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40  
YEARS

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how to use them

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bandsaw blades

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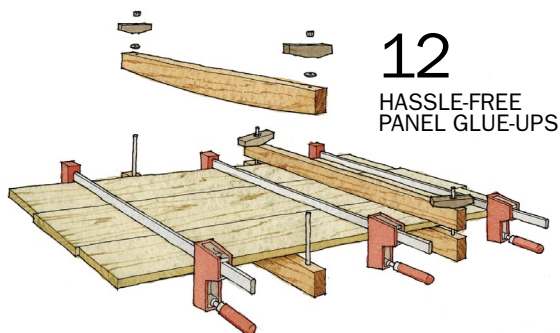
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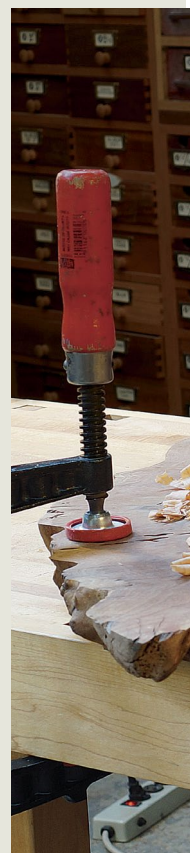
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CARVING A SPOON



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# on the web

THIS MONTH ON [FineWoodworking.com/extras](http://FineWoodworking.com/extras)

Visit our website to access free web tie-ins, available Dec. 2. While you're there, don't miss our collection of free content, including tool reviews, an extensive project gallery, and must-read blogs.

## Taming Big Slabs

Flattening massive boards (p. 38) can be a challenge, but Nick Offerman has a simple solution. Read about his clever router sled in a free online article.



## The Simple Art of Spoon Carving

Windsor chairmaker Peter Galbert blows off steam by picking up a carving knife and whittling spoons (p. 64). See how he creates his elegantly simple designs from start to finish in an online video.



## Win Free Woodworking Tools!

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### VIDEO WORKSHOP

## Beefy Bench with Storage

When building a new workbench for the *FWW* shop, staffers Matt Kenney and Mike Pekovich turned to the Shakers for guidance. Follow along from start to finish for tips on:

- Building a rock-solid post-and-beam base
- Adding drawers to a workbench
- Installing a twin-screw vise



# Fine WoodWorking

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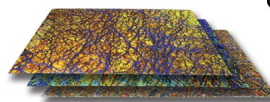
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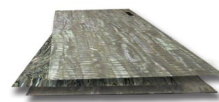
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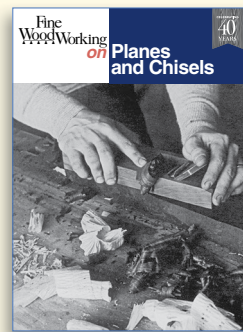
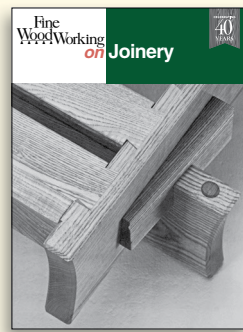
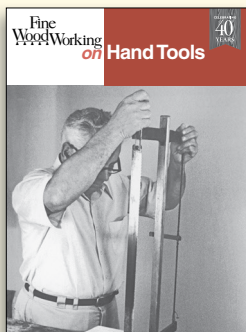
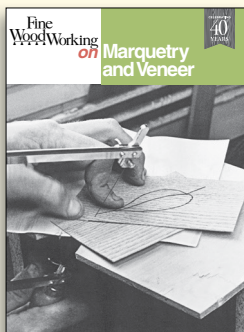
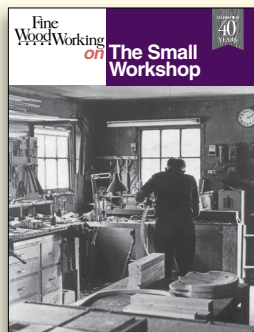
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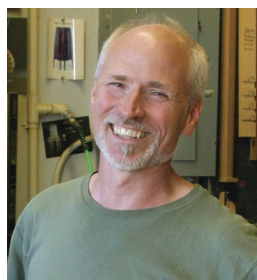


# contributors

**Kevin Rodel** (*Limbert-Inspired Coffee Table*) has been making custom furniture in Maine since 1979, when he joined the small crew of woodworkers at the Thos. Moser Company. Since 1986 he has run his own shop, focusing at first on furniture inspired by American Arts and Crafts pieces. Over the years he has expanded his designs to include influences from Europe and Asia, and increasingly personal interpretations of the style. In 2003, he co-wrote *Arts & Crafts Furniture: from Classic to Contemporary* (The Taunton Press), which traces the international scope of the Arts and Crafts movement.



**Peter Galbert** (*Wooden Spoons*), who studied painting and photography in college, worked with sheet goods in fast-paced cabinet shops in New York City in the 1990s. Then in 2001, while sharing a very small shop in lower Manhattan with a guitar maker, Galbert was inspired to look for “something I could make in a tiny space with hand tools and solid wood.” Windsor chairs were the answer, and he’s been making them—and teaching others how to do so—ever since. In 2015 he put all he knows about Windors into an impressive book, *Chairmaker’s Notebook* (Lost Art Press), which he both wrote and illustrated.



**Stewart Wurtz** (*Solid Method for Curved Drawers*) has been building custom furniture in Seattle since 1986, but he got his start on the other side of the country. Living in Maine in the late 1970s, he found a job at the Thos. Moser Company. After looking into various woodworking traditions on a trip to Europe in 1980, Wurtz returned to the United States and enrolled in the storied Program In Artisanry at Boston University, where his teachers included Jere Osgood and Alphonse Mattia.

The latest addition to contributing editor **Michael Fortune’s** woodworking homestead is a portable sawmill. After seeing the Woodland Mills HM126 in action, Fortune (*Drill Press Tips and Tricks*) decided that for under \$3,000, the machine would pay for itself in a few years. But watching him fire it up on a snowy day, we got the sense that owning this machine is at least half about the fun of it all. Fortune didn’t stop at the basic equipment, of course, but made it permanent on a concrete platform, with a timber platform alongside for rolling logs aboard.



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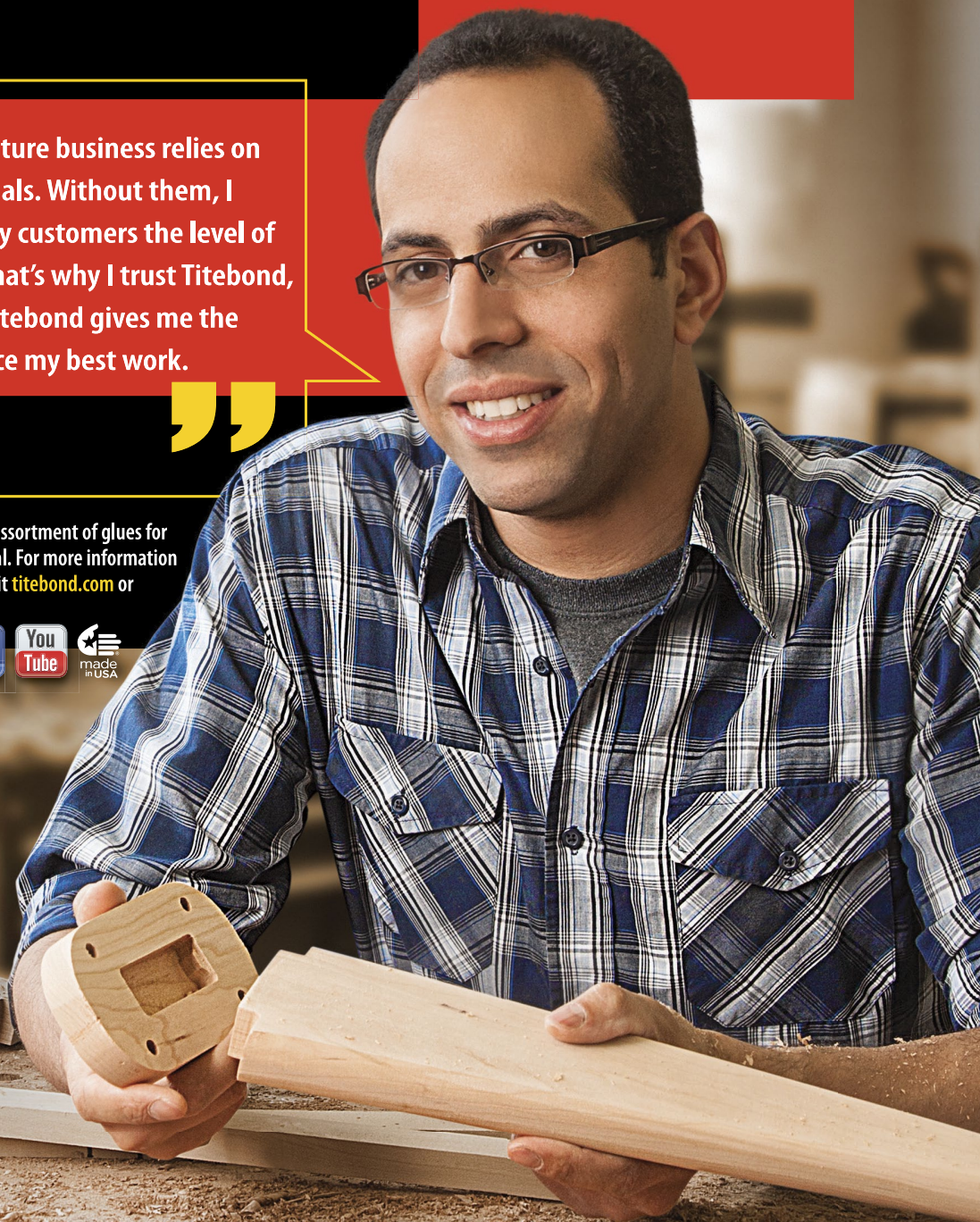
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## Spotlight

ISSUE NO. 251

Tools & Shops 2016  
p. 84



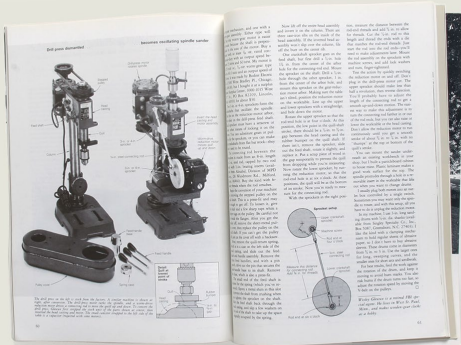
In the latest edition you featured some of your past articles on shopmade machines. Although you didn't revisit it, the article I enjoyed the most was "An Oscillating Spindle Sander" by Wesley P. Glewwe (*FWW* #46).

I bought the Bodine gear reduction motor in 1984 but didn't get around to building it until the early 1990s. I was teaching both wood shop and metal shop at George Washington High School in San Francisco and made the metal parts in the machine shop and the wooden cabinet in the wood shop. I followed the plan in the magazine very closely. My students were astonished that I could build such a thing, and one

asked why I would put such a thing in my living room. I guess he thought the finish level was high enough to warrant putting it there. I have been using it for around 25 years in my shop.

The Surplus Center ([surpluscenter.com](http://surpluscenter.com)) still sells the #561 Bodine gear motor for \$39.95.

—ROD SCHWEIGER, South San Francisco, Calif.



### Another beautiful back cover

The back page of *Fine Woodworking* always draws my attention. It's usually the writing style of Jonathan Binzen that creates

the allure. But in a recent issue (#249), Mr. Binzen outdid himself with that incredible photo. You should continue to strive for excellence in all aspects of your publication.

—NOAH ELAN, Beit Shemesh, Israel

### Tool cabinet completed at last

About a year ago I was thumbing through the 2014 *Tools & Shops* annual

issue of *Fine Woodworking* and I came across your project, "A Cabinet for Hand Tools." I looked at the plans and had some time over the Christmas break to knock this project out. I purchased the bulk of my base material (3/4-in. red oak from our local "big box" store) on Dec. 31, 2014. Last Saturday, Oct. 15, 2015, I finally finished! Clearly I would be the poorest cabinet maker in the country and given that I work as a mechanical engineering consultant, if I multiply the time it took me to complete this by my hourly rate, this cabinet should sell for hundreds of thousands of dollars!

Obviously I'm not the fastest woodworker in town but I had a tremendous amount of fun. I've been working with wood since I was 11

years old. The pictures don't show the dovetails, but they made me very proud. I look forward to doing a lot more work like this when I retire (in about seven years I hope) along with some wood turning, blacksmithing, and scroll work—I love it all.

By the way, I keep reminding my wife that the empty space on the plane till (take a look at the picture) is for my



Veritas scrub plane. Maybe it will arrive under the tree this year.

Keep up the great work.

—IAN McDONALD, Tampa, Fla.

### Big fan of the Shaker workbench

I hope this workbench (*FWW* #251) will be one of a series of projects you do at Hancock Shaker Village (I'm a Hancock member): trestle tables, stand-alone cabinets, built-ins, and even rockers from Mt. Lebanon.

Obviously, I love Shaker. And I like some Mid-Century Modern Wegner-type stuff. Arts and Crafts—with the exception of Mike Pekovich's Barnsley-inspired trestle table and some Greene and Greene—you can keep it.

Anyway, keep up the great work, and let's have many more from Hancock!

—CHRISTOPHER HUDSON, Adirondacks, N.Y.

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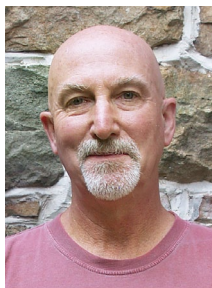
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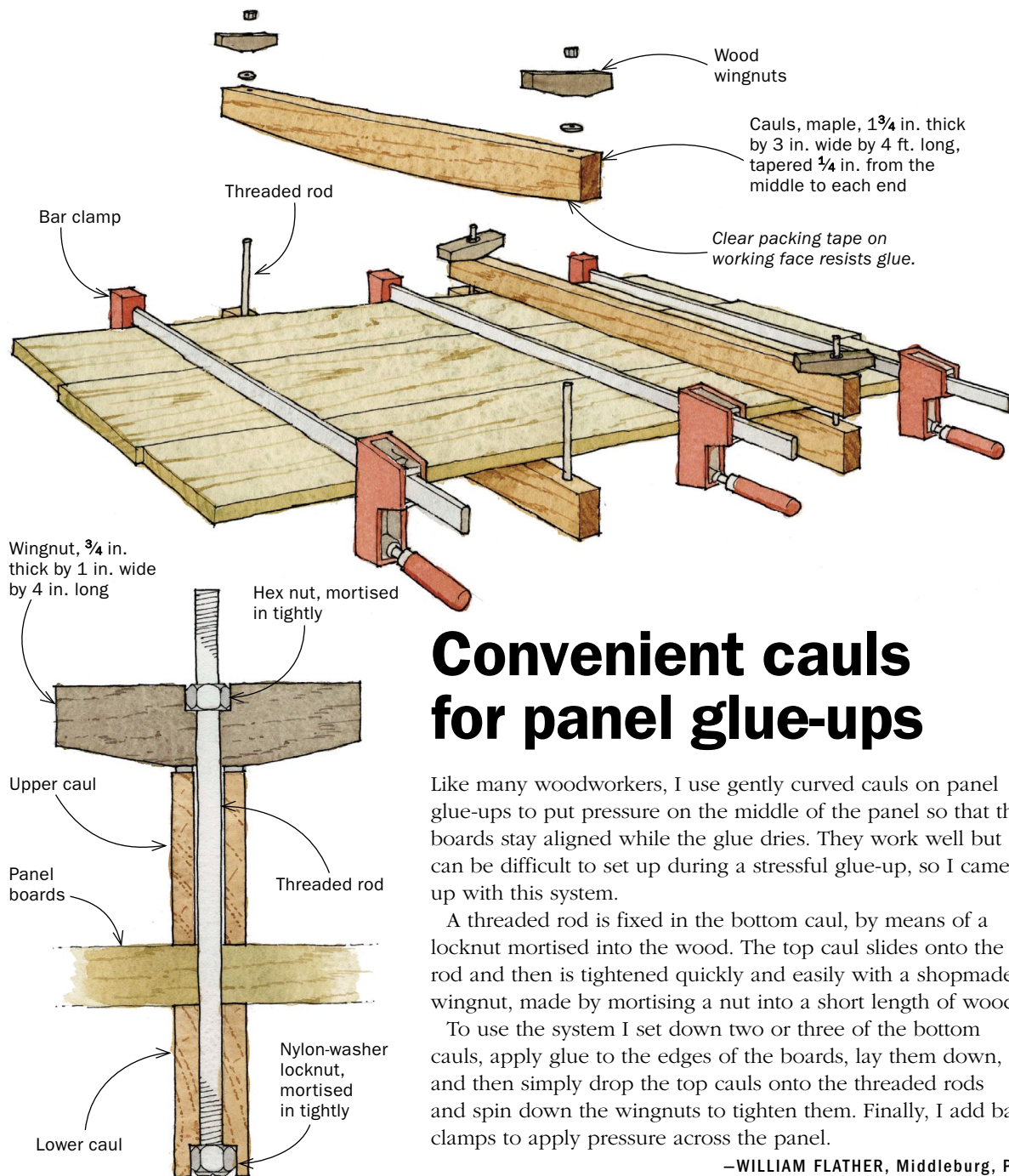
# methods of work

EDITED AND DRAWN BY JIM RICHEY

## Best Tip



Bill Flather was introduced to woodworking in the 1960s. Over the years he has restored antiques, renovated two 150-year-old homes, and made tables, cabinets, boxes, and chairs. The cauls in this tip came to him when he was building a new headboard for an antique four-poster bed he was converting to a king-size frame. He cites Flather's Law here: "The need for clamps will always exceed the quantity available."



## Convenient cauls for panel glue-ups

Like many woodworkers, I use gently curved cauls on panel glue-ups to put pressure on the middle of the panel so that the boards stay aligned while the glue dries. They work well but can be difficult to set up during a stressful glue-up, so I came up with this system.

A threaded rod is fixed in the bottom caul, by means of a locknut mortised into the wood. The top caul slides onto the rod and then is tightened quickly and easily with a shopmade wingnut, made by mortising a nut into a short length of wood.

To use the system I set down two or three of the bottom cauls, apply glue to the edges of the boards, lay them down, and then simply drop the top cauls onto the threaded rods and spin down the wingnuts to tighten them. Finally, I add bar clamps to apply pressure across the panel.

—WILLIAM FLATHER, Middleburg, Pa.

## A Reward for the Best Tip



Send your original tips to [fwmow@taunton.com](mailto:fwmow@taunton.com) or to Methods of Work, Fine Woodworking, P. O. Box 5506, Newtown, CT 06470. We pay \$100 for a published tip with illustration; \$50 for one without. The prize for this issue's best tip was a 12-volt drill/driver kit from DeWalt.

## Quick Tip

When drilling dowel joints with a fractional drill bit, I've found that dowels made to be the same size often don't fit the holes. If the dowels are too tight, I have to sand them down to make them smaller. If they are loose, I'm out of luck. The answer was buying small sets of bits in number and letter sizes. The number and letter bits are graduated in extremely small increments, perfect for fitting the arbitrary diameters of store-bought dowels.

—DAN MARTIN, Galena, Ohio



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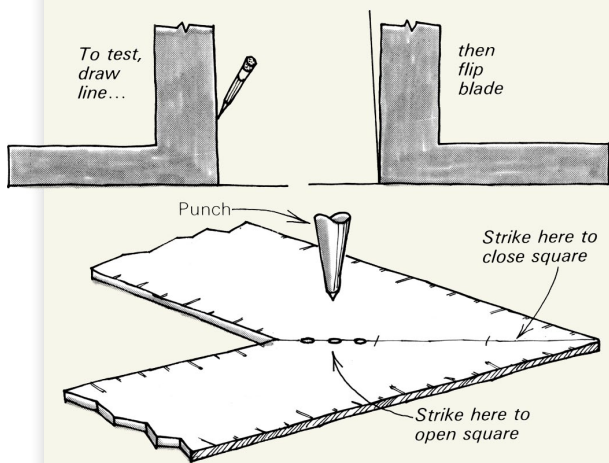


## How to true a framing square

Here's a method for truing a framing square using just a hammer and center-punch. First test to determine if your square is true by drawing a straight line 3 ft. to 4 ft. long. Then, with the tongue on the line, draw a pencil line alongside the blade. Flip the tongue over and bring the square into the corner of the two lines just drawn. If the square is true, the lines will be right alongside both tongue and blade.

But if the lines don't coincide, here's how to regain a true 90°. At the heel, draw a line from the inside corner to the outside corner and divide the line into thirds. Place a center-punch on the line in the center of either the inner third or the outer third. By striking the punch in the outer third you spread the metal and cause the square to close (decreasing the angle). By striking the punch in the inner third you will open the square (increasing the angle). Rap the punch smartly with a hammer, as you would to leave a starting hole for a drill. Naturally, check the square after each adjustment is made.

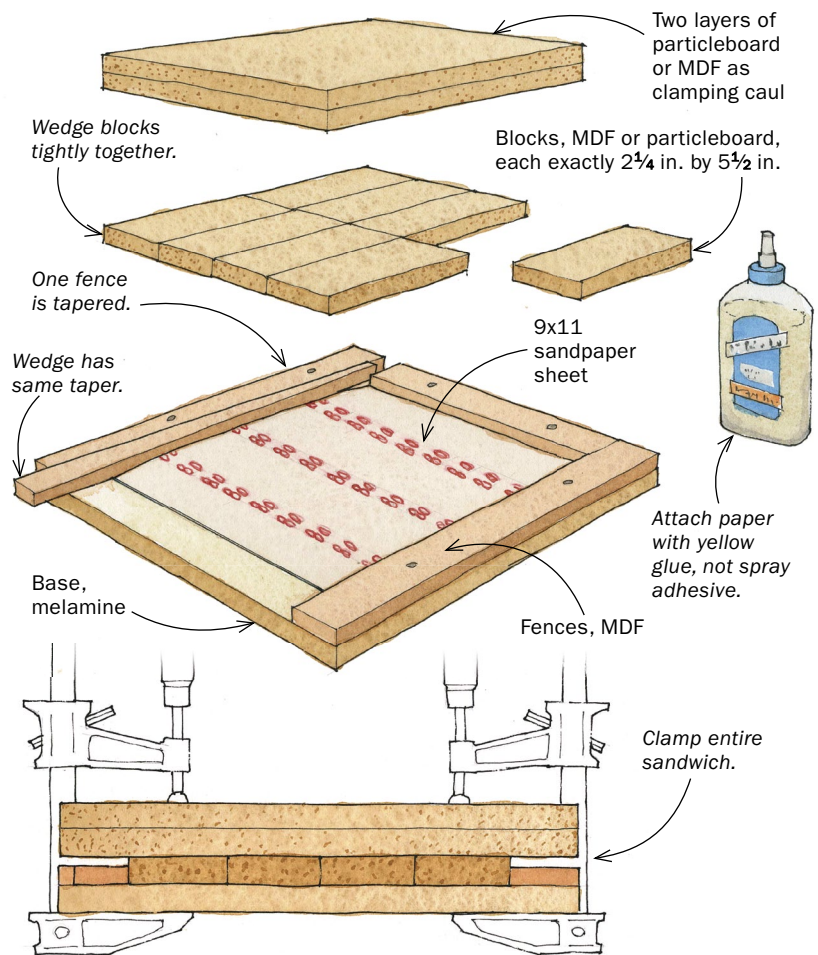
—ROBERT C. AMIRAUULT, South Thomaston, Maine



CELEBRATING  
**40**  
YEARS

### Classic Tip

To mark FWW's 40th anniversary year, we are presenting some classic Methods of Work tips. This tried-and-true tip is from FWW #17.



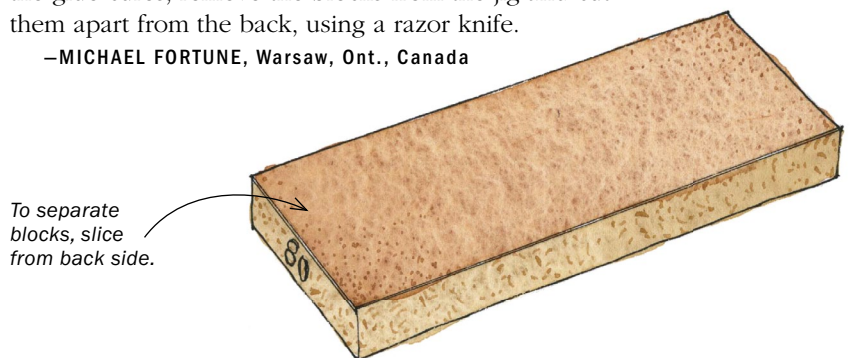
## Smart jig makes a stack of sanding blocks

I encounter lots of odd smoothing, trimming, and chamfering tasks that are a challenge for a block plane or a chisel. Also, I don't like to slow down to sharpen hand tools. In these situations most folks use sandpaper wrapped around a block, but I don't like the way the sandpaper ripples and tears when used this way. That led me to develop a better sanding block. The paper is glued on, which keeps it flat and rigid for very accurate use. Also, the blocks have square, smooth edges so I can sand inside corners without damaging the adjacent surface. I make these blocks in several grits, from 80 to 220.

I use the blocks for sanding inside edges, smoothing surfaces too small for a block plane, making small chamfers on the inside edges of boxes and frames, sanding edges with difficult grain, cleaning up tenon cheeks, and even leveling and smoothing exotic inlays.

You need stacks of these blocks, because they must be discarded when dull. So I developed a simple jig that produces eight blocks at a time, perfectly sized to use one sheet of regular 9x11 sandpaper. After the glue cures, remove the blocks from the jig and cut them apart from the back, using a razor knife.

—MICHAEL FORTUNE, Warsaw, Ont., Canada







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## POWER TOOLS

### Miter saw handles big boards

**W**HEN I NEED TO MAKE AN ACCURATE CROSSCUT for a piece of furniture, I use my tablesaw. But jobs like rough-cutting a piece or trimming a long part to length are easier to handle with a miter saw. I have two non-sliding miter saws, but I have been looking to upgrade to a sliding model. I think I've found what I was looking for. The Makita LS1018 10-in. dual-bevel sliding miter saw, which I've been using in my shop, is a great saw and a big improvement over my old ones.

After making some minor adjustments to the fence and bevel stops, I was able to make cuts that any finish carpenter would envy. Soon, though, I had the saw dialed in to make furniture-quality cuts. From day one, I found the saw pleasing to use. The sliding and chopping actions are very smooth and precise. The grip is comfortable and is oriented on the housing so I was able to use it with either my right or left hand with no trouble.

Changing the miter and bevel angles is intuitive and easy. The miter controls are at the front, while the bevel lock is at the back. Stops for 90° and 45° held the head assembly securely.

The supplied dust bag works well but fills up quickly (after about 20 to 30 cuts through wide boards). Dust collection was even better with a shop vacuum hooked up to the port (1¼ in.

I.D.) on the back of the head assembly, collecting about 90% of the chips.

When set up for a 90° cut, the saw can handle boards up to 12 in. wide. At 45°, it can still crosscut an 8½-in.-wide board. That capacity is thanks to the sliding rails, but those rails have a downside, too: The saw takes up a lot of space. To put the saw on a countertop against a wall, you'll need a surface that's at least 33 in. deep, and another 10 in. of clearance in front of the saw for the miter control handle. Still, I like this saw and am willing to find the space it needs.

—Kelly J. Dunton is an avid furniture maker and tool connoisseur.

Sliding compound miter saw by Makita  
LS1018  
\$388



**Wide boards are no problem.** You can cut clear through boards up to 12 in. wide with the blade set for a 90° cut. Angled for a 45° miter, the saw can still get through boards 8½ in. wide.



**Convenient adjustments.** Located on the front of the table, the miter lock is never far from your hand, and provides plenty of leverage to swing the saw for miter cuts in either direction.



**Right for lefties, too.** Oriented vertically and clear of the blade housing, the handle is just as easy to operate with your left hand as it is with your right.





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## ■ HAND TOOLS

### Miter plane is a versatile trimming tool

**D**ESIGNED FOR TRIMMING END GRAIN, a miter plane is like a big block plane with sides that are square to its sole. This means you can use it not only with the sole down for jobs like trimming end grain on wide panels, but also on its side, with a shooting board. The tool gained popularity in the 19th century. The miter planes of that era, made by Spiers, Mathieson, and Norris, were precise but awkward and downright uncomfortable to hold.

Veritas has updated the miter plane with a version that is vastly more comfortable than those old ones, and easier to adjust to boot. The Veritas plane has a Norris-style adjuster that controls both the depth of cut and the blade's lateral position. It moves smoothly and adjustments are precise. Backlash was negligible. It has an adjustable mouth, too, allowing you to set the opening for coarse and fine shavings.

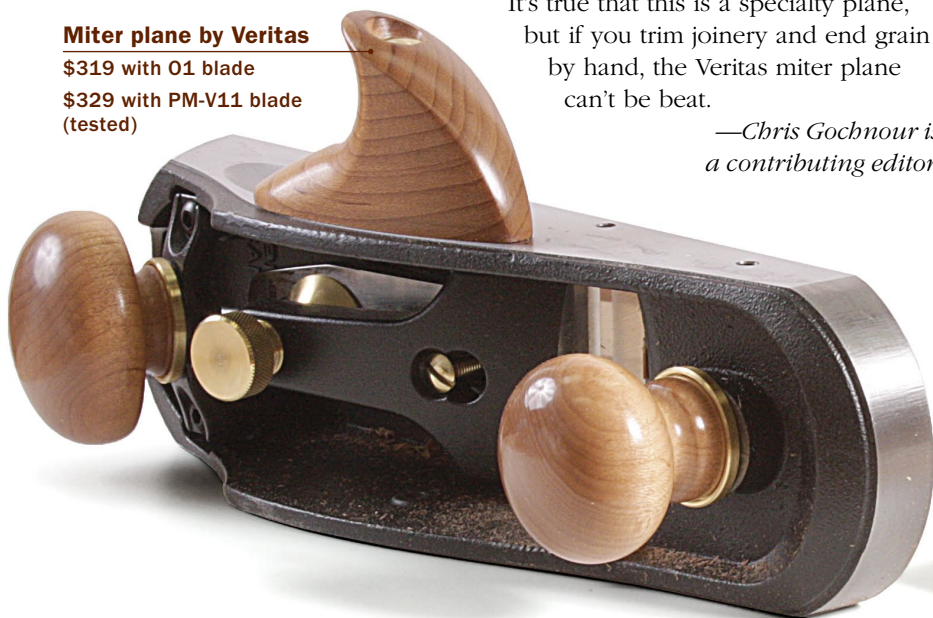
The plane is very comfortable to hold when used sole down. The palm of your back hand rests nicely on the back knob, while reliefs machined into the sides of the plane at the back provide the perfect grip for your fingers. The plane is comfortable on its side, as well, thanks to a detachable handle, or shooting horn. It fits between your thumb and forefinger, making it easy to push the plane through a cut.

I used the plane with shooting boards to trim case and frame miters, with a miter jack to refine a long, handsawn miter, and like a block plane to clean up the end grain of a wide panel. The blade's low cutting angle (mine was set to 37°) was able to slice off continuous end grain and miter shavings with ease. The plane's low center of gravity facilitates fine control when planing, both sole down and on its side.

#### Miter plane by Veritas

\$319 with O1 blade

\$329 with PM-V11 blade  
(tested)



It's true that this is a specialty plane, but if you trim joinery and end grain by hand, the Veritas miter plane can't be beat.

—Chris Gochnour is  
a contributing editor.



**Shoot end grain comfortably.** A wooden horn, which can attach to either side of the plane, is shaped nicely to fit between your thumb and forefinger and allows you to get plenty of power behind each stroke.



**Mouth is always open the right amount.** Loosening the front knob allows you to pull the mouth open for heavy shavings, or close it down tight to the blade for fine ones.



**A well-done adjuster.** The Norris adjuster turns smoothly for depth adjustments. Lateral adjustments are a breeze, too. The adjuster's big knurled knob is easy to reach and grasp.





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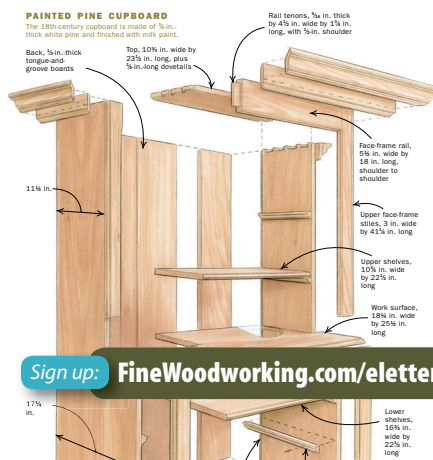
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## Router Table Dovetail Jig

by Leigh



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- Half-Blind Dovetails
- Through Dovetails
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**LEIGH**



## Splash color on wood

BRIGHT PIGMENTS BRING ENERGY  
AND EXCITEMENT TO FURNITURE

BY SCOTT MCGLOSSON

I've been splashing pigment on hardwood since my earliest days as a furniture maker. The instructor and old-timers at the vo-tech where I took night classes were aghast—I was skewering a sacred cow. But I kept it up, and now it's second nature to me. Color can do so much: It can energize a simple form, it can be edgy and iconoclastic, or it can be playful and add an element of surprise.

I worked my way through college as a painter and finisher on my way to

an English degree.

After a half dozen years working in education, I fell hard in love with woodworking and brought my painting and finishing knowledge to full-time furniture making.

I use a lot of different finishes to get color on my furniture. To achieve an opaque coating, I'll often spray pigmented lacquer. This is essentially like paint—the color is in the finish, not in the wood. I usually mix the colors myself using lacquer-based colorants, or TransTint, a type of dye you can add to clear lacquer. But you can get pigmented lacquers professionally color-matched to just about anything. Lacquers need

to be sprayed in a controlled environment with proper ventilation and good spraying skills, but they level like nothing else and are very durable.

Alternately, especially for white or black pieces, I'll use dyes or stains to color the wood directly, and then spray a clear or slightly tinted topcoat.

To color some of my turned pieces I like Rubio Monocoat, a modern, oil-and-wax finish from Belgium with no VOCs (volatile organic compounds). It was invented for flooring, but it works well on furniture. The color selections are limited and it's expensive, but it's easy to apply and doesn't require a spray booth.

Ash is the quiet workhorse behind showier species such as







walnut in my painted furniture. Ash is dense, stable, and inexpensive. And with its deep, open grain it is the perfect wood for opaque finishes. Light flickers across its distinctive texture, and even if the finish is thick, you'll always be aware there's wood underneath.

I use ash for the stack-laminated bodies of my turned pieces—stools, side tables, lamps, and vessels. To prepare the turning blank I'll glue up a stack of 8/4 disks of ash with one 4/4 disk of walnut at the top. Once I've turned the basic shape, I texture these pieces with grooves cut with a skew chisel. Random patterns of the open grain intersect with the controlled grooves, and when an opaque finish is applied the appearance almost mimics the glazed surfaces of ceramics.

To apply color to one of my stools or benches, I'll flip the piece upside down on my finishing table and coat the entire underbody with black, blue, white, or red, leaving the top as a single plane of clear-coated walnut or cherry. When I



turn it right side up, I gently ease the edge of the pigment with sandpaper and then spray a clear topcoat on the whole piece.

Some of my forms are riffs on traditional utilitarian furniture, taking influences from Scandinavian and rustic pieces. Adding splashes of color, while framing and enhancing the natural wood, brings my pieces to a modern place. □

---

*Scott McGlasson designs and builds furniture in St. Paul, Minn.*





# Limbert

Grids and cutouts define





# Inspired Coffee Table

a practical piece

BY KEVIN RODEL



The Charles P. Limbert Furniture Co. of Holland, Mich., a standout during the heyday of the Arts and Crafts movement at the start of the 20th century, may be long gone, but its designs have endured. So when a client requested an Arts and Crafts style coffee table several years ago, I knew just where to turn: Limbert's Table 153, with its striking pattern of cutouts. When Limbert came up with his design, the coffee table as a furniture form didn't yet exist, but I had no trouble adapting Table 153 to coffee-table dimensions.

## Create the cutouts on the ends

After selecting and gluing up the boards for the tabletop and setting them aside, I start building the base. The end assemblies, with their signature cutouts, are





first up. Rather than chopping holes in a panel to make the cutouts, rip the panel apart, crosscut two of the strips, and glue it back together. This creates crisp, precise cutouts without a lot of fussy handwork. To account for the sawkerfs and for flattening and trimming the panel after re-gluing it, start with a blank that is about  $\frac{3}{4}$  in. wider and longer and at least  $\frac{1}{16}$  in. thicker than the finished dimensions.

Once you've laid out the cutouts on both panels, make the first ripcut  $1\frac{1}{2}$  in. from the centerline. Then set the fence for slightly more than 3 in. to make the rest of the rips. You'll need to joint the strips after each ripcut, and the extra width allows for this.

While all the strips are still full length, cut biscuit slots to aid with alignment during the glue-up. After biscuiting, crosscut the two strips that have cutouts. Be sure to keep the waste blocks—they're useful as spacers during assembly. Do the glue-up with your normal panel clamps, and when the glue has had ample time to set, plane or sand the panels to their final 1-in. thickness.

### Mortise for shelf and corbel

Now that the panels have been reconstituted, cut the stopped dado and through-mortise for the shelf. For both, I use a  $\frac{1}{2}$ -in.-dia. bit in a plunge router and run the router's edge guide along the bottom edge of the panel.

To cut the through-mortise, set the plunge depth to a little over half of the panel's thickness and plunge

## COFFEE TABLE WITH GRIDS AND CUTOUTS

To create the crisp-cornered square cutouts and gridwork, the end panels and shelf are cut apart and reassembled.

Leg,  $1\frac{5}{8}$  in. square

Spline,  $\frac{1}{4}$  in. thick by  $\frac{1}{2}$  in. wide

Side strip, 1 in. thick

Corbel, 1 in. thick by  $4\frac{1}{4}$  in. wide by  $13\frac{5}{8}$  in. long

See end panel grid layout on p. 26.

TOP CORNER

$2\frac{1}{4}$  in.

5 in.

Center strip, 1 in. thick by 3 in. wide

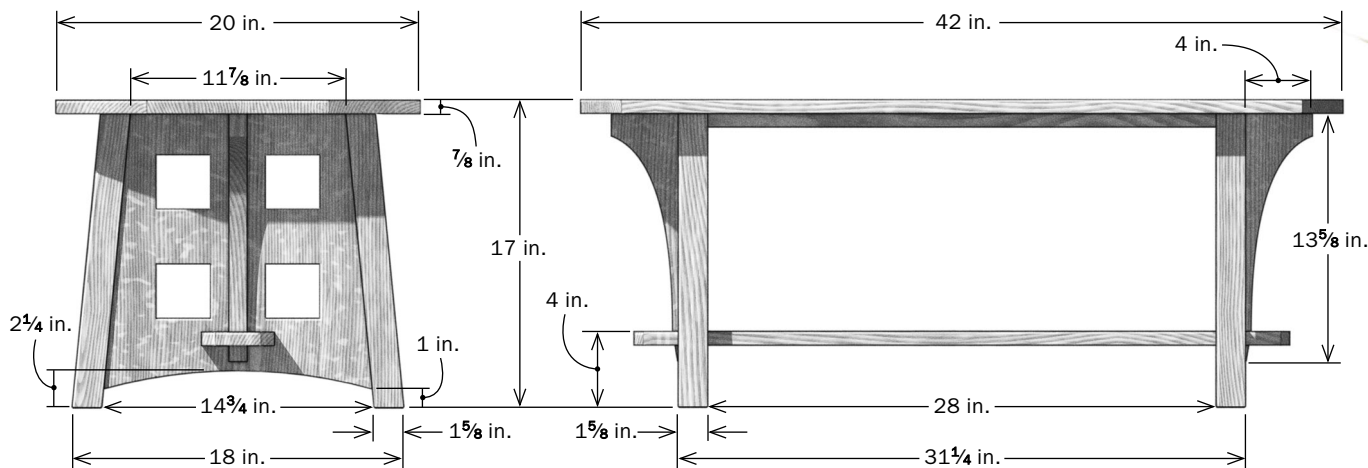
Corbel groove,  $\frac{1}{2}$  in. wide by  $\frac{1}{4}$  in. deep

Through-mortise,  $\frac{3}{4}$  in. wide by 4 in. long

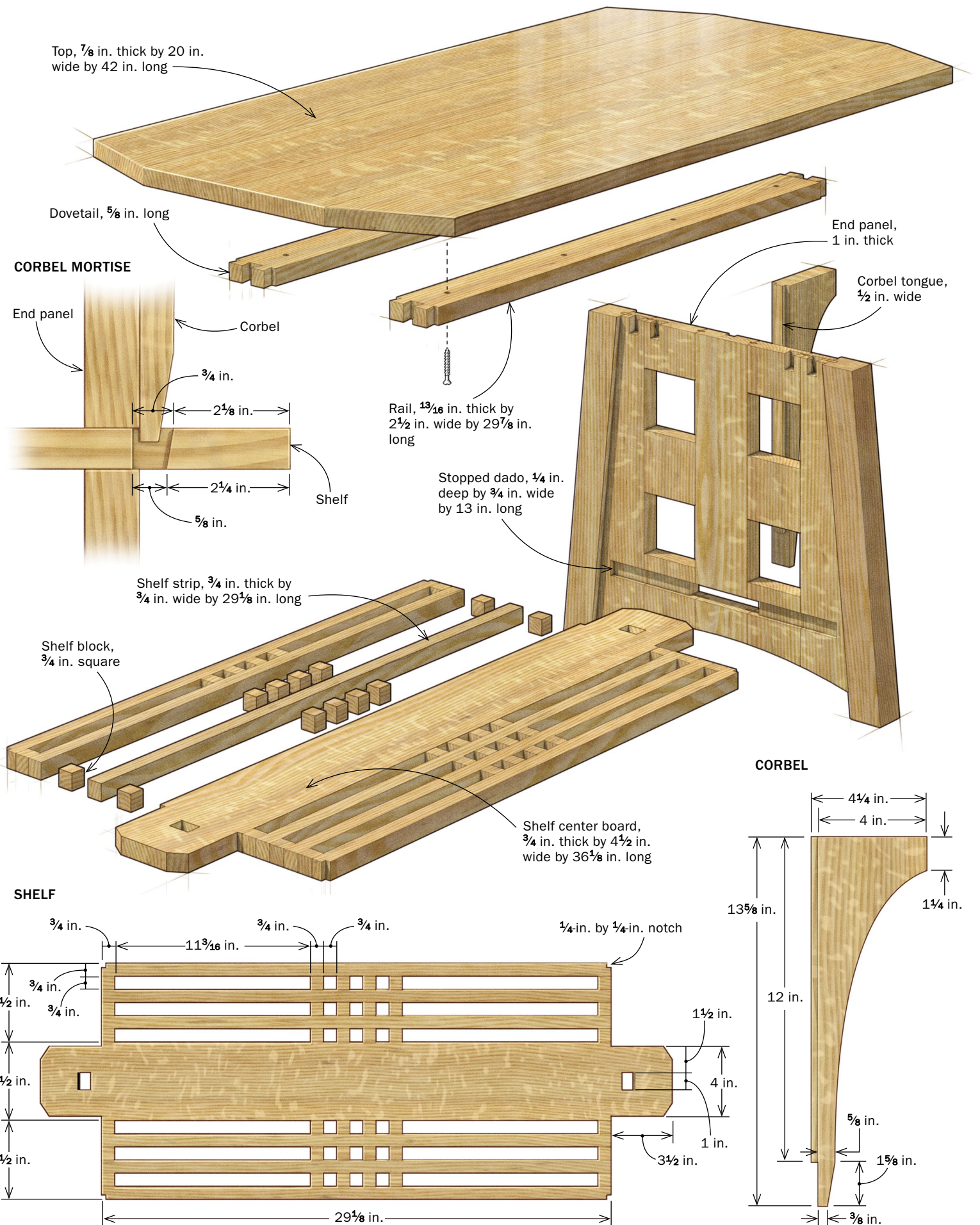
To purchase expanded plans and a complete cutlist for this coffee table and other projects, go to [FineWoodworking.com/PlanStore](http://FineWoodworking.com/PlanStore).

SIDE VIEW

FRONT VIEW





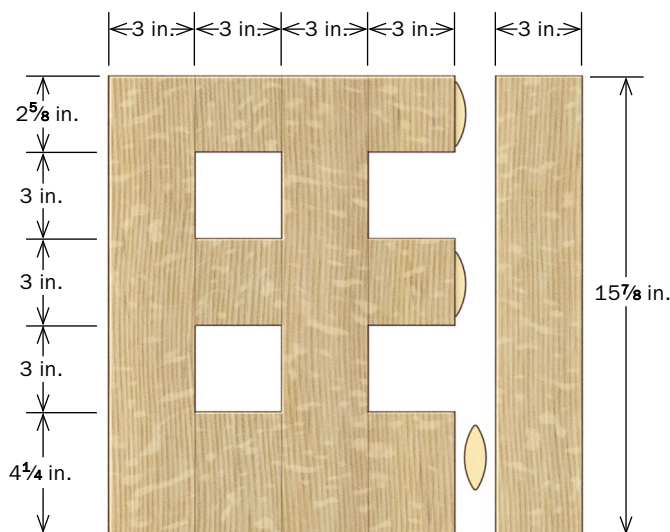




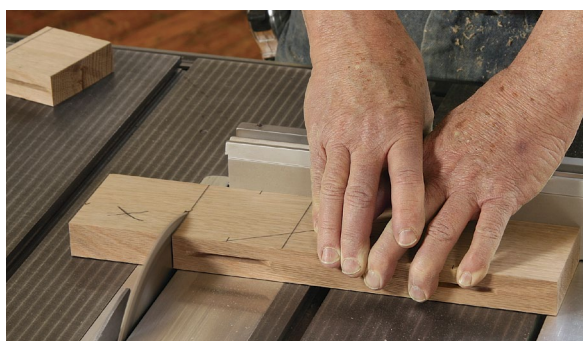
# Create the cutouts

To simplify making the cutouts, Rodel saws apart a solid panel and reassembles it, minus four blocks. The glued-up workpiece includes  $\frac{3}{4}$  in. extra length and  $\frac{1}{4}$  in. extra width.

## END-PANEL GLUE-UP



**Rip strips.** After gluing up a panel and laying out the four square cutouts, rip it into five 3-in.-wide strips. Stock that will be removed is marked with an X.



**Crosscut to make cutouts.** After cutting biscuit joints in the strips, crosscut the second and fourth strips and set the waste blocks aside.

cut from both faces. The edge guide guarantees that the cuts will line up. Reset the edge guide and make a second pass from each face to widen the mortise to the full  $\frac{3}{4}$  in.

Without changing the edge guide, reset the plunge depth to  $\frac{1}{4}$  in. and make the initial cut for the shelf dado. Then reset the edge guide the necessary  $\frac{1}{4}$  in. to widen the dado to  $\frac{3}{4}$  in. with a second pass. With the routing finished, use a chisel to square the ends of the dado and the through-mortise.

Now make the groove for the corbel's tongue. I cut it with a router guided by a straightedge clamped to the panel.

## Shape the panels and attach the legs

To make quick work of producing identical panels, I taper both panels at once, holding them together with double-sided tape. The taper I used is  $5\frac{1}{2}^\circ$ . Bandsaw to the lines and set aside the wedge-shaped cutoffs for later use. With the panels still taped together, use a hand-plane or the jointer to smooth the band-sawn cuts. Then pry apart the panels.

To create the arched cutout at the bottom of the panels, I made a Masonite template,

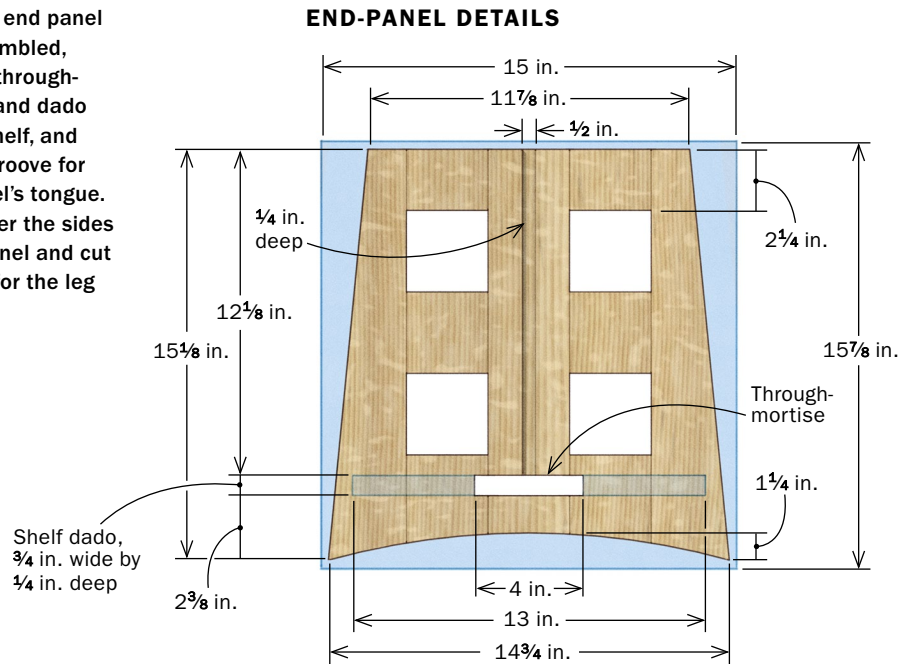


**Put it back together.** Biscuits keep the parts in plane as you glue them back together. The waste pieces, standing on end, act as spacers during the glue-up.

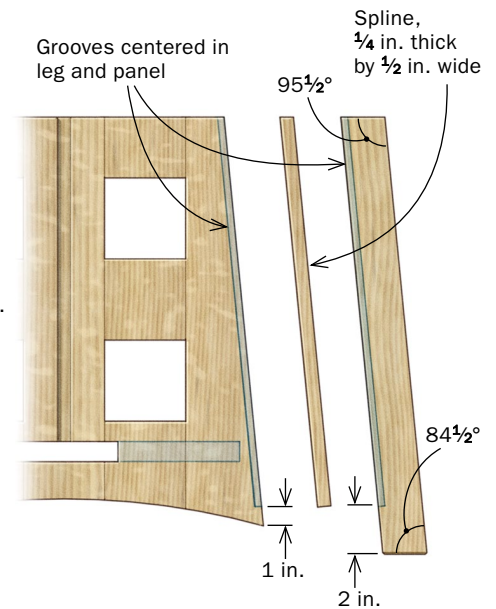


# Make way for the shelf, corbel, and legs

After the end panel is reassembled, rout the through-mortise and dado for the shelf, and cut the groove for the corbel's tongue. Then taper the sides of the panel and cut grooves for the leg splines.



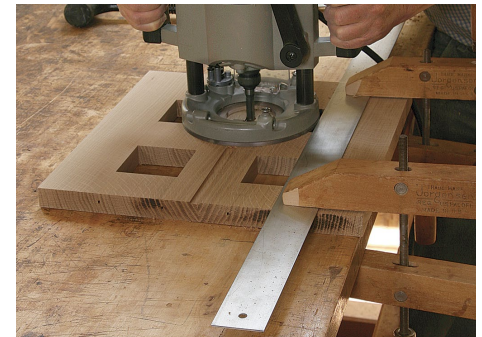
## LEG-TO-PANEL JOINERY



**Rout for the shelf.** After trimming the end of the panel, use a router with an edge guide to cut the dado and through-mortise for the shelf.



**Square up the dado.** Use a chisel to square the ends of the shelf dado and through-mortise.



**A cavity for the corbel.** With the router guided by a straightedge, cut the shallow groove to accept the tongue on the corbel.



**Taper the panels together.** Rodel uses double-sided tape to hold the two end panels together, tapers them on the bandsaw, and smooths the bandsawn cuts on the jointer (above). He cuts the curve on the panel's bottom, then cuts stopped grooves in the legs and panel to accept splines. He adds the legs, using the tapered cutoffs from the panel as cauls during the glue-up (right).





# Gridded shelf

## FIT THE CENTER BOARD



**Nibble the notches.** Rodel cuts the notches by supporting the center board on edge against the miter gauge and sliding the board sideways, so it passes over the blade. He advances the miter gauge between passes to nibble just a bit at a time and uses the rip fence as a stop.

traced the curve from it onto the panels, and bandsawed just outside the line. Then I used the template and a flush-trimming router bit to do the final trim cut.

Now move on to the legs. After milling the blanks to size and cutting the angle on both ends, cut a centered  $\frac{1}{4}$ -in.-wide groove on the inside face. Stop the groove 2 in. from the bottom of the leg, and clean up the stopped end with a chisel. Then cut a centered groove along the tapered edges of the panels. Fit splines to the grooves and glue the legs and side panels together, using the tapered cutoffs as clamping cauls.

### The shelf gets a gridwork pattern

Building the gridded shelf begins with making and fitting the center board. Mill the center board so that it fits snugly in



**Prepare for the corbel.** After fitting the center board in the through-mortise, mark where it emerges. This line will help locate the through-mortise for the corbel.



**Corbel mortise.** The corbel acts as a tusk tenon, helping lock the structure together. Rodel roughs out the through-mortise at the drill press, then chops it square.



**Angled for insurance.** The outer wall of the mortise gets angled to match the taper at the bottom of the corbel, which adds locking strength.



## THEN CREATE THE GRIDWORK



**Block factory.** To make the gridded side panels of the shelf, Rodel cuts  $\frac{3}{4}$ -in.-wide strips. Then he cuts blocks from the strips, using a scrap against the rip fence as a stop.



**One at a time.** Rodel builds the grid one row of blocks at a time on a sheet of waxed paper taped to Masonite. After 15 minutes he'll add another strip and set of blocks.



**A little off the top.** When the side assembly is cured, send it through the planer (or a thickness sander) to create a uniform surface.

the through-mortise, and then notch the ends to define the length and width of the through-tenons. Once you have fitted the tenon, mark where it emerges from the panel. This will help locate the mortise for the corbel. Remove most of the waste for the corbel mortise on the drill press and clean to the layout lines by hand.

To make the two gridded side assemblies, start with two 3-in.-wide boards slightly thicker than  $\frac{3}{4}$  in. and as long as the center board. Rip each into three  $\frac{3}{4}$ -in.-wide strips, jointing after each ripcut.



**Finalize the grid.** When gluing on the two gridded side panels, be careful to align their ends with the shoulder of the notch on the center board. Before this glue-up, make the angled cuts on the ends of the center board.



**Notch the shelf.** The shelf, which is fully housed in the dado in each end panel, is notched at the corners to hide the dado. Rodel cuts the  $\frac{1}{4}$ -in.-wide notches with a few passes of the saw.



# Final details

## FINISH THE CORBELS AND RAILS



**Double-length blank.** With both corbels laid out on a single blank, use the tablesaw to cut a tongue along one edge. Then bandsaw the curves.



**Fair the corbel curves.** After bandsawing the corbels close to final shape, use rasps and files to smooth the curves. Then cut the two corbels to length.



**Top lock.** Twin dovetails secure the rail to the top of the end panel. Along with the corbel, which acts as a tusk tenon, the rails give the table base mechanical locking at top and bottom.

Crosscut six  $\frac{3}{4}$ -in.-long blocks from each strip, and then trim the strips to length.

I glue up the grids on a sheet of waxed paper laid on a flat surface. Assemble one segment at a time, apply clamps for 15 to 20 minutes, and then add another segment until both side units are complete. When they have cured, plane or sand them flush, and then glue them to the center board. Finally, notch the corners of the shelf so the ends of the dado will be hidden.

### Add the rails and corbels

The rails that dovetail into the end panels add structure, keep the panels properly spaced, and provide a way to screw the base to the table's top. I determine the exact length of the rails only when I have the shelf and the end units dry-assembled so I can measure the actual distance between the panels at shelf level. I cut the tails on the rails with a handsaw and chisels, then transfer them to the end panel. I saw and chop the sockets by hand as well.

To make shaping the corbels easier, you can lay them out end-to-end on a single board and cut them apart only after they are fully shaped. First, with a couple of cuts at the tablesaw, make the tongue along the back edge. Next, cut the curves on the bandsaw and use a rasp, files, and



## BRING IT ALL TOGETHER



**Assembly starts without clamps.** Rodel knocks the rails into place and checks the structure for square before applying clamping pressure.



**Corbel after clamps.** Pull the end panels tight with clamps, then drop the corbel into place.

**That's it.** Rodel screws the base to the tabletop (below). Since the end panels and shelf will move in concert with the top, there's no need to accommodate wood movement with elongated screw holes.

sandpaper to fair the bandsawn surfaces. Then cut the two corbels to length.

The fit of the corbel in the tapered mortise should be snug enough that when the corbel is inserted it pulls the shelf home. But the fit shouldn't be too tight, or it may crack the short grain beyond the mortise. I do the final fitting of the corbels when the rest of the base is glued and clamped. When the corbels are fitted, glue them into the groove and the base is complete.

### Topping

When I make a table with a wide top like this one, I usually take the glued-up panel to a shop with a wide belt sander and have it sanded to 120 grit. I do all subsequent grits by hand after any shaping and joinery has been completed. To cut the angled corners of the top, bandsaw close to the line, then rout to the line using a flush-trimming bit and a template or straightedge. After applying the finish of your choice, secure the top to the base with screws and you're ready for an Arts and Crafts cup of coffee. □

Kevin Rodel, co-author of *Arts & Crafts Furniture: From Classic to Contemporary* (The Taunton Press, 2003), makes custom furniture in Brunswick, Maine.





## USE A NO-FRILLS FENCE AND TABLE

Fortune prefers a simple MDF table and hardwood fence, clamping both down in one shot. To change the fence setting slightly, loosen the table bracket and pivot the whole table on the column.



**Two-faced.** Fortune's shopmade fence is machined straight and square. It can be used tall or short, letting you raise the table for small bits without interfering with the crank handles. He puts a  $\frac{1}{8}$ -in. rabbet along the bottom edges so dust doesn't push the workpiece away, and glues 120-grit sandpaper to the bottom faces to keep the fence from shifting.



## SHINE A LIGHT

Overhead light gets blocked by the head of the machine. The solution is a magnetic, adjustable work light, which floods the workspace and makes it easier to hit the mark.



## GET A SET OF SUPPORT ARMS

Rather than using a large table to support long workpieces, Fortune sticks with the small table, plus a set of work-support arms. The HTC PM-128 model is available online for \$60. The rollers extend outward up to 28 in. on each side and are easily raised and lowered to keep the workpiece level on the table, or slid inboard to save space. The mounting bracket holds more securely if you place small wood blocks at the end of the straps.







# Drill Press

## Tips and Tricks

Do more with this tool  
by improving your basic setup  
and adding a few simple  
accessories

BY MICHAEL FORTUNE

### RAISE THE WORK ZONE

Bring the work closer to your eyes to increase the tool's accuracy. If you have a benchtop model, put it on a higher table; raise a floor model by putting it on a mobile base or low platform. Fortune locates the table so that the workpiece is about a foot from his eyes.

### ADD A STOP

Like his fence, Fortune's stop blocks have sandpaper below and a small rabbet on the working face to give dust a place to go.

Set up properly, any drill press can create clean, accurate holes, small and large, in workpieces of all shapes and sizes. Armed with a few accessories, though, it can do much more. Over my 40 years of woodworking, I've developed a series of tips and jigs that will make the drill press one of your favorite shop companions. They will work with any drill press, big or small, fancy or basic.

Success starts with your setup. A lot of woodworkers buy or make a big auxiliary table to support large workpieces. But these offer false security. They are rarely flat, and they obstruct your ability to get in close and see where you want to drill a hole. They include a replaceable insert in the middle, sitting in a rabbet that needs frequent cleaning. These big tables also make it hard to get clamps close to the bit, so they need T-tracks and awkward hold-downs.

The solution is elegantly simple. I use sacrificial 12-in. squares of MDF as backer boards. Like table inserts, they prevent blowout on the back of the hole. The difference is that they can simply be shifted to expose a fresh surface and discarded when they look like Swiss cheese.

Workpieces always lie flat on this small work surface, and clamping is a lot easier. It means making your own fences and stops, but those work better too, as you'll see. The small table won't support long workpieces, but I'll show you how to deal with that.

After you nail the basic setup, there are quite a few great accessories for the drill press, some bought and some made. I'll tell you which ones really matter.

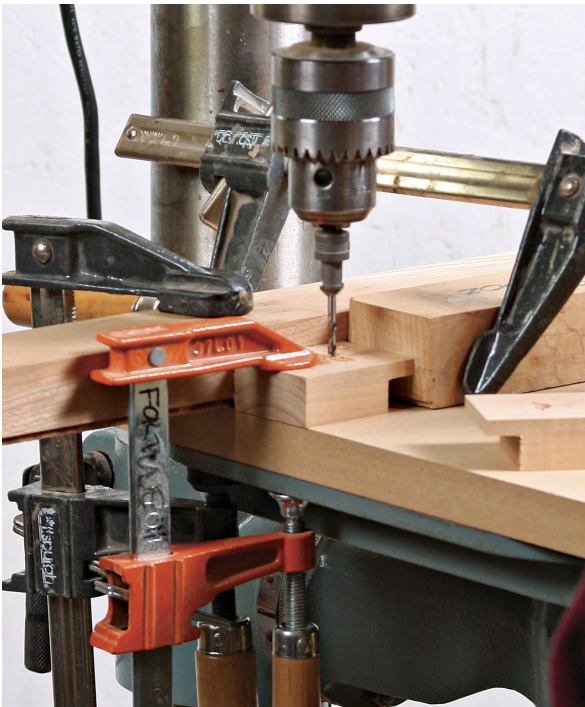
*Michael Fortune is a contributing editor.*



# Tricks for holding work of any size

## SMALL PARTS

It is unsafe to hold small parts in your hand. Here's how to secure them for safe drilling.



**Clamp near the edge.** Pivot the table to clamp small workpieces like these tabletop buttons.



**Doctor a hand screw.** To hold short pieces upright, Fortune uses a wooden hand screw with various notches cut into it.

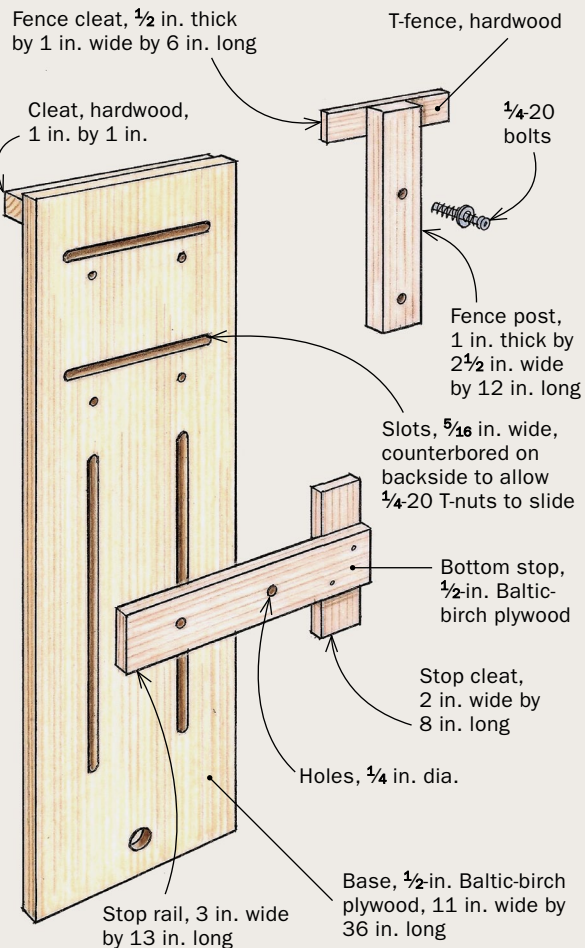
## LONG PARTS

To drill into the end of a long part, you rotate the table sideways, but there is a surprising amount of force required to cut into end grain and you need a way to secure the workpiece solidly. This jig includes both a sliding T-fence to locate the part and an adjustable stop to keep it from shifting downward.



**Align it first.** Fortune places a long rod in the chuck to get the jig plumb (above). You can use the jig to drill accurate dowel holes in the ends of parts, or use a giant plug cutter to form a tenon as shown (right).

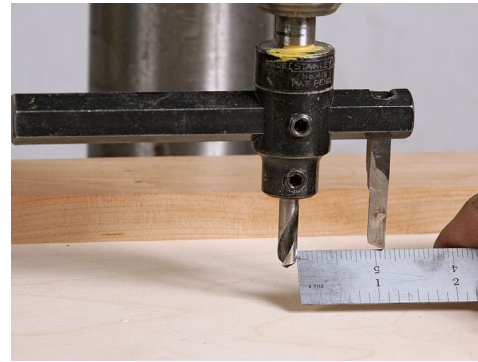
### END-GRAIN DRILLING JIG





## Jig for big holes

A circle-cutter makes clean and accurate disks and holes up to 6 in. dia., to accept a shop-vacuum hose, for example. Fortune's circle-cutter is made by General Tools. It has a standard twist drill bit in the center, which keeps the outer cutter on track.



**Measuring trick.** To cut a hole, turn the cutting tool so the tip faces outward, and measure from the edge of the bit to the tip. The bit is  $\frac{1}{4}$  in. dia., so add  $\frac{1}{8}$  in. to get the true radius.



**Safety first.** Use these cutters at or below 500 rpm, always clamp down the workpiece, and be very careful to keep hands and clamps away from the spinning arm.



**Easy does it.** Lower the cutter steadily until the disk in the middle is freed and starts to spin. Then just lift it out. On thick workpieces go halfway through, and then drill a  $\frac{1}{4}$ -in. hole all the way through so you can finish the job from the other side.



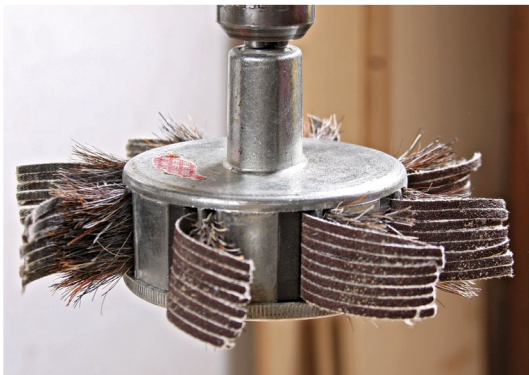
# Not just for drilling

## SANDING SPECIALIST

Flap sanders are an underappreciated accessory and are great for sanding odd-shaped items and highlighting grain. There are disposable models, but Fortune prefers the type that has a roll of sandpaper in the middle, which can be unwound and torn off to refresh the flaps.



**Solid sandpaper softens.** Choose a solid roll of paper, and use it to smooth 3-D curves and soften the edges of small parts, like these salad tongs, which were bent on a hot pipe.



**Perforated paper adds texture.** This type of sandpaper acts as a row of thin strips (above). Use it to emphasize the grain of ring-porous woods. The texture is subtle in harder woods like oak or ash (right), and more pronounced in softer woods like cypress and cedar, for example.







## RUST REMOVER

Buy an inexpensive set of wire brushes to clean rust off metal parts and tools. Sets come with a variety of sizes to fit into any nook or cranny. Run wire brushes at medium to slow speed.

## THREADED HOLES, TOO

Woodworkers occasionally have to drill and thread a hole in wood or metal. It's called tapping a hole. After drilling, the trick is to get the tap to start true and straight. You can start it by hand, using a tap handle, but the drill press guarantees success.



**Good start.** Put the tap in the chuck and rotate it by hand while applying gentle downward pressure with the crank handle. Go in a couple of threads, and then turn it backward to withdraw the tap.



**Finish by hand.** Attach a tap wrench and finish the job. After every couple of turns, reverse the tap to break the chip.



# Discover the Beauty of

Three experts  
share their best  
tips for finding  
and using these  
natural wonders

BY  
NICK OFFERMAN,  
ROBERT ORTIZ, AND  
JOHN STERLING

There is something about thick, natural-edge slabs that appeals to people of all backgrounds. Each one is unique, guaranteeing a one-of-a-kind result. Handled correctly, the wood becomes a beautiful marriage of nature and hand, with flat, shining surfaces meeting swirling grain, charming flaws, and organic edges.

We have George Nakashima to thank for introducing natural-edged slabs into modern woodworking, and since he passed away in 1990, woodworkers have been attempting to follow his masterful lead. I made an attempt myself, and while it contains a few missteps, I love that table, as does every visitor to my home.

From start to finish, working with these big planks is a little different from other types of woodworking. So I turned to three experts—Nick Offerman (opposite page, bottom), Robert Ortiz (opposite page, top), and John C. Sterling (right)—for the tips and techniques they use to make the most of these natural masterpieces.

—Asa Christiana,  
special projects editor



# Big Slabs





# Three approaches to design



## NICK OFFERMAN

A natural-edged slab, floating over a trestle base, is a gorgeous modern sculpture upon which one can carve a side of beef or enjoy many fine whiskies. The thing I love the most about slab furniture is getting out of the way of Ma Nature and letting the

beautiful grain and figure and color do the heavy lifting. Claro walnut is my favorite slab wood, closely

### GANDALF'S TABLE

Buckeye burl

After I found this gorgeous slab, I mocked up a few designs for the base, including the stump just for kicks. My client said, "Well, obviously, that's the choice."



### LIVE-EDGE COFFEE TABLE

Claro walnut

My design aesthetic leans toward the beefy. Taking the organic shapes as my launching point, I then design the table structure to complement the slab as neatly as I can. If the look calls for slab legs as well, so much the better.

followed by bigleaf maple. Both are incredibly strong, hard woods and yet easy to work, but it's the candy-like quality of the grain and color variations in these species that float my boat. The walnut presents chocolate browns, complemented by purples and reds and even greenish grain variations that never fail to take my breath away, and the maple features different shades of reds and purples and oranges suspended in the creamy blond firmament of its expanse.

—Nick Offerman is an actor, writer, and woodworking pro who runs a cooperative shop in Los Angeles ([OffermanWoodshop.com](http://OffermanWoodshop.com)).



## JOHN STERLING

One of my favorite quotes is: "Simplicity is the ultimate sophistication" (Leonardo da Vinci). So it's not surprising that I like to keep designs simple and quiet, more subtle than overt. I don't

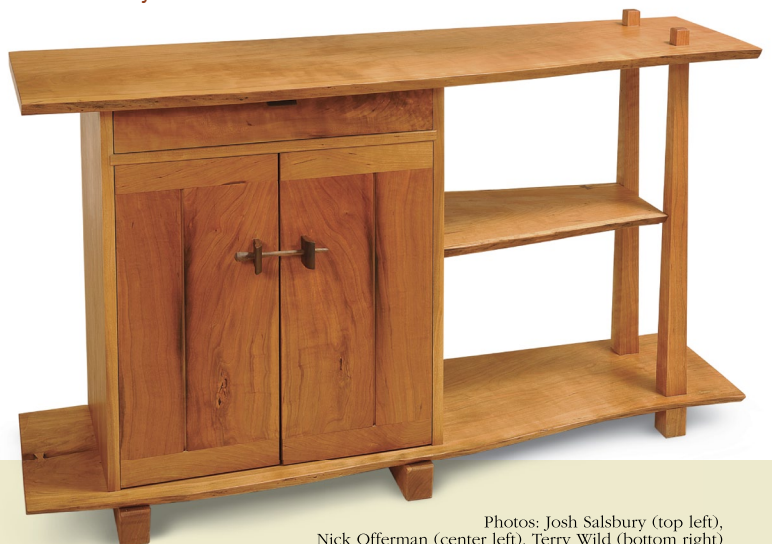
like a lot of glitz as it tends to drown out the quiet of the slab. What doesn't work for me is slab upon slab upon slab. There is such a thing as too much of a good thing. For me a natural-edge slab base doesn't look as clean as pairing that same slab top with a more finished, shaped base. Pairing the rustic with the refined creates a sort of harmony.

—John Sterling is a professional furniture maker in Millmont, Pa. ([JCSterling.com](http://JCSterling.com)).

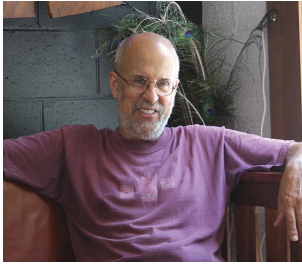
### OFFSET THREE-TIERED CABINET

Cherry

Inspired by a Mid-Century coffee table that I saw at a thrift store, I took a set of three natural-edge cherry planks and built the first of what I call my "offset three-tiered cabinet."







## ROBERT ORTIZ

I became a woodworker after reading George Nakashima's *The Soul of a Tree* (Kodansha, 1981). But it wasn't until 1991 that I used a big slab in a piece of furniture.

I think the greatest danger is overstatement. For me, the challenge is to use a large slab and still have a piece breathe and be elegant and graceful. I'm not looking to make Viking furniture. It's also about restraint. A slab has a personality, in its grain, in its shape and color. My job is to bring out its personality, not mine.

—Robert Ortiz is professional furniture maker who offers one-on-one classes in his Chestertown, Md., shop (OrtizStudios.com).



### SOFIA COFFEE TABLE WITH LOW STOOLS

Maple burl, cherry, maple

A natural-edged slab adds an unexpected sculptural element to a piece of furniture, one that invites the hand to touch and feel.



### DANIEL ENTRY TABLE

Wenge and sapele

On straight planks I sometimes play Mother Nature with a jigsaw and create my own "natural" edge. It brings an organic appeal to a tabletop.

### DINING TABLE

Australian blackwood, walnut

It's helpful to ask where you want the viewer to look when they see your piece. An artist uses brush strokes and color. For a furniture maker, the grain of the wood is the brush stroke.



### BENCH

Walnut and maple

I try to let the wood define itself and determine what it is going to be. I like the motion of curved slabs when building benches. I think it allows the slab to shine. On this bench I tapered the one-piece back leg to mimic the taper of the turned legs.

### SERVING BOARDS

Various woods

These use up smaller scrap material and turn waste into money. People use them as decorative items, trivets, or serving boards for sushi or cheese. The feet raise the board up so it can be picked up more easily, but I also like the way they look.





# Finding good slabs

**Ortiz:** I recommend visiting the people you are planning to buy slabs from, and finding out how approachable they are. This is important because you need to rely on their expertise and knowledge. Look around to see how well organized their business is, so you have confidence that they've seasoned and stacked the wood properly and the slab you buy will be ready to be worked. I try to find slabs that are beautiful *and* flat. I believe that even if I flatten a warped slab, over the years it will have a tendency to go back.

**Sterling:** Living in Pennsylvania, I buy most of my slab wood from a very reliable local supplier, who kiln-dries their slabs to ensure stability. But some companies also ship slabs.

**Offerman:** I keep an ear to the tracks in the Los Angeles area for hardwood trees that have come down in a storm, or may come down to make way for development. I also continue to fraternize with northern California wood-cutters, calling on them when I have a specialized need, like a slab of buckeye burl, or redwood or California claro walnut.



**Find a lumberyard that specializes.** Sterling is lucky to have a local dealer that has hundreds of slabs on hand and knows how to dry them and keep them flat. Many dealers will also ship slabs anywhere in the United States.

## WHAT TO AVOID



**Punky wood.** Once wood rots it becomes unstable. Avoid slabs with soft or spongy wood.



**Bad cracks.** A sizable crack can be beautiful when stabilized with butterfly keys, but avoid sideways cracks that extend toward the edge of the slab, making a whole section unstable.



**Insects.** These tiny holes are the result of insect infestation. If the slabs are kiln-dried, the bugs are probably dead; if you see sawdust piles outside the holes, they aren't.



# Tricks for flattening

## RIP, FLATTEN, REASSEMBLE

**Ortiz:** I have flattened slabs just about every way imaginable. I've used a router on rails and a bridge (like Offerman does below). I've used my 36-in. wide-belt sander as a jointer by placing a slab on a large carriage, shimming it level, and feeding it very slowly through the sander, taking off perhaps 0.004 in. per pass. By the way, most woodworkers with big sanding machines like mine are happy to do a slab or two for hire.

Another method is to rip a slab along one of its grain lines to help hide the seam, and mill the parts separately before rejoining them. I still do this on a very warped slab, to maximize the finished thickness. Sometimes I rip it into three pieces.



**Check and rip.** Ortiz uses a couple of sticks to sight along the slab and see where it is warped (left). This tells him where best to divide it to get the most thickness out of each piece. For an invisible joint, you want to remove the least amount of wood. Use a circular saw and a straightedge (right), locating the cut where the grain will hide it well.



**Mill separately.** In some cases the parts will be small enough to fit on your jointer or planer, but use any means available to mill them flat. Then lightly joint the mating edges (above). After re-joining the parts with clamps and cauls (right), the glue joint is very hard to find and the big slab is dead-flat.



## USE A ROUTER JIG

**Offerman:** I use a router jig (FWW #222) to flatten slabs. It ends up cheaper in the long run than the labor involved in milling and gluing up a tabletop from disparate planks. Slinging the largest slabs around does require a few sets of hands, but that is a great excuse to have some pals come by to help and then have a cold one after the work is done.



**Router guide rides on rails.** An adjustable plywood trough, which rides on level rails, guides the router and a big straight bit over slabs of all sizes.



### Article Extra

Read Offerman's article on flattening slabs with a router jig for free.



# What to do with the edges

## REMOVE THE BARK

**Ortiz:** My experience is that bark will tend to fall off over time, and if not, there is always the possibility of some unwanted tenants still residing there. So I clean off the bark right from the get-go.

**Sterling:** Like the other guys, I don't like bark on my pieces. When people walk up to a piece of my furniture, one of the very first places they touch is the natural edge, so I want that to be as silky-smooth as the top.



**Drawknife does it.** For Sterling, a quick jerk with a not-so-sharp drawknife pulls off most of the bark in one piece, and then lets him shave away most of the soft cambium layer without hurting the hardwood below.



**Other tools finish the job.** Sterling uses paint-removal wheels (shown here), brass brushes, and sandpaper to get rid of loose bits and smooth everything to the touch without changing the color or character of the edge.



**The new natural.** Following a grain line, Ortiz sometimes creates a new edge, replacing a damaged edge or converting a straight one.

## CREATE A NEW 'NATURAL' EDGE

**Ortiz:** Sometimes I will come across a slab that has a damaged edge or a section that was cut straight or irregular by the logger, or a natural edge that is too acutely angled. In those cases, I may decide to play Mother Nature and create a "natural edge" of my own. I also use this technique to create an organic edge on a plain, straight tabletop.



**Jigsaw trick.** After both sides are flattened, Ortiz draws the new edge, chalking the waste area to preview the final look. Then he cuts along the line with a jigsaw (left), tilting the blade to the angle of the growth rings in the end grain, and then finishes the job with hand tools (right), using rasps, files, and sandpaper to remove sawmarks and sculpt the edge to suit his eye.





# Dealing with defects

## USE BUTTERFLY KEYS FOR CRACKS AND SPLITS

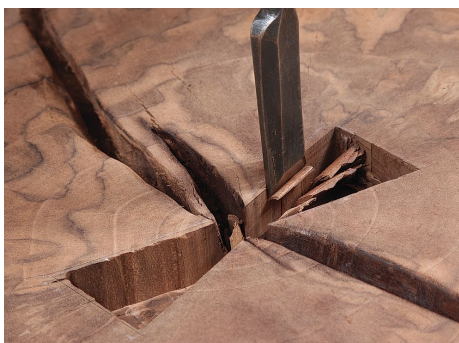
**Offerman:** Butterfly keys look terrifically handsome while performing an admirable function (stabilizing cracks). In general I use either the same species as the slab, or something darker, but in the case shown here, the light-reddish tones in the claro walnut burl made cherry an interesting choice.

The biggest mistake I see is woodworkers making the keys too large or long. It's a subjective question, but I find the shape of a neat, Frank Sinatra-era bowtie to be very pleasing, just big enough to support the check or crack that it is suturing. I consider the job at hand when deciding how thick the keys should be also, making them as thick as  $1\frac{1}{2}$  in. if need be.

I generally hog out most of the mortise with a trim router and a small spiral upcut bit, and then finish it off with chisels. I'm not afraid to drive a couple of screws into a thick key from underneath for extra security. Nakashima himself made this a regular practice.



**Trace around templates.** Offerman has a pile of templates in different sizes and species. After marking their rough location (above), he traces his chosen templates onto the actual key stock. After bandsawing the keys and smoothing their edges on a disk sander, Offerman holds each one in place and carefully knifes around it (right).



**Rout and chisel.** Rout as close to the knife lines as you dare with a  $\frac{1}{4}$ -in. upcutting bit, and then pare away small amounts until you reach the knife lines.



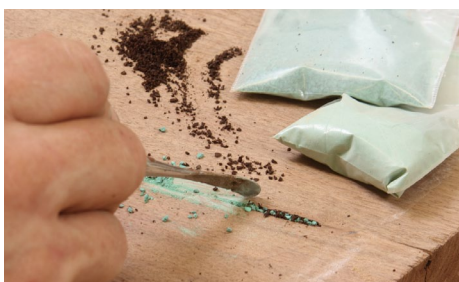
**Chamfer, check, and pound.** Offerman puts a small chamfer on the bottom edges of each key, checks the fit, adds glue, and taps the key home. He waits a day before handplaning it flush.

## TO FILL OR NOT TO FILL?

**Sterling:** When I fill flaws, it is only small ones, often to create a uniform writing surface. I don't fill large gaps and cracks. If and when the wood moves, I don't want the filler to open up and leave a sharp edge, or be pushed upward. Also, I often color the filler to create a subtle accent, and big areas of colored filler are too overstated for me.

To fill small pockets, I mix chips of malachite and turquoise with coffee grounds, and then add cyanoacrylate glue (also known as "super" glue).

Coffee grounds work well on their own at imitating the pitch pockets in cherry, and I also combine them with stone dust to add flecks of black and brown for a more realistic look.



**Small defects are quick and easy.** Sterling first presses the decorative materials into place (top), and then injects cyanoacrylate glue (above) to fill the defect. Don't use the activator spray here. It will turn the glue white.



**Pretty possibilities.** After waiting for the filler to dry fully and using a belt or disk sander to level it, Sterling reveals the final look with a swipe of finish.



# Simple Hanging Cabinet



The Shakers  
had this  
diminutive  
design pegged

**BY CHRISTIAN  
BECKSVORT**

The Shakers didn't invent the peg board, but they refined it, popularized it, and made it one of their hallmarks. They used peg boards to hang not only hats and clothes but also brooms, mirrors, clocks, chairs, shelves—even cabinets. And their wall-hung cabinets have always interested me. This version was inspired by one of my favorites, a small cabinet from the Hancock, Mass., community. The original had a slab door, but I've substituted a frame-and-panel door. I adapted the semi-circular hanger from a larger cabinet, and incorporated half-blind dovetails in the case.

The slight proportions are part of the charm of the piece. The case and the door frame are  $\frac{1}{2}$  in. thick, while the back is  $\frac{3}{8}$  in. and the shelves and door panel are just  $\frac{1}{4}$  in. thick. I've built quite a few of these cabinets, and they look great either painted or clear-finished in pine, cherry, or walnut.

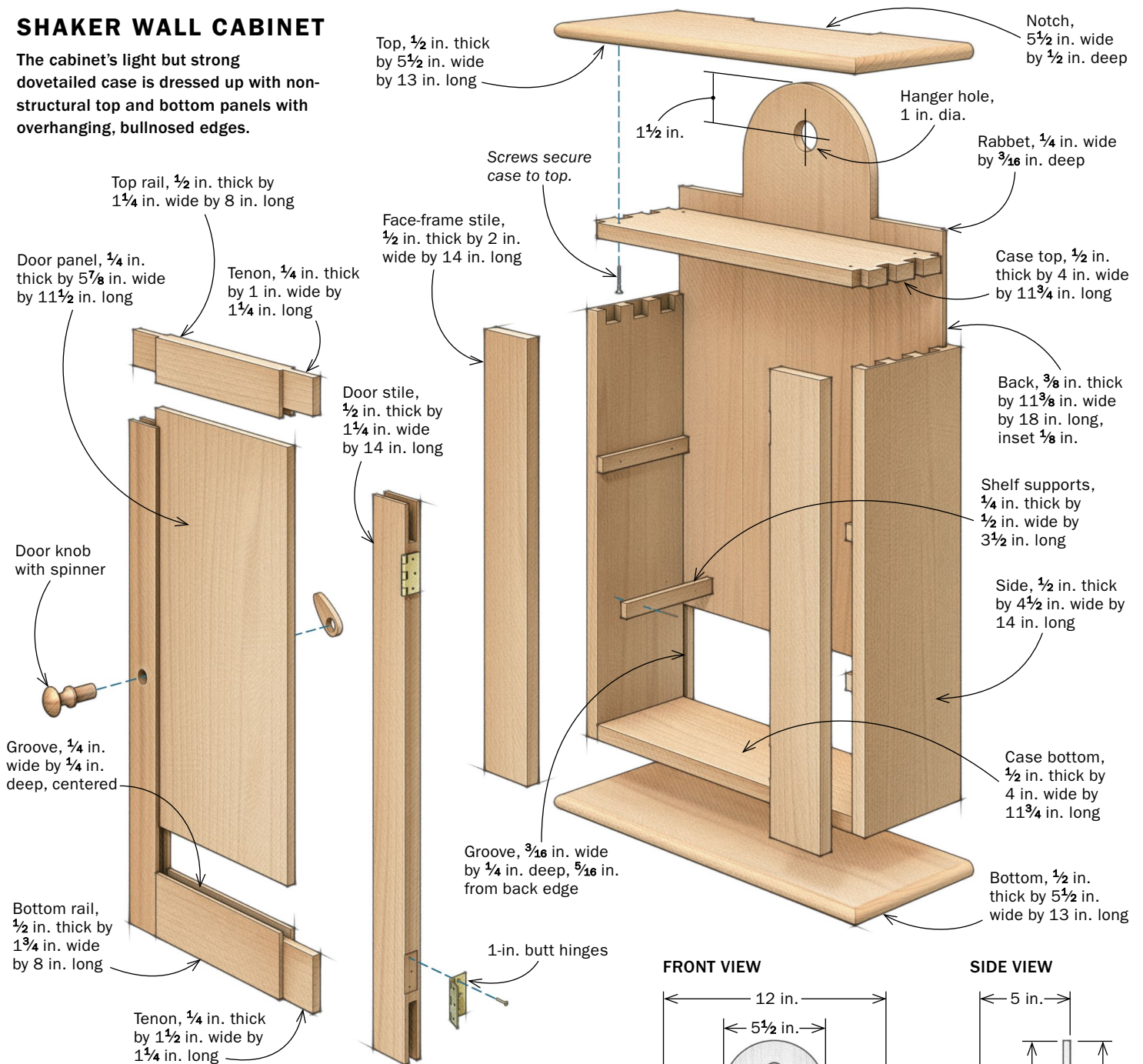
## **A small, strong case**

The original cabinet's case is nailed at the corners, but I made mine

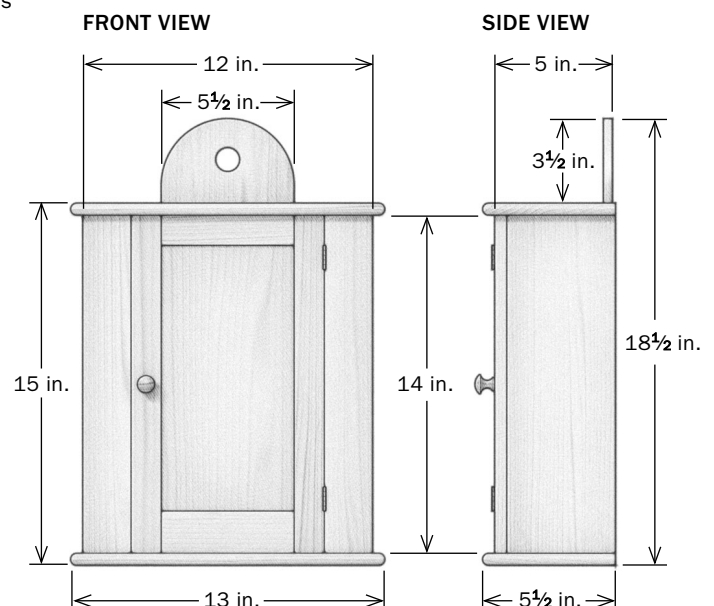


## SHAKER WALL CABINET

The cabinet's light but strong dovetailed case is dressed up with non-structural top and bottom panels with overhanging, bullnosed edges.



**Take your pick.** The cabinet's simple design sings in a range of clear finished woods—above, cherry on the left and pine on the right. But it also looks great when painted. For the center cabinet, Becksvoort used Federal Blue milk paint from the Old Fashioned Milk Paint Company.





# Create the case



**Tails beget pins.** After cutting half-blind tails on the case top and bottom, transfer them to the sides. The case parts are flush at the front, but the top and bottom are inset at the rear to accommodate the back.



**Cut the grooves.** Once the pins are cut, the sides get grooved to accept the back. Two passes on the tablesaw create the  $\frac{3}{16}$ -in.-wide groove.

with half-blind dovetails for additional strength. Lay out and cut the dovetails using your preferred method, keeping in mind that while the case parts will all be flush at the front, the sides are wider than the case top and bottom because they are grooved for the back.

Before assembly, sand the inside surfaces of all four pieces. Then glue and clamp, checking to be sure the case is perfectly square. When the glue is dry, plane or sand the exterior surfaces flat and smooth.

While the case is curing, make the cabinet top and bottom. With a roundover bit at the router table, shape the bullnose on their front and side edges, where they'll overhang the case. Glue the bottom to the case at this point, and then add the face-frame stiles and the shelf supports.

## Back business

To simplify shaping the half-round hanger, I made the back by gluing up three boards—a long, wide center board sand-

wiched between two narrower, shorter ones. Shape the half-round at the top of the center board at the bandsaw, and refine the curve at the disk sander or by hand. Then glue on the side boards.

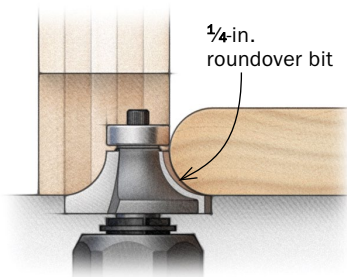
Next, use a Forstner bit to drill a 1-in. hole in the center of the half-round. Then trim the back to width, being certain to cut from each side to keep the hole centered. After cutting tongues along the side edges of the back, insert it in its grooves to test the fit. You should have a total of about



**Case comes together.** Knock the case joints together, following up with clamps if necessary. Check to see that it is perfectly square before setting it aside to cure.



**Double roundover.** The top and bottom get a bullnose profile on three sides. You can gang the two pieces while cutting the roundovers on the router table.



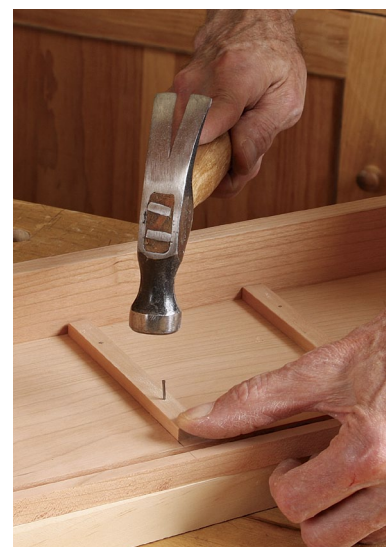
**Notch the top.** To make the notch in the top for the center section of the back, define the width of the notch with kerfs cut on the tablesaw, then remove the waste between them with the bandsaw.



**Bottom's up.** With the roundovers cut and sanded, glue the bottom to the case.



**Pieces of the frame.** The pair of stiles that compose a partial face frame are glued to the front of the case without joinery.



**Simple shelf supports.** A couple of finishing nails secure the small strips of solid wood that act as shelf supports.



# Make and fit the back panel



**Three-part back.** Shape the back's half-round top section before gluing on the two narrower side boards. Then trim the whole back to length and width.



**Two tongues.** Two passes on the tablesaw—one with the back standing on edge—create the tongues on the sides of the back.



**Circle session.** A Forstner bit in the drill press cuts a clean hanging hole in the back.



**Secure the back.** Slide the back into place, then add the top (above right). To attach the top, drive screws up through the case top. Then fix the back, screwing it to the case top (right) and case bottom.





# Build the door



**Diminutive frame and panel.** After applying finish to the  $\frac{3}{4}$ -in.-thick door panel, drop it into place as you assemble the door frame.

$\frac{1}{8}$  in. of play from side to side to allow for seasonal expansion.

## Light door for a small cabinet

Build the door so that its overall dimensions match those of the opening. That will give you the material you need to make a good final fit. Since the stiles and rails are relatively small, I use bridle joints at the corners instead of the more traditional blind mortise-and-tenon. This gives a larger glue surface and more strength.

When cutting the door panel to size, you can let it bottom out in the grooves in the top and bottom rails, but be sure it has about  $\frac{1}{8}$  in. of play from side to side for seasonal movement. Glue and clamp the four bridle joints, but don't glue the panel—a brad at the top and bottom is all you need to keep it centered.

When you've glued up the door, trim just enough to produce a  $\frac{1}{16}$ -in. reveal around the top and the sides, and about  $\frac{3}{32}$  in. on the bottom. Use a pair of 1-in. butt hinges to hang the door. Then add a knob and a stop or spinner, apply finish, and you're ready to hang the cabinet on a peg board—or right on the wall if you wish. □

*Christian Becksvoort is a contributing editor and an expert in Shaker design.*



## Nail the panel.

The panel needs to move with the seasons, so it gets no glue. With the bridle joints glued and clamped, drive a brad through the frame and into the panel to keep it centered.



## At last, the pull.

A simple spinner and a Shaker mushroom knob provide the cabinet with closure. For an article on making spinners, see "Keep Your Doors Closed," FWW #246.



# Essential Bandsaw Blades

With this basic kit, your bandsaw can tackle any task

BY ROLAND JOHNSON

## BASIC BLADE ANATOMY

Once you understand how the anatomy of a bandsaw blade affects the work, choosing the correct one for a specific task is easy. Consider the size of the blade and the number and size of the teeth.

### WIDE VS. NARROW

The width of the blade plays a strong role in its performance.

A **wide blade** won't deflect during heavy cuts, making it ideal for thick rips and resawing, but it can only navigate shallow curves.

A **narrow blade** can handle those tighter curves without binding, but it will tend to wander on large, gentle-radius curves and circles. It also doesn't have the strength to cut thick material without deflecting or binding.

### COARSE VS. FINE

The number of teeth per inch (often called the pitch) affects the speed and smoothness of the cut. The basic rule is three teeth in the wood at all times, which prevents the blade from cutting too aggressively for the wood's thickness.

A **coarse-pitch** blade has fewer teeth, but they're large and cut extremely fast.

A **fine-pitch** blade has more teeth. Their small size makes for cleaner cuts but they tend to clog with pitch in thick material.



**B**andsaws are the most versatile power tool in most woodworking shops. They can rip, resaw, cut circles and curves, and even crosscut without the risk of dangerous kickback. The key to getting the best results is picking the right blade for each job.

The choices can be confusing. You must understand how the blade width, the number of teeth per inch

## 3 blades that do it all

While the number of combinations possible with different tooth pitch, tooth profile, and blade size are endless, a set of three blades gives you enough versatility and performance to get any job done well. A  $\frac{3}{8}$ -in.-wide, 6-tpi hook-tooth blade, a  $\frac{1}{4}$ -in., 10-tpi regular tooth blade, and a  $\frac{1}{2}$ -in., 3-tpi hook-tooth blade are all you need in the shop.

(tpi), and the tooth geometry all affect the cut you are trying to make. On top of that, you have to consider the wood's thickness. To help you make the right choices, I've come up with a basic set of blades that can perform all of the typical furniture-shop cutting chores. Turns out, three blades are all you really need.

Contributing  
editor Roland Johnson  
wrote the book on bandsaws

(Taunton's Complete Illustrated Guide to Bandsaws, The Taunton Press, 2010).



**One for general purpose**



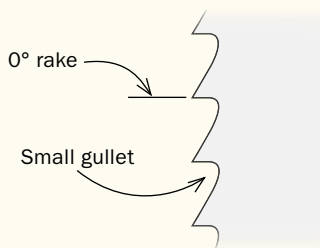
**One for curves and thin stock**



**One for heavy ripping and resawing**

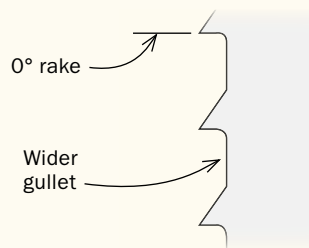
### TOOTH GEOMETRY

The shape of a bandsaw blade's teeth are the most critical factor in how it will cut. Understanding these different shapes and when each is most effective will give you better performance from your saw and extend the blade life.



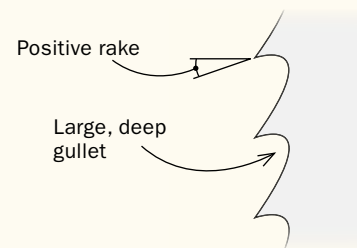
#### REGULAR TOOTH

A regular-tooth blade has evenly spaced teeth with a 0° rake angle. This tooth shape provides clean cuts, but the small gullets clog quickly when moving a lot of dust, so they are not really suited for heavy ripping or resawing.



#### SKIP TOOTH

A skip-tooth blade has a 0° rake angle, like a regular-tooth blade, but every other tooth is essentially skipped. The bigger gullets help clear away dust more effectively.



#### HOOK TOOTH

A hook-tooth blade has a positive rake angle and very large gullets. The teeth cut aggressively and the large gullets evacuate material quickly and effectively. The downside is that the cut surface is rough.



# 1 The all-around blade

**Width:**  $\frac{3}{8}$  in.

**Teeth per inch:** 6

**Tooth type:** Hook

**Uses:** Rip stock  $\frac{1}{2}$  in. to 2 in. thick and cut curves down to a  $1\frac{1}{2}$ -in. radius.

**W**hile there isn't a single bandsaw blade that does it all, having one that's well suited for a variety of tasks will not only make your day-to-day tasks easier, but will also speed up your work. If any blade could be considered all-purpose, a  $\frac{3}{8}$ -in., 6-tpi, hook-tooth, high-carbon-steel blade would be it. This blade has enough width to handle most ripcuts in material up to 2 in. thick without deflecting, but is narrow enough to cut mild curves. It's also good for quick crosscuts. Following the rule of three teeth in the wood at all times, the 6-tpi blade is best suited for material  $\frac{1}{2}$  in. thick or thicker.



**Everyday ripping.** The  $\frac{3}{8}$ -in.-wide blade can rip stock from  $\frac{1}{2}$  in. to 2 in. thick, depending on the species of the wood.



**The rule of three.** With the 6-tpi all-purpose blade,  $\frac{1}{2}$  in. is the thinnest stock you should cut.



**Handles curves and straight cuts.** The moderate-width blade can work its way around  $1\frac{1}{2}$ -in. radius curves (above), while still tracking straight lines well (right).





## 2 Blade for thin stock and tight curves

**Width:** ¼ in.

**Teeth per inch:** 10

**Tooth type:** Regular

**Uses:** Rip stock ¼ in. to ⅝ in. thick and cut curves down to a ⅝-in. radius.

**W**hile the all-purpose blade is great to keep in the saw for general use, it's too wide to cut truly tight curves and too coarse, or aggressive, for thin stock. My go-to blade for these jobs is a ¼-in., 10-tpi regular-tooth blade.

With this blade, tight curves as small as ⅝-in. radius are a piece of cake. And the fine teeth provide a clean cut, especially in thinner material—you'll be able to cut ¼-in.-thick stock without it splintering or tearing out. Sawing curves, especially circles, is more about crosscutting than ripping, which results in fine, short-grained sawdust. Despite the small size of the gullets, they adequately clear that dust.

### MATCH THE BLADE TO THE CURVE

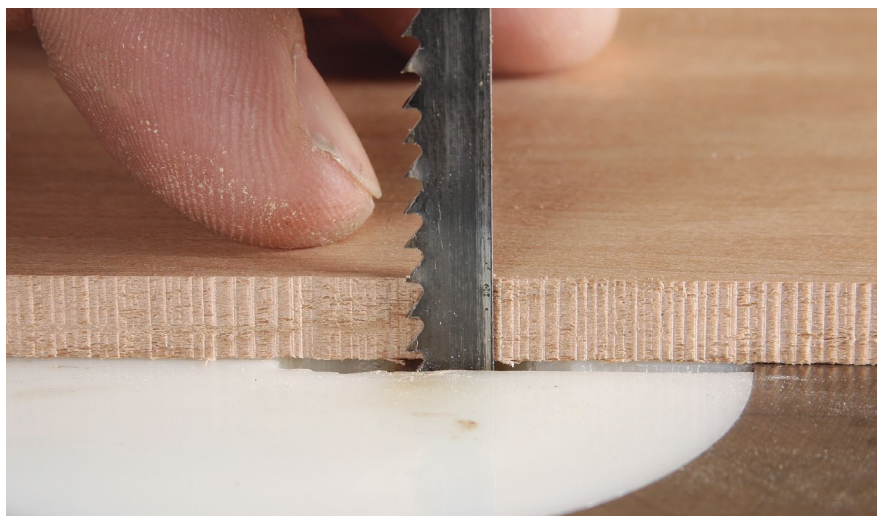
A ⅝-in.-wide blade can tackle most curves, but a ¼-in.-wide blade can go tighter still.

A ⅝-in. blade can cut a 1½-in. radius curve.

A ¼-in. blade can cut a ⅝-in. radius curve.



**Ripping thin.** The narrow cross-section of this blade and the regular tooth profile make it ideal for ripping thin stock and leaving a clean cut in its wake.



**Thin, but not too thin.** In keeping with the "three-in-the-cut" rule, ¼-in. stock is the thinnest you'll want to go for best results.



**Take the curve.** This blade's narrow cross-section allows it to take turns as tight as a ⅝-in. radius cleanly and without shuddering.



# 3 Blade for thick stock and resawing

**Width:**  
½ in. to ⅝ in.

**Teeth per inch:**  
3 to 4

**Tooth type:** Hook

**Uses:** Rip stock at least 1 in. thick and resaw up to 6 in. (½-in. blade)  
Resaw up to 12 in. (⅝-in. dedicated resaw blade)



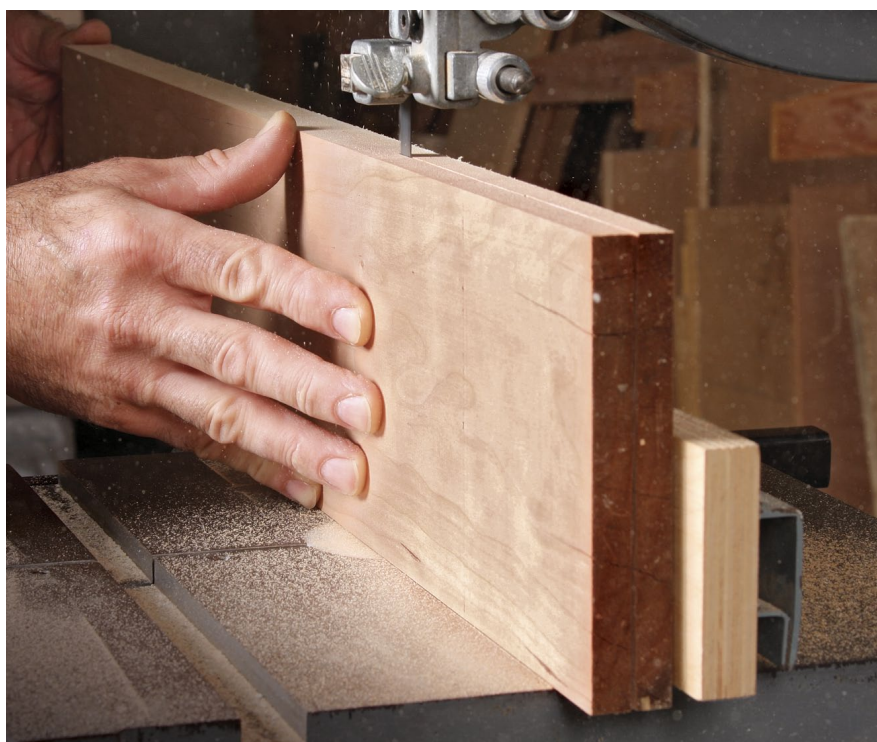
**Handling a heavy cut.** This blade's big gullets and coarse teeth mean that ripping thick stock is fast and easy.

**A**nother task at which bandsaws excel is resawing and ripping thick stock. The thin blade has a smaller kerf than a tablesaw and there's no danger of kickback. Ripping wood creates lots of stringy sawdust that easily packs the small gullets of an all-purpose blade, robbing the saw of power and keeping the teeth from easily cutting into fresh wood. The best choice for ripping is a ½-in., 3-tpi hook-tooth blade. The aggressive teeth and big gullets of this blade cut fast and evacuate a lot of dust quickly. Because of the low teeth per inch, 1-in. stock is the thinnest stock you should cut with this blade. For heavy cuts, a blade must have sufficient beam strength to resist deflection when force is applied to its cutting edge. The ½-in.-wide blade works well for cutting stock from 1 in. to 6 in. thick (or wide for resawing).

For those who do a lot of resawing of stock or veneers, a dedicated resaw blade can be a great addition to this set. A ⅝-in., 3- to 4-tpi



**Three's plenty.** This blade is best used with stock 1 in. and thicker, to keep three teeth in the cut and get the best performance from the blade.



**Ready to resaw.** In addition to the fast-working teeth, the ½-in.-wide blade is strong enough to handle most resaw jobs without deflecting, such as resawing a board for drawer fronts.



variable-pitch blade is perfect for clean, accurate cuts in thick or wide material (up to 12 in.). A variable-pitch blade's fluctuating tpi count helps eliminate the vibration that is often produced when working with thick stock.

For blade material, I prefer high-carbon-steel blades for ripping domestic wood, bi-metal for abrasive wood, and carbide for really nasty stuff like jatoba. For resawing, I prefer a true carbide-tipped blade like the Laguna Resaw King (\$150). If that's out of your price range, the carbide-impregnated SuperCut Wood Saver Plus (\$70) is also a great option.



**Master big resaws.** If you do a lot of resawing, a carbide-impregnated or carbide-toothed blade can provide superior longevity and a better-quality cut in extrathick stock.



## Make your blades last

You'll get poor results with a blade that's dirty or dull. When the gullets get lined with pitch, the blade has an increasingly hard time evacuating dust. As a result, you need to use excessive force when feeding the wood, causing the blade to wander or the thrust bearings to lose their setting. I scrub dirty blades with a brass brush (left; make sure to turn the wheel counter clockwise by hand as you clean), and I also thoroughly clean roughsawn boards before cutting them (below). A dull blade will also cause problems. If you need to push harder to make cuts, if the blade starts to drift consistently in one direction or wander, or if you notice increased burning or smoking, your blade is dull.





# Solid Method for Curved Drawers

Smart bent lamination gives the look and feel of solid wood

BY STEWART WURTZ

## Stretch your precious plank

Wurtz resawed and slip-matched a plank of madrone to make face veneers for the curved drawers of his dresser. By adding solid madrone end blocks to a core of poplar veneers, he produced laminated drawer fronts that he could dovetail just like solid-wood fronts.



I'd like to share a technique for making curved drawer fronts that have a bent-laminated core but give you the appearance and joinery options of solid wood. This lets you stretch a single plank of special wood across a series of curved drawers, yet still join the drawers with traditional half-blind dovetails. The key to the technique is to glue a block of solid wood to each end of the drawer front's laminated core—while also adding the usual edging top and bottom. Because the edging and end blocks are cut from the same plank as the face veneers, the construction is virtually undetectable.

I came across the idea on a visit to Edward Barnsley's workshop in the Cotswolds more than 35 years ago, when I was just starting out in woodworking. I was mystified when I saw that many Barnsley pieces with curved fronts had string inlay or cock beading right around the drawer fronts—not something solid wood readily allows—yet these same drawer fronts were joined with half-blind dovetails. Shaking a little in my boots, I asked Mr. Barnsley about it, and, as I remember, he kindly explained that end blocks were applied to a laminated core construction. In the years since, I've used the approach repeatedly, evolving it as I go. It's particularly useful on curved drawers, but I've also used it with flat drawers where my show wood was very special and in short supply.

When I built this dresser I had two planks of beautiful madrone that I wanted to use for the

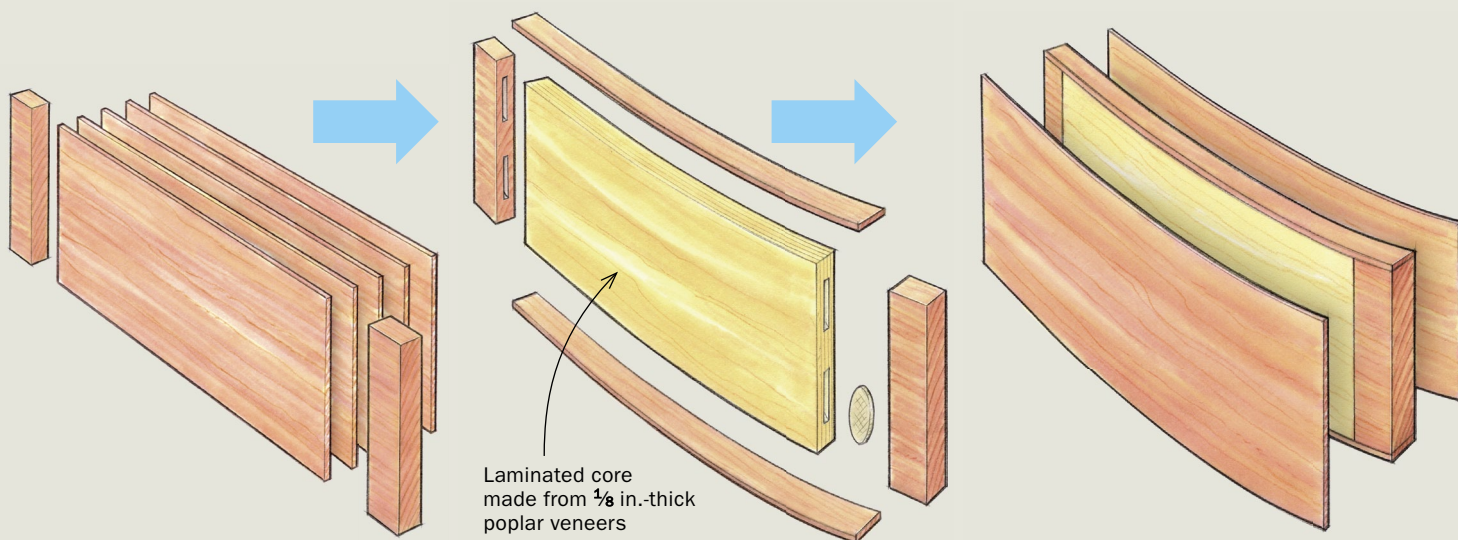
## START WITH A CURVED CORE



**Laminate the substrate.** Wurtz bandsawed  $\frac{1}{8}$ -in.-thick poplar veneers for the core and glued them up over a curved form in his vacuum bag.



**Trim the sandwich.** After jointing one long edge of the laminated core, he cut it to width on the tablesaw, using featherboards to keep the work tight against the fence. To trim the ends he made a cradle for his crosscut sled (see top left photo, p. 62).



**1. Break down the board.** Start by cutting off end blocks from the show wood. Then resaw the center section for face veneers and edging.

**2. Add end blocks and edging.** The madrone end blocks are aligned and secured to the poplar core with biscuits. Then madrone edging is glued to the top and bottom.

**3. Apply the face veneers.** With the end blocks and edging trimmed flush, the madrone face veneers are applied to the front and back, completing the drawer front.



## 1 PREP THE STOCK



**Crosscut the end blocks.** Before resawing the show wood into veneers, crosscut the plank to produce the solid blocks for the ends of the drawer front.

tops and drawer fronts of three bow-front chests that would all live in the same room. To stretch the madrone I used poplar as the core for the drawer fronts. I cut  $\frac{1}{8}$ -in.-thick slices and built up a  $\frac{5}{8}$ -in.-thick core. On drawers with thinner fronts, I sometimes save time by using bending plywood for the core rather than sawing up solid wood.

Before slicing the madrone show veneers, I crosscut the 2-in.-long end blocks from the madrone planks. I cut the show veneers  $\frac{3}{32}$  in. thick, and from each sheet I bandsawed a strip wide enough to produce the edging for the top of the drawer front. This guaranteed a perfect grain match between the top and the face of the drawer front. In cases where there's enough width in the sheet to yield the bottom edging also, I cut that off too. If not, I'll cut an extra sheet or two of veneer and cut the bottom edging from them.

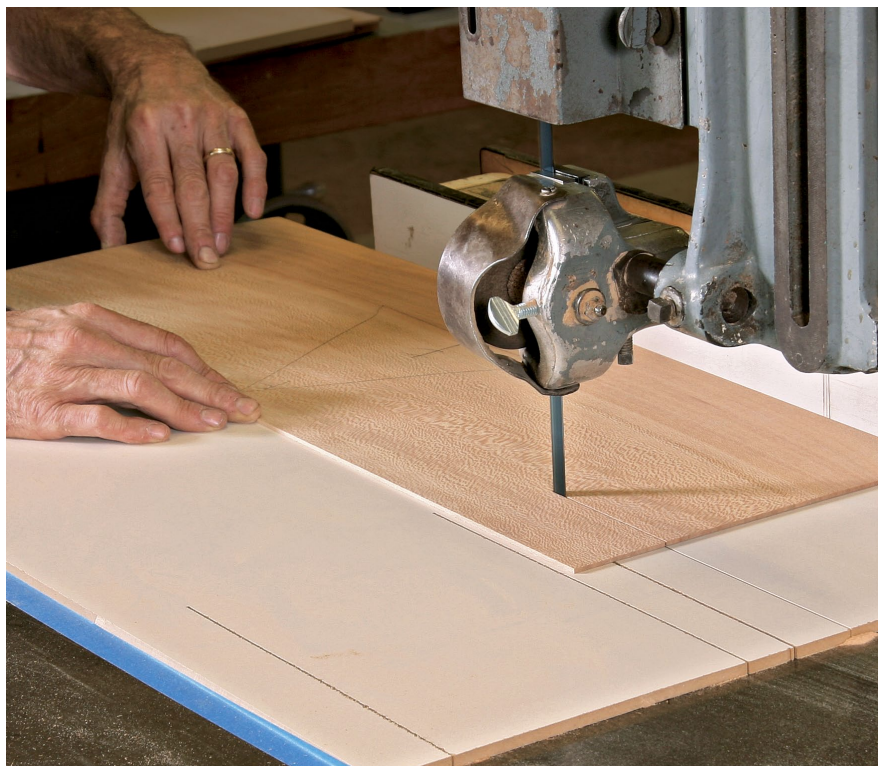
After gluing up the poplar core on a curved form in the vacuum bag, I jointed it and trimmed it to width. Then I cut it to length using a curved cradle on the crosscut sled, and it was ready for the solid madrone end blocks. I used biscuits to align the blocks, which I made slightly oversize so I could shape them to the curve of the core after the glue-up. Once I had trimmed the blocks with handplane and scraper, I glued on the top and bottom edging, and then I was ready for the face veneers. I used the same bending form and applied them in the vacuum bag.

When that package came out of the vacuum bag, I trimmed the face veneers flush and got to work cutting the half-blind dovetails.

*Stewart Wurtz designs and builds custom furniture in Seattle.*



**Shopsawn veneer.** Cut the show veneers on the bandsaw, jointing the plank between slices. A tall shopmade bandsaw fence dedicated to resawing ensures uniform slices when cutting the  $\frac{3}{32}$ -in.-thick show veneers.



**Account for the edging.** After slicing the show veneers, rip a strip from each sheet to provide edging for the top and bottom of the drawer fronts.



## 2 ADD THE ENDS AND EDGES



**Solid ends on a core of plies.** Use biscuits to attach the solid end blocks to the core of poplar plies (left). After the glue-up, plane and scrape the blocks flush to the core (above).

### **Custom edging.**

Trace the drawer front onto the edging and bandsaw the shape. A thin spacer between the pencil and the drawer front (right) produces enough overage to simplify the glue-up. After gluing, Wurtz trims the edging at the router table (far right), using a notched one-point fence to support the curved workpiece.



## 3 APPLY THE FACE VENEER

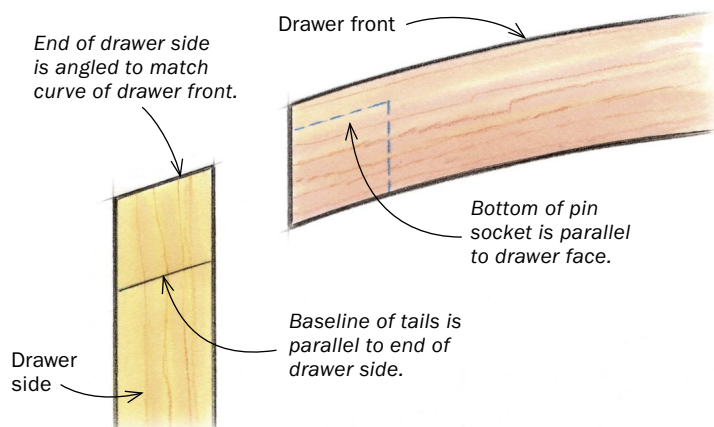


**Back in the bag.** When it's time to apply the front and back show veneer, the core goes back in the vacuum bag (left). After the glue-up, Wurtz routs the face veneers flush with a laminate trimmer (above).



# Dovetails on a curved drawer

Wurtz joins the straight drawer sides to the curved front with half-blind dovetails. He lays out and cuts the joint using techniques familiar from cutting ordinary half-blinds, but with a number of jigs and tricks to accommodate the curve and the added angles.



## 1. ANGLE THE ENDS



**Curves get a cradle.** Wurtz built a curved jig for his crosscut sled to support the drawer front for crosscutting.



**Angled ends on the drawer sides, too.** The front ends of the drawer sides are cut at an angle that matches the curve of the drawer front.

## 2. CUT THE TAILS



**Tilted layout.** When scribing the baseline of the tails, hold the marking gauge so that its face rides flat against the angled end of the drawer side.



**Bandsaw to the lines.** Wurtz starts his tails by bandsawing to the layout lines. A tapered spacer against the fence rides with the workpiece and creates the dovetail angle.



**Quick cleanout.** After bandsawing along the angled lines, Wurtz removes the waste between them with repeated freehand cuts, stopping just shy of the baseline.



### 3. FINISH WITH THE PINS



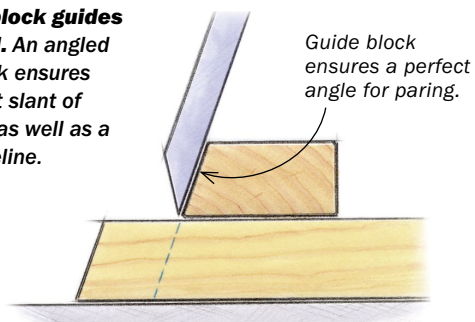
**Handsaw follows bandsaw.** Wurtz uses a handsaw to establish the angle at the bottom of the sockets. With the drawer side angled in the vise, a few strokes finish the work the bandsaw started.



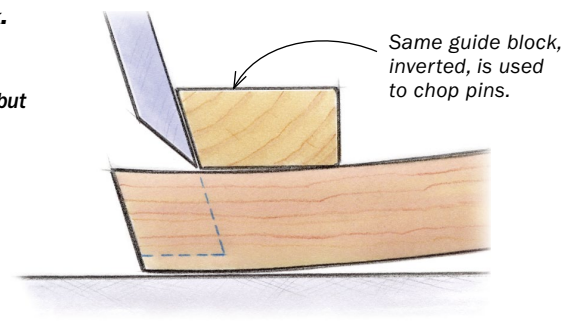
**Tricky transfer.** To make a clean transfer of the tails to the drawer front, Wurtz clamps the curved front in the vise between angled cauls.



**Beveled block guides the chisel.** An angled guide block ensures the correct slant of the chisel as well as a clean baseline.



**Flip the guide block.** To chop the half-blind pins, use the same beveled guide block, but inverted. Support the far end of the drawer front on a scrap.





# Wooden Spoons



**A**s a chairmaker, I enjoy complex projects involving many parts and many skills. But on occasion I find myself just wanting to let a walk in the woods and a quiet task take my day, and I make a spoon. Making spoons is delightful work, and it's also an excellent way to refine your hand skills. For a very limited tool investment, spoon carving offers an education in woodworking that lays the foundation for a deep understanding of the structure of wood and how it can be worked, all while making something both beautiful and functional. From the humble pot stirrer to elaborate ladles, there's no end to the possible variations, and the quick return on your effort encourages exploration.

Reaching for a spoon that you carved yourself adds a great deal of pleasure to cooking, serving, or eating—and giving one away is a surefire way to get invited back to dinner.

I rough down the spoon using a bandsaw, hatchet, and draw-knife. I use a hook knife to excavate the bowl and a sloyd knife to finish shaping. This simple tool kit is best suited to green wood, which can be had at just about any fallen tree or pile of trimmings.

## **A few simple tools are all you need**

Carving spoons represents a remarkable equation: Minimal tooling gives maximum results. Although other tools can speed the



A delight to make, they're also  
a lasting pleasure to use

BY PETER GALBERT



## FIND YOUR SPOON IN A TREE

By sawing the spoon blank from the junction of a tree's trunk and branch, you get long-grain fibers that follow the curve of the spoon. For a ladle, choose a branch that grew perpendicular to the trunk (top). A branch with a higher trajectory yields a spoon with a smaller bend at the neck (middle). Cut the blank so the spoon's bowl falls right at the transition from trunk to branch (bottom) and the bowl's tip points toward the base of the trunk.



process, all you really need is a hatchet and a simple knife or two. I've done well with garage-sale hatchets, as long as the steel quality and geometry are good. The best hatchets for carving have one flat side and one beveled, offering a much lower cutting angle, which suits work where you are splitting along the fibers, such as when roughing out a spoon.

Besides the hatchet, I use a drawknife, a sloyd knife, and a hooked knife for almost all the rest of the job. The work of the sloyd could be done with a well-sharpened pocketknife for your first spoons. The advantage of a sloyd is that it is thick at the back edge, making for long bevels that are easily honed. The extra mass



# Rough out the blank

**Split the trunk in two.** Depending on the size of the log, you can use a wedge, a hatchet, or a chisel.



**Jointing with a hatchet.** If you'll be splitting the branch with a bandsaw, trim one side of the trunk flat to make sawing safer and easier. A hatchet with one flat face works great here.



**Saw or split the branch.** A little swirl of grain on the trunk's pith (above) indicates where the pith at the center of the branch terminates. Start there and saw up the center of the branch. This sawn plane establishes the underside of the handle.

is also helpful when pushing through a cut. And sloyd's have short blades, offering good leverage.

The hook knife is a specialty tool to be sure. It comes in a variety of curves and can be sharpened for left- or right-hand cutting. I'm left-handed, and I started with a left-handed tool. But I soon found that a right-handed knife came in handy as well. To sharpen a hook knife I use diamond paste or fine-grit sandpaper on a dowel.

I often make my own knife handles to suit the size of my hands as well as the way that I like to use the tools. I find that coarse handles direct from the bandsaw give me lots of good feedback on the position of the tool and the pressure that I am applying.

## You need the right branch

Carving a spoon starts with finding the part of the tree most appropriate for the style of spoon that you wish to carve. I make some spoons from wood with relatively straight grain, but the most dramatic and useful ones come from the crook where a branch grew from the trunk of a tree. At this intersection, the fibers naturally bend, so you can make a spoon that curves at the neck yet has long grain running from the top of the handle to the tip of the bowl—a boon for beauty as well as for strength.

The size of the branch and the angle at which it grew from the trunk will dictate the type of spoon I make. A branch that comes out horizontally makes fine ladles, while a branch that shoots upward is more suitable to a stirring or serving spoon. Sometimes I have a final shape in mind when I go looking for a branch, but most often I enjoy letting the spoils of the day decide for me.

I've made spoons from common woods such as cherry, maple, birch, and hickory, and I particularly like fruit woods, especially apple. But for your first foray into spoon carving, softer birch or soft maple might be best, as they highlight the effectiveness of the tools in shaving and carving.

## Rough out the spoon

Once I've found a promising workpiece, I cut away the trunk above and below the branch and then split the trunk with a hatchet, wedge, or heavy chisel. Splitting the branch itself is trickier,



**Flats before curves.** Before shaping any of the spoon's convex and concave curves, use a drawknife to cut a flat along the length of the handle and another on the underside of the bowl. To maximize long-grain continuity, use the pith as a guide and make your flats parallel to it.



# Carve the spoon shape



**Freehand design.** Draw the shape of your spoon on the top flats. A centerline helps keep the design symmetrical. Lateral lines help position the bowl so that its deepest part is at the junction between the branch and the trunk.



**Carve the cavity.** Galbert roughs out the interior of the bowl with a hook knife before carving its perimeter. This gives him more room to grip and an added margin for safety as he carves.



**Perimeter trim.** With the inside of the bowl excavated, Galbert uses a sloyd knife to carve away most of the waste around the bowl.



**The neck is next.** Rough in the neck, working toward it from both the handle and the bowl. A short-bladed sloyd knife works well here.



**Shear the rim.** Using a long sloyd knife, make a shearing cut that trims both sides of the bowl at once, leaving the perimeter smooth, flat, and in one plane.

## A simple tool kit



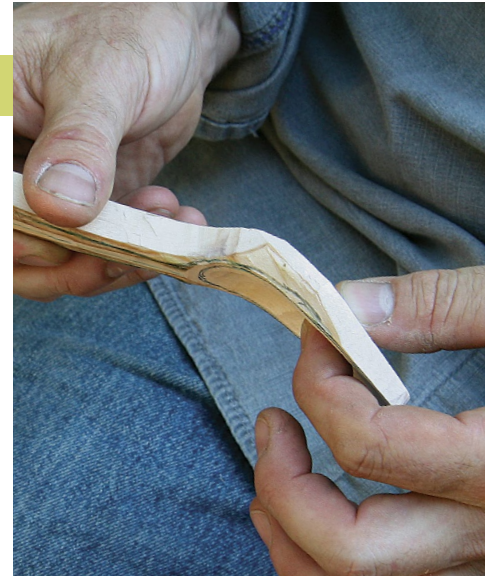
Galbert uses a hook knife (top) and two sloyd knives for the majority of carving. Both sloyd knives are versatile, but the longer one excels at planing cuts, while the shorter one is best for fine detail work. Knives are available from many woodworking retailers, but Galbert buys the blades and makes his own handles. He recommends two knife makers, both of whom sell knives with or without handles—Nic Westermann ([nicwestermann.co.uk/](http://nicwestermann.co.uk/)) and Pinewood Forge ([pinewoodforge.com](http://pinewoodforge.com)).



**A helping hand.** Galbert makes a long, steady shearing cut to help define the handle by holding the knife stationary and pulling the spoon downward with his grip hand.



## Refine the details



**Watch your weight.** Stop frequently to assess the shape and balance of the emerging spoon. It's easy to carve too far in pursuit of a clean surface, so check the thickness often, using your fingertips as a gauge.



**Neck and handle.** If the pith is still visible, it can serve as a centerline to help keep the spoon symmetrical as you carve the narrows of the neck. With the spoon almost fully shaped, Galbert turns to the top of the handle (right). He'll leave the spoon a bit oversize to allow for a little drying distortion before carving the finished surface.

and I often resort to the bandsaw, carefully cutting down the centerline. My goal is to find and follow the fibers so that they run continuously down the handle and to the tip of the bowl.

Next, with a drawknife, I establish flats along the underside of the handle and the bottom of the bowl. Then I use the drawknife to create flats on the top of the handle and bowl. The flat above the bowl is a ramped plane that cuts down through the long-grain fibers. Make its front edge parallel with the front edge of the bottom flat. With all the flats established, I draw the outline of my spoon.

At this point, I hog out the material from inside the bowl. I work mostly across the fibers, drawing the hook knife toward my thumb, which is tucked safely below the lip of the bowl. I use a number of different grips to hold the spoon and knife to maximize my control and safety. Find grips that have a limited range of motion and natural stops. Once the bowl is roughly hol-





# Finish up



**Nuke it—or not.** With the spoon fully shaped but still slightly oversize, Galbert sets it aside to dry for a few days—more for larger spoons—before final carving. If he's in a hurry, he'll give the spoon two 10-second bursts in the microwave instead.



**Fine shavings for the final surface.** With the spoon dried, Galbert refines the shape, compensating for any distortions caused by drying. He takes fine cuts to create a silky surface.

lowed, I carve to the outlines and then shave the outside of the bowl. I aim for an even bowl thickness and use my thumb and forefinger as a gauge.

## Shape and balance the handle

As the bowl takes form, I begin to shape the handle and balance it to the bowl. The tight curves and reversing grain in the transition area between the handle and the bowl can be a trouble spot. Be careful not to thin out this area too much. As it nears the bowl the neck becomes thin and tall, which makes it both easy to hold between your fingers and strong because of its height.

I set the spoon aside to dry while I still have enough material to correct any distortion from the drying process. For a week or so I put the spoon in a paper bag to slow down the drying process and allow the spoon to lose moisture without cracking. After that, a few days exposed to the air hardens the outer layers enough to let me achieve a good finished surface with a knife. On small or thinner spoons, distortion isn't much of an issue. Spoons with large bowls are trickier. If you leave them thick enough to refine, they might crack from stress when drying. If they are too thin, they may not have enough wood left to even out the distortion. A little experience goes a long way on this.

## The finished form

I refine the outer portions of the spoon with nothing but a knife for a pleasing, faceted surface, and one on which the grain won't rise when moistened. On the inside of the bowl, however, I finish with a curved scraper and sandpaper. The smoothly rounded surface provides a contrast to the facets on the rest of the spoon and prevents food from sticking.

I place my dry, finished spoons in a spaghetti jar full of natural tung oil for about a week. Then I remove them and wipe away the excess oil. After a few weeks, I burnish the spoon with some shavings and put it to use. I've found that this finish, combined with good maintenance, will last for years. □



**Finishing up.** Galbert scrapes and sands the interior of the bowl—the rest of the spoon is left with a knife surface. After, he soaks the finished spoon in a jar of pure tung oil for a week. He wipes off the excess and lets the spoon dry for a few weeks before using it.

Peter Galbert builds chairs, spoons, and tools in Roslindale, Mass.



## MARIO RODRIGUEZ

Cherry Hill, N.J.

Rodriguez designed this cabinet to celebrate a friend's interest in Asian art. "The carcass is veneered to create the illusion the grain is running the wrong way, creating an unstable piece." The top is raised on four turned feet and can be removed and used as a serving tray.

CHERRY, WALNUT, 15½D X 24W X 30H



## MICHAEL CODISPOTI

Wellesley, Mass.

Codispoti made this dressing mirror as his final project at Boston's North Bennet Street School. "I tried to cram as many different elements and techniques into a rather small piece as possible, in order to learn as much as I could in the time I had left."

MAHOGANY, EBONY, AND THUYA BURL VENEER, 9D X 17W X 20H

Photo: Lance Patterson

## WILLIAM CHAMBERS

Corvallis, Ore.

This is a replica of the desk Thomas Jefferson used to draft the Declaration of Independence. Chambers spied it during a visit to Washington and decided he needed one for his home office. "The docents would not allow me to touch the original table, so I designed and built the replica from the five photos I had taken that day."

BLACK WALNUT, 28D X 40½W X 32H

Photo: Emily Hall







## ROBERT SLOTTBACK

Cedar Rapids, Iowa

More than 400 pieces of wood went into this bar, which has space for bottles and other assorted items. Slotterback, who is a school superintendent and former art teacher, says it was inspired by the Dutch painter Piet Mondrian. When designing the piece he asked himself: "What would a Mondrian painting look like in 3-D, and for what could it be used?"

MAPLE, YELLOWHEART, EBONY, MAHOGANY, BRAZILIAN BLOODWOOD, AND PLYWOOD, 25D X 25W X 52H

Photo: Mike Fager

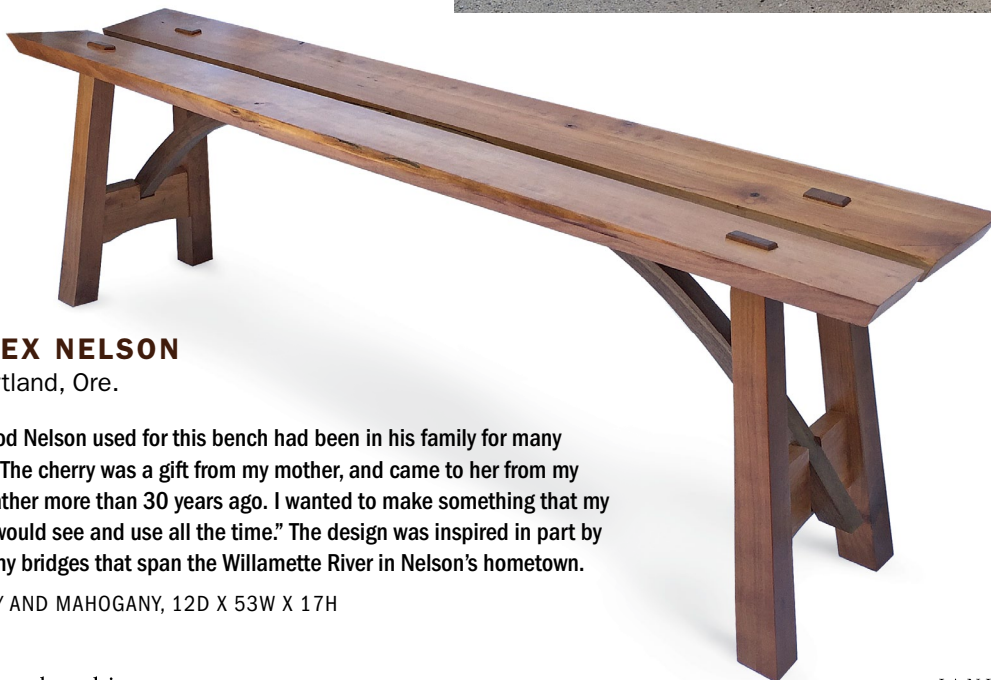


## STEVE COCHOFF

Atlanta, Ga.

Cochoff calls this table his "tri-miter coffee table" and says it was inspired by two handwork professions, carpentry and weaving. "The 2-in.-square staves interlock to form a table of woven wood."

WHITE OAK, WALNUT, 36 DIA. X 12H



## ALEX NELSON

Portland, Ore.

The wood Nelson used for this bench had been in his family for many years. "The cherry was a gift from my mother, and came to her from my grandfather more than 30 years ago. I wanted to make something that my family would see and use all the time." The design was inspired in part by the many bridges that span the Willamette River in Nelson's hometown.

CHERRY AND MAHOGANY, 12D X 53W X 17H

## Submissions

The gallery provides design inspiration by showcasing phenomenal work. For submission instructions and an entry form, go to [FineWoodworking.com/rg](http://FineWoodworking.com/rg).



## TODD BRADLEE

Bishop, Calif.

This is the second desk of this design that Bradlee has made. The first was for a customer who simply said, "make me a cool desk." Happy with the result, Bradlee made this one along with a chair upholstered in red leather to match the desk's legs, which are colored with an aniline powder dye. He named it the Tairone desk after that original client. "I sold it at a recent art show," he said. More of his work can be seen at [toddbradlee.com](http://toddbradlee.com).

WALNUT AND EBONY,  
31D X 51W X 28¾H



## REID ERIC ANDERSON

Burien, Wash.

Anderson designed this Torus table to complement several chairs he'd built in a similar theme. In geometry, a torus is essentially a three-dimensional ring shape. Each hoop is mortised into the hubs to complete the shape. "This design has been in my mind for years, but this is my first time being able to complete the idea."

WHITE OAK, 36 DIA. X 18H

Photo: Ben Hutchinson



## VINCENT CHICONE

Montour Falls, N.Y.

This is a reproduction of the Rising Sun Chair, the iconic 1779 armchair George Washington sat in during the Constitutional Convention in Philadelphia. Before Chicone began the project, he traveled to Independence Hall to visit the original, and spent time with the chief curator to learn about the piece. To read more about the chair, go to his blog at [chicone.com](http://chicone.com).

MAHOGANY, 23D X 30½W X 60½H

Photos: Dean Digital



## DESIGN IN WOOD 2015

Each summer, the San Diego Fine Woodworkers Association puts on its celebrated juried show, Design in Wood, at the San Diego County Fair. Here are three of our favorite pieces from the many fine offerings at the 2015 fair.



### DICK UGORETZ

San Diego, Calif.

Inspired by a James Krenov cabinet, Ugoretz made this standing cabinet using shopmade veneer over a core of plywood sheets to form the bowed front. Lacking a vacuum system, he curved the front on a form using cauls and lots of clamps. "Although the curve adds to the appeal of the piece, it made getting the dovetailed drawers and offset knife hinges right quite a challenge for me."

CURLY MAPLE, WALNUT, AND POPLAR, 13½D X 20W X 43H



### BOB STEVENSON

Chula Vista, Calif.

The idea for this Pennsylvania spice box jewelry chest came when Stevenson's wife Janet suggested he make jewelry boxes for their two granddaughters. He made a third one as a surprise 50th wedding anniversary gift for Janet. Instead of traditional stringing, the face of the door is embellished with gold jewelry wire. There are two secret compartments, which are accessed from the back.

BLACK WALNUT, WALNUT BURL VENEER, WHITE PINE, 11D X 14W X 21H

### JEFF GROSSMAN

Mission Viejo, Calif.

Grossman started this table after completing chemotherapy treatments. "This project was a test to determine if I retained concentration skills to allow me to continue woodworking." Each of the marquetry butterflies contains 126 pieces of veneer. The table won the Fine Woodworking Best in Show award. The design was inspired by Timothy Rousseau's floating-top table in *FWW* #229.

ZEBRAWOOD, SATINWOOD, PADAUK, MAPLE, 13W X 48L X 33H

Butterfly photo: Joe Wenninger





# Cutting the half-lap

WITH AN ACCURATE LAYOUT,  
SAWING AND PARING ARE EASIER

BY CHRIS GOCHNOUR

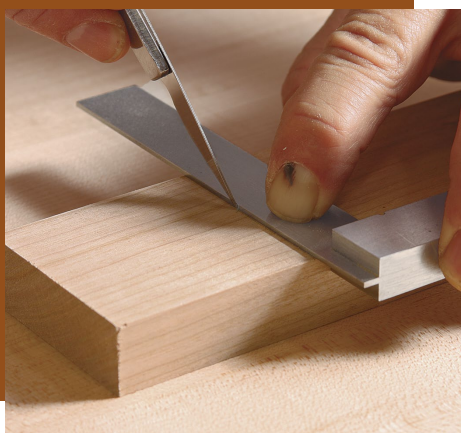
To me, there's nothing more satisfying than building a piece of furniture using hand-cut joinery. But cutting joinery entirely by hand can be an intimidating task. I think that's because we tend to think of the ideal joint, one brought together with a nice friction fit and no gaps. But this ideal joint is not an insurmountable mountain. Break it down, and you realize that it's just a series of small steps. With a bit of practice, tackling the joint one step at a time, you'll soon become proficient.

A good starting point to learning the skills to cut joinery by hand are half-lap and T-lap joints. These simple joints bring home the most important lesson about hand-cut joinery: Accurate layout is a must. You'll also get to practice cutting and paring cheeks and shoulders, two tasks involved in just about all furniture joinery. Once I show you the secrets to these basic joints, you can apply the skills to more complicated ones.

*Chris Gochmour is a new contributing editor but longtime hand-tool expert.*

## 1. BEGIN WITH PRECISE LAYOUT

A knifed line is far more accurate than a pencil line for this joint, and will help you pare the joint to fit later. Also, because the stile overlaps the rail on the front of the frame, lay out the joint on the back of the stile and on the front of the rail.



**Mark the shoulder.** Use a square and knife to get a clean, deep ( $\frac{1}{16}$  in.) cut across the grain. The width of the mating part determines the shoulder's location.



**Wrap it around the edge.** To locate the cut, put the point of the knife in the kerf and bring the square up to it. Scribe halfway down the edge.



**Use a marking gauge for the cheek.** Scribe a line in the exact center of the part's thickness. Mark the end grain as well.



## 2. SAW THE SHOULDER

Here's where the deeply cut layout lines pay off. After some careful paring, they become guides to help you track the saw for a straight and plumb cut.



**Cut a groove at the shoulder.** With a wide chisel  $\frac{1}{16}$  in. from the shoulder line, cut down to the scribed shoulder, creating an angled notch.



**Cut the shoulder to depth.** The saw's teeth should just kiss the vertical wall cut by the marking knife. Keep an eye on both edges of the part so that you don't cut below the cheek line.

## 3. CUT THE CHEEK IN STAGES

Making long, accurate ripcuts with a backsaw can be tough. Breaking down the sawing into smaller steps increases accuracy and reduces cleanup later.



**Create a shallow kerf on the end grain.** Start at the far corner using the scribed line as a guide. Cut just a bit deeper than the teeth.



**Make a diagonal cut down one edge.** At first, follow only the vertical line on the part's edge. Then come in across the board's width until you reach the halfway point.



**Flip and repeat for the opposite edge.** After you've cut down to the shoulder, bring the saw horizontal and cut away the remaining triangle of waste.

## 4. CLEAN UP THE JOINT

No matter how good you are with a saw, you're not perfect. That's OK. With a sharp chisel in hand and accurate layout lines as a guide, you'll bring the half-lap together without gaps.



**Use a wide chisel for the cheek.** Work from the edge toward the middle, then turn the part around and come in from the other edge. Pare down to the scribe line.



**Work down on the shoulder.** Place the chisel into the scribed shoulder line and push down. Use one hand to keep the cutting edge in the scribe line.



**The big payoff.** Careful layout followed by paring to the layout lines results in a joint that fits tightly and looks great.



## The T-lap joint

This joint starts out just like the half-lap, but the second part of the joint is cut in the center of the board rather than the corner.

### 1. NO MEASUREMENT NEEDED

For strength and good looks, both shoulders of this joint must fit tight. And the best way to get tight shoulders is to lay them out directly from the two mating parts.



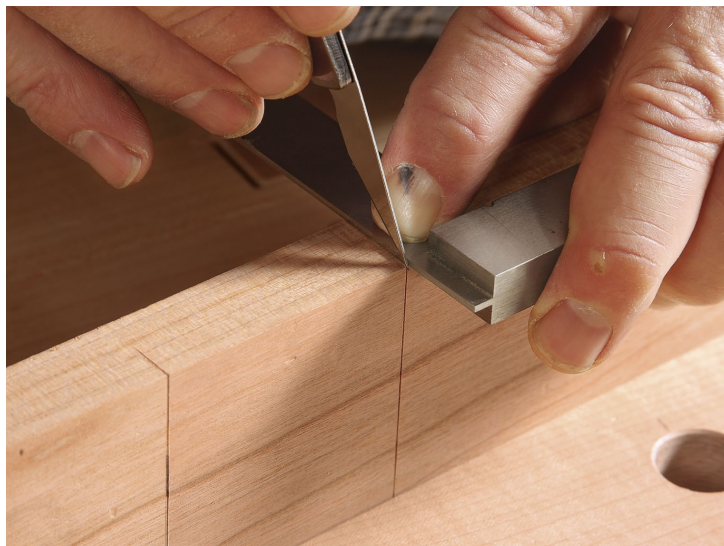
**Scribe the first shoulder.** Strike a deep line across the width of the board. When you're done, leave the square in place for the next step.



**Mating piece determines width.** Place it against the blade of the square and then use the knife to make a small tick to mark its width.



**Back to the square.** After putting the knife back in the tick mark, slide the square against the blade and cut the second shoulder.



**Come down the edge.** Transfer both shoulders halfway down on both edges. Make sure to cut a clean, deep line.



**Scribe the depth.** The marking gauge should be set for half the thickness.



## 2. DEFINE THE SHOULDERS

You'll make several cuts with a saw to clean out the waste, but the two most important cuts define the shoulders.



**Cut both shoulders with a backsaw.** Start just like you did with the half-lap, by paring a groove along the shoulder lines that can be used to guide the saw.



**Kerf the waste.** The more kerfs you make the easier it is to remove the waste afterward. A kerf every  $\frac{3}{8}$  in. to  $\frac{1}{2}$  in. works well.

## 3. CHISEL OUT THE WASTE

Most of the work needed to clear out the U-shaped mortise is rough, so don't hold back with the chisel. Save the gentle paring for the final fitting.



**Be aggressive.** Using a wide chisel, whack away the waste as quickly as you can, but always work in toward the center and cut gently upward.



**Work from the opposite edge, too.** Again, take out chunks of waste, but also angle the chisel gently upward, leaving a short peak of waste in the middle.



**Remove the peak.** Work in from both edges until the bottom is flat. For the final passes, put the chisel into the scribe lines before pushing inward.



**Strong and gap-free.** Accurate layout and smart paring pay off again. There are no gaps at the shoulders and the depth is spot-on.



# Inlay a compass rose

SIMPLE TECHNIQUE  
FOR A CLASSIC MOTIF

BY MICHAEL  
FITZPATRICK



I learned how to inlay a compass rose in 2006 while at North Bennet Street School in Boston. Longtime instructor Lance Patterson studied and taught this pattern from a secretary desk that lives at the Museum of Fine Arts in Boston and is attributed to a Massachusetts furniture maker.

This popular inlay was derived from the nautical heritage of New England during the furniture-making boom of the 1700s. The original compass rose was done in holly and rosewood. I like using ebony and holly for a more stark contrast, but any contrasting woods will work.

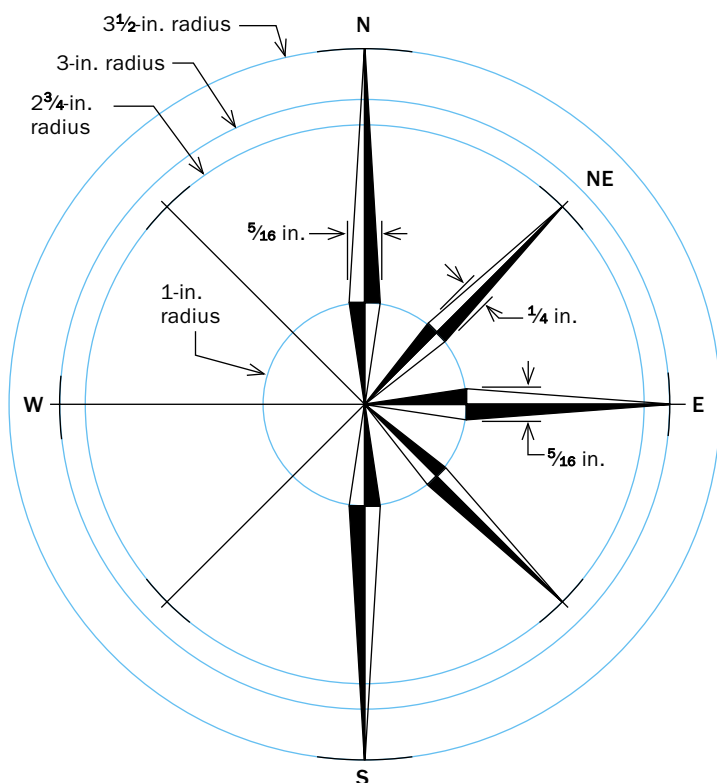
I first used the compass rose in the top of a small mahogany jewelry box. Since then, several other clients have requested

the rose, in all different sizes—in cases, tabletops, and drawer fronts—all scaled from the same pattern presented here.

The rose can be inlaid in solid wood as well as in veneered panels, but if you are doing it in a solid panel in the summer, make the fit of the pieces a little bit looser. That way, when the substrate shrinks in winter, the pieces won't press together too hard and possibly lift. In time there may be subtle gaps, but those can easily be filled with colored wax.

## PERFECT PROPORTIONS

These proportions work well for compass roses big and small. Scale the dimensions as needed for the project at hand. Note that the pointers are three different lengths and two different widths.



**Divide a circle and connect the dots.** Draw the largest diameter and mark the east/west layout lines. Then use dividers to mark out eight equal divisions. After drawing the small circle, connect the dots to indicate each pointer.



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**Slice up a two-color blank.** Start by gluing up an ebony and holly sandwich using epoxy. After squaring two faces on the jointer, Fitzpatrick saws off  $\frac{1}{8}$ -in.-thick slices, using a thin-kerf blade to minimize waste.

**Mark the triangles.** After cutting the slices to length, Fitzpatrick uses a simple layout board to mark the fat ends at their two possible widths.



## Layout leads the way

Layout begins by determining the locations and the sizes of the pieces. Bear in mind that each pointer is made up of two triangles, which meet at their fat ends.

The first step is deciding how long the biggest pointers will be. I use that and some simple ratio math to scale my original pattern up or down.

Each pointer is inlaid in two steps, one triangle at a time, which makes fitting much easier. The first step is joining blocks of ebony and holly, and taking slices off those to create the 16 black-and-white inlay blanks, plus a few extra to allow for errors.

The glued-up blocks will be sawn into  $\frac{1}{8}$ -in.-thick slices, and the bond needs to hold while you trim and tap the pieces into place. I find that 5-minute epoxy works best. The ebony is very dense and oily, so I give it a quick wipe with acetone before applying the epoxy, to remove any surface oil.

The next step is turning the slices of ebony and holly into inlay triangles. First, it's important to cut them to precise length. I do that on the chopsaw with a zero-clearance backer board. Then you can make tick marks at the fat end of the triangle, and connect those with the centerline at the other end. For large pointers, I draw in their edges and use a bandsaw to cut them to shape. If they are smaller, as they are in this case, no further layout is needed. I just use a 2-in. chisel to chop the angled edges in one shot. In either case, stay a little away from the final dimensions, and rub the pieces on a block plane or

# Make triangles

Each pointer is made of two holly-and-ebony triangles. There are a number of different sizes needed.



**Chop the sides.** For these small pieces, a wide chisel works fine. For bigger ones, a bandsaw works better. Use the layout lines and centerline as your guide, but leave the triangles a little fat.



**Shave to the line.** Rub the parts on a block plane or sanding block to trim them to the layout marks and a sharp point. Place them on the workpiece to be sure all of the fat ends match.

sanding board to bring them down to the marks at the fat end and a sharp point at the other, without changing the length.

## Scribe, excavate, and install

I start with the longer, outer triangle when inlaying each pointer, as I find that the inner triangles are easier to fine-tune and drop in last. Get as much light on the work as you can, and use magnifier glasses if you need them.

The pieces don't tend to shift as I mark around them. There are penciled centerlines to guide me, and I scribe lightly, giving myself a precise line to finish to.

When chiseling to the line, you are better off ending up a little shy than going over. You can always trim the parts to fit.



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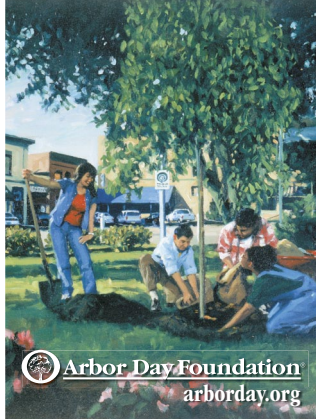


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## Plant the rose

Complete one pointer at a time. Inlay the long, outer triangle first, then add the short inner one.

### FIT



**Align and scribe.** Use the centerline of the triangle to align it. Then hold it in place and knife gently around it.



**Cut the recess.** For small pieces like these, it is all chisel work (plus an X-Acto knife). For larger pieces, start with a trim router and a small bit. The goal is to leave the inlay a little proud, so it can be leveled later.

### GLUE



**Cyanoacrylate works best.** Use medium-viscosity glue, and spread it in the entire recess.



**Press it down and zap it with activator.** Fitzpatrick uses the flat side of a stick to press the inlay down, and then the rounded end to be sure it is fully seated. The activator spray cures the CA glue instantly, letting you move on just as fast.

### REPEAT



**Now do it 15 more times.** The reason for doing each pointer one at a time is so the fragile grain at the center of the panel is always supported on all sides. A long sanding block, used in the direction of the panel's grain, levels the inlay and preps the panel.



The pointers usually don't need much fitting. Slide the point end into the recess and see how far it will go, checking the fit along the sides. As you fine-tune the sides, try not to change the width at the fat end, where the two triangles will meet. If you have to trim the fat end, make sure you take the same amount off both sides, and do the same to the inner triangle piece afterward. When planing the tip, take the same amount off both sides so the ebony/holly joint stays centered.

The goal is for the piece to press-fit into place with a little pressure, with the fat end landing in the right spot.

On a compass rose this small, it doesn't make sense to hold the inner triangles in place for scribing. Instead I simply use my ruler and marking knife to connect the center of the layout with the fat end of the outer triangle, which is already in place. That ensures that the two triangles are the same width. Then I fit, trim, and inlay the small inner piece the same way I did the longer, outer one.

When I am finished with the entire rose, I use a long block and sandpaper to level the final bit of protrusion. The sandpaper doesn't care which way the grain in the inlay is running as long as you sand in the direction of the grain of the workpiece and work all the way up to 320 grit for a film finish, or 400 to 600 grit for oil and wax.

After sanding, I use compressed air to blow the black-and-white dust out of the pores of the surrounding wood. There inevitably will be small voids and joints that will need to be filled. I use dental tools and epoxy (or cyanoacrylate glue for the smallest of pin holes) to fill the voids. If there is a need to add color to the epoxy, I add a drop of TransTint dye. Take the time to test the color on some sample pieces. Sand the epoxy filler the same way you sand the compass rose. □

*Michael Fitzpatrick builds furniture and restores houses in Westboro, Mass.*



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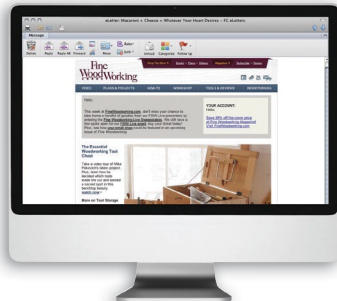


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looking back

# Making music with a plane

A CELEBRATED CRAFTSMAN EXPLAINS  
HIS DEVOTION TO AN INDISPENSABLE  
CABINETMAKING TOOL

BY JAMES KRENOV

## EDITOR'S NOTE

To help celebrate FWW's 40th anniversary, we are reaching into our archives to reprint some classic articles. This one comes from James Krenov (1920-2009), whose trailblazing work continues to influence furniture makers around the world. It was first published in FWW #126.

CELEBRATING  
40  
YEARS



When I was in school in Sweden, we had regular European planes that had to be held in a certain way. For some reason, curiosity or whatever, I made a little wooden plane out of maple. Suddenly, my friends are gathered around, and we're making shavings. I realized the versatility of that little block of wood. It was comfortable with two hands on it. It was comfortable with one hand doing a tiny little edge or corner. It had a new dimension because it did not force me to relate to it very rigidly in one certain way.

I don't think that you can prove in a court of law that these little wooden planes make thinner or better shavings than any other plane. I think the emotional element is the main difference, not necessarily performance only. It's a connection, an intimacy. The really good plane becomes an instrument. It becomes something that you want to make music with.

I used to make planes as a kind of therapy. Between jobs, I couldn't be idle and sit around. I'd finish a piece and have time to catch my breath, so I'd make a couple of planes. Some I'd give away: I've never sold one, and I never will.

There's no magic in any tool until you put the magic in it. The magic doesn't come with the tool. There's no one plane that will do everything. Mine go from jointer size down to very small. My favorite one is the little cocobolo one pictured in *A Cabinetmaker's Notebook*. It was my favorite, and I gave it away to someone very nice. I don't have a sentimental attachment to the planes anymore. I just want the ones I have to work well for me, and it doesn't matter which one it is; they are all good.

### **Don't be a slave to accuracy**

You come to a point where you can either engineer a plane or follow your common sense logic and feelings about it and arrive at about the same point. I make a good plane and then somebody else comes along and tells me it's a good plane because this angle is like this, and this thing is like that, and you've got the wedge this way, and you've got the opening like that. And I say, "Oh, is that

what makes it good? I didn't worry about that. I just made it."

So somewhere the engineer and the peasant reach a parting of the ways, which is true throughout the craft. You can get so exact that you immobilize yourself with accuracy. I joke about it. You buy this square, and you pay \$400 for it and it's accurate to a 10,000th of an inch. Then all you've got to do is get yourself a job with Boeing building 747s and it's great. It's what you want, but it's not a woodworker's measurement, and it never will be. Somewhere there is a flexibility that relates to the kind of person you are and the kind of work you do, and it has nothing to do with sloppiness. It's just flexible enough to

*"The first  
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keep you from being paralyzed.

Can you get results that are good with a metal plane? I think so, yes, and I've seen it. We've never said to our students here, "Put that thing away." As long as it's working well for them, and it's tuned up properly, and it's kept in perfect shape, and they do beautiful work. I would never want anyone to quote Jim Krenov as saying that you have to have a wooden plane. It's nice if you like them, but there isn't only one way.

### **Making your first plane a success**

My first suggestion would be to ask yourself, "Am I doing this out of curiosity, or do I believe in it? Do I intend to arrive at the point where this becomes the thing for me, and I know I can make

a good wooden plane anytime I want to and I can do fine things with it?" If it's mere curiosity, then it becomes just like anything else we do for the sake of exercise. Just to prove that we can go through the ABCs of it.

I think it's important not to fail completely with the first plane, because then you might not make a second one. You could be missing something. Do try to get the essentials right on the first one, and get it to where, yes, it does work, and yes, I can make one better, and yes, I *will* make one better.

One key element is what happens when you raise or lower the pin in relation to where the shavings need to exit. You can put the pin so far down that you choke the plane up. But once you have this and a few other things right, then you're off and running. If I had the wood and the iron and the breaker, I'd have a plane done by evening, and I'd start using it the next morning. Tune it up, and forget about it.

The first little attempt with a plane that succeeded may have been the turning point of my life because it opened up the fact that tools can be better, that tools can be more personal and intimate. Had I failed, I might have just fallen back into the general pattern. That doesn't mean I wouldn't have become a cabinetmaker, but I might never have been able to make music as I try to do.

### **Don't let sharpening take over**

A plane is no better than its cutting edge. But you can develop an imbalance in the relationship of your work and the sharpening. There should be a nice balance between the time you work and the time you care for your tools, whether it's a chisel, a knife, a plane, or anything else.

The tendency ever since the Japanese waterstone thing is that people are more worried about the stone not being perfectly flat than about how they hold the iron or about working harmoniously. Even with a perfectly flat stone, they're not going to get what's needed. It's not in the stone. I observed in Japan some house builders who were pretty casual about their stones, yet they got their planes to sing.

There should be a balance there somewhere. Gradually, you arrive at a



point where the sharpening is minimal rather than maximal. It won't be a chore anymore. You'll do it and do it fairly quickly.

I think that having two or three nice oilstones and a little bottle of kerosene can compete with having a Japanese waterstone, because the Japanese method of sharpening tools is almost an art form or ritual. Doing it haphazardly or not completing the process is neither here nor there. You can spend an awfully long time sharpening but what you're really doing is honing too much. If you hollow grind a tool, a very slight hollow, then all you need is to just hone until you get a tiny little burr, and then quickly move to a finer stone and not keep going on until you flatten out the hollow, because you'll always have the burr as long as you use that stone. So with just a few strokes, you get the scratches from the wheel off, and then you go to a finer stone right away.

I've had the same oilstones for 30 years, and I've never trued them up or anything, which doesn't speak well for me. I've got an old Carborundum that I found in Stockholm, a soft Arkansas and a hard Arkansas and a little kerosene and that's it. People wonder if I ever sharpen my tools because they hardly ever see me doing it. When I do, it's just a little bit. It becomes self-defeating if carried too far because you're fussing more about your tools than you are working, and at some point, fussing just takes over.

I've got planes I haven't touched or adjusted or sanded or trued up for several years. I just pick them up, and they're ready to go. One thing that is amusing is if the last time I set a plane the air was very dry and since then it has rained and increased in humidity, I'll pick up the plane and it won't cut because the wood has expanded a little bit and the iron is no longer protruding. The opposite is also true. If I set it on a very humid day or

part of the year and later we get a cold snap, I'll pick it up and it will really dig in, cutting much too deeply. It's like a musical instrument that you have to tune up a little bit before you start the concert.

I look at the plane from behind rather than in front. I look at the bevel and lower my eye to the level of the plane itself. I can see the glint before the iron reaches the level of the bottom of the

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plane, and then I tap on the iron very lightly. You'll never get a good cut if the iron is not absolutely parallel with the bottom of the plane. You'll get an angled cut. You want to tap the iron itself, not the plane body. When you tap the plane body, you have no guarantee that the iron won't slip sideways as it moves forward or back. You do tap the back of the plane body to retract the iron. But readjust it by tapping the iron itself.

The wedge should not be too tight. You should be able to remove it easily

with your fingers by just zig-zagging it out. The tendency is to really bear down on it, but you don't need to do that. You want a low-angle wedge. If you have a high-angle wedge, it's apt to kick out when you are doing coarse work.

You very seldom have to go back and true up a plane. If you notice a consistent misbehavior or if the plane tends to produce an arch or a dip, then you can fine-tune it. But it also becomes second nature with you. Where to press, how to do that. It's very minimal and elementary.

## **For cabinetmaking, the plane is a basic tool**

A plane is a favorite of mine by necessity. In other words, it is *the* tool in case work. With the kind of work that I and other cabinetmakers do most, it's almost indispensable. Because I started out not being able to afford a jointer and I only had a bandsaw, I discovered I couldn't even bandsaw anything without having a plane to true it up a little bit. I almost killed myself doing it, but it showed me how necessary the plane was, not how refined it should be but just how necessary it was.

I think there's a line between sentiment and positive emotion or creative emotion. In other words, you buy a yard sale tool and you fix it up as best you can and you know it will never sing, but it has something and gives you something emotionally. It has a sentimental value. Then there's this other element that is not sentimental, but is emotional, where you believe that you work better with this finely tuned instrument than you do with something more awkward or more coarse. That,

I think, is the difference. You don't get carried away by the fact that it is an antique or that George Washington used it or something.

You just think of what it will do and what you can do with it. □





FORTY  
YEARS

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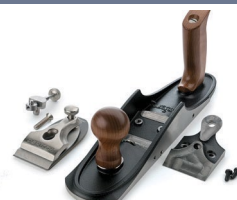
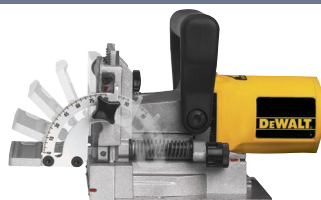
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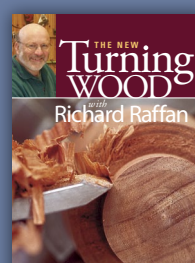
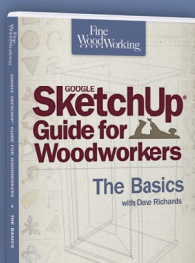
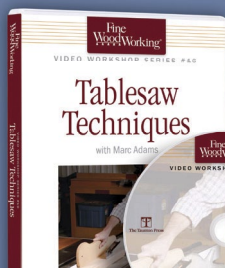


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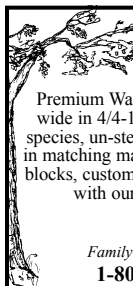
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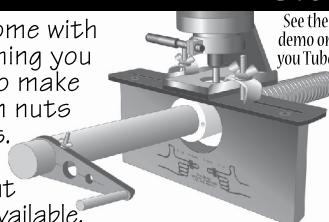
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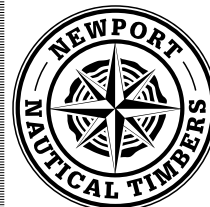
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| The Furniture Institute of Massachusetts | <a href="http://www.furnituremakingclasses.com">www.furnituremakingclasses.com</a> | p. 88 | SuperMax Tools                  | <a href="http://supermaxtools.com">supermaxtools.com</a>                                 | p. 11 |
| Goby Walnut Products                     | <a href="http://www.gobywalnut.com">www.gobywalnut.com</a>                         | p. 88 | Titebond                        | <a href="http://titebond.com">titebond.com</a>                                           | p. 9  |
| Groff & Groff Lumber                     | <a href="http://www.groffslumber.com">www.groffslumber.com</a>                     | p. 88 | Triton Tools                    | <a href="http://tritontools.com">tritontools.com</a>                                     | p. 15 |
| Hearne Hardwoods                         | <a href="http://www.hearnehardwoods.com">www.hearnehardwoods.com</a>               | p. 79 | West Penn Hardwoods             | <a href="http://www.westpennhardwoods.com">www.westpennhardwoods.com</a>                 | p. 88 |
| Highland Woodworking                     | <a href="http://highlandwoodworking.com">highlandwoodworking.com</a>               | p. 81 | Whitechapel Ltd.                | <a href="http://whitechapel-ltd.com">whitechapel-ltd.com</a>                             | p. 11 |
| Infinity Cutting Tools                   | <a href="http://infinitytools.com">infinitytools.com</a>                           | p. 3  | Whiteside Machine Co.           | <a href="http://whitesiderouterbits.com">whitesiderouterbits.com</a>                     | p. 15 |
| Inside Passage School                    | <a href="http://insidepassage.ca">insidepassage.ca</a>                             | p. 17 | Woodcraft                       | <a href="http://www.woodcraft.com">www.woodcraft.com</a>                                 | p. 17 |
|                                          |                                                                                    |       | Woodworkers Source              | <a href="http://www.balticbirchply.com">www.balticbirchply.com</a>                       | p. 88 |



# how they did it

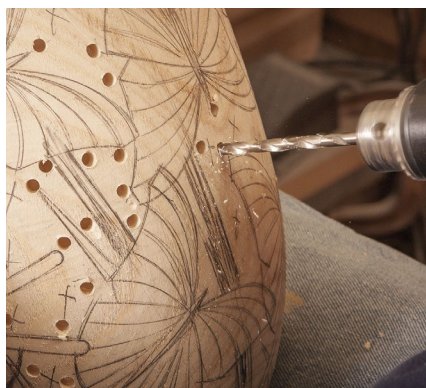
## How to carve butterflies

A WELL-TURNED SHAPE MUST PRECEDE THE CARVING

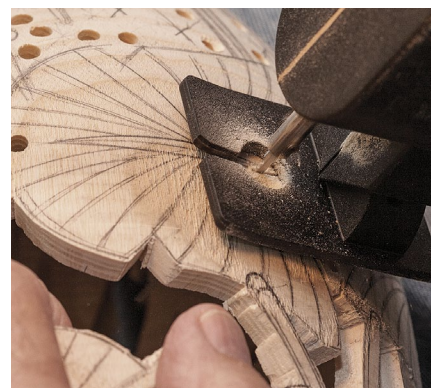
BY JONATHAN BINZEN

A good carved vessel, Ron Layport says, must start with a good turned form: “The lines have to be pure, the curves have to be unquestioned by the eye.” If the underlying form is unsound, he says, the carving will not conceal that fact. Layport works from the green log, aligning the lathe’s centers with the pith of the log to limit distortion in drying. He turns the vessel walls to a uniform thickness—typically between  $\frac{1}{4}$  in. and  $\frac{5}{16}$  in.—then lets the piece dry for several weeks or months before carving. When the carving is complete, he colors the piece with bleaches, dyes, and pigments, working with multiple brushes and colors to build up a subtle, complex blend of hues on the surface (see the back cover).

**Drawing on the dry vessel.** Layport works out the design right on the turned form. For this one he drew and cut out several paper templates of butterflies and traced them around the vessel.



**Drill holes for access.** To prepare for sawing out the shapes, Layport drills access holes big enough to fit his jigsaw blade.



**Leave the lines.** Depending on the size and design of the carving, Layport uses either a standard jigsaw or this lightweight gourd saw to cut out the waste.



**The rotary arrives.** After sawing, Layport shapes the piece using rotary-tool cutters, burs, and sanding attachments. He also uses files and rifflers.



**Coming to life.** The butterflies gradually emerge from the walls of the vessel. A few more weeks of work and the piece will be ready for color.





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# Metamorphosis

Working in a two-car garage shop in Pittsburgh, Ron Layport transforms wood into wildlife, turning and carving his delicate vessels direct from the log. A 14-in.-high piece like this one in maple, which began as a 55-lb. chunk of tree, weighs less than 2 lb. at the end. After turning the basic thin-walled vessel from green wood, he sets it aside and begins carving only when it is bone dry. Layport, 73, was an accomplished furniture maker in the early 1990s when he took a turning workshop so he could make round legs for his tables. Once he turned his first vessel, furniture was forgotten. After eight years turning pure vessel forms, he began carving his turnings: “I chopped away at that first piece,” he says, “having no idea what I was doing. My process was trial and error, struggle and success. It’s still a risk every day—and total involvement.” Layport often draws inspiration for his designs from memory. This one celebrates a summer afternoon in childhood when a favorite aunt taught him how to catch a butterfly gently between his fingers, examine it, and let it go. Making his vessels, he says, “is a very meditative, solitary, spiritual process.” Days and weeks disappear before the piece comes fluttering into final focus.

—Jonathan Binzen



Photo: Mark May

**How They Did It** Turn to p. 90 to see how Layport carves a vessel similar to this one.



Hear Layport describe turning and carving his work and to see dozens of his vessels