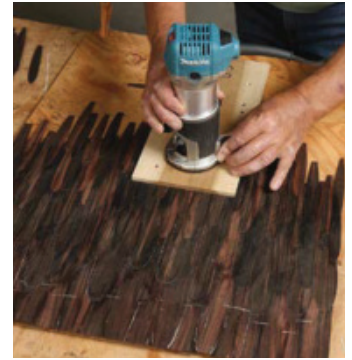
As you glue more and more feathers to the starter row, you create a sheet of custom veneer.



Set the feather in place. Mark a line on both sides of the feather as a stopping point for glue. You don't want glue on the feather past the end of the recess.



Glue the edges. Run a thin line of glue around the edge of the feather, stopping at the lines you marked. Set the feather in its recess, and then tap and smooth it down with a small hammer. When gluing, make sure to shimmy some wax paper under the recess so you don't glue the veneer to the work surface below.



Create visual interest as you go. Newell uses different-size feathers and a random pattern, gradually decreasing the feather size as he works down the panel.



Trimming. Once you have the sheet of feather veneer to the size you need, trim it close to the substrate size, keeping it slightly large. Then you are ready to glue the sheet to the substrate just as you would any other veneer.

gallery

Inspiration for our readers, from our readers

CHARLES DRAKE

Winchester, Va.

Charles had always admired a Pennsylvania German painted chest at the Metropolitan Museum of Art. Having never painted one of his pieces before, he decided to learn a new skill and made this version of the chest, using milk paint for the color and a topcoat of varnish.

WALNUT, 23D X 51W X 27H



JOHN MICHAEL LYNN

Key Largo, Fla.

John built this bookcase to fit a specific location in his vacation home. Influenced by the Mid-Century style, John mitered the corners and cut a clean oval profile on the edges. The cabinet sits on a low, Asian-influenced stand that uses through-tenon joinery. The upper cabinet attaches to the lower one with sliding dovetails.

SAPELE AND AFRICAN MAHOGANY, 16D X 20W X 40H



JONATHAN OTA

Leominster, Mass.

Jonathan's client, an avid gardener and member of a garden club, asked him to make a garden gate that would allow a glimpse of the garden through the top section. After spending some time in the garden, he came away struck by the reeds he saw there and incorporated them into the gate.

CYPRESS AND RED CEDAR, 1½D X 36W X 72H



DENNIS ZONGKER

Omaha, Neb.

Dennis designed this hallway table for a 78th-floor penthouse in New York City. He knew that to get the piece in the elevator it would have to break down into two pieces, which he accomplished by having a loose joint in the middle. The client wanted carving and marquetry in the piece, and Dennis designed a fruit theme for both with grapes and leaves as the main element.

WALNUT, BLACK EBONY, PURPLE HEART, WALNUT BURL, BLOODWOOD,
18D X 108W X 32H



PETER RAMBO

Sooke, B.C., Canada

Years ago, Peter came across a bin labeled "Japanese white oak" at the lumberyard. The folks there told him the oak had been purchased decades before by a patternmaker who, when he retired and closed his shop, sold it back. Peter bought it all, thinking that a set of chairs would be an appropriate and respectful use of the wood.

JAPANESE AND AMERICAN WHITE OAK, 20½D X 19W X 35½H



ROLAND L. MATTISON

Lincoln, N.H.

Because he wanted to design a foyer table to look modern and light but not too leggy, Roland added a center drawer along with a lower shelf to balance the design.

BIRD'S-EYE MAPLE, CHERRY, WENGE, 16D X 35W X 35H



CANYON LLOYD

Allston, Mass.

Canyon built this Federal bow-front chest of drawers while a student at North Bennet Street School. She was lucky to find satinwood veneer for the drawer fronts, whose curved substrates she sawed from 8/4 walnut. She used a short length of a bandsaw blade to scratch in the grooves for the walnut and holly banding around the case and top. Brass drawer pulls cast in 1802 round out the piece.

WALNUT, MAPLE, SATINWOOD, BUBINGA, HOLLY,
11D X 21W X 19 $\frac{1}{4}$ H

Photo: Lance Patterson



PETER W. SPRAGUE

Sanibel, Fla.

An admirer of Sam Maloof, Peter followed Maloof's design motifs closely as he made a set of eight of these dining chairs to complement a large walnut dining room table he built for his daughter years before. Peter built most of the furniture in her house.

WALNUT, 23D X 23W X 44H



JOHN AND BETH DZENITIS

Danville, Calif.

When John and Beth were commissioned to build a wine cabinet, they wanted to break away from the typical square grid to hold the bottles. They settled on a pattern they had created using a method similar to kumiko. Because the pieces in the framework are so much thicker than kumiko, they used the tablesaw to cut them.

CHERRY AND MAPLE, 15D X 24W X 36H



J.J. RICHES

Toronto, Ont., Canada

Living in small spaces in a big city inspired J. J. to create a versatile object that could serve several functions. This piece can be used as a bench with storage, a television stand, or a coffee table with a magazine rack, just to name a few.

WHITE OAK, NYLON PARACORD,
16D X 64W X 15H



GILBERT SAMRENY

Bradenton, Fla.

Inspired by a Chippendale spice cabinet (c. 1765, Montgomery County, Pa.), Gilbert stayed true to some elements of the original, and went with his own interpretation on others. Like the original, his features a swan's-neck pediment above the drawers and fluted quarter columns on the sides. He built the piece with African mahogany he had pulled out of a doormaker's dumpsters.

AFRICAN MAHOGANY AND SOFT MAPLE, 13½D X 17¼W X 39H

Photo: Ryne Heislen



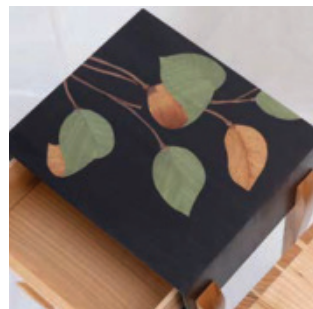
BEATRIZ ZUAZO GONZÁLEZ

Barcelona, Spain

Beatriz was commissioned to build nightstands for a room decorated with matching paintings. It was immediately clear that the composition of the marquetry and the black background was eye catching and bold.

She wondered if maybe it was too bold and decided to make a lighter design on the second nightstand and play with the contrast between them. She used a traditional double-bevel marquetry technique to cut the veneers.

EUROPEAN CHERRY, 12D X 14W X 21H



COLE VON FELDT

Austin, Texas

This piece was designed to store and display books in an unexpected way. Cole used bent lamination to create a form with soft curves that blend with crisp lines and geometric shapes. The sliding walnut doors, which provide contrast with the birch plywood case, allow a portion of the cabinet's contents to be seen and a portion to be hidden.

BALTIC BIRCH, WALNUT, 20D X 60W X 24H



WILLIAM DOUGLAS

Phoenix, Ariz.

William started this design with two things in mind: He wanted a challenge, and he wanted to do something different. This unique valet tested his skills. According to William, "We should always push ourselves beyond our comfort levels to allow for growth. Sometimes we miss, but our skills always improve. If you are feeling confident in your skills, it's time to level up and challenge yourself." This entire piece can be disassembled in minutes and then reassembled without a loss of structural integrity.

WALNUT, 19D X 75W X 85H

Photo: @WDCPRO



MERLE KRUEGER

Lincoln, R.I.

When Merle's son asked him to make a box as a gift for friends who were getting married, he hit upon the idea of interlocking, veneered rings. Since then, he's made another five boxes with a similar design, also as wedding gifts.

CHERRY, PADAUK, LAURO PRETO, AND QUILTED MAPLE, 9½D X 12½W X 3H



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master class

Weave a rush seat

BY DAVID JOHNSON



Historically, rush seats have been woven with grasses native to wherever the chairs were produced. Cattails and bulrush were most frequently used and are referred to as “genuine rush.”

These days a common substitute is paper fiber, which is easy to work with and source but doesn't look the same. In between these options is pre-twisted rush, which I'm using here. Unlike genuine rush, it's commercially available. Although it's more challenging to work with than paper fiber, the look and feel of it are worth the extra effort.

Pre-twisted rush is made from seagrass and mimics the look of genuine rush. It's

Soak and staple

There's nothing too technical about beginning this weave. Soak, staple, and start wrapping.



Soak it up. In an old slow cooker, heat water to about 100 °F—not so hot that you can't dunk your hand in. Soak the rush for just 5 to 10 minutes, or it will get mushy and unravel. Fling the water out by holding the coil up high and swinging it downward.

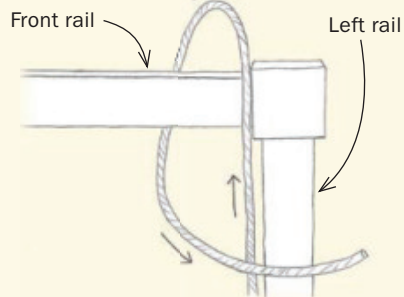


Staple it on. Nails don't work with rush, so staple it to the seat to start. Staple the rush to the inside of the left rail near the back leg.

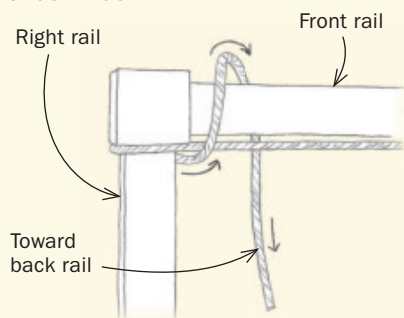
Start wrapping

The trick is to work two corners at a time.

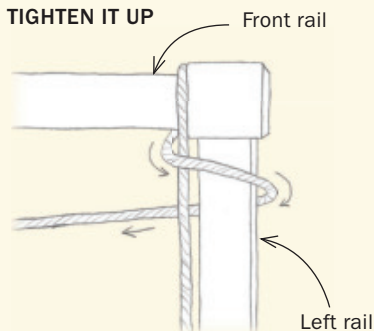
FIRST CORNER



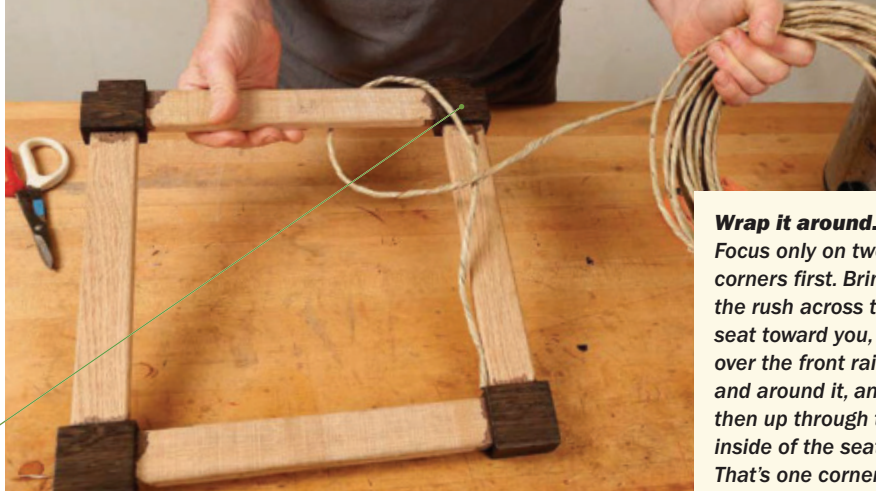
SECOND CORNER



TIGHTEN IT UP

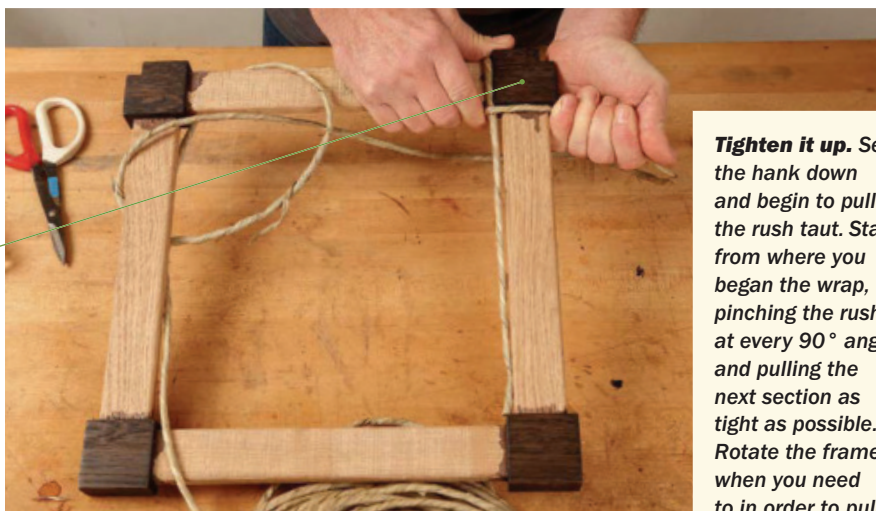
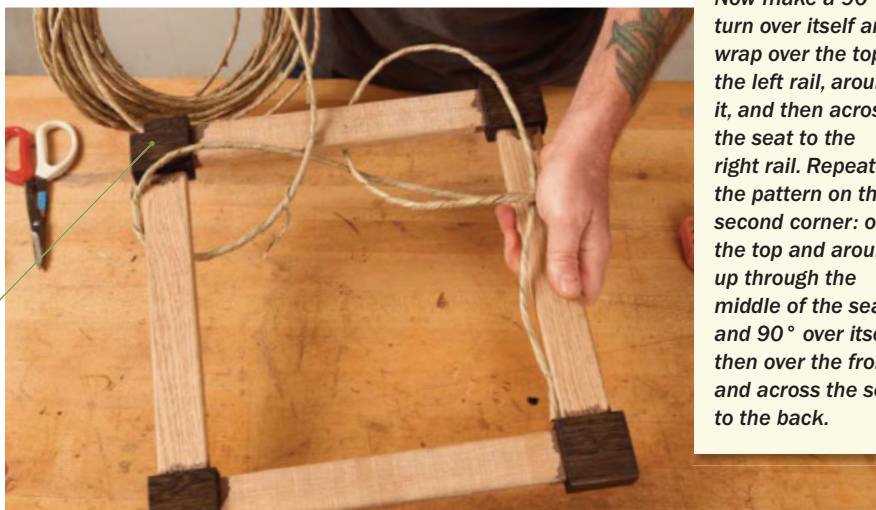


available in 2-lb. coils in various thicknesses. The seat shown here is small and only required one coil in size #5, which measures on average $\frac{3}{16}$ in. to $\frac{1}{4}$ in. thick. The rush wants to unravel, so handle it with care and tape cut ends to keep them neat. I like to work with no more than 50 ft. at a time; for me, that is a handful as I pull it off the coil. Soak the rush for 5 to 10 minutes in warm water to make it more pliable and easier to work with. Soaking for too long or at too hot a temperature will cause



Wrap it around.

Focus only on two corners first. Bring the rush across the seat toward you, over the front rail and around it, and then up through the inside of the seat. That's one corner. Now make a 90° turn over itself and wrap over the top of the left rail, around it, and then across the seat to the right rail. Repeat the pattern on the second corner: over the top and around, up through the middle of the seat and 90° over itself, then over the front and across the seat to the back.



Tighten it up. Set the hank down and begin to pull the rush taut. Start from where you began the wrap, pinching the rush at every 90° angle and pulling the next section as tight as possible. Rotate the frame when you need to in order to pull things tight.



TIP

When you reach the end of the run, use a clamp to hold the rush taut.

Rotate and repeat

With the first two corners completed, turn the frame and work on the second two corners.



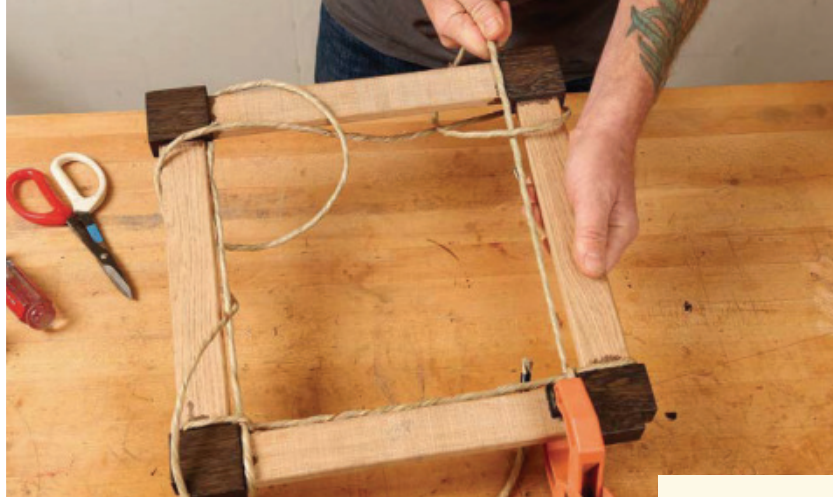
After every corner, turn. Always rotate the frame 90° clockwise to tighten the next corner, rather than moving around the work yourself. If your body position stays the same, it will keep your movements the same and the final product more consistent.

discoloration, and the rush will want to come untwisted.

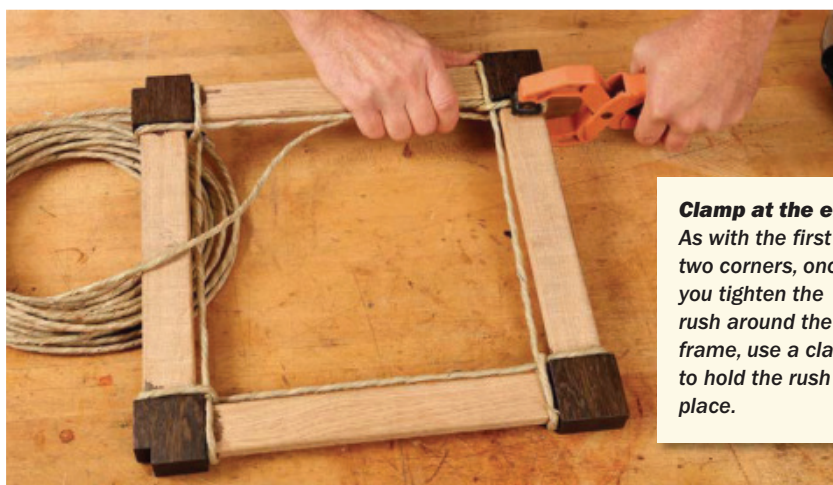
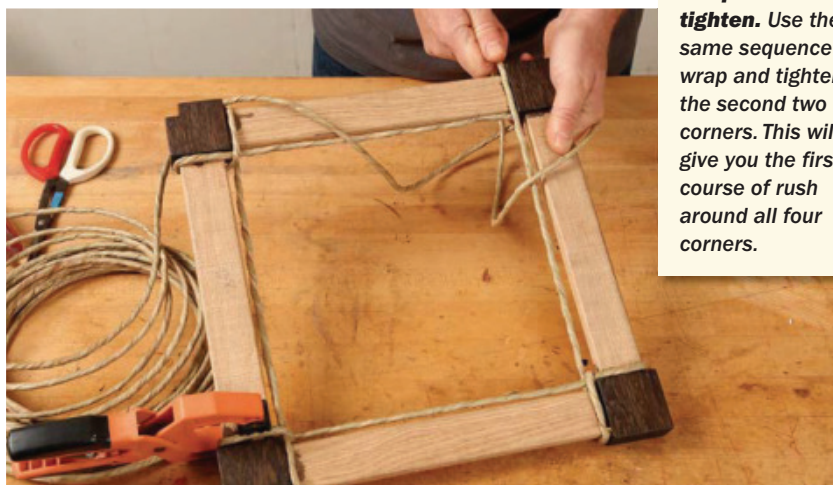
Part of the simplicity of weaving this particular seat, for Nancy Hiller's "Voysey Two-Heart Chair" (FWW #301), is that it is a square, which eliminates two steps—squaring the seat and weaving a bridge. I'll show you how to deal with those a little later, but for now I'm focusing on a square seat to give you the basic process.

Two corners at a time

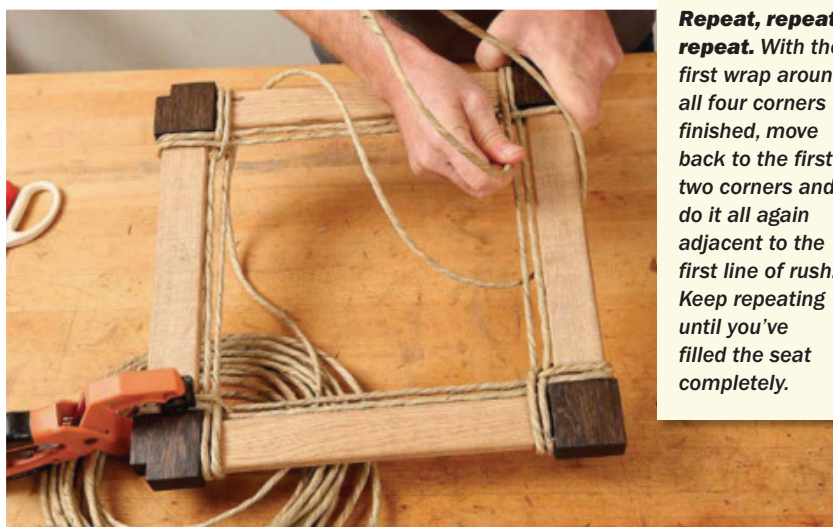
To make it easy on yourself, work two corners at a time, establishing the pattern loosely and then going back to tighten it. Facing the seat, staple the rush on the inside of the left rail near the back leg. Bring the rush toward you, over the front rail, and around it. Pull the rush up inside the seat frame, make a 90° turn over itself, and wrap over the top of the left rail, around it, and then across the seat to the right rail. Do this



Wrap and tighten. Use the same sequence to wrap and tighten the second two corners. This will give you the first course of rush around all four corners.



Clamp at the end. As with the first two corners, once you tighten the rush around the frame, use a clamp to hold the rush in place.



Repeat, repeat, repeat. With the first wrap around all four corners finished, move back to the first two corners and do it all again adjacent to the first line of rush. Keep repeating until you've filled the seat completely.

The end of the line

When you run out of rush—and you will—just leave yourself a bit of line and tie another coil of rush to it.



A handful of rush. When you've nearly finished the rush you've been wrapping, uncoil enough more to fit comfortably in your hand, soak it in warm water for a few minutes, then shake out the water.



Tie and cut. Use a square knot to secure the end of the wrapped rush to the new coil of rush. Pull the knot very tight, and then cut the ends, leaving about 1 in. extra. Make sure your knot will land at the bottom of the frame, not on the top of the seat. Additionally, you can often place knots inside the seat to hide them.



all again—over the right rail and around, up through the middle of the seat and 90° over itself, then wrap over the front rail and across the seat to the back.

Pull it all taut

Now tighten the rush. Go back to where you started and pull the rush tightly around the front rail and up the inside of the seat. To make the 90° turn neat, pinch the corner together while pulling it tight. Then pull it tight around the side rail and clamp it with a hand clamp.



Wrap and straighten. With a new length of rush attached, keep wrapping as you have been. After every few courses of rush around the frame, check that everything is square, lined up, and parallel. You can use a screwdriver to help adjust the rush.

Stuff it

Because the rush wraps around the rails, there will be empty space within the seat frame between the layer of rush on the top and the layer on the bottom. You must fill that space or the seat will be uneven and sag.



Corrugated cardboard stuffing. Back in the day, if you were weaving a rush seat, you would stuff the empty space inside the frame with more rush. Nowadays, the stuffing of choice is thick cardboard, which is inexpensive, plentiful, and much more consistent. When you're close to one-third finished, tuck triangular pieces of cardboard under the rush on the top and the bottom of the seat. Then continue to weave and tighten as you did before.



The home stretch. As you continue weaving around the cardboard, you won't be able to move a large coil through the center opening; you'll have to feed it through as a long strand. Handle it carefully, and twist it back together if it comes loose. It's even more important now to keep the lines of rush straight, parallel, and tight, adjusting with a flathead screwdriver as you go.



Turn the seat 90° clockwise and repeat. Always rotate the seat as you tighten so you treat each corner the same. Try to pack the rush as closely together as possible along the rails to prevent gaps from forming. Twist the rush back together as you work if it starts to come undone.

Joining two lengths together

You can't work with too much rush at once, so you will inevitably run out of material, probably more than once or twice. This is not a problem. The goal is to minimize the number of knots as well as to land the knots in discreet places and on the bottom of the seat. When you run out of rush, tie on a new soaked piece with a square knot. Hide this knot on the inside of the seat by tying where the rush goes across.

Some tips for along the way

As you weave the seat, be sure the 90° corners stay square. This can be checked with a square or by eye. Another way to check for squareness is to look at the cross-shaped negative space and see that all lines stay parallel. Any deviation from squareness can build on itself, so check often. It's difficult to make large adjustments on corners that have been tightened. Spacing can also be adjusted by twisting or untwisting the rush to make it smaller or larger in diameter.

The end is near

When you come to the end of the weave, you'll secure the end of the rush to the seat frame and refine the rush a bit.



The last wrap. When you reach your last line of weaving, give the rush a final twist or untwist to adjust its diameter for the space left. The rush needs to end on the bottom of the seat; fold it tightly from the top, around the side, and onto the bottom of the seat. Secure it to the frame, fastening it with staples. Trim the end to about 2 inches, let it unwind a bit, and use a screwdriver to tuck the end under the weaving.



Just a trim. With scissors, go around the perimeter of the chair and across the top and bottom, trimming off any stray ends you see. This will not make the whole thing unravel.



Burnish with a hardwood block. Work each quadrant in the direction of the weave to fill gaps by flattening the rush, smooth high spots, and tighten the 90° corners. It's subtle and won't fix large mistakes, but it certainly refines the finished product.

Each time you have gone around the seat twice, flip it over and check the bottom to make sure that it's neat and square. The bottom should look nice, too. Resoak the hank of rush if needed.

Add stuffing

When the seat is about one-third done, start to add the stuffing. Traditionally, seats were stuffed with the same material as the weaving, but today it's common to use thick corrugated cardboard. Stuff both the top and bottom. In this seat the rails are thin, so I only use one layer for the top and one for the bottom. On seats with thicker rails I use extra stuffing on the bottom to fill out the seat and make sure the sitting surface is as flat as possible.

Cut the cardboard in a triangle with one edge to the inside of the rail and the other two to about $\frac{1}{2}$ in. from the edges formed by the rush corners. Continue weaving, adding more stuffing as needed. With each layer of stuffing, cut the cardboard smaller while keeping the outside edge against the rails.

As the seat nears its end, the hank (the coil of rush or other textile) will be too big to pass through the opening in the middle, so you'll need to thread the rush through. Be careful, and don't let it untwist; you will need to straighten it out often. The last one or two knots will no longer fit into the inside of the seat and will need to be on the outside of the bottom. Try to minimize the number of knots here, and keep their placement close to the center to make them discreet.

Finish things off

Finish the seat by stapling the rush to the underside of the frame. Tuck the rush into the weave, but first unwind it some so it will be less likely to slip out. Trim any frayed ends. Burnish the seat with a block of wood, rubbing the seat in each quadrant in the direction of the rush to flatten out the strands and fill gaps.

Happy weaving. I leave you with two pertinent rush-weaving quotes:

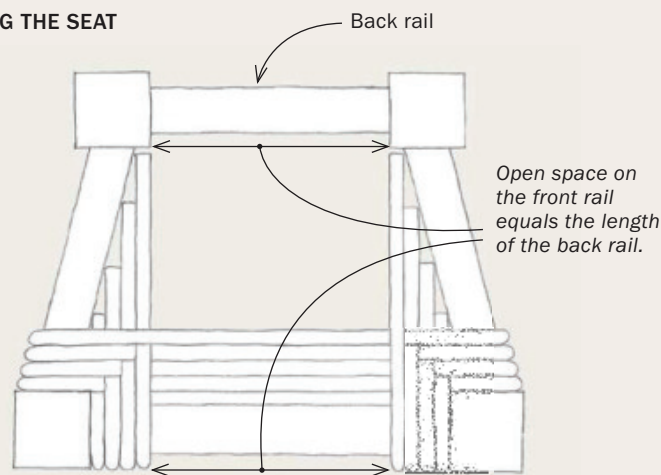
"Your eyeballs are your best tool." —Tage Frid via James Krenov

"Only fools rush in." —Elvis Presley

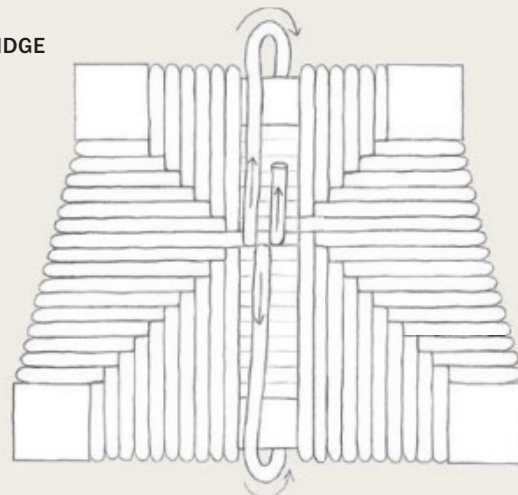
David Johnson builds furniture and teaches weaving from his home shop in Los Angeles.

Trapezoidal seats

SQUARING THE SEAT



BRIDGE



More often than not, the seat you are weaving won't be square. Since chair seats are typically wider in the front, creating a trapezoid, the corners aren't square. While the rush pattern depicted in this article requires squareness, you can use it on a trapezoidal seat frame by first weaving only the front two corners until the open space between the weave on the front rail matches the length of the back rail.

To determine that open space on the front rail, subtract the length of the back from that of the front. Divide the difference in half, and make a mark this distance in from the corners on each side. Weave only the two front corners, fastening the rush on the inside of the side rails. Continue to add courses until you reach the marks. Once you reach the marks, weave all four corners as you would a square seat.

Seats are also usually wider than their depth, so the side rails will fill up before the front and back have been completed. To compensate, make a bridge, which is a figure-eight pattern woven between the front and back rails, to finish the seat. Where the rush passes through the seat in the middle it will need to be tightly compacted together in order to get enough courses in to fill the rails.

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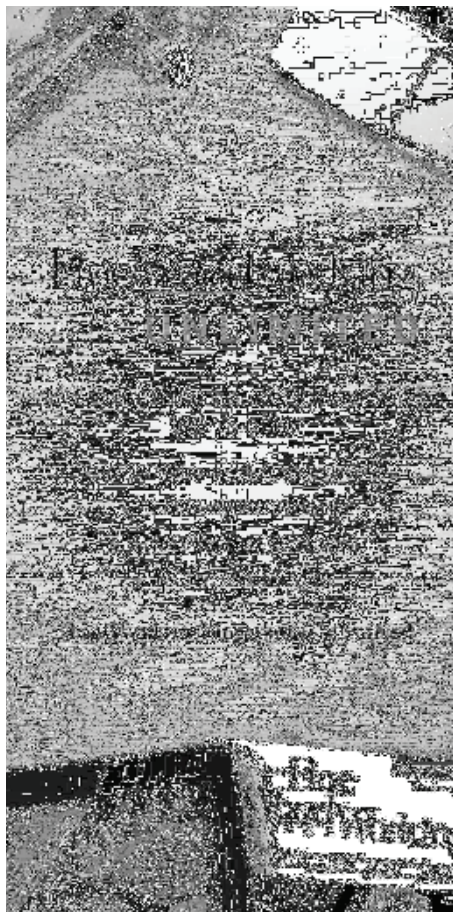
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My mistake

BY VASKO SOTIROV

Mistakes. We all make them, we all hate them. I can't seem to accept mine. It's what a mistake represents that bugs me so much—a poorly made choice; a distraction; a lack of control, focus, and discipline.

Woodworking is the medium through which my ideas and feelings take shape, so it's all very personal. During the process of creating something, I establish a strong connection with the piece, and a mistake is effectively a scar in this relationship reminding me of how I didn't put 100% into what I was doing.

Whenever I make something for a client, it is like helping them get to a destination. The most significant thing for them is to arrive somewhere specific. That is important for me as well, but even more vital to me is the journey. Was it an interesting trip? Did I enjoy it? Did I explore new roads? Have I gone the wrong way? For me, a great woodworking trip is one that leads to a piece as flawless as my hands are able to create. Elegant solutions and precise executions—the kind of stuff that puts a smile on your face.

Theoretically, it is possible to reduce errors to a number close to zero. But sometimes we do commit them. I deeply dislike fixing mistakes, because that bond I feel with my creation has been compromised. I therefore prefer to start over, remake the faulted piece or component from scratch, and eradicate the problem completely.

This might lead to a considerable amount of work, but I would go this route at almost any cost. Not doing so just makes me feel bad about myself. It's not that I couldn't

disguise the mistake. Most mistakes could be fixed so no one would ever notice them—except the severest of my critics, me.

Sometimes I make a mistake that compromises the whole piece I'm working on; then something interesting happens: Having invested so much labor and material in the piece, I'm really hurt by the idea of starting over. Part of me wants to just fix it and go on. But past experiences have taught me that's not really what I desire. In order to interrupt this residual connection, I destroy the piece.

A little hatchet and a tree stump are usually what it takes to restart. It's a symbolic way to let go of what I no longer like and to start from zero again. It's the end of all connection between me and the materialization of my mistakes. There's no anger involved with this process, just a quick and fun action that serves as a visual reminder for me to do better next time.

I am not suggesting that this is the proper way for others to deal with mistakes. In fact, I truly believe it's the exact opposite. It would probably be better just to fix the thing and go on. Starting over is not a practical, rational, or convenient decision; it's just what my heart tells me to do.

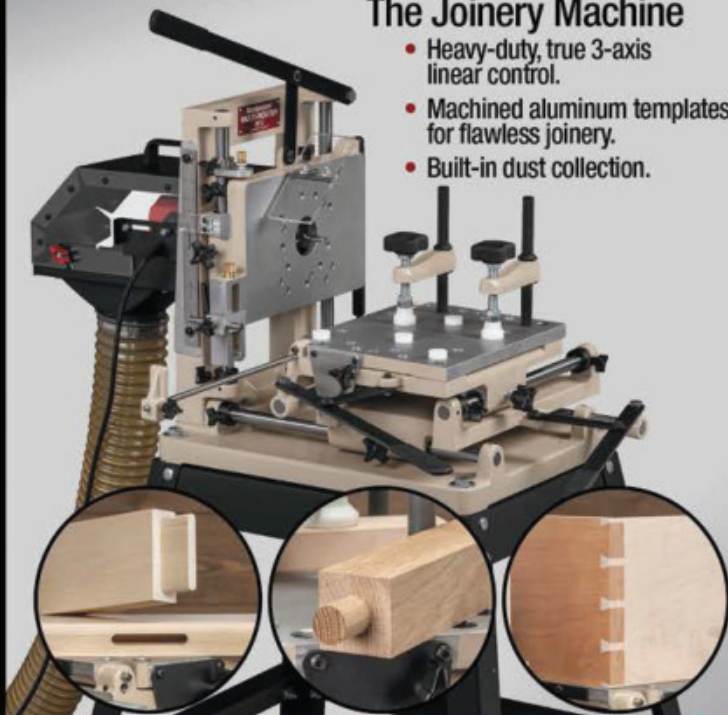
Some might feel stressed or even paralyzed by the thought that no mistakes are allowed. But that knowledge makes me feel stimulated and incentivized to give my best.

Vasko Sotirov works wood in Bergamo, Italy. Projects of his that didn't go under the ax can be found on the front cover of FWW #296 and the back cover of FWW #301.

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Chainsawn Spirals



Eight years ago, a logging truck pulled up to Howard Werner's studio outside Phoenix with a delivery. The truck's crane hoisted the trunk of a 7-ft.-dia. cottonwood tree and nimbly set it on the covered concrete slab where Werner carves his furniture and sculpture with a chainsaw. The scale on the crane read "15,000 lb." Werner used his largest saw to cut two 3-ft.-sq. chunks from the trunk for these tables and to saw their top and bottom faces flat and parallel. After finessing those surfaces with a power planer, he laid out the spirals in chalk and pencil—a large spiral on top, a smaller one on the bottom. Then with the blanks on their side, he carved the spiral channels, plunging in from the top and bottom faces. When the rough carving was complete, he put the tables aside to dry—for six years—before tuning their shapes and refining their textures, compensating for warpage and leaving clean, clear saw marks on the vertical surfaces. The top, by contrast, he power-planed and hand-sanded to near perfect flatness and a fine polish. Then another truck arrived and took the tables to the Mesa Contemporary Arts Museum, where they'll be on display in an exhibit of his work until March 19.

—Jonathan Binzen