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February 2026 No. 321

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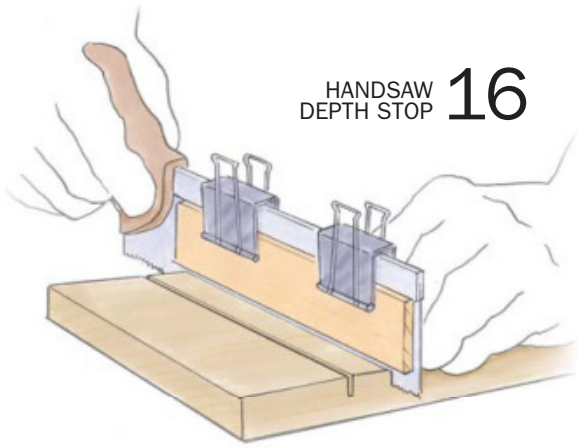
JANUARY/FEBRUARY 2026 ■ ISSUE 321

features

Cover photo: Kale Vogt

in every issue

70 GALLERY: KNEEHOLE DESK



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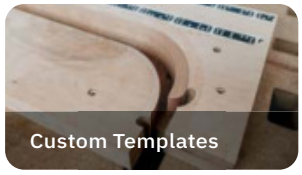

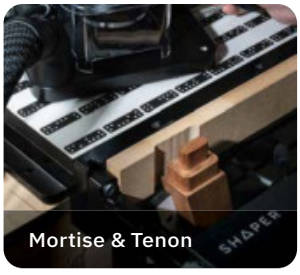

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Slicing up a slab

Breaking down a slab for furniture is not a common practice. Rob Hare shares his tricks for sawing a large slab and utilizing the best parts.

VIDEO

Hide-glue hacks

Lost Art Press utilizes hot hide glue for many projects, often in unexpected ways. Learn how to prepare it in different forms and how to apply it to furniture and other pieces.

Remembering Kelly Mehler

Peter Galbert, Andy Glenn, and Brian Boggs share memories of the wonderful woodworker and mentor Kelly Mehler and reflect on the impact he left on their world.

Wendell Castle's world

Ken Page, director of the Wendell Castle Workshop, and Alison Castle release previously unseen photos of Wendell and his work.

VIDEO WORKSHOP

Building a cabinet on stand

This intimate video series follows legendary woodworker Tim Coleman as he designs and builds a cabinet on stand—a timeless form made famous by his teacher, James Krenov. The series captures the making of a career-defining piece that embodies both tradition and innovation.

- Build up lumber core panels
- Create gunstock mitered legs
- Make visually interesting panels using grain orientation

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contributors

Doug King (“Glass-Top End Table” and Master Class) began his journey into woodworking with studies in forestry at the University of Montana. He immediately fell in love with the vast, dramatic landscapes. His passion for rock climbing kept him in the area, and he embarked on years of traveling and climbing throughout the western United States. To support this, he worked as a carpenter and timber framer. Seeking a deeper engagement in the work and material, he studied at the Center for Furniture Craftsmanship in Maine and then at the College of the Redwoods, where he delved deep into the art of woodworking. He says, “Krenov’s influence has been instrumental in my evolution as a craftsman and educator.”

Megan Fitzpatrick and **Chris Schwarz** (Handwork) met at a now-defunct publishing company in 1996. He was a low-level editor. She worked in the marketing department and brooked no fools. There they became lifelong friends and now work together at Lost Art Press in Covington, Ky. He’s the publisher and builds stick chairs. She’s the editor and focuses on casework (and still eschews fools of all forms).

Charlie Kocourek (“Fill the Grain for a High-Style Finish”) started woodworking with the help of his father and a seventh-grade shop class. As an adult he focused his training on wood finishing, a subject he now teaches at The Woodworking Shows, the Center for Furniture Craftsmanship in Maine, and the Florida School of Woodwork. Kocourek has also invented a height-adjustable workbench, which is powered by a cordless drill and remains solid at every height level. Plans are available at jack-bench.com.

Rob Hare (“Free-Form Coopering”), equal parts a metalworker and a woodworker, has always loved to make things. He went from a child tinkering, to a teenager working in a sawmill, to a young man in art school, to being a homeowner, carpenter, and furniture maker. When not in his shop, Hare is outdoors with his wife, children’s book author and illustrator Iza Trapani, enjoying the sports New York’s Hudson Valley offers: hiking, sailing, snow sports. He says, “The more snow, the better, and the harder the wind blows, the more alive our boat feels.”

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

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letters

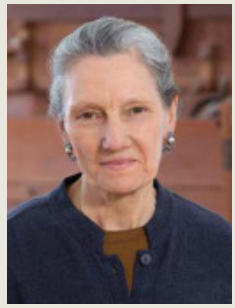
From the Editor

CELEBRATING 50 YEARS

Intrepid makers

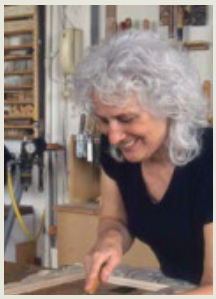
To mark *Fine Woodworking*'s 50th anniversary this year, we made the rash promise to publish a freshet of articles examining, explaining, and celebrating our shared field and the people who have appeared in the magazine's pages. So far we've had one article tracking a timeline of advancements in woodworking tools and machines, two on younger woodworkers who are making a mark, and another on prominent teachers and mentors—and there will be several more to come. The year has not been long enough to contain them all.

WENDELL CASTLE



KRISTINA MADSEN

BRIAN NEWELL



JUDY KENSLEY McKIE

MICHAEL HURWITZ

GARRY KNOX BENNETT

This issue's anniversary article, "Enlarging the Envelope," is focused on a handful of American furniture makers whose work we judged to be among the most impactful of the past half century. We chose makers whose work not only was supremely well designed and crafted but was clearly innovative. It was work that was unique to its maker and deeply inspiring to others. The article's subtitle describes the six people we feature as "intrepid makers," and the word *intrepid* wasn't chosen lightly. These are makers who have set a course into uncharted territory with their designs and have committed their lives to following wherever it leads. In the process they have reestablished the boundaries of the field.

Delighted as I am with the people included in the article, I'm disappointed about all the wonderful makers we've left out. We need another anniversary year soon!

—Jonathan Binzen

More on chessboards

I was starting my fifth chessboard when I received *FWW* #319, which includes Erik Curtis's article on making a chessboard. My wife hand-painted the ceramic pieces over 40 years ago as a Christmas present. All the chessmen fit well in the felt-lined drawer in base of the board.

—TOM MOSS, Bradenton, Fla.

Where's the retrofit kit?

Could you please let us know what source(s) were used to upgrade Mike Pekovich's shop lights ("Pump Up Your Shop Lighting," *FWW* #320)? I spent much time searching the web for a high-CRI retrofit kit but came up empty.

—PAUL COTTINGHAM, League City, Tex.

FWW replies: *The retrofit system author Doug Lee used was from American Green Lights (shop.americangreenlights.com).*

Corrections

In our article "Remarkable Mentors" in *FWW* #318, the photo credits for p. 28 were left out. They are as follows: *FWW* staff (top right); Lance Patterson (center left); Dean Powell (center right and bottom). Also, in the same article, the stated tenures of the three teachers at the Center for Furniture Craftsmanship were slightly off. Here are the correct figures: David Upfill Brown, five years; Aled Lewis, 11 years; Tim Rousseau, five years.

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SCAN FOR MORE INFO

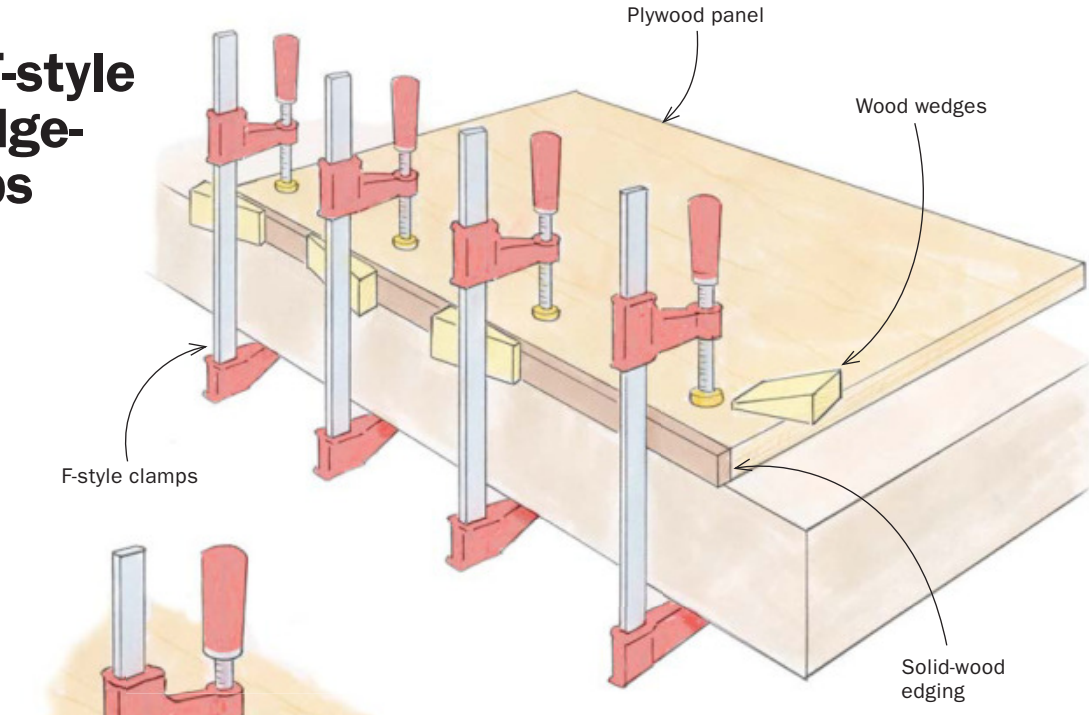
workshop tips

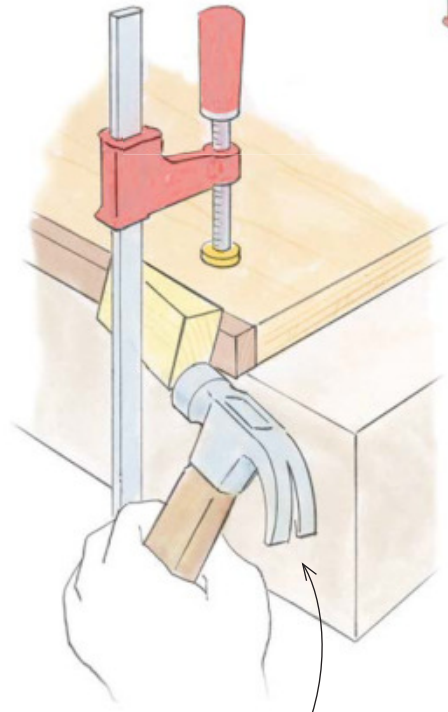
Wedges turn F-style clamps into edge-banding clamps

When applying solid-wood strips to plywood edges, you usually need quite a few clamps to apply even pressure along the length of the strips. Bar clamps will do the trick, but not all of us have enough of those for the job, and wide pieces of plywood require relatively long clamps to reach the opposite edge. Here's an easy way to attach edging strips using F-style clamps, which tend to be more plentiful in most shops. Any size clamps will work. In my experience, this approach works even better than using purpose-made edge-banding clamps.

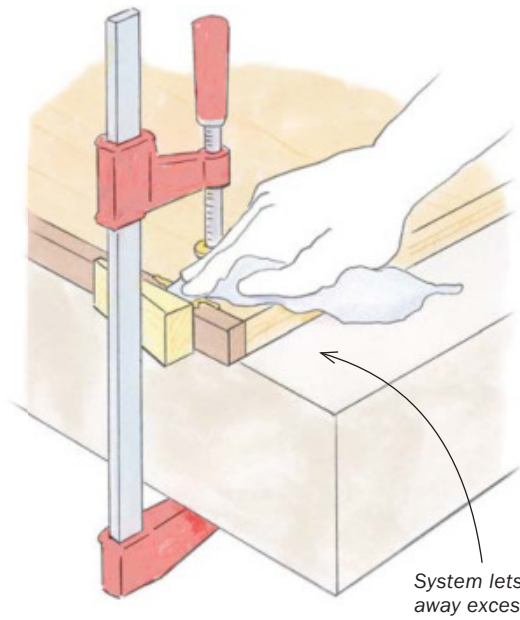
Attach the F-clamps to the plywood panel, with the bars placed a consistent distance away from the edge, and then drive small wood wedges between the bar and the edging. If your edging is thin, you might need to add a caul strip between the wedges and edging to help distribute the clamping pressure evenly.

—REG LILLY, Saratoga Springs, N.Y.



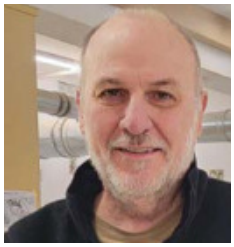


Drive wedges between clamp bars and edging to apply pressure.



System lets you wipe away excess squeeze-out immediately after clamping.

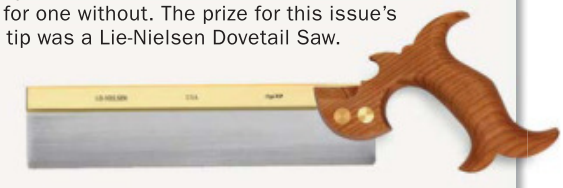
Best Tip



Reg Lilly is a professor of philosophy at Skidmore College in Saratoga Springs, N.Y. He has been woodworking for 25 years, building furniture for family and friends in his basement workshop. He also volunteers as a shop manager and teacher at Saratoga Joinery, a local community shop. One of his recent projects was a pair of tables with the full periodic table engraved on top, which he made for Skidmore's new Center for Integrated Sciences.

A Reward for the Best Tip

Send your original tips to fwtips@taunton.com. We pay $100 for a published tip with illustration; $50 for one without. The prize for this issue's best tip was a Lie-Nielsen Dovetail Saw.



Drawings: Dan Thornton

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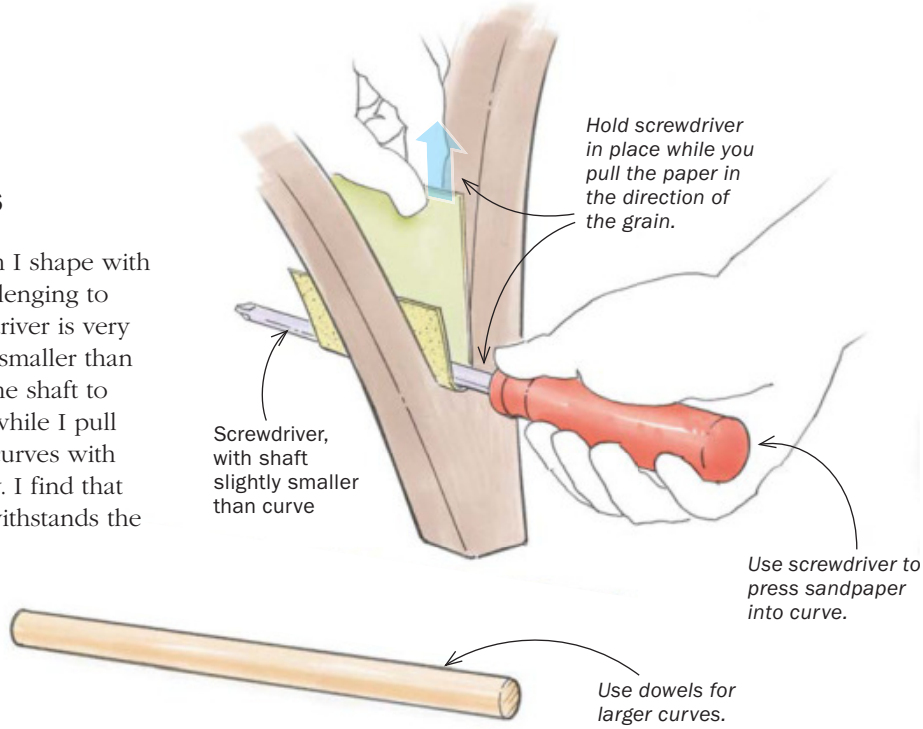
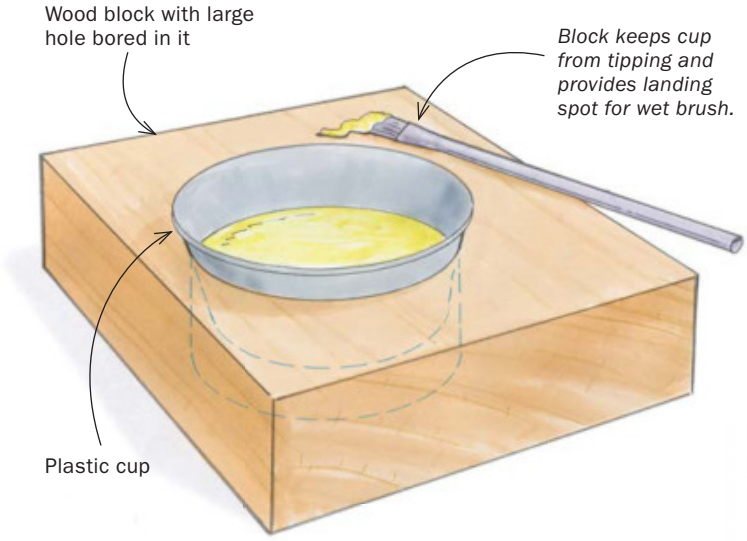
Smart method for sanding tight curves

I build a lot of furniture with acute angles, which I shape with rasps to create organic curves. But it can be challenging to sand the tight inside areas. The shaft of a screwdriver is very helpful here. I choose one with a radius slightly smaller than the curve and wrap sandpaper around it. I use the shaft to press the paper into the curve, keeping it there while I pull the sandpaper in the direction of the grain. For curves with a larger radius, I use wood dowels the same way. I find that 3M-brand sandpaper has a strong backing that withstands the stress of many passes. I work my way through the grits to achieve a smooth surface ready for finishing.

—MARK MORFORD, Portland, Ore.





Wood block simplifies glue-ups

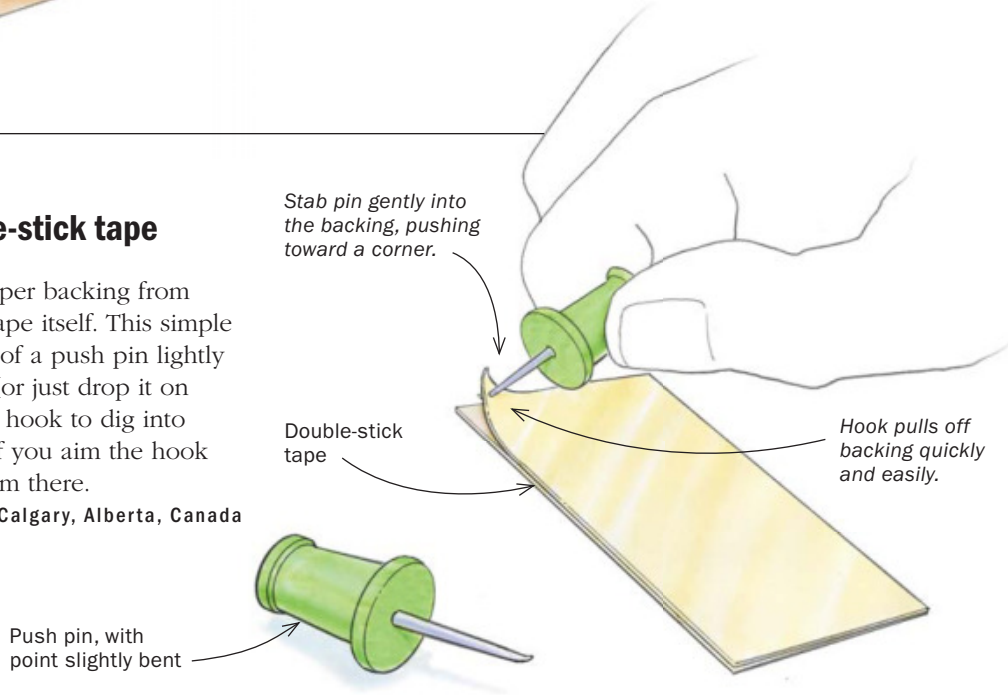
This simple wood block has been very helpful. For anything but the simplest glue-ups, I pour the glue into a plastic cup, which drops into a hole in the block. The block keeps the cup from tipping over and also holds the wet brush when I need to lay it down, with no mess on the benchtop. Small takeout cups work well, such as those used for sauces and such, or you could go for a reusable silicone cup, available on Amazon.

—JIM McDOWELL, Cerritos, Calif.

Push pin peels backing off double-stick tape

It can be frustrating to peel off the thin paper backing from double-stick tape without pulling up the tape itself. This simple trick makes it a cinch. Tap the pointy end of a push pin lightly on a hard surface to bend the tip slightly (or just drop it on the floor like I did), and then use the little hook to dig into the backing and peel it up. It works best if you aim the hook toward a corner of the backing and lift from there.

—CHARLES MAK, Calgary, Alberta, Canada



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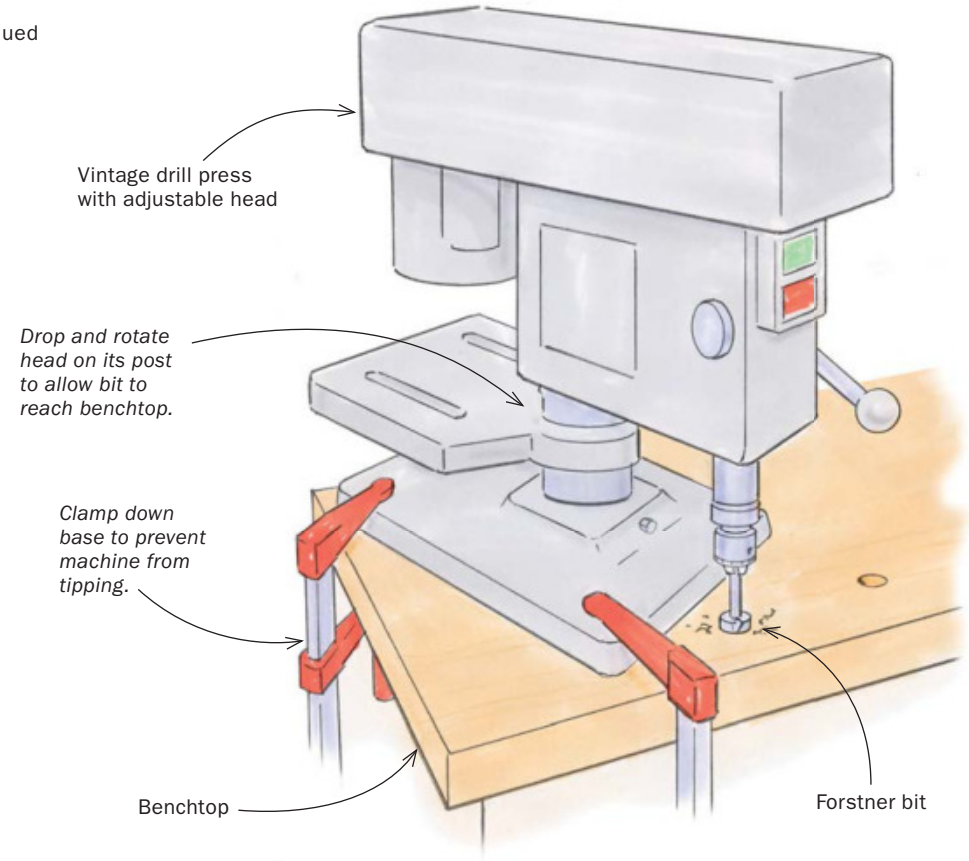
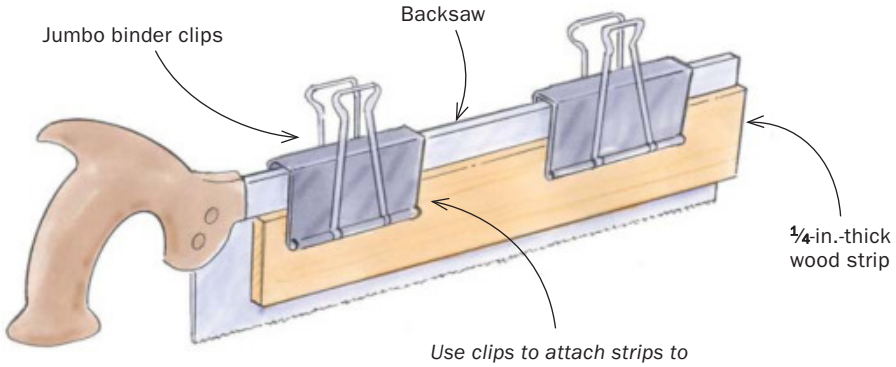
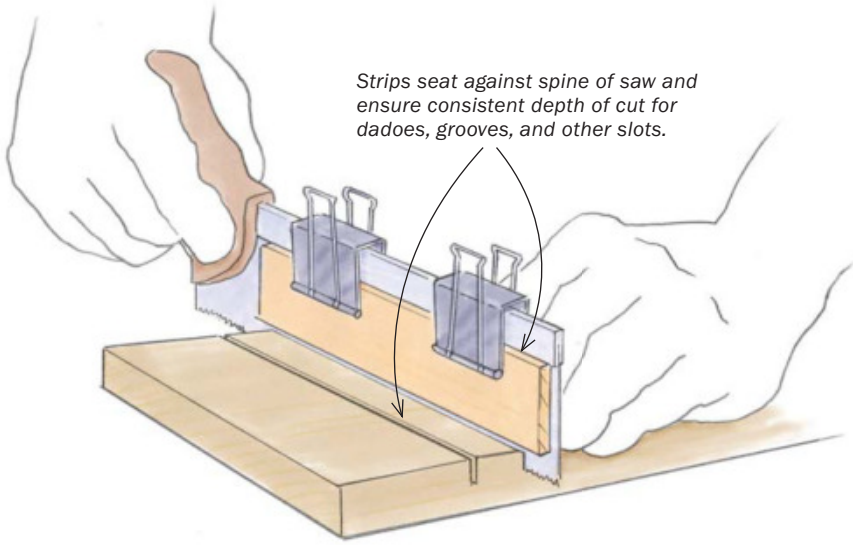
Some older drill presses can bore benchdog holes

It can be tricky to drill dog holes cleanly and accurately in a benchtop. But if you have an older drill press, you might find that it has a moveable head that can be lowered on its post; this allows you to lower the head and pivot it sideways so you can drill into a benchtop. Get someone to help you when lifting the machine onto the bench. Also, rotating the head can make the machine tippy, so clamp down the base for each new hole position. This method works for any holes you need to drill in the middle of a large panel or slab.

—ERIC RIMEL, Spring Green, Wis.







Add a depth stop to your handsaw

When you use a backsaw to cut grooves, dadoes, or sliding dovetails, here's a simple way to ensure consistent depth. Attach a ¼-in.-thick piece of wood to one or both sides of the saw, with the wood pressed against the sawback, or spine, of the saw and held in place with jumbo-size (at least 2¼-in.) binder clips. The width of the wood strips determines the depth of cut. Mark and save your depth-stop pieces, and you can make the same cut every time.

—LARRY MATTHEWS, Upper Darby, Pa.

SHARPENING

Affordable sharpening-stone kit delivers

MY SHARPENING STONES HAVE EVOLVED STEPWISE since I began woodworking. After a few weeks of using sandpaper, I used oilstones for a few years until I discovered waterstones. Now, Zen-Wu Toolworks' ZenSharp starter kit has taken me forward by a huge leap. The system cuts fast, is super convenient, and leaves a great edge.

The ZenSharp kit includes four thin, magnetic cards—three diamond cards and one charged strop—which affix to a stout, mostly nonslip base. The diamond cards are coarse, medium, and fine, which Zen-Wu says are 45µm (i.e., 45 micrometers), 20µm, and 9µm, respectively. The cards measure about 3 in. by 7⅞ in. and, according to Zen-Wu, are flat to within 0.015 mm. A slotted maple block to hold the cards is also included.

The edge off of these cards is fantastic. I worked pine, poplar, and ash with A1 and O2 steel sharpened with the kit, and my results were always stellar. Because I hadn't stropped my edges since using oilstones, I didn't use the Zen-Wu strop at first. The pine still felt like glass after a pass with my smoother, a basic vintage Stanley with a Hock iron. I appreciated the strop when I did use it, especially for my carving tools (modern and vintage). I needed to shoot a board, but I didn't want to sharpen my Lie-Nielsen No. 62. I took a few shavings with my recently stropped Craftsman No. 5 with its stock iron—something I can't recall trying before. To my pleasant surprise, the shavings were as good as with my Lie-Nielsen and waterstones.

Using the kit is a breeze. Because the cards don't require flattening, you just splash and go. They have notches at the corners that register against matching shapes in the base, allowing for reliable, repeatable—albeit sometimes finicky—registration. The base has small scoops along the sides for your fingers, a necessary feature for removing the cards and for keeping your fingers from getting pinched when you insert a card and the strong magnets eventually grab.

The cards' sharpening layer is rather thin, but Zen-Wu's website promises the cards will continue cutting and remain flat for hundreds of sharpenings. Replacement cards are available.

Zen-Wu also sells a pro kit, which includes a coarser and a finer card and an additional strop, but I did not test it. Zen-Wu says users don't need it unless they're cutting sushi.

—Barry NM Dima, a former associate editor at FWW, is very missed.

Pinch warning. *Powerful magnets keep the plates tight to the base. When they grab, they grab. Position your fingers over the notches in the base, which are designed to keep you safe.*

Splash and go. *No need to flatten. Just a light splash of water or glass cleaner is all you need to start sharpening.*

Zen-Wu Toolworks ZenSharp starter kit
$115
Replacement cards, 3-packs
$35
zenwutoolworks.com

Photos: Barry NM Dima

HAND TOOLS

Solid router plane built for precision

THE ROUTER PLANE HAS ALWAYS BEEN A STAPLE in my tool collection for tasks such as adjusting dadoes and rabbets, setting hardware, and dialing in joinery. The two most critical factors in a router plane are that the sole of the plane is flat and that the cutting edge is parallel to the sole. This router plane was perfect on both counts right out of the box.

The heft, feel, and finish of all the components were really nice, and the design of this router plane offers a variety of different blade and handle configurations. The plane's metal handles, which are slightly tilted, secure tightly in any of the pre-positioned locations. The router plane arrives with two cutting blades: a ½-in. straight cutter and a ½-in. spear-point cutter. Both cutters arrived flat and polished as expected, although the ½-in. straight blade required honing to remove some small nicks and a microbevel on the edge. Once the cutter was tuned, it performed well and held an edge. It was a surprise not to see a ¼-in. cutter option for this router plane at this time.

Woodpeckers Router Plane
$280
woodpeck.com

I recommend the Woodpeckers router plane. It is a solid, well-made tool that is built for precision.

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

FINISHING

Sleek new sprayer

WHEN I TESTED THE NEW FUJI SPRAY D6 TURBINE, the first thing I noticed was how much it resembles a boom box. That's appropriate, because this thing rocks! A few things stood out to me, the first being the six speed settings, which enable you to spray finishes of various viscosities. The lower numbers are for finishes that have been thinned down. I used the number 2 setting to spray about 3 gal. of shellac, and the finish laid down perfectly flat with minimal overspray. On setting 6, I sprayed primer on about 800 lin. ft. of poplar baseboard and door casing. I did thin the primer slightly, but the coverage and atomization of water-based material was optimal. I knocked the setting down to 5 for the topcoat and thinned a little more, and again the application was easy, with no clog and no orange-peel finish.

Flex time. *The D6 comes with a range of accessories, including a 6-ft. flexible hose attachment that increases mobility and is helpful when you're spraying the inside of cabinets.*

The unit comes with a remote to turn it on and off, which was convenient. As a turbine runs and the motor heats up, the air heats up—a good thing in moderation—but once the air gets too hot, it starts to affect finish quality. So whenever I'm moving parts or refilling the gun, I turn off the turbine. Using the remote saved me walking over and bending down to turn it off each time. My back thanks me for that.

One small critique is that the hose attaches with plastic connectors. These are fine for occasional use, but I would upgrade to all-metal hose fittings (about $30 in parts) for production finishing. Once you pair this turbine with Fuji Spray's T-75g spray gun and a variety of air caps, you will be able to spray a wide range of finishes with pro-level results.

—Assistant editor Owen Madden loves the smell of shellac in the morning.

Fuji Spray D6 turbine with T-75g spray gun
$2,300
fujispraysystems.com

Photos: *FWW* staff

MACHINES

Mighty midsize planer

FOR YEARS, WOODWORKERS HAVE HAD ONLY TWO CHOICES when it comes to planers: affordable, portable benchtop planers, or far more expensive stationary machines that allow wider, more aggressive cuts. Thankfully, there are now more options available—and I'm very glad to have spent time with the Grizzly G0999 15-in. benchtop planer.

With two feed speeds and a 15-in. cutterhead equipped with indexable carbide inserts, the G0999 provided tearout-free results on virtually every board I ran through it, including highly figured maple. The surface finish was excellent, with only the slightest hint of snipe at the beginning and end of some boards.

One place the G0999 differs from most stationary planers is in the depth of cut. It has a contact plate that limits passes to about 1/16 in.; in practice, 1/32 in. per pass is a more realistic maximum on this machine. That limitation is understandable given the lighter construction and 2-hp motor. Honestly, it's a small trade-off considering that in cost the Grizzly sits closer to a 13-in. benchtop planer than a traditional 15-in. floor model.

One note: the word *portable* should be used loosely with this machine. Most expect to be able to move a benchtop planer without substantial effort, but this machine weighs well over 100 pounds. I'd describe it as a compact planer in need of a base. Build a dedicated cart or cabinet that allows you to take advantage of the space above and below it, and you'll have the best of benchtop and stationary planers with very few concessions.

Overall, the Grizzly G0999 offers tremendous value. It bridges the gap between compact and stationary machines perfectly, delivering wide capacity, excellent surface quality, and modern features at a price that's hard to beat. If I were shopping for a new planer today, I wouldn't hesitate to choose this one.

—Ben Strano clogged FWW*'s dust collector twice during this review.*

It does sit on a bench. *The G0999 is called a "benchtop planer," but don't confuse that with "easy to move." It's hefty and needs a permanent home in your shop.*

Grizzly G0999 15-in. 2-hp Benchtop Planer with Spiral Cutterhead
$1,450
grizzly.com

Up to the task. *While the cutter head wasn't as packed with cutters as you might see on more expensive, stationary machines, the G0999 had plenty of teeth to get the job done.*

Surprisingly welcome. *The digital thickness readout was addictive. It's accurate and makes dialing in repeatable thicknesses effortless.*

redrosereproductions.com

NEW TO MARKET

Latta inlay tools return

RED ROSE REPRODUCTIONS HAS BROUGHT BACK the Latta inlay tools previously produced by Lie-Nielsen Toolworks. Developed in collaboration with furniture maker and inlay expert Steve Latta, these precision tools are designed for creating fine stringing and banding details in period and contemporary work alike. Subtle and mindful updates were made to each tool. Woodworkers should celebrate the return of these old friends.

Photos: *FWW* staff

IT'S BACK

2025 Lee Valley
Fine Woodworking Tools Catalog

Our woodworking catalog returns in print for the first time since 2019.

Explore 676 pages and thousands of tools.

The first and most important tool.

Lee Valley
Tools for Life

Thinking smalls

SIMPLE BUT BEGUILING PROJECTS FOR GIFTS, DONATIONS, OR CRAFT SHOWS

BY MEGAN FITZPATRICK AND CHRISTOPHER SCHWARZ

Furniture makers who work the craft-show circuit often build a bunch of simple, lower-cost items to place around the big and expensive furniture pieces they make. These "smalls," as they are called in the business, are a great way to meet new customers and make some gas money.

We've always admired good-looking smalls. But because we don't travel to sell our work, we build smalls for other reasons: charity donations and gifts for family, friends, and good customers. These little projects use up scraps and are gratifying to make after finishing an intense project.

The smalls shown here are all built using small pieces of wood, simple joinery, and easy finishes. Most often, they feature cut nails (sort of) and paint, with maybe one or two dadoes

Photos, except where noted: Anissa Kapsales. Photos this page: Katherine Schwarz and Kale Vogt.

or dovetails as needed. They prove that good design and a pop of well-chosen color can always help a simple project punch above its weight.

Wood for smalls

One mistake lots of people make with small projects is using wood that is too thick, which can make even an excellent design look clunky. Keep that in mind when you're sorting through the scrap bin, and thickness your pieces accordingly. All the projects shown here use ⅝-in. or thinner material, which we planed down from whatever scraps we pulled from the bin.

Another thing to keep in mind is that if you're painting, the species need not match. The goal is to use what you have and not complicate matters with a trip to the lumberyard. But do keep in mind that ring-porous woods such as oak and ash take paint differently than diffuse-porous species such as maple or sycamore—a fact you might use to your advantage when designing a piece. Also, avoid oily exotics and gray elm if you're planning to paint; they'll fight you when it comes time to finish. On oily woods, we use soft wax or purified linseed oil.

Keep-it-easy joinery

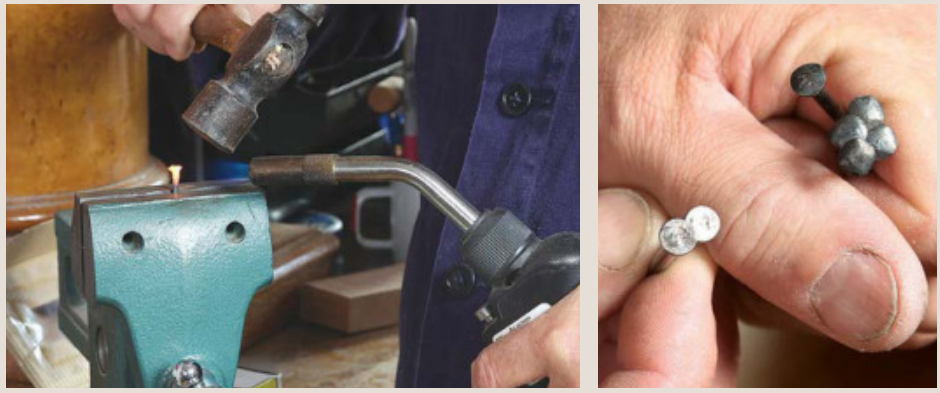
The idea is not to stress out or labor over any part of these projects. You don't have to dovetail, reinforce miter joints, or do any fancy hidden joinery. Most of the joinery is butt joints, dadoes, rabbets, and grooves. The Welsh spoon rack is all butt joints and nails. The plate rack is all rabbets, dadoes

Holding it together

To match the simple designs, keep the construction and the hardware simple too. Use whatever nails you have on hand. Modify their shape and color to liven things up, or use a nail you might not have considered otherwise.

The magic of markers. *If you don't have the time or the ingredients to rust or blacken your hardware, you can use permanent markers. Fitzpatrick and Schwarz have been known to pull out their Sharpie markers and take them to nail heads.*

The soaking method. *You also can turn to Birchwood Casey Super Blue to darken your nails, screws, hinges, etc. Simply dip the clean metal in the liquid until it turns the color you want. Then let it dry, and install.*



Pound nails to your will. *Large, common nails can be made much more interesting by clamping them in a vise, heating them, and hitting them with a hammer to shape them.*

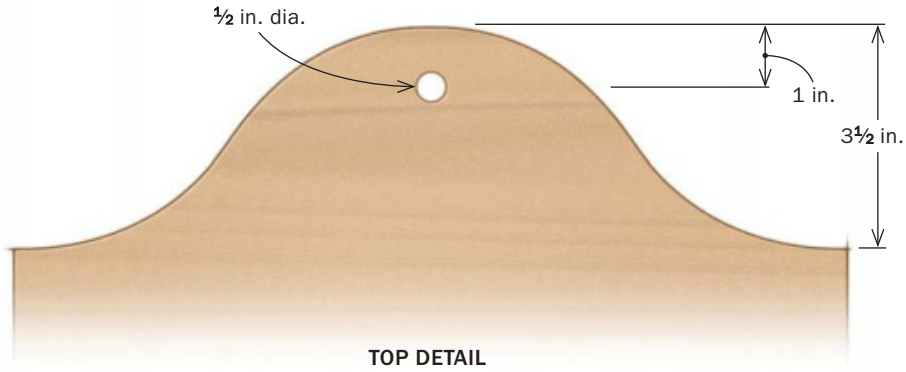
A WEALTH OF NAIL OPTIONS

Spoon rack

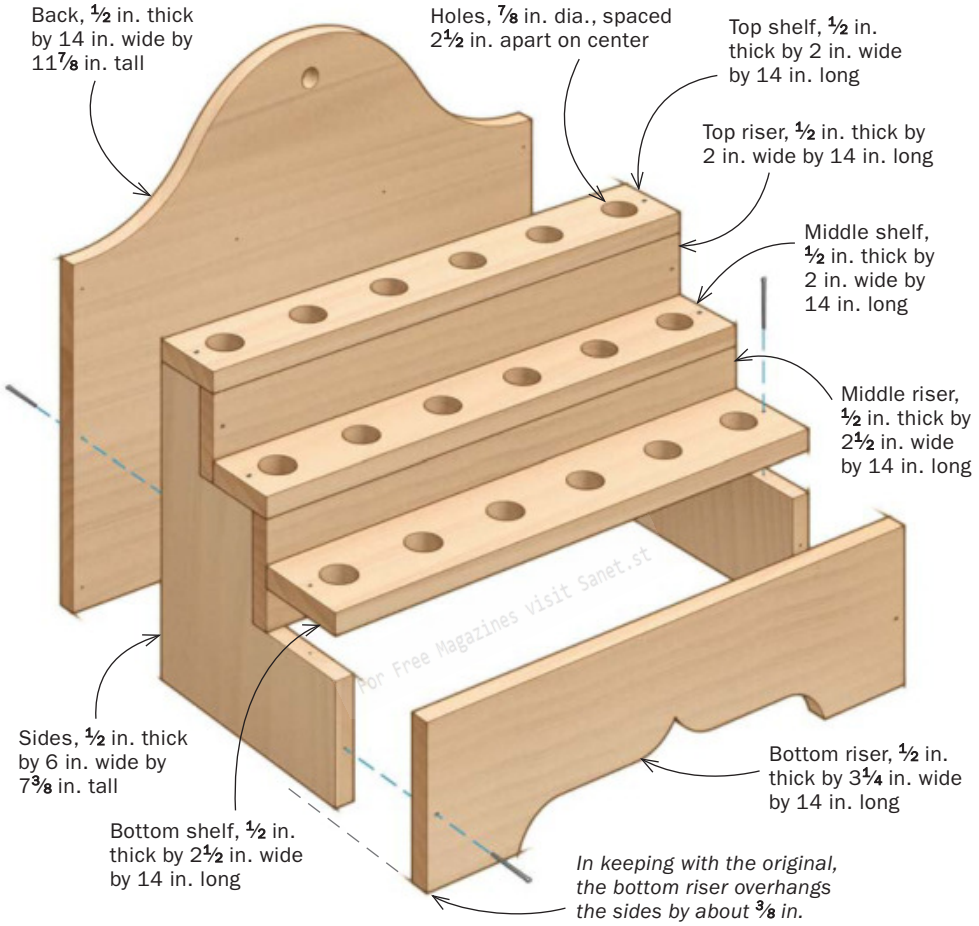
The three-step spoon rack is based on a 19th-century example spied on the website of Tim Bowen Antiques in Carmarthenshire, Wales. The original is pine, but Fitzpatrick chose cherry because it takes on a lovely glow with a coat of soft wax and, most salient, because she had a lot of cherry offcuts. The most demanding part of the build is cutting the stepped sides, the arched back, and the Cupid's bow front.

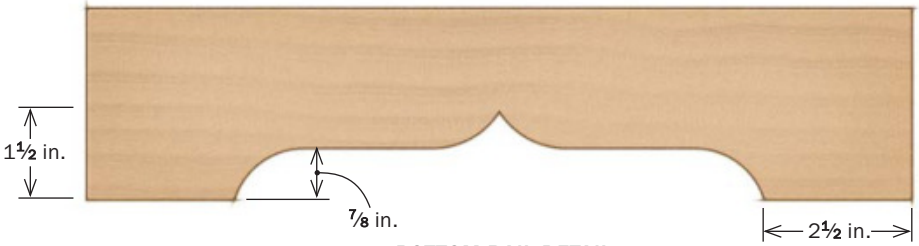
Cut in a decorative element. *After drawing the patterns on the back and front pieces, cut close to the line with a bandsaw or coping saw.*

Rasp and sand. *Use a fine-grain rasp to refine the shape to the line, and then follow up with sandpaper to smooth things out.*



TOP DETAIL





BOTTOM RAIL DETAIL

Drawings: Christopher Mills

Three steps, two sides, and back. *This rack comes together like a staircase. Cut the steps in the side pieces either by hand or on the bandsaw, and drill the spoon holes in the treads. Then glue each tread to its riser.*

and nails. The lidded hanging box is rabbets, dadoes, and butt joints. These pieces are for light use, so the joinery doesn't have to be robust. We also like to cut the joints using hand tools because it can be a nice break after a few days on the table saw, but we do hop on the bandsaw now and again.

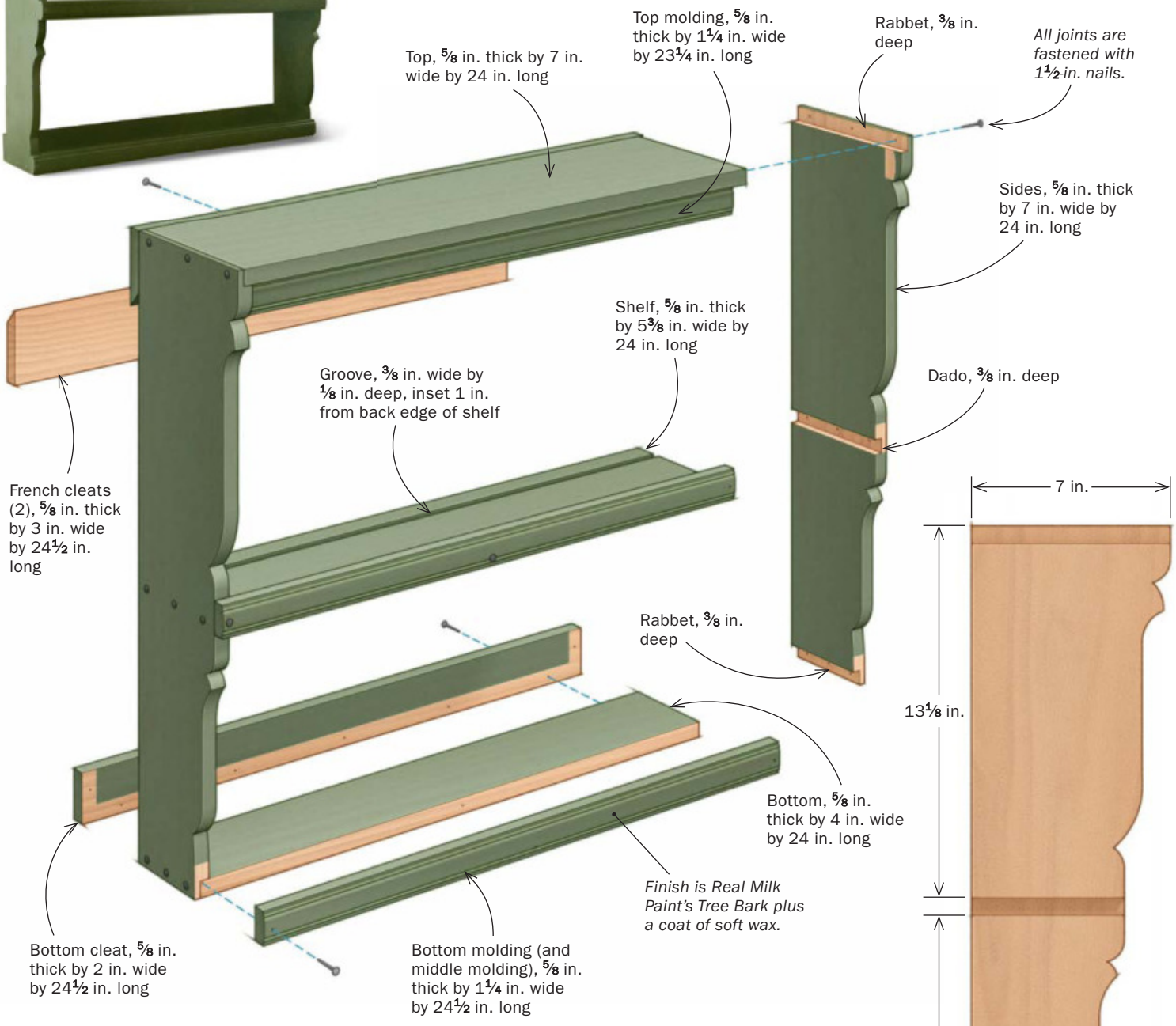
Many of these projects feature some scrollwork details. We cut these shapes using coping saws or the bandsaw, and then finish up the curves with rasps, files,

Secure the steps to the sides. *Starting at the top, drill pilot holes and then nail each step into place.*

Back it up. *Drill a hanging hole in the back piece, and then clamp it securely while you drill pilot holes and nail it in place.*

Plate rack

Before kitchen cabinets came into fashion, most homes used plate racks to store and display their dishes. These racks could be small, or they could cover an entire wall of the kitchen or dining room. Construction was typically simple—rabbets, dadoes, and nails—though sometimes the corners were dovetailed.



SIDE DETAIL

and sandpaper. Because the material is so thin, even traditional hand-sawn methods are quick and easy. And the handwork looks correct on these historical designs. But use whatever method you feel like using.

Effortless fastening

We try to use hardware and fasteners we have on hand, from nails to hinges to screws, though we generally stay stocked up on these items. We are also happy to take short cuts to get the job done. Usually for these pieces we surface-mount hinges or use dowel hinges. But you can mortise your hinges if you like.

We typically use cut nails or hand-forged nails when making smalls because they

Side out. *Begin the plate rack by working on the sides, cutting the dadoes and rabbets for the three shelves. The middle shelf sits in dadoes. Cut the sides of each dado with a backsaw.*

Clean out the dado. *Use a chisel to rough out most of the waste, and then use a router plane to refine and set the final depth of the dado.*

Rabbets on ends. *The top and bottom sit in rabbets. Schwarz uses a Veritas skew rabbet plane to cut these. Your body position and grip on the plane are key. Position your feet one in front of the other and bend your knees slightly so your torso is close to the work and just behind the plane. Keep your right hand on the handle and wrap your left around the side of the plane. Schwarz removed the plane's front knob, since if you hold it you never make a great rabbet.*

Cut to shape. *The pattern on the sides adds ornamentation to an otherwise plain piece. After cutting the joinery on the inside face, draw the pattern on the outside and cut it out on the bandsaw.*

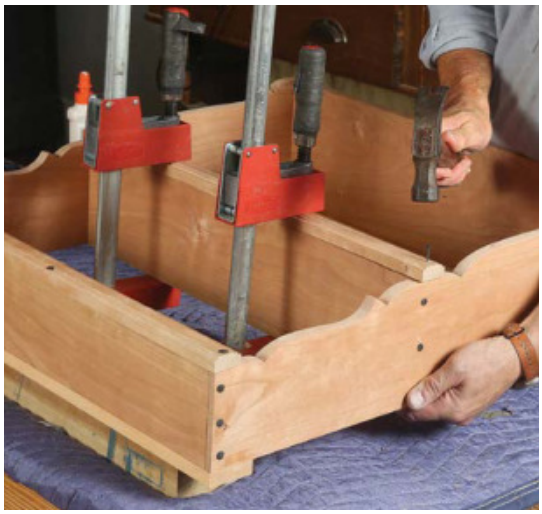
Rest your plate. *The groove in the shelf allows a plate to stand upright without the bottom kicking out and the plate falling. With a Veritas combination plane and a little bit of oomph, you'll be groovin' in no time.*

Effortless assembly. *With all the joinery cut and the surfaces prepped, use hide glue and clamps to tack the pieces together. With a little clamp juggling from one shelf to the next, drive nails into each joint to permanently hold the pieces together.*

Accoutrements. *Add a French cleat at the top in the back and attach a spacer the same thickness at the bottom to keep the rack from tipping into the wall. Profile three pieces of molding to attach to the front of the rack.*

look nice. But if you don't have cut headless brads handy, simply use 18-gauge brad nails designed for a nail gun. These pneumatic nails have square heads that are indistinguishable from cut headless brads. You can drive them with a nail gun, or you can break the row of glued-together nails and drive them by hand.

For larger nails, here's another cheat: We take common headed nails and clamp them in a metal-jawed vise, heat them, and beat



Overlay and inset moldings. *Glue and nail the bottom two moldings in place on the shelves. The molding on these two shelves overlays the sides and is functional, as it helps stop the plates and cups from falling to the floor. The topmost molding, inset between the sides and under the top shelf, is entirely decorative and simply glued in place.*

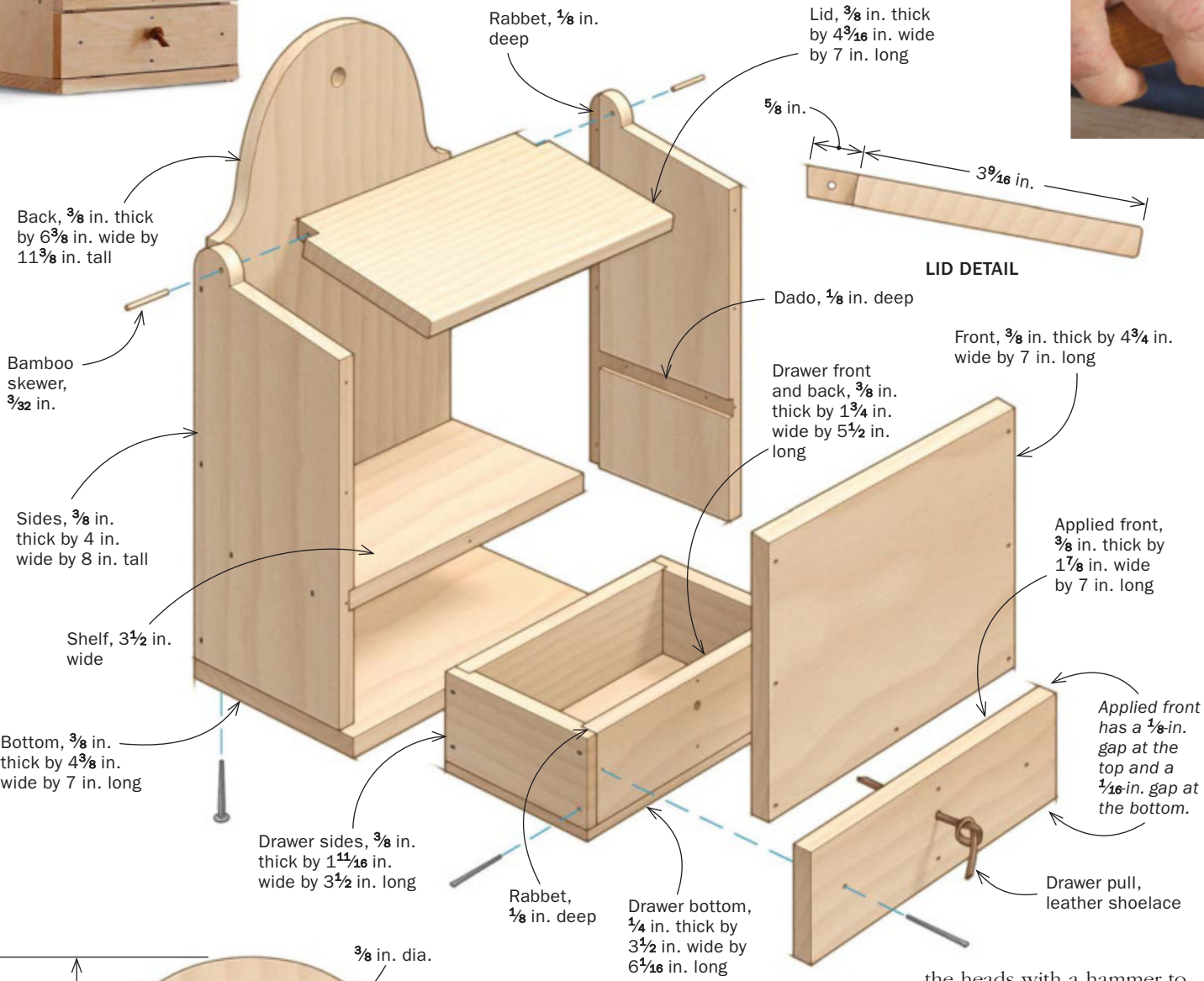
Slather on the paint. *According to Schwarz, "The peasant philosophy is to keep adding moldings and paint until it looks good." With the moldings in place, he painted the plate rack with Real Milk Paint's Tree Bark color.*

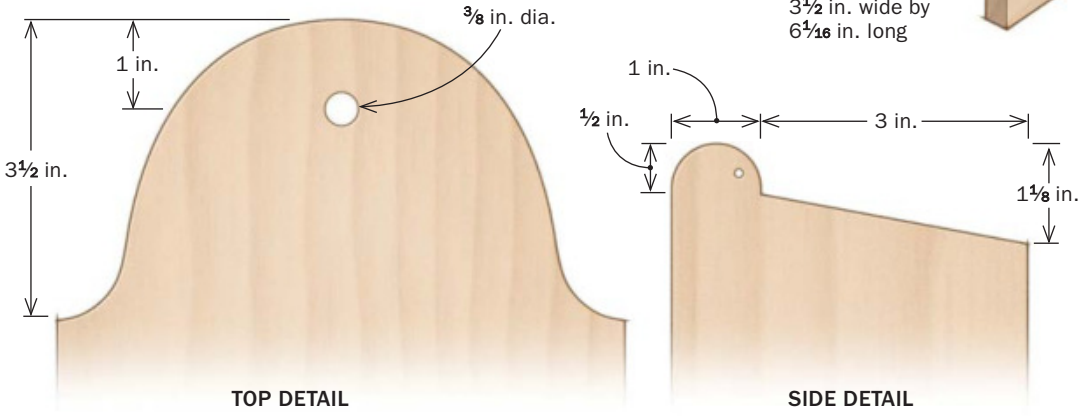
Salt box

No Colonial home worth its salt would be missing a box like this in the kitchen area. Such boxes stored blocks of salt, off which chunks could be chipped and then ground not only for seasoning food but also for preserving it. This one is constructed out of pine. Though in the form's heyday it would typically have been painted (and possibly carved), this version has a simple coat of wiping varnish.

BOX PARTS

Rabbets, dadoes, and cut nails hold the salt box together.





the heads with a hammer to make them a pyramid shape. Then we color the heads with gun blue or (don't tell anyone) a black permanent marker. We use Sharpie Pro and Sharpie Trace Element Certified markers for nails. The marks are hard to rub off, although nothing is forever. We laugh and call these nails "forged."

Cutting and shaping. *After cutting the angles and rounds at the top of the sides with a coping saw or bandsaw, finish up with a file. The lid sits on the angles and gets hinged into the rounds.*

Bring it all together. *Clamping the project to drill pilot holes and drive the nails could be a challenge with a diminutive piece. But applying hot hide glue (which sets quickly) eliminates the need for clamps while drilling and nailing.*

Larger nails on bottom. *Once you've pressed the assembly together with glue, drill for your nails. Many period examples have dovetailed bottoms, but Fitzpatrick uses nails with large heads to secure the bottom. (The nail heads keep it from falling off.)*

Smaller nails for the rest. *The sides, shelf, front, back, and even the applied drawer front are held together with cut nails.*

MAKE THE LID

Adding a hinged lid does not need to be complicated. This lid is notched to fit between the hinge points in the sides. It rests at an angle, which just means you need to bevel the front and back edges of the lid.

Mimic the angle. *Use an angle gauge to measure the slant on the top of the box side, and transfer that to the front and back edges of the lid. Use a block plane to bevel the edges.*

FIT THE LID

Take it down a notch. *Set the lid against the assembled box, mark where the sides land, and notch the lid so that it fits in between the sides.*

Skewered. *To hinge the lid, set it in place with a few layers of blue tape behind it as a spacer. Drill through the side and into the lid, and insert a bamboo skewer through both. Repeat on the other side, and then cut both skewers flush. The blue tape ensures clearance for the lid to swing freely.*

DRAWER

You can make the drawer to your salt box quickly and easily without sacrificing beauty.

An old adhesive trick

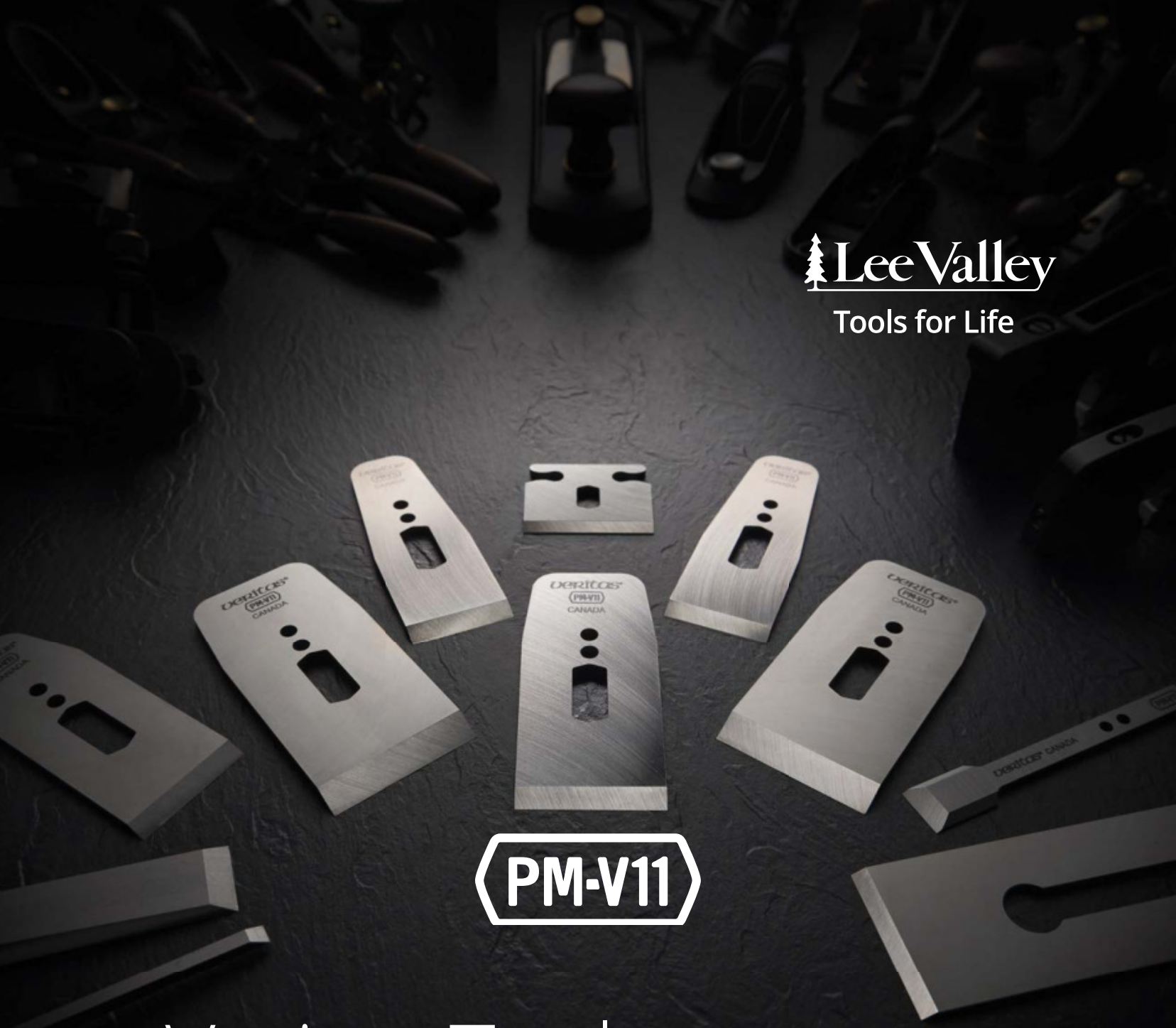
One more tip: The best clamps to use on this small work are no clamps at all. Instead, we recommend sticking the pieces together with hot hide glue. Clamps on this thin material can easily flex it, and it's hard to hold butt joints perfectly in place as you tighten clamps. The glue needs only to hold the pieces together while you drill pilot holes (where needed) and drive the nails. It's easy to do this while hot hide glue sets.

Megan Fitzpatrick is the editor and Christopher Schwarz is the publisher at Lost Art Press.

Butt joints and nails. *Mill all your parts to size, and prep the surfaces. Drill pilot holes, and then nail the front, back, and sides of the box together. Nail the bottom in place to square things up. Then fit the drawer into the box.*

Add a front. *With the drawer box in place, tack the applied front to it with hide glue. Remove the drawer and secure the applied front with nails.*

Install a pull. *For a simple pull, Fitzpatrick drilled a hole through the drawer front and threaded a length of leather shoelace through it, knotting the lace on both sides of the hole.*



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Glass-Top End Table

A cube transformed through curves and clever techniques

BY DOUG KING

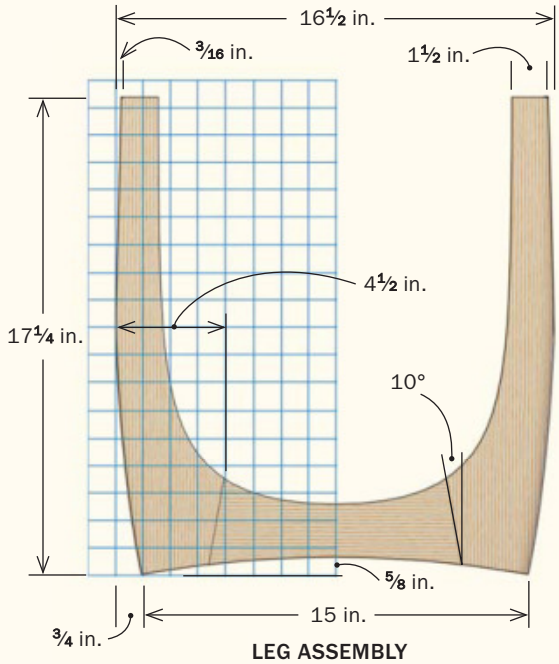
This small, curious end table is the product of multiple generations of tables I have built over the years. Each one has evolved aesthetically from the previous one. The circular piece of glass in the top draws the eye, but as a whole the table amounts to a cube. Within that typically square, static form is quite a bit of movement, however. Subtle curves and shapes as well as an open, sculptural structure were my goals.

I have a lot of templates and jigs for the shapes and curves of the table. I could write a whole separate piece on how to make and use jigs and templates. In fact, I did (see Master Class, pp. 74–80). But while I tend to favor templates and jigs when I work and always use them when I make this table, you can make it without the templates and jigs. It's just a matter of tracing a pattern, cutting close to the line on the bandsaw, and then hand-shaping with a spokeshave, planes, files, and sandpaper. For this article, I'll go through the build process assuming you don't have all the templates and jigs, focusing on the

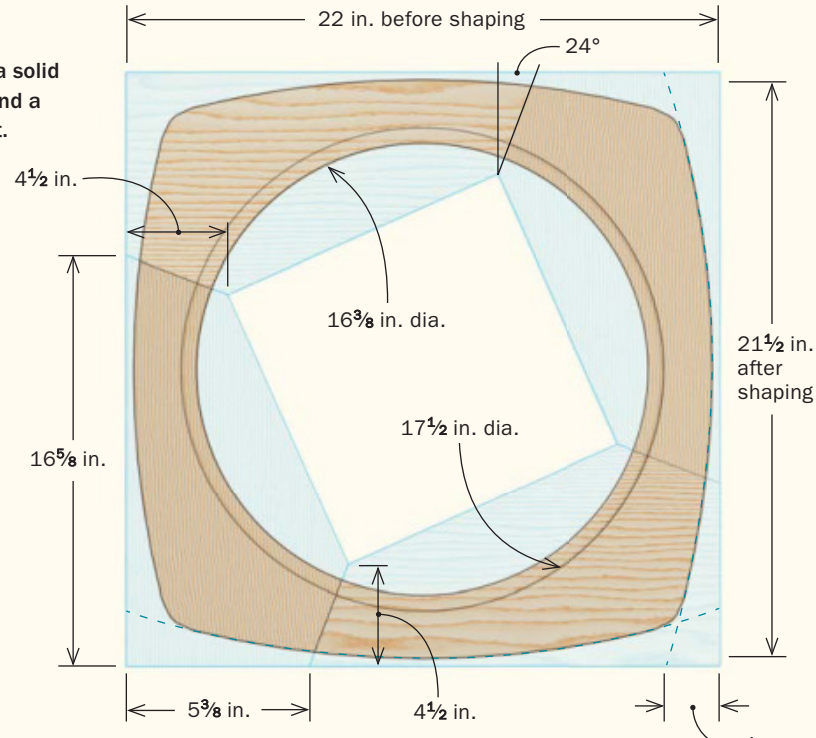
Photos: Anissa Kapsales. Drawings: Dan Thornton.

ATYPICAL CONFIGURATION

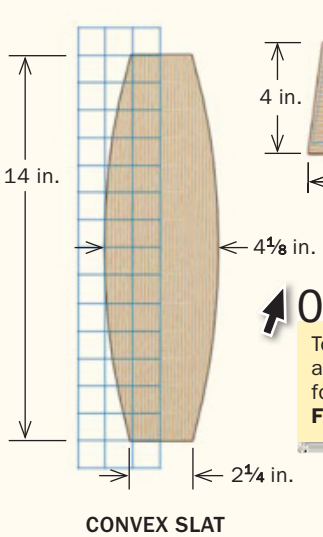
Tables usually have four legs joined by rails at the top, and a solid top. With its two lower rails, a slatted shelf at the bottom, and a round-glass-in-a-square-frame top, this table flips that script.



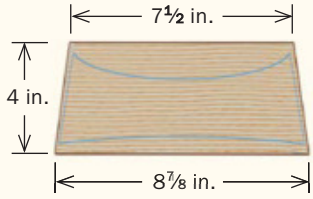
LEG ASSEMBLY



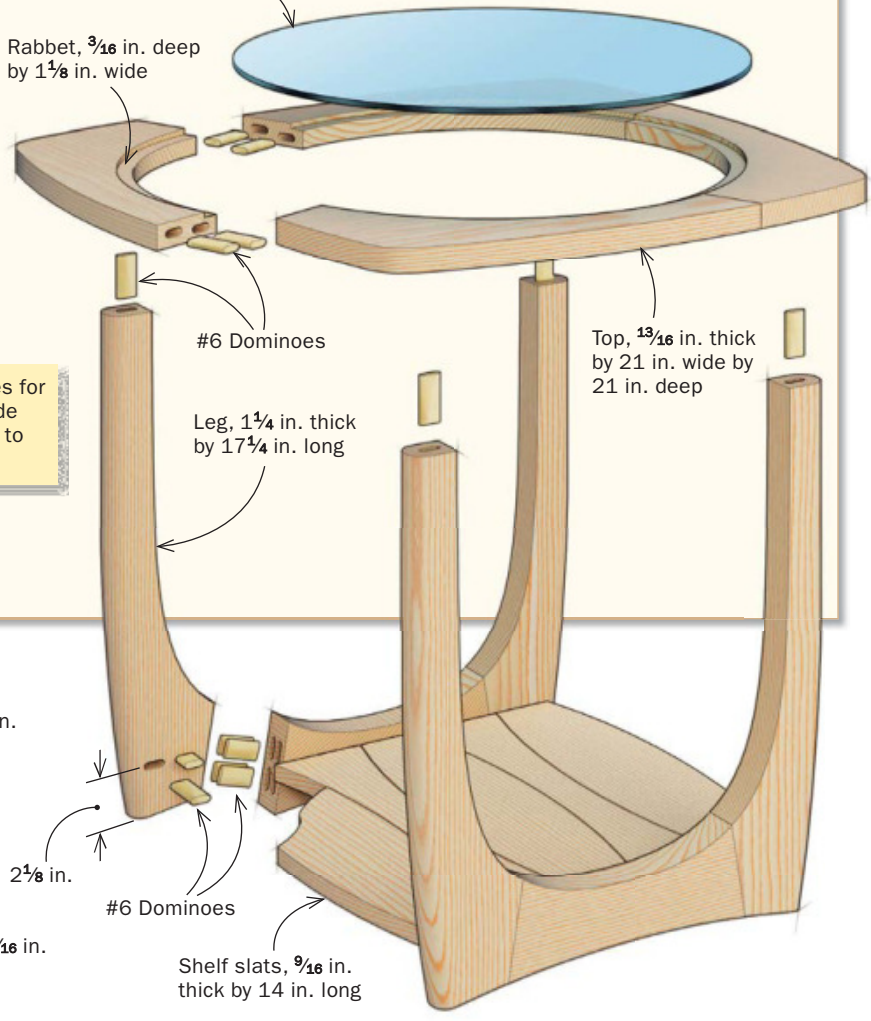
TOP ASSEMBLY

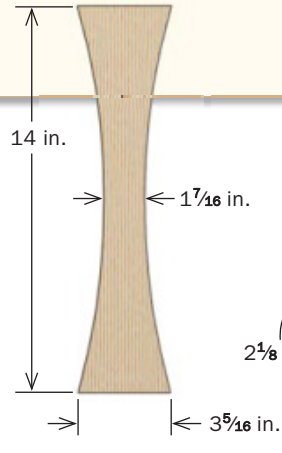


CONVEX SLAT



RAIL BLANK





CONCAVE SLAT

Online Extra

To download full-size templates for achieving the curves King made for his glass-top end table, go to **FineWoodworking.com/321.**

order of operations and fitting all the pieces to each other.

Sidestepping

I begin the construction by building two side assemblies, each of which consists of two legs with a low rail between them. All the joinery in this

Create the side assembly

The base construction starts with two side assemblies, each one with two legs joined at the bottom by a rail.

Get a leg up. *Starting with a squared leg blank, trace the inside curve of the leg from the template. Rough it out close to the line on the bandsaw.*

Low rails. *Cut mating angles on the ends of the rails and the short side of the legs.*

The Domino effect. *Mark and cut the mortises on the legs, butt them up to the rail, and transfer the mortise locations. Then cut the mortises in the rail.*

project is done with #6 Festool Domino tenons.

Begin with the legs. Keep the bottom and one long edge of the leg blank square to each other. Then trace the inside curve of the leg onto the blanks and rough cut close to the line on the bandsaw. Whether you are template-routing or shaping by hand, clean up to the line. Then cut the angle where the rail will join the leg. I create the angle by template-routing in a jig. You can also cut that angle at the table saw with a miter gauge or a crosscut sled.

The rails are a simple affair—just a block with angled ends. Make the rail a bit wider than needed so its bottom edge is proud of the bottom of the legs. It will be used as a reference surface throughout the process before being cut to shape at the end.

Once the legs and rails are prepared, cut mortises in both using the Festool Domino. Then glue up two separate side assemblies.

After the glue dries, draw the upper curve on the rail and cut it out on the bandsaw carefully. Here again, I use a template and cut the final shape on the router table, but you can use hand tools to shape the interior. (The same goes for the exterior shapes.) I draw,

Assemble the sides. *Spread glue into the leg mortises, add the Dominoes, and attach the legs to the rail. King errs on the side of plenty of glue, so he "never has to worry that he didn't use enough." Once the glue dries, shave a bit off the bottom end of the legs, leaving just the bottom edge of the rail as a flat reference.*

Shape the side pieces

Once the side assembly is out of clamps, cutting curves and roundovers creates movement and interest.

Curves ahead. *Use a pattern to trace the interior and exterior shapes onto the side assemblies. Cut close to the line on the bandsaw, and refine the curves by hand. Then at the router table, round over the exterior curves.*

rough out, and template-rout it to its finished shape. The exterior curves of the legs get a roundover, and I do that on the router table as well.

Next, cut the mortises for the shelf slats. I use a jig that provides a fence and layout marks for the Domino. I cut the mortises in one side assembly, registering off the bottom edge of the rail. Then I flip the jig over and use it to cut the mortises in the other side assembly.

Registering the flat bottom of the rail against the tablesaw fence, cut the side assemblies to length. Finally, cut and shape the scoop at the bottom of the side assemblies. This curve creates visual lift and

Mortise side assemblies. *A jig registered off the flat bottom edge of the rail provides a fence for the Domino machine and layout lines for the mortises. Match the centerline on the jig to the centerline on the side assembly and cut the mortises for the convex slats. Next, locate and mark the mortise placements for the two concave slats on the jig, and cut them. Later, you'll transfer the layout lines from the jig to locate the mortises in the slats.*

Trim to length. *At the table saw, registering off the flat of the rail, cut the side assembly to length.*

Shape the bottom. *Trace the scoop shape onto the bottom of the side assembly, and then carefully cut close to the line on the bandsaw.*

The positive and the negative

The three convex slats sit at the outsides and the center, while two concave slats fill in between them.

Mortise first. *Before you cut the shelf slats to shape, transfer the mortise locations from the side assembly mortising jig and cut the mortises for the Dominoes.*

Trace and cut. *Draw the patterns on the slat blanks, and cut the shapes out on the bandsaw.*

Test-fit the slats. *Dry-fit the shelf slats to the side assemblies and check the spacing between the slats. To fine-tune the gaps between the slats, King marks and trims only the concave slats, leaving the convex slats consistent.*

lets the legs contact the floor at four points rather than having the whole length of the side assembly sitting on the floor.

Slats

The table has five shelf slats, three with convex curves on each side and two with concave curves on each side.

Begin with the three convex slats. With the blanks still square, cut two Dominoes on each end. Then trace the shape on the blanks, cut them close to the line on the bandsaw, and refine the shape with hand tools or by template-routing. Repeat the process on the two concave slats.

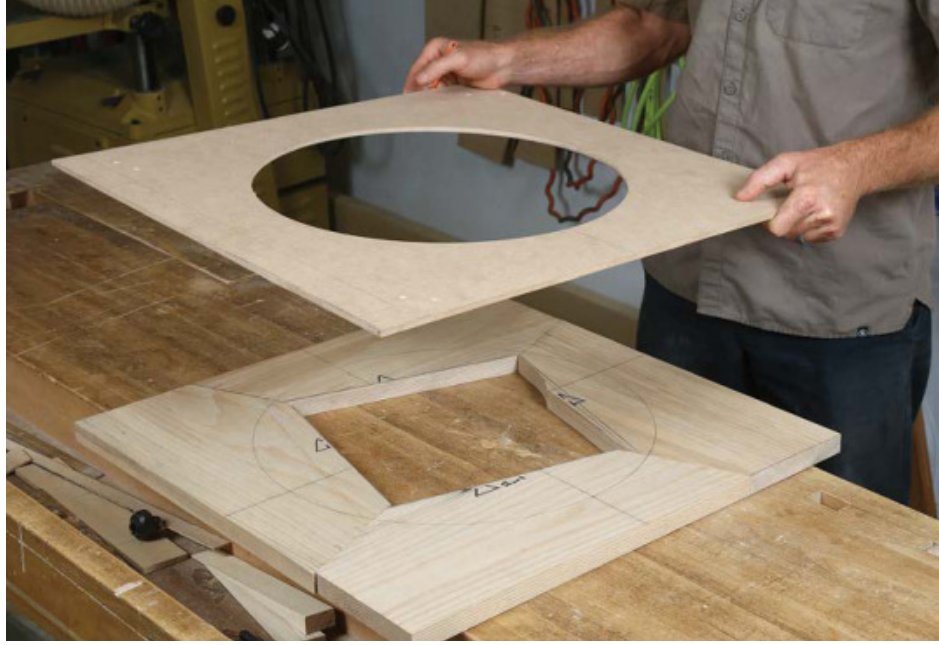
Dry-fit the convex slats into one of the sides, one slat on each end and one in the center.

Glue slats in place. *Glue the slats into one side assembly first. You will have to work two slats at a time into place. Secure the second side assembly to the other side of the slats, and carefully apply clamping pressure. Check that the legs aren't splaying out or kicking in. King often sets a spacer between the legs at the top to ensure that doesn't occur.*

Going round in circles

The easiest way to a perfect circle is a square frame. Since he doesn't like the long, pointy look of 45° miters, King opted to alter the angle where the frame boards meet.

Four square. *The outside corner of each frame piece is 90°, so although the boards meet at 24° angles, when glued together the four pieces make a square.*



Trace a circle. *Mark centerlines on your tabletop blank and the circle template. Line up the center marks and draw the circle onto the tabletop.*

Rough cut and rout. *Use a jigsaw to rough out the waste inside the circle. Then place the template back on and template-rout the circle to its final shape.*

These will be constants. You'll fit the concave slats between them, and any adjustments will be made to the two concave slats. Set the concave slats in their locations without Dominoes. Look at the spacing, and mark where they need to be trimmed for more desirable spacing between slats. Then use a spokeshave, block plane, or file to remove material.

Prefinish and assemble

I'm a huge advocate for prefinishing parts before gluing them up. I do this whenever appropriate, going through the sandpaper grits from 80 to 150. On a light wood like this ash, I use a water-based polyurethane. I like how clear it goes on and stays, how fast it dries, and how easy it is to repair if that's necessary. Prior to finishing, I tape off any Dominoes I've already glued into parts.

Once the final coat of finish is dry, I glue the slats into the two side assemblies and set the piece to dry while I work on building the top.

Top adds style and structure

Although visually it may be the round glass of the top that is

Run a rabbet. *Using a larger circular template for the rabbet, screw the template to the corners of the tabletop that will get cut off later. With a ½-in. straight bit and a guide bushing, cut the rabbet that will hold the glass top. To keep the router from tipping into the space in the center, attach a support to the router base with double-stick tape.*

Join the top to the base

Connections. *The top is attached to the base via Domino tenons. To locate the tenons in the base, King constructs a jig that sits on top of the legs but leaves most of the leg exposed, accessible for cutting the joinery. Boards screwed to the underside of the plywood straddle the legs and provide a platform for the Domino to rest on. Two strips on top serve to register the Domino laterally. Once King cuts the mortises in the top of the legs, he removes the boards from the plywood and uses the plywood to locate and cut the leg mortises in the underside of the top.*

Tip-top shape. *With the rabbet and all the joinery cut, draw and cut the outside curves of the top frame.*

Prefinishing advice. *Before gluing, King surface-preps, tapes off joinery, and applies finish. Also prior to gluing, he waxes areas where there might be squeeze-out. He lets squeeze-out dry in place and then pops it off with a chisel.*

most noticeable, building the top hinges on everything starting out as a square framework. I have an aesthetic aversion to 45° miters, so I changed up the angle where the four boards of the top frame meet. If you think of the tabletop as a square, it's still the same relationship between the joints. Angled and curved as everything ends up, each joint still adds up to 180°, and the top is still four components adding up to 360°.

Lay out and cut the top frame parts, starting with one end and the outside edge of each of the four blanks square to each other. Although I rough-cut the angles on the bandsaw and then pop them into another jig at the router table to get them to final shape, you can cut the angles at the table saw or miter saw. After the parts are shaped, cut two mortises in each end. Offset them, one lower than the other, to accommodate the rabbet that will get cut for the circular piece of glass.

Before cutting the rabbet for the glass, you must cut the circle into the center of the top frame. I trace the pattern using my template. I champion

the use of a template here and for cutting the rabbet because you'll be ordering round glass and it will be precise. A template will ensure that the circular opening and the rabbet are as precise as the glass itself. I use a jigsaw to cut the waste away, and then I clean out the rest of the circle with a template and a handheld router that's outfitted with a flush-trim bit.

With the hole cut in the top, cut the rabbet that will hold the glass. Here I use another template with a larger opening. This time, I use a straight bit with a guide bushing in the router. Only after this rabbet is cut do I order the glass. I take the top to the glass shop and let them measure the opening. I suggest about ⅛ in. of wiggle room between the diameter of the rabbet and the glass. You don't want to have to press the glass in place or try to trim away the perfect rabbet you cut.

While the outside edges of the top frame are still square, I cut the mortises to join the top of the legs and the underside of the top. To create common reference edges for mortising the top and the legs, I made what I call a New Age doweling jig. It's a piece of plywood, but it follows the same principles as a Krenov doweling jig and is made to be used with a Festool Domino machine. I cut the mortises in the top of the legs first, then flip the piece of plywood to the underside of the top and cut the mating mortises there.

The final thing to do to the top before surface prep is bandsaw the curves and radius the corners with a file. After you prep the surfaces and prefinish the top, glue the top down to the base. □

Doug King is a custom furniture maker in Missoula, Mont.

Creative clamping. *Final assembly is gluing the top to the base. Because of the overhanging top and the scoop at the bottom of the base, you can't clamp in traditional ways or turn the piece on its side. Instead, set up a system where the table is on risers that allow the clamp heads space underneath.*

Living with a glass top. *When the glue is dry and the table is in its location, carefully set the glass top in place in the rabbet.*

Enlarging the Envelope

Intrepid makers who have paved the way for innovation

BY JONATHAN BINZEN

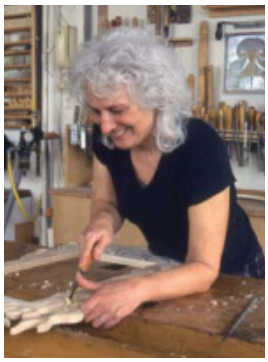
Boundary Breakers. That was the working title for this article, and it was that concept we had foremost in mind as we chose the people to feature in it. Surveying the field over the 50 years since *Fine Woodworking* launched in 1975, we selected makers whose careers helped redefine furniture making as a form of self-expression. We sought work that was unique to its maker but also exerted a strong influence on others in the field.

The makers we chose vary in many ways, but all have grappled productively with the question of how much—and which parts—of furniture's enormous legacy to rely upon, or relinquish, as they established their own personal forms of furniture making.

All the makers we chose have seemed to thrive at the boundaries, drawing power from the tension between the familiar and the unexpected, the useful and the beautiful, the traditional and the newly hatched. However far these makers may have stretched the dictates of traditional furniture, they have never snapped the line, recognizing, perhaps, that the history and traditions of the field have been essential in giving their work its meaning and vitality.

Judy Kensley McKie

After graduating from art school with an MFA in painting in 1966, Judy Kensley McKie figured she had better get to work making paintings. But she found it difficult to will herself to paint; it felt more natural, and more enticing, to make practical things: shelves for the bathroom, a couch, a kitchen table. "I discovered I wasn't comfortable making things that you just put on the wall and looked at. Whereas if it was something you used, it was worth the time it took to make it."



Near her home in Cambridge, Mass., she found bench space and shared tools in a co-op shop where most members were Harvard and MIT grads looking for a livelihood they could pursue with their hands. Almost no one had any training, and the work tended to be utilitarian. McKie spent six years or so eking out a living building purely practical furniture and cabinets. She loved the environment and the activity, but eventually she got a little bored with the furniture she was making. "I started feeling like I wanted to bring it to life," she said.

She remembers sitting in her living room at the time with the very simple furniture she had made—all straight lines and flat planes. "I would look at it for a long time, the way you might look at clouds in the sky. And as I looked I'd turn the armrests into animals. Or in the stance of a table I would see a four-legged creature. And I would think, well, that would be one way to bring this stuff to life."

She had been doing shop drawings using drafting tools, but now she went back to freehand sketching. And she realized she needed to learn how to carve. "For some reason, instead

Photos this page: Jonathan Binzen (left); Dean Powell (right).
Photos facing page: David Caras.

of going out and taking a carving class, I just bought some tools and started hacking away. I still am a hacker, but I can always get what I want."

Her carved furniture made an immediate impact; the very first animal form pieces she made were scooped up for a traveling show, which led to the first of what would become dozens of one-person shows at prominent galleries, where the work invariably sold. In the 1990s, at the urging of Garry Knox Bennett, she had one of her pieces cast in bronze, and that experience led her to have many pieces cast in bronze and others carved in stone. These works sold well and extended her fame, and they continue to attract extraordinary prices at auction.

McKie has built a body of work that is unparalleled in contemporary furniture. Her pieces, which fuse function with sculptural vibrancy, have made a deep impact within the furniture field and well beyond it in the realms of art and design. "I love that you can make a useful object beautiful," she once said. "For me, that's the ultimate challenge. I want to make art that people love."

Michael Hurwitz

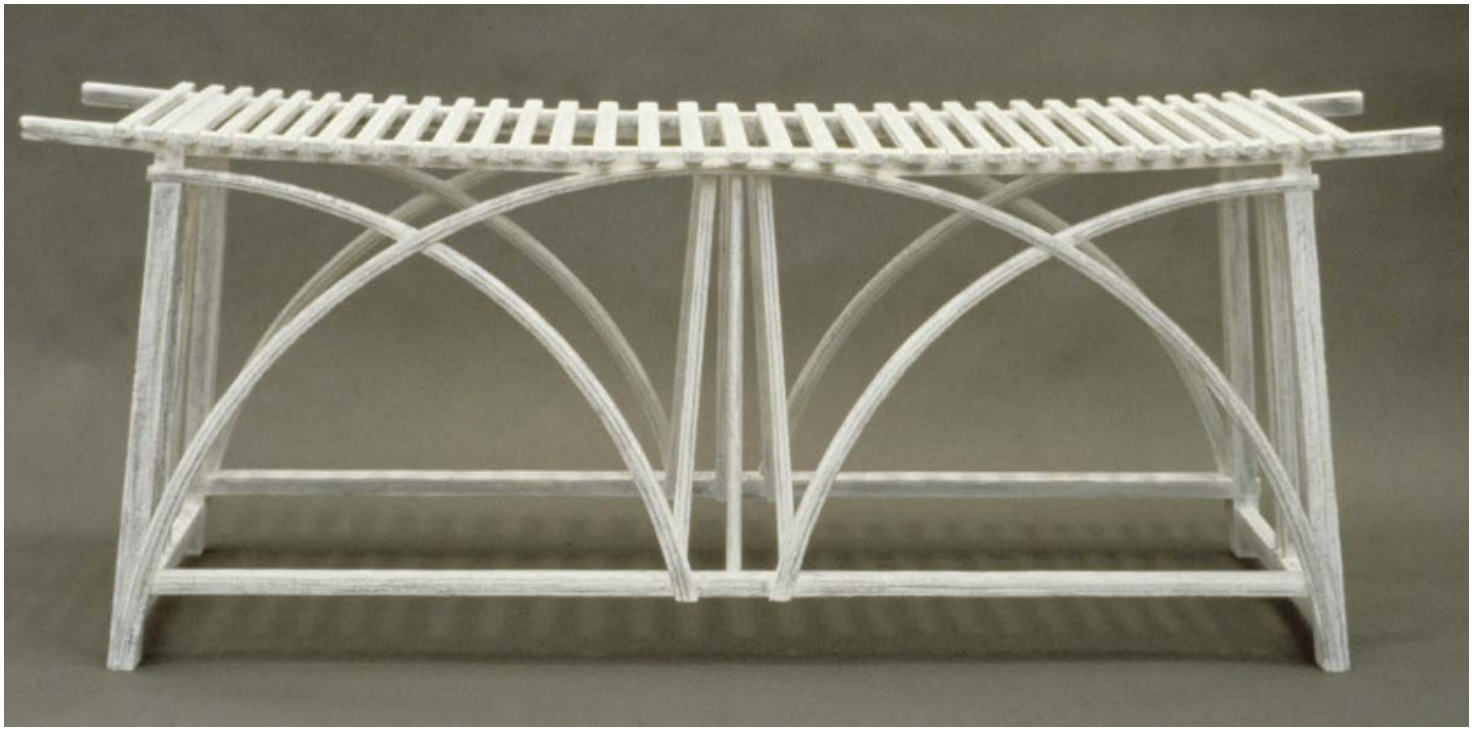
Michael Hurwitz is a poet among furniture makers. He embraces the constraints of utility the way a poet might accept the structure of a sonnet. Without seeming to strain, he produces beautifully functional pieces that sing with self-expression. The language of his work, shorn of all cliché, derives power from clarity and compression: A couple of his silky curves elevate a piece; several more would overcomplicate it.

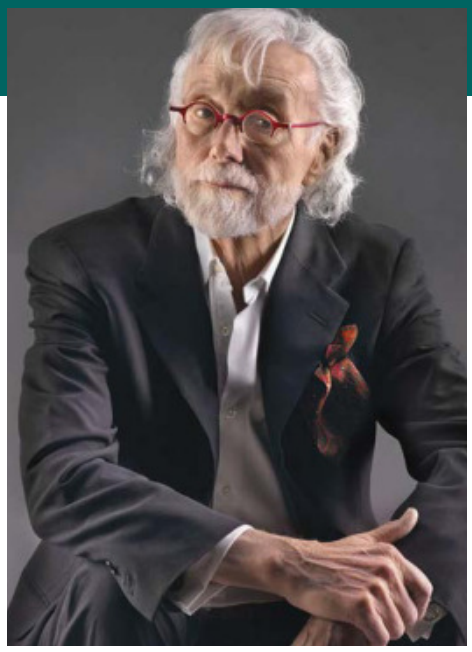
Hurwitz trained under Jere Osgood and Alphonse Mattia at Boston University's Program In Artisanry in the late 1970s, and like many other extraordinary students in that program, Hurwitz went on to make exemplary furniture that helped write the definition of the term *studio furniture*; this was work that arrived with a distinctly personal presence. Making idiosyncratic furniture is a tricky business, however, and not too much other studio furniture has aged so beautifully as his.

Hurwitz's creative process can be sparked by many stimuli. The catalyst for a piece might be a particular gesture—the base of his latticework Lantern cabinet was inspired by arms folded in repose. Or it might be a building—his arch-topped silver chest, elevated on a gridded base, sprang from a visit to a mountaintop temple in Japan. Or it might be another piece of furniture—his sublimely sinuous rocking chaise was a response to Samuel Gragg's Elastic Chair of 1808.

A consummate craftsman, Hurwitz constantly explores techniques and materials—bringing Japanese latticework, mosaic-tiled surfaces, bamboo, Damascus steel, urushi lacquer, stone, silk, papyrus, and cast epoxy resin into various pieces. He has a lyrical way with lines and patterns, and an unerring ability to combine curves and planes, voids and solids, structure and detail so each is strengthened by the presence of the other.

Photos this page: courtesy of Michael Hurwitz (top left); Tom Brummett (top right and bottom right); Jonathan Binzen (bottom left). Photos facing page: KeneK Photography, courtesy of Wexler Gallery (top left); Dean Powell (top right); Tom Brummett (bottom).





Wendell Castle

Wendell Castle was 43 and already widely known when *Fine Woodworking* launched in 1975. Having taught through the 1960s in the School for American Craftsmen at Rochester Institute of Technology, he had settled nearby and built a reputation with furniture sculpted from stack-laminated solid wood.

Castle had originally intended to become an artist, but in 1958, while studying sculpture at the University of Kansas, he paid a pivotal visit to Wharton Esherick in Paoli, Pa. It was not a warm encounter, but seeing the house and furniture and artwork that Esherick had made convinced Castle it was possible to merge sculpture with furniture. And it was this hybrid that fueled Castle's long, varied, and extraordinarily successful career.

Sculptors had been laminating blocks of wood into carving blanks for centuries, but Castle refined the technique by gluing up stacks of blocks so their overall form approximated the shape he intended to carve, greatly reducing the amount of work and waste involved in the carving.

Carving furniture out of blocks obviated the complicated process of traditional solid-wood furniture making, of course, and allowed him to shed the long legacy of furniture design.

Having achieved worldwide renown for his stacked work, Castle made a U-turn in the late 1970s, when he began producing trompe l'oeil pieces like his chair with a carved coat draped from its crest rail. These pieces generated excitement with their technical bravura and sense of humor, but they surprised those who had read Castle's earlier work as a rejection of traditional furniture.

Photos this page and facing page, except where noted: courtesy of Wendell Castle Workshop. Photo facing page, top right: Bruce Miller.

From there, it was a short step to another controversial body of work, his Fine Furniture line: hyper-traditional, high-style pieces aimed at a wealthy clientele. It drew attention for the difficulty and high quality of its construction; its cost, which was intentionally precedent-setting; and its dizzying stylistic departure from his stack-laminated work.

Next came a series of clocks, some of which would stand with the strongest pieces of his career. His stellar Ghost Clock, depicting a traditional period tall clock obscured but still recognizable beneath a carved white sheet, could be seen as a self-portrait of the man and the tension in his work between furniture and sculpture, tradition and innovation.

Wood itself was never a particular draw for Castle. In a field that worships its chosen material, he was a heretic. He held the opinion that wood was simply another useful substance and should be worked like so much stone or clay or plastic. He wanted the focus to be on the shape of a piece rather than on its materials or structure. Throughout his career, and especially in his late work, he embraced an array of materials from gel-coated fiberglass to cast resin and concrete.

Garry Knox Bennett

Like Judy McKie and Wendell Castle, Garry Knox Bennett arrived in woodworking after attending art school and never received formal training in the craft. Also like them, he had a brain teeming with unusual ideas and an enormous drive to get things made.

Drawing was second nature to Bennett, but he didn't waste time with it before making a piece of furniture. "I don't do any drawing except right on the wood, at the bandsaw," he said. He could see his pieces before he made them. "I work out most of my designs at night instead of counting sheep. Then I come into the shop the next day and start sawing."

He made nearly all his work on speculation and in series. He would choose a furniture form—the chair, the clock, the bench, the dining table—and make a dozen, two dozen, three dozen of them in a stretch, each one different. The pieces in a series might have a shared structural approach, but the finished pieces would look nothing alike. His series of trestle tables, for example, all had thin, light tops and heavy bases, and the same sophisticated techniques he devised for attaching and supporting the tops and for joining the trestle assemblies were applied to many of them. But the exuberant shaping of the trestles, and the colors, textures, and materials he used varied wildly. The shared structural approach enabled him to work at a breakneck pace; when building his trestle tables he was making one per week.

Bennett's work can be off-putting. Stuffed with ideas and always exclamatory, it strikes some as bombastic and ungainly. That's the way I felt about much of it when I had seen it only in photos. Then I attended a large show of his work and found that in person the same pieces could be delightful. The range of materials and the dexterity with which he employed them were a revelation. The work was rich with detail that could read as busy from afar but beautiful up close.

Bennett was a provocateur; although plugged into the furniture world, he was

determined not to play by its rules. His work drew on traditional furniture forms, structures, and joinery, but it was never enslaved to them, and he often made sport of the worshipful attitude toward wood and traditional craftsmanship that he saw around him. When his Nail Cabinet ran on the back cover of *Fine Woodworking* in 1979, it ignited a fire in the editor's inbox and led to quite a few canceled subscriptions. Bennett had built a display cabinet in padouk—decorous and dovetailed—and then driven a carpenter's nail into one of its doors. "I wanted to make a statement," he said. "I think tricky joinery is just to show, in most instances, you can do tricky joinery." His provocation might have succeeded too well. Decades later, having made thousands of pieces of furniture that were bursting with creativity (and not a little tricky joinery) and that sold widely and wound up in museums, he kept hearing about one particular piece. "I'm sick of the Nail Cabinet," he said.

Kristina Madsen

One tiny chisel tap at a time, Kristina Madsen has built one of the most powerful and inspiring bodies of work in contemporary furniture. Sitting in her workshop in Southampton, Mass., with window light flooding over her left shoulder, Madsen uses a painstaking chip-carving technique she learned from traditional carvers in Fiji to create the multilayered moiré patterns that embellish her furniture.

Beneath the carving, you'll find classical furniture forms and impeccable traditional craftsmanship, both of them rooted in Madsen's apprenticeship with the talented and eccentric English furniture maker David Powell. Madsen was 18 when she discovered Powell, who had emigrated from England and was then working alone in a former potato barn in central Massachusetts. Powell wasn't a teacher, but Madsen, who had left college after one semester to seek out a woodworking mentor, kept asking if he would show her a few things. After finally consenting to teach her, Powell trained Madsen in the traditional European cabinetmaking skills he'd learned in Edward Barnsley's Arts and Crafts workshop in England. (Other aspiring woodworkers heard about Madsen's arrangement with Powell and began signing on for lessons, and in 1977 Powell and John Tierney opened Leeds Design Workshops in the One Cottage Street mill in Easthampton. The school produced excellent makers through the 1980s.)

Fifteen years into her career as a furniture maker, Madsen spent nine months in Fiji on a Fulbright grant studying freehand intaglio carving with Makiti Koto, a master of the traditional Fijian style. Since then, she has used those carving techniques to decorate the surfaces of all her furniture. Madsen's work has had a distinct impact on the field of contemporary furniture, inspiring many other talented makers to explore the use of carved and incised patterns and color in their work.

Madsen's devotion to careful handwork as well as some of the patterns for her carvings

Photos p. 50: courtesy of Garry Knox Bennett Estate (top); Gary Chilluffo (bottom). Photos p. 51: M. Lee Fatheree. Photos this page: Kathy Tarantola (top left); David Stansbury (top right and bottom). Photos facing page: David Stansbury (top left and bottom right); Steve Reisling (top right).

derive in part from the lacemaking and other needle arts she learned from women in her mother's family. Her great aunts and grandmother showed her how to make things well and patiently and how to fold them away for the future. Lacemaking, chip-carving, cabinetmaking: Kristina Madsen's furniture is a beautiful braid of three traditional crafts that she binds together to produce strikingly original furniture.

In the late 1990s, Madsen moved home to devote herself to her mother's care. She built her shop next door to the family home, working there when she could spare the time. Since her mother's death, Madsen has gone back to woodworking full-time. Despite the wide acclaim her furniture has received—it is in a number of museums and many private collections—it can be difficult to find clients for pieces whose heart and soul is handwork. Yet Madsen is uncompromising, often devoting half a year or more to a single piece. She and her work both evince profound integrity. She works with consummate skill, unstinting dedication to her craft, and a strong personal vision.

Brian Newell

Brian Newell's furniture has the power and mystery of a dream—an emotional force that can be at once thrilling and frightening. With its bulging, quilted, compound-curved forms and its stunning pierced carving, it relentlessly seeks new ground both technically and aesthetically. Without abandoning utility, it takes us into territory we've never visited before.

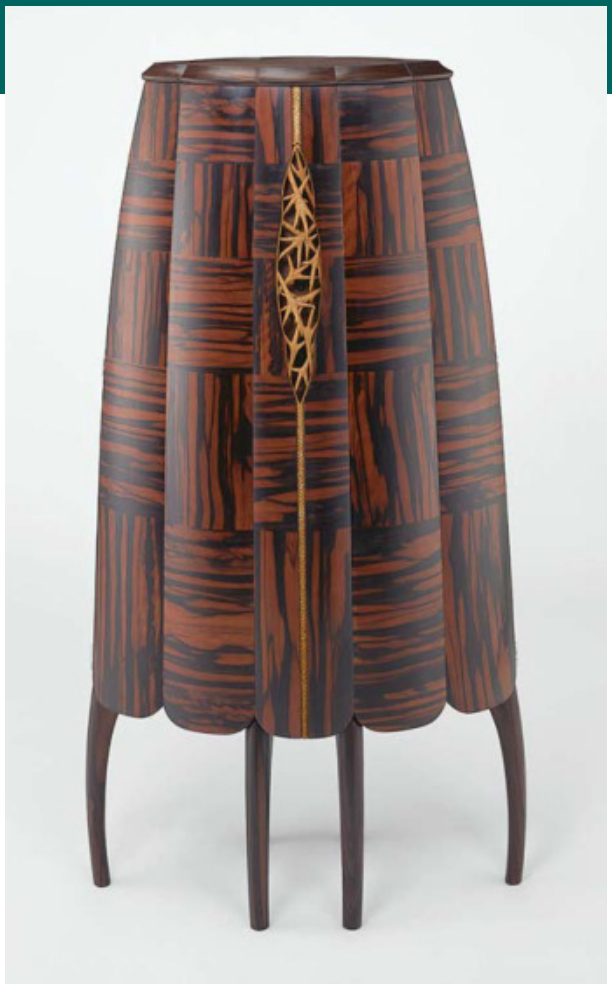
Newell was raised in a working-class family near Flint, Mich.; he learned furniture making under James Krenov on the rugged coast of Northern California; he honed his fabricating skills as a patternmaker in the model-car industry in Chicago; and he lived and built furniture for 10 years just outside Tokyo. But the astonishing forms and imagery of Newell's furniture are native to nowhere but his imagination.

His relentless inventiveness as a form-giver requires an equal fearlessness as a craftsman. And his solutions to never-before-posed technical quandaries constitute a high-wire act nearly as absorbing as the pieces themselves. His approach to furniture, he acknowledges, "is a little risky." Technically, it's like "careening down the road almost ready to lose it at every corner." And he embraces that. "I love engineering, but I also love spontaneity, and I think that suits me a little better. I can't plan five minutes ahead in my life, and that's the way I make furniture too."

A Brian Newell piece can seem to peel the cover off the maker's subconscious to expose a world that blends the beautiful with the bestial. In his furniture there are occasional traces of Arts and Crafts structure or Danish Modern lines, but mostly it feels like Newell and nothing else.

The otherness of his work, though, has at least one very familiar spring: "I share with Krenov the love of wood," he says. "Sounds banal, but that's the starting point of everything. Crazy about the stuff. My happiest hours are spent bounding around on piles of logs and crawling through stacks. If there's a shrub or a hedge that nobody has tried to use before somewhere in Texas, I want to know about it. I want to try it. I want to run a gouge through it."

Photos this page and facing page, except where noted: Yoshiaki Kato.
Photo this page, top left: Jonathan Binzen.



Fill the Grain for a

Cure the filler quickly with sun or lamp. *Take the project outdoors, even on a cold, overcast day, and both direct and ambient sunlight will cure all its surfaces in just a few minutes. If it's rainy or snowy outside, worry not; an inexpensive UV light will also do the job very well.*

Photos: Asa Christiana

High-Style Finish

UV-cured filler is quick and easy to use

BY CHARLIE KOCOUREK

What does it mean to fill the grain, and why would you do it? Filling the grain is filling the pores of wood, before applying a finish, so the final finished surface is perfectly smooth. Think piano finish—not opaque in this case but with the same unbroken polish. There are many products and approaches for filling grain, but the final look is similar.

With woods like maple or cherry, which have tiny pores that will be filled by a film-forming finish like shellac or polyurethane, grain-filling isn't necessary. But with larger-pored woods like mahogany, you'll need to fill the grain to produce the flawless surface and deep sheen of a high-style look.

This type of finish is most popular on period reproductions, but it will make any project look more formal and give small pieces like boxes and bowls a jewel-like gleam. I also use grain filler to fill small defects in burl wood.

Filled grain isn't appropriate for all types and styles of woodworking projects. Pores are one of the things that make wood look like wood, and you can beautify your material and add a deep sheen without filling the grain. In fact, many woodworkers prefer to see and feel some grain texture on their work. Also, any film-forming finish will fill the pores at least partially, refining the look of the finish without subtracting any of its handmade feel. Filled grain can also clash with the rustic appeal of large-pored woods, like ash and oak.

But if a filled finish seems right for your project, you'll be happy to hear it's easier than ever, thanks to a new category of products. Before I get to them, let's talk first about the traditional approaches.

The usual methods

One of the oldest methods for filling grain is French polishing, a finish made by mixing pumice into shellac. A proper French polish is a beautiful finish, but applying it involves a rather steep learning process.

Oil-based grain fillers have also been around for a long time. These are thick pastes that are rubbed into the grain. They require multiple coats, and each coat has to dry overnight before the next is applied. Also, the filler is opaque, which is great if you want to give the pores a contrasting color, but not so great if you don't.

Tools and supplies

Aside from a cheap nylon brush and cotton rags, you'll need the UV-cured filler, a small squeegee, and a UV light if you want to cure the filler indoors (vs. in the sun).

I Can't Believe It's Not Lacquer Grain Sealer
$38
solarez.com

Shower squeegee, 6 in. to 8 in.
$67
amazon.com

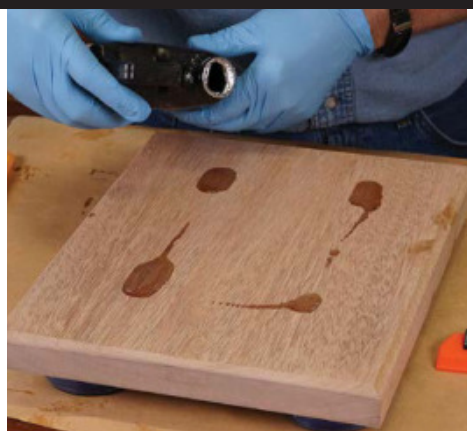
LED blacklight, 150 to 200 watts, with 385nm UV wavelength
$20 to $30
amazon.com

Filled finish has a high-style look. *Grain filler leaves the surface smooth and unbroken. Add a nice film finish on top, and you get a deep sheen and a perfect polish.*

Filling the pores, step by step

Here's how to fill the grain completely for a high-style finish. To fill it partially and leave more of a handmade feel, see p. 61.

Sand carefully. *Kocourek sands to 180 or 220 grit, using either a random-orbit sander or a block, depending on the project.*



A little goes a long way. *Don't pour on too much. The product is relatively thick, but it spreads easily.*

You can also fill pores with the finish itself. This requires quite a few coats, though, and a fair amount of sanding to level the surface. If the finish is oil-based, each coat will need to dry overnight.

A variation of filling with finish is sanding the still-wet surface to create a slurry of sawdust and finish. This fills the grain faster than the finish alone, but it requires even more sanding.

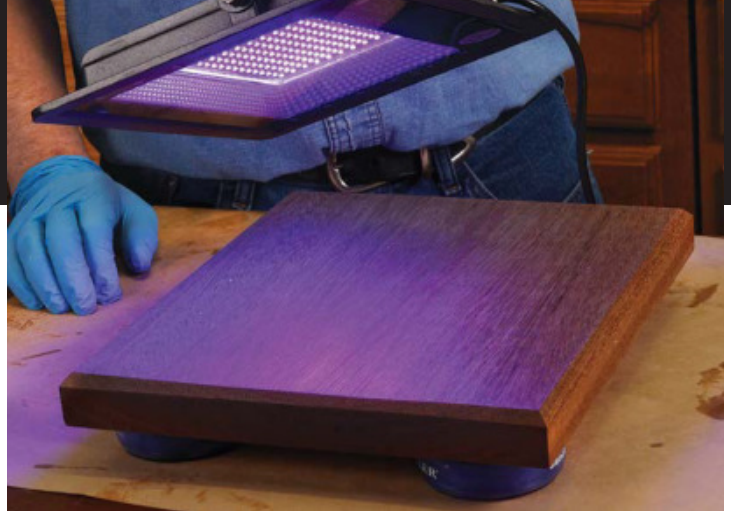
Waterborne fillers are a popular modern approach. These dry clear, but they can be tinted with dyes or pigments to create

Squeegee is the best spreader. *A squeegee works great on horizontal surfaces, pushing the filler into the pores while leaving very little on the surface.*

Brush vertical surfaces. *Use a cheap nylon brush to apply the filler on vertical surfaces and edges. To reduce the amount of sanding needed, try to remove the excess without removing very much from the pores.*

Don't forget the drips. *A cotton rag works well for removing drips on bottom edges.*

No need to clean the brush. *The filler stays wet indefinitely if you keep it out of UV light, so you can just wrap the damp brush in a clean towel or rag to store it.*



Filler cures quickly. *To cure the filler, expose each part of the project to UV light for two to three minutes. Sunlight (even indirect) can cure an entire piece at once, but artificial UV lights work great too.*

Finger test. *If the surface feels oily, the filler hasn't fully cured yet. That said, the cured surface might still feel a little bit grabby. The real test is sanding the filler, which should produce a white powder.*

pores with a contrasting color. While they dry fairly quickly, they tend to shrink as they do. So they require extra coats, and they can be difficult to sand.

My favorite filler

I've tried just about every method, old and new, for filling pores, and my favorite by far is a new variety of grain filler that cures rapidly when exposed to UV (ultraviolet) light. The product I use, which is made by Solarez, has a goofy name—I Can't Believe It's Not Lacquer Grain Sealer. It's inexpensive and simple to apply. It cures in minutes in sunlight, even on an overcast day, and it sands beautifully. Because it has very little shrinkage, it only requires a few quick coats, and it can be followed by any topcoat I know of, oil-based or water-based. In short, you can completely fill the grain in the morning and begin applying your favorite topcoat that same afternoon. You can also use an artificial source of UV light to cure the grain filler.

How it works—In contrast to the slow oxidation other finishes rely on, UV-cured grain filler dries and cures quickly in UV light. If it isn't exposed to UV light, a UV-cured grain filler will remain wet for days. This means you have unlimited time to apply it and adjust the amount left in the pores. Shop lights don't emit enough UV light to cure the filler, so you just have to watch out for direct sunbeams coming through the windows.

I Can't Believe It's Not Lacquer Grain Sealer is 100% resin (according to the manufacturer) and doesn't contain solvents, so it doesn't shrink much at all. That's why it only takes two or three quick coats to completely fill the grain, and also why a bottle

Sand lightly. *Sandpaper will create fine white powder on the cured surface. Sand lightly with 180- or 220-grit paper, just enough to remove the excess filler on the surface.*

Check the surface. *After vacuuming away the dust, look closely at the surface in a raking light. You will be able to see if the pores are completely filled or not.*

Add coats as needed. *The first coat is unlikely to fill the pores completely. Add another coat or two until the pores are filled to the brim (curing and sanding each coat, of course).*

Completely filled. *When the pores are filled, the sanded surface will be smooth and unbroken.*

Choose your look

Here are three samples from the same mahogany board. The first had no grain filler applied under the topcoat, the second had some applied, and in the third the grain was filled completely.

of the product will go a lot farther than an equal amount of solvent-based filler.

Use it with film-forming finishes— Because grain-filling begins to build a film on the surface and inhibits oil finishes from penetrating into the wood, I would only use grain fillers with a film-forming finish, such as lacquer, shellac, or polyurethane.

How to apply the grain filler

Before filling the grain, I sand the surface up to 180 or 220 grit. Then the filler goes on. You can apply it with just about anything. To spread it thinly and evenly and minimize sanding, I apply it with a squeegee when I can, like the 7- or 8-in.-wide type sold for showers. For vertical surfaces and edges, I use an inexpensive nylon paintbrush.

I Can't Believe It's Not Lacquer Grain Sealer is a bit thicker than oil-based topcoats like polyurethane, and a little bit goes a long way. On horizontal surfaces, I pour a small amount directly from the bottle and spread it around with the squeegee. I sometimes use an old credit card on small projects. You can't pour the filler onto vertical surfaces, so I use a nylon brush to work it into those.

I use the squeegee to remove whatever excess is there, and a brush or rag where the squeegee won't work. This will reduce the amount of sanding required. If you are after a fully filled surface, the goal is to remove the excess on the surface without pulling filler out of the pores.

Protect the project from direct sunlight until you are ready for it to cure.

Resin cures in natural or artificial light

To cure the grain filler, I almost always take the piece outside and expose it to the sun. Full sun will cure the surfaces in just two or three minutes. On an overcast day, it might take five or six. You won't have to move the project around much, because ambient sunlight will cure all exposed surfaces. The sun's rays aren't as strong in the winter, but they will still cure the filler, and cold temps aren't a problem.

Artificial UV lights—You can also use an inexpensive UV lamp to cure these

On and off with the rag. *You can use a cotton rag both to apply the filler and to remove the excess. The cloth will pull some of the filler out of the pores.*

products. For occasional use, I recommend the LED blacklights sold on Amazon that emit the right wavelength of UV light and do a fine job curing the resin. At under $30 each, they are so inexpensive that you could buy two of them to speed things up.

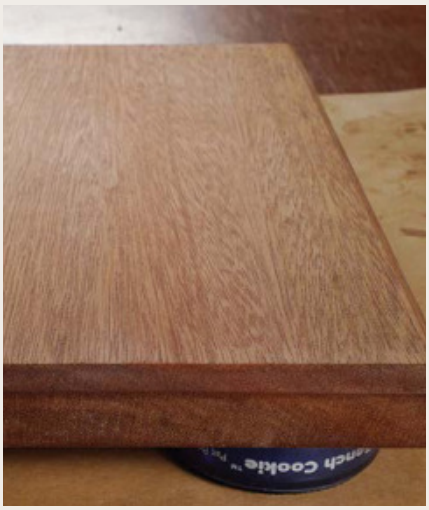
I Can't Believe It's Not Lacquer Grain Sealer requires UV light with a 385nm wavelength, so check the specs on a light before you buy. To make the process go quickly, be sure the lamp is rated for at least 150 to 200 watts.

One or two more quick coats

Once the first coat is cured, lightly sand off the excess on the surface. Don't over-sand, or you will sand past the thin layer of filler in the pores and need to start again. Apply additional coats in the same way until the pores are completely filled and the surface has no texture. Sand after the last coat with 180- to 220-grit paper to prep the surface for a topcoat. □

Charlie Kocourek lives in Minneapolis and teaches finishing at several woodworking schools.

Partially filled pores. *Kocourek filled the pores only partway in this mahogany nightstand. The look is still unmistakably handmade, but elevated just a bit.*



Check your work. *Look at the surface in a raking light, before and after sanding, to see how much filler is left in the pores. It's quick and easy to apply another coat.*

Partially filled grain is an attractive option

I Can't Believe It's Not Lacquer Grain Sealer can also be used to fill pores partially, giving open-pored woods a slightly more formal and refined look without detracting from a piece's handmade appearance. That's what I did on the mahogany nightstand pictured below.

Partially filled grain looks great on larger-pored woods like the mahoganies, sapele, and padauk. It doesn't make as much sense on woods with medium-size pores, such as walnut, because a film finish will fill those pores partially on its own.

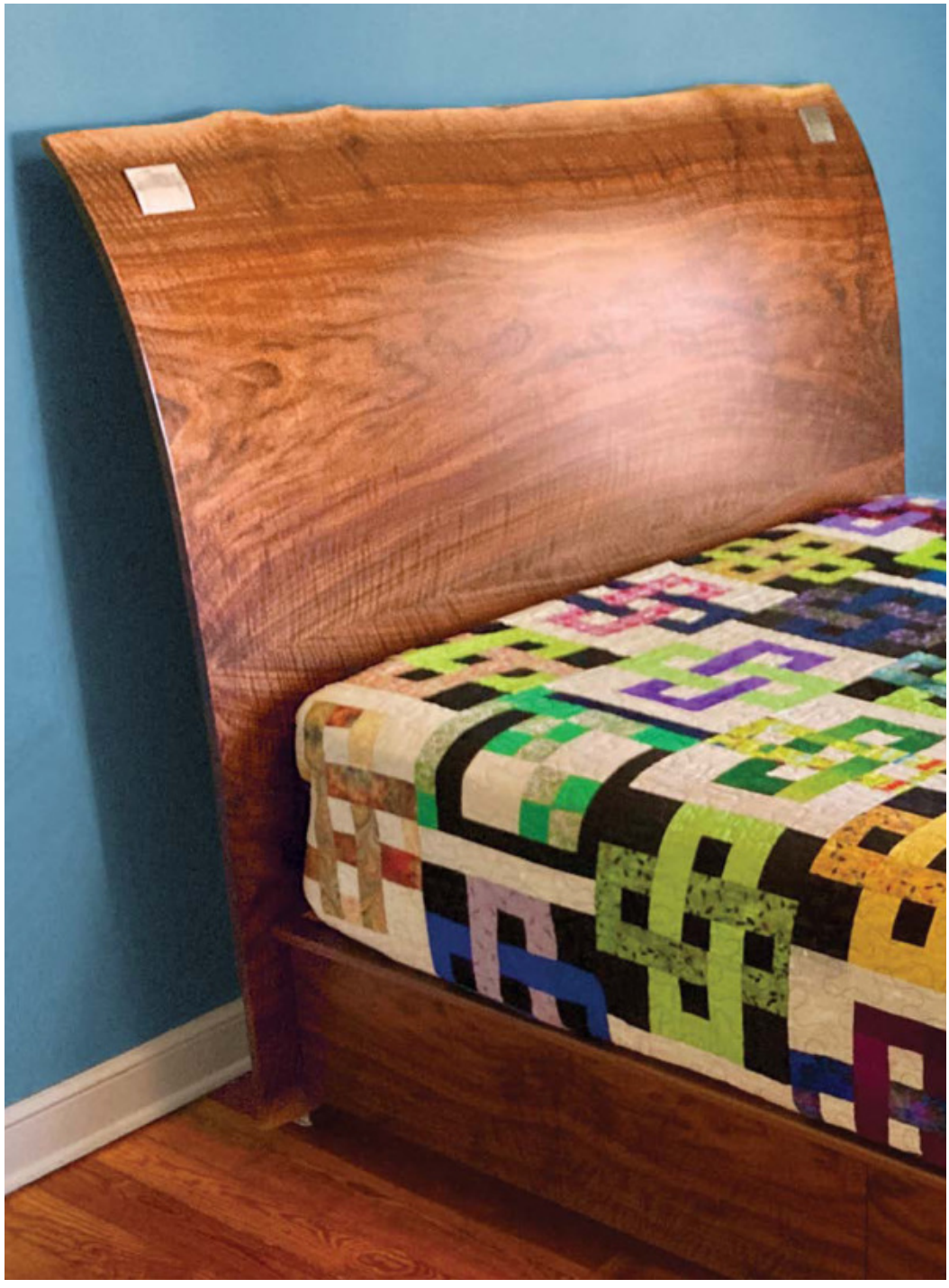
As before, prep the wood surface up to 180 or 220 grit, and apply the filler however you want. The main difference here is how you remove the excess. Use a rag this time, which will let you pull some of the filler out of the pores. Moving the rag in the direction of the grain will pull out more filler; moving it across the grain will pull out less.

After the filler is cured and sanded, take a close look and decide whether the pores are filled enough for the look that you want. It's easy to apply another thin coat or two if needed.

Free-Form Coopering

Create flowing, asymmetrical curves

BY ROB HARE



Recently I built a bed with a solid walnut headboard that curves at a decreasing radius as it rises. Building a piece like this will open up the way you think about coopering. It's not just for barrel making; coopering can be used to create solid-wood curves of various radii. The project is a lesson in the geometry and layout of sequential joints whose angles vary, and it's a master class in clamping joints that aren't square. I'll detail making the headboard, but the same techniques could be used to make coopered panels for an array of other pieces.

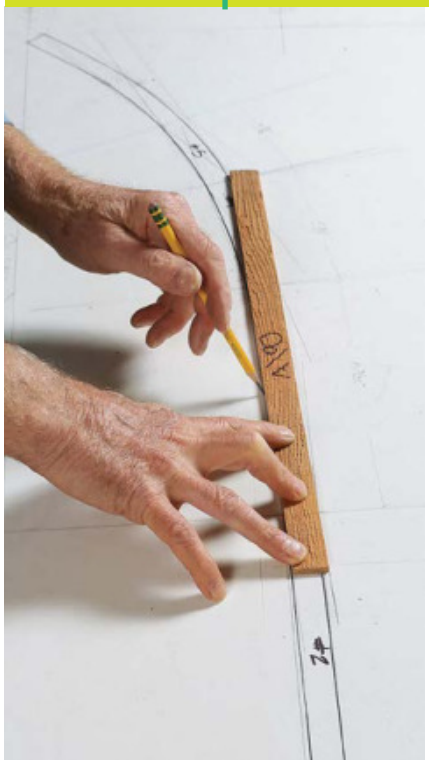
The full-size drawing

I started by drawing a full-scale cross section on a hardboard panel 4 in. bigger on all sides than the coopered headboard. In my case, I was going to cut the parts for the headboard from a large plank that I would resaw.

To lay out the cross section of the panel, draw the convex side of the coopered form first, using a pencil so you can change your mind. I have found that a finished thick-

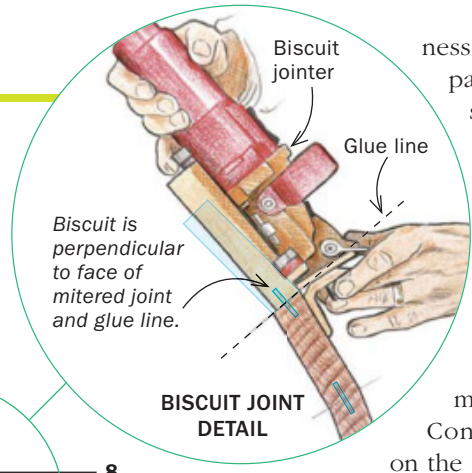
Photos, except where noted: Anissa Kapsales. Large photo this page: Rob Hare. Drawings: John Tetreault.

Full-size plan and flat stick

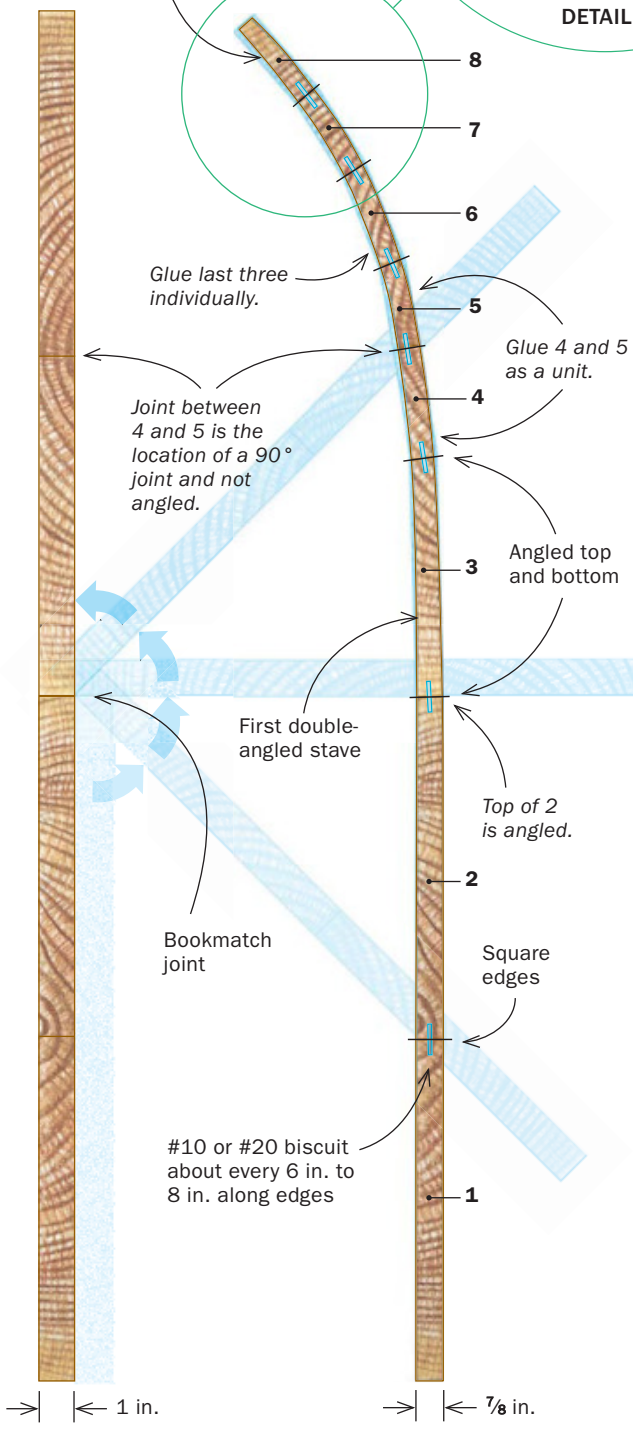


Planning is important. *The layout stick's width represents the thickness of the planks. To determine the width of each plank, move the stick along the laid-out curve. Where the stick runs off the drawing, make a tick mark; that's where the new plank must begin.*

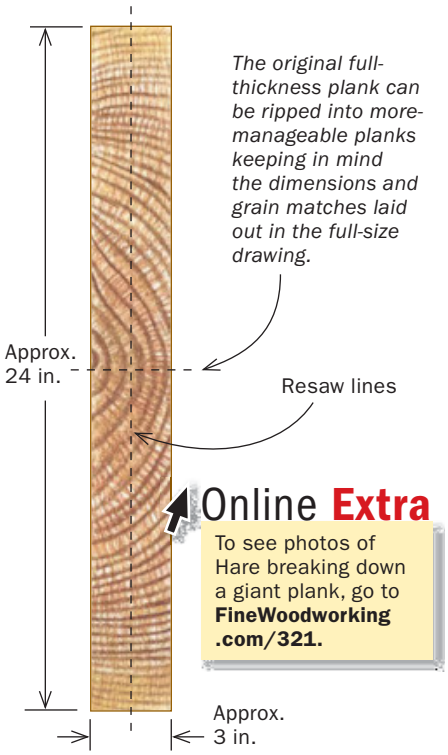
Draw a full-scale cross section and lay out the boards along the curve to create a list of the planks needed.



BISCUIT JOINT DETAIL



MULTISTEP GLUE-UP



BREAK DOWN THE SLAB

BOOKMATCH

Online Extra

To see photos of Hare breaking down a giant plank, go to **FineWoodworking.com/321.**

ness of ¾ in. for the panel, after all the shaping and final sanding is done, works well. So every 6 in. or so along your convex-side line, measure ¾ in. toward the concave side and make a small mark. Connect the marks on the concave side with a flexible straightedge. Then carefully trace both lines with a permanent marker.

Defining plank widths and miter angles

To finish with a ¾-in.-thick curved panel, you'll want to start with ⅞-in.-thick planks. If you are carefully resawing, the planks can be used straight off the bandsaw.

Make yourself a straight marking stick from ⅛-in.-thick stock; it should be ⅞ in. wide and 10 in. longer than the width of your widest plank. Along one edge of the stick write "convex," and along the opposite edge write "concave."

Starting at the bottom of the inked headboard drawing, nearest the floor, lay the stick so its convex edge lies along the convex line of your drawing. With a sharp pencil, draw lines along both sides of the stick. Set the stick and make a tick mark exactly where the concave-side pencil line from the stick crossed the inked concave line of the drawing. Then move the stick up along the drawing with the concave side of the stick touching the tick mark you just made. Rotate the stick until its convex side just touches the convex line of the drawing. Now draw pencil lines along both sides of the stick. Repeat this process up the entire length of the drawing.

Next, make a tick mark at each point where the lines from the convex side of the stick intersected. With a straightedge, connect the convex tick with the adjacent concave tick. These lines determine the

Bottom to top

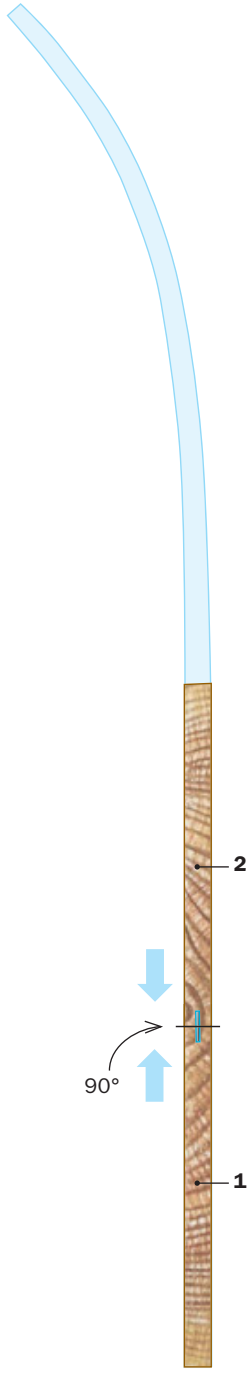
There are two wide boards at the bottom, before the curve begins. Hare started the gluing process with these two boards, which go together flat. Then he worked his way up, curving as he went.

Mark for biscuits. *Use biscuits to locate the boards to each other during the glue-up. Strike their locations every 6 in. to 8 in., keeping in mind that you don't want to expose them in final trimming to length or in cutting joinery.*

Cut biscuits. *Carefully set your biscuit joiner to the angle of the bevel of the coopered joint and cut the slots.*

Two-part epoxy. *Hare frequently uses West System Epoxy. He mixes in claro walnut sanding dust, which results in a color match for the glue.*

Dunk and set. *After applying a coat of epoxy to both sides of the joint, dredge your biscuits in the epoxy mixture using needle-nose pliers. Set the biscuits into the slots. Don't worry about ruining the pliers. After the epoxy is set, it can be hammered off.*



angles of the miters you need to cut where the planks meet. The varying curve of the coopering determines how wide the successive pieces are. Measure the distance between the tick marks on the convex side to find the width of each plank. Repeat this process to the top plank, numbering the planks.

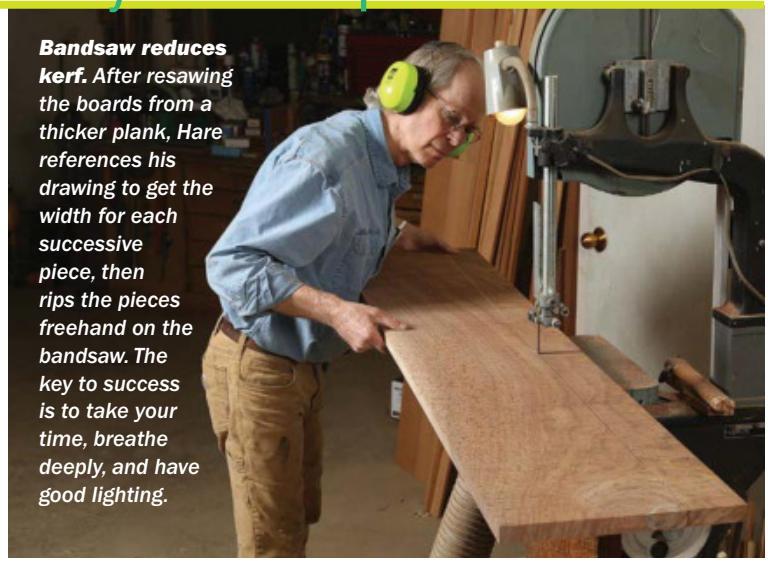
Preparing the staves

Always referencing the full-size drawing, I began cutting and resawing my large claro walnut plank so the figure was bookmatched. With my plank cut into ⅞-in. boards, I started the coopering. I usually only cut two pieces ahead to width for fear of making a piece too narrow. After gluing each succes-

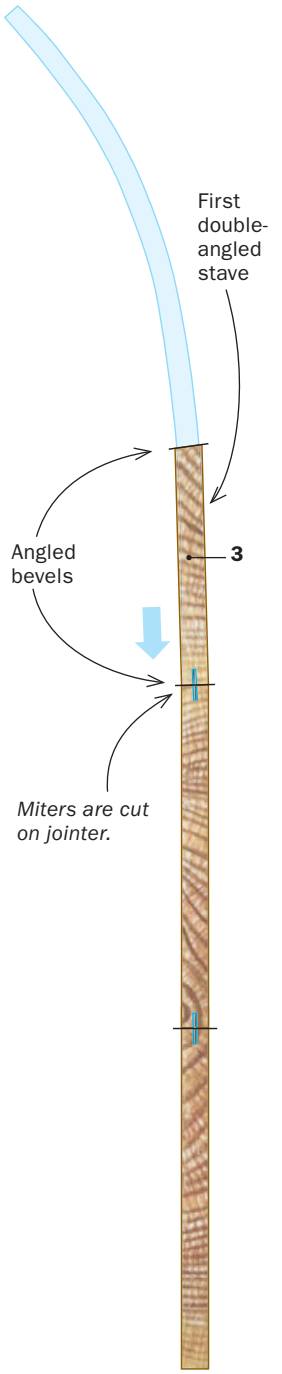
Don't spare the clamps. *The bottom of the headboard is quite flat, so the two bottom boards can be held tight with alternating clamps.*

Working your way to the top

The curving begins by creating angles at the joints. Number the order of your boards clearly so you can keep track of them. Then joint the edges at miter angles gleaned from the full-size drawing.



Bandsaw reduces kerf. *After resawing the boards from a thicker plank, Hare references his drawing to get the width for each successive piece, then rips the pieces freehand on the bandsaw. The key to success is to take your time, breathe deeply, and have good lighting.*



Jointer bevels. *Clamp a jig with parallel sides and a 20° angle at the bottom to your fence. Transfer the angle from the drawing to the fence. The jig lets the piece rotate slightly as it runs over the jointer. If you're using the full jointer fence, the twist and curves in the plank cause the angle of the joint to change. By isolating the contact point, the angle stays consistent with the face. Shaping takes place after assembly, so 1/16 in. of rough grain on the convex side of the joint is fine.*

Creative clamping. *As the glue-up proceeds, you must apply pressure to the joint at 90° to the face of the joint. Clamp a caul across the headboard to provide the correct clamping angle. As you move up the headboard and the angle changes, move the caul as needed, and, if necessary, add a wedge-shaped strip to the caul to adjust the clamping angle.*

sive miter, I checked the glue-up against my full-scale drawing. If I saw that my glue-up was running off course, I could vary the mating angles at the next joint as well as adjust the width of the next piece.

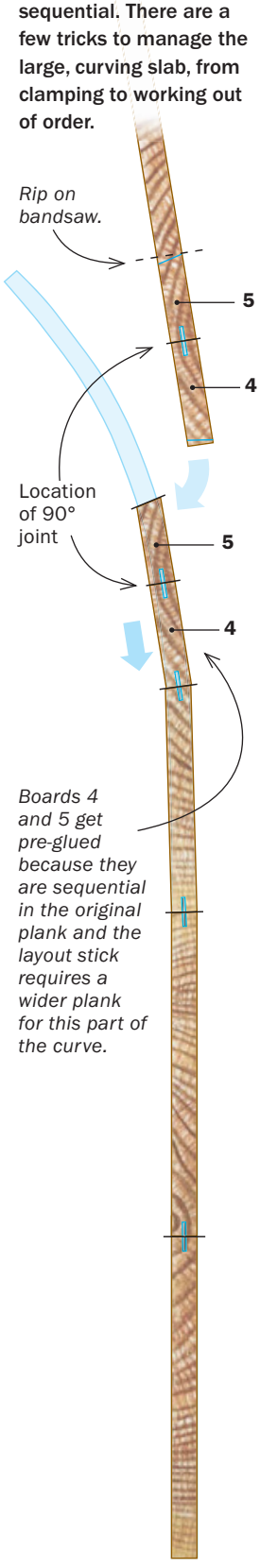
Proceeding plank by plank may seem ponderous, but there are so many variables in a project like this that precutting everything could easily end up turning the plank into firewood.

Cutting and mitering the planks

I always use my bandsaw to rip the planks to rough width. As you cut your planks, number them to match your drawing, and mark the mating edges. The first joint in this

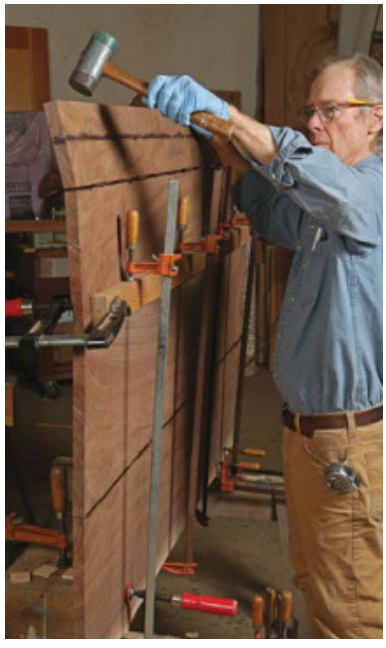
Board by board

In theory, you're working your way to the top, but it doesn't have to be sequential. There are a few tricks to manage the large, curving slab, from clamping to working out of order.



Make use of drying time. *With boards 1 and 2 in clamps, Hare doesn't sit idle. Instead, he sets aside board 3 and works on putting 4 and 5 together to dry at the same time. It doesn't take long for a large item like a headboard to become unwieldy, so he uses plywood blocks clamped to the base to stabilize the boards.*

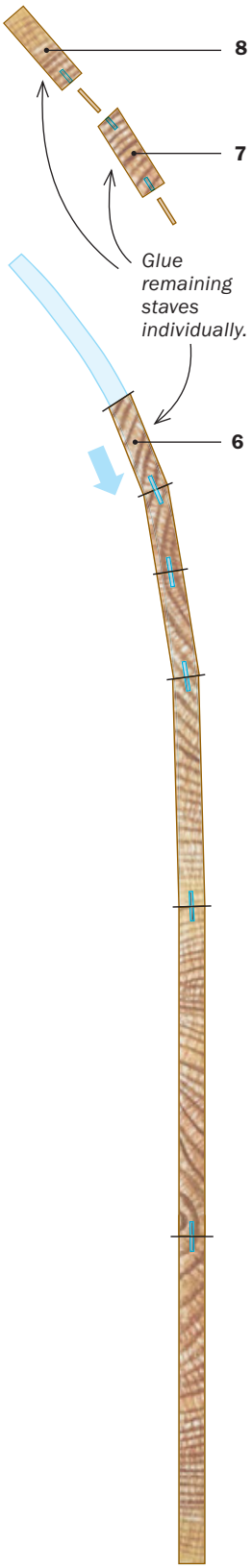
Adding on. *The seam between boards 4 and 5 is a 90° joint. It's the point where what was left of that side of the bookmatch is too narrow and must get attached to the mating piece and recut to width. Hare glues the two pieces together and then rips them to width with the bandsaw set to cut at 90°.*



Back in line. *With 1, 2, and 3 glued together, it's time to add on the already-glued-and-beveled-on-both-sides 4 and 5 assembly. As the curve gets tighter, you must use a thick clamping caul across the glue-up, and then clamp that to the bottom edge to keep the caul from slipping up the face and changing the angle of compression. To apply pressure to the joint, clamp from the top of the board to the bottom of the caul.*

The tighter end of the curve

The last three staves get glued in place one at a time.



Drawing has two purposes. *The drawing gives a clear understanding of what is being built, and it also lets you check your progress as you go. Remove the clamps before comparing the wood to the drawing, as their pressure can flex the curve.*

Scaffolding. *As you near the top, the piece is large enough that you'll probably need to create some sort of staging to allow you to work comfortably and see everything you need to keep an eye on.*

Modify your caul. *When the curve becomes so pronounced that simply catching the tip of a clamp at the edge of the caul won't give the proper angle, add a wedge-shaped strip to the bottom edge of the caul to create a better clamping angle.*

project doesn't get angles. For the rest of the boards, you'll need to cut miters. Set the jointer to the angle shown on your drawing, and clamp a beveling jig to the fence. Pass the edge of the plank along the jointer. To maintain the grain patterns and lines, be careful not to remove the bandsaw marks at the very edge on the convex side. The more wood I remove while cutting the joint, the further away from a good match I get.

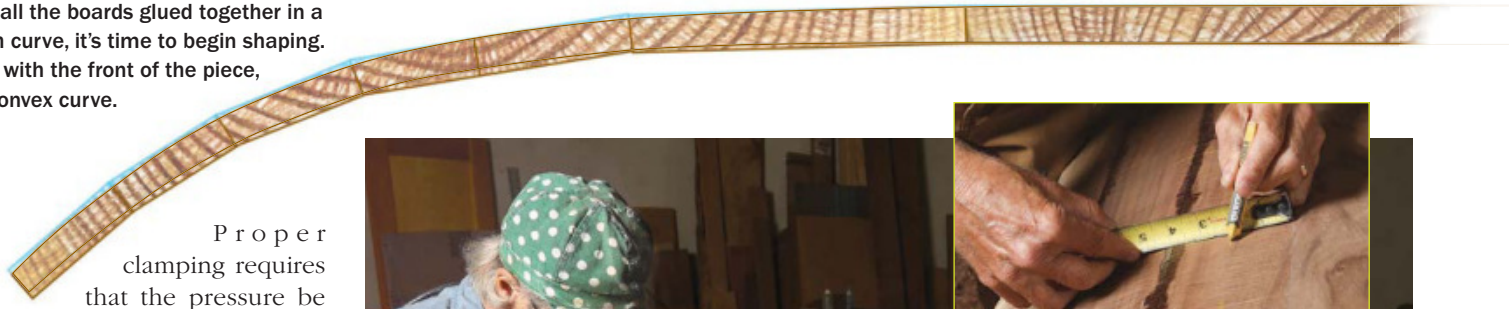
Because the miter angles vary as you add successive planks, it is important to prepare the miters for the next joint ahead of the joint you are gluing.

Clamping, biscuits, and gluing

After the cutting and mitering, it is proper technique with the biscuits, gluing, and clamping that make for successful free-form coopering.

Curving outward

With all the boards glued together in a rough curve, it's time to begin shaping. Start with the front of the piece, the convex curve.



Proper clamping requires that the pressure be applied at 90° to the faces being glued. With the miter angles continually changing and the panel continually curving, a caul is clamped across the assembly, and then reset for each subsequent joint, to provide purchase for the clamps.

Biscuits also help get curves and twists out of the planks. Set your biscuit-joiner fence so the biscuits stand perpendicular to the joint face. After cutting the biscuit slots, drench the biscuits and the edges with epoxy, and glue and clamp. Resist the temptation to add another plank before the glue has thoroughly set.

Surfacing the convex side

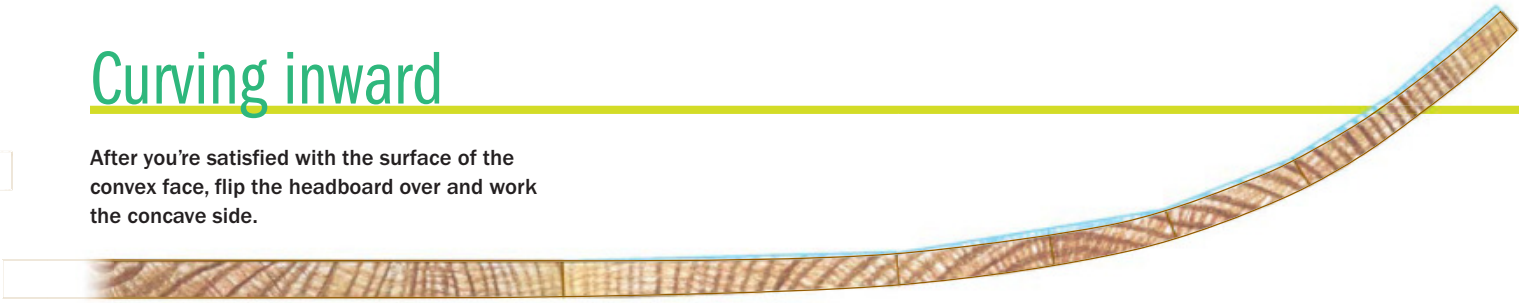
With the whole panel assembled and cured, you can start fairing the huge curve with a power planer if you're confident with one, or with a belt sander with a flat platen that doesn't leave divots as you change direction. Begin by knocking off the high points at the miters. Do not focus on one area at a time. Work the entire miter line to establish a consistent facet. Check the depth of your cuts with your full-scale drawing; always take less than necessary. Now start over with your new high points creating yet more high points and checking your work against your drawing. As the high points become less prominent, switch to running your belt sander in broad movements diagonally across the grain. At this point, sanding marks are not important. Switch the direction of the diagonal often to avoid creating low spots in the convex curve of the panel.

Smoothing it over. *First, draw a bright lumber crayon line down the middle of each plank. The center is very close to the convex face of the coopered headboard, so you don't want to remove too much wood there. Start working out the high spots along the joints with a power planer or a coarse belt on a belt sander. Be very careful, though; it's easier than you might think to create a very low spot.*

Power plane your way to sanding. *If your hand power planer is very sharp, you can use it to cut the high spots. Remember to cut at a diagonal just as you would with a hand plane. Once the high spots are cut down, move to a belt sander with a 100- to 120-grit belt. Then work diagonals with the sander.*

Curving inward

After you're satisfied with the surface of the convex face, flip the headboard over and work the concave side.



Consistent thickness. *After shaping the convex face, use a marking gauge to mark off the final thickness. Those lines will guide your material removal on the concave side.*

Hard to reach. *Because the back is concave, it's not easily worked with tools made to cut flat surfaces. The front roller of your belt sander works well. A grinder with a wood-cutting head is faster. The glue joints are close to the finished surface; the space between is where to remove wood.*

Final sanding. *You can return to the belt sander as the curve gets more consistent. Remember to keep it moving on diagonals.*

Smooth out the concave side

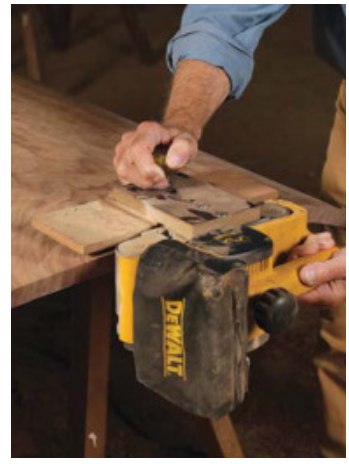
There are numerous tools that are able to cut the faceted concave side of the panel to the smooth curve you want, such as the front roller of the belt sander, a sanding disk on a rotary sander, and a hard-burred sculpting wheel on an angle-head grinder.

Start carefully and, again, do not concentrate on a small area but rather work the entire surface. A long straightedge and a flexible straightedge will help you see the curve. Check the curve against your drawing.

The inside corners of the miters are the finished surface of the concave side of the panel. If you're using an angle-head grinder, stop short of the finished surface, and switch to a belt sander or a rotary sander. Move the machine diagonally across the panel, working your way up to 220 grit. □

Rob Hare is a maker in Esopus, N.Y.

Just a trim. *When you have reached 150-grit paper on both sides, you can trim the ends of the headboard. Use a framing square on the center bookmatch glue line to find square. Then use a flexible rule to extend the lines up the sides. Check these lines across the headboard as well as on diagonals. Carefully trim the sides freehand with a circular saw, staying about 1/16 in. away from the final line.*



Sand to final line. *After sawing off the excess, take the edge across the finish line with a belt sander. Hare built a fence for this sander so it sands at 90° to the face of the workpiece.*

gallery

Inspiration for our readers, from our readers

DAVID ROTHSTEIN
Fairview, N.C.

When he wasn't helping students as the assistant in the 12-week furniture intensive program at the Center for Furniture Craftsmanship, David built this piece. It was inspired by Garrett Hack's spinning drawers on the back cover of *FWW* #294.

CHERRY, MAPLE, WALNUT, EBONY, 14D X 38W X 30H

Photo: Lin Elkins

CHRISTOPHER SCHWARZ, MEGAN FITZPATRICK, AND KALE VOGT
Covington, Ky.

These pieces were all inspired by the scrap bin at Lost Art Press and the many "smalls" hanging on walls in old houses or sold by antique dealers. They make great use of small bits of wood and are excellent gifts. Building each one took less than an hour, with the exception of the two larger ones, which took about two hours. (For more on "smalls" like these, see pp. 24–34.)

PINE, CHERRY, POPLAR, AND WALNUT, DIMENSIONS VARY

Show your best work

For submission instructions and an entry form, go to FineWoodworking.com/rg.

DON ARNOLD
Genoa, N.Y.

Don, an 80-year-old farmer, spends his winters making furniture. He was 50 when he was given some walnut lumber, and he saved it until he could one day make a clock with it. Last year he bought a 200-year-old dial and finally made his walnut grandfather clock.

WALNUT AND MAHOGANY INLAY, 10D X 22W X 82H

ZSOLT NAGY
Hajdúböszörmény, Hungary

Zsolt made this book as a gift for his fiancée, who loves wildflowers. He wanted to experiment with decorating a wooden cover using marquetry. He had to find a way to keep the cover relatively thin while ensuring it was strong enough not to warp, so he created his own cross-banded plywood using thin veneers. The walnut face veneer had some imperfections and voids that he hid using a mix of walnut dust and glue.

WALNUT BURL, ASSORTED HARDWOODS, ⅞D X 7½W X 9H

MARK P. MOONEY
New Kensington, Pa.

Mark designed this frame-and-panel sideboard as a nod to the elegance and beauty of Greene and Greene furniture. The cloud-lift accents and the floating shelf on the stretchers were inspired in part by Thomas Stangeland's Anderson server design. Mark added relief carvings on the inlaid panels after seeing how they elevated functional pieces of furniture into art pieces in Robert Lang's book on Byrdcliffe furniture design.

MAHOGANY, BASSWOOD, AND EBONY, 19D X 60W X 39H

Photo: Kathleen Allen

KEN PAGE
Rochester, N.Y.

In March 2022 Ken, the director of the Wendell Castle Workshop, had a large sycamore tree cut down on his property. He, his son, and a few friends used a portable sawmill to process about 900 bd. ft. of quartersawn boards. After building five chairs, he set about designing and building the mating table. The shape of the top was inspired by looking down on a calla lily.

CHAIRS: SYCAMORE AND SAPELE, 23D X 18W X 40H

TABLE: SYCAMORE, 44D X 67W X 30H

JASON STRAW
Gainesville, Fla.

Given creative freedom in making a set of end tables for a client, Jason decided to practice several of the skills he had learned in his two years at the Krenov School and an additional summer working and studying with Brian Newell.

CLARO WALNUT, 14D X 20W X 27H

Photo: M&M Photography

WILLIAM MARAZITA
Santa Barbara, Calif.

After reading Chris Schwarz's *The Stick Chair Book*, William set about making six chairs from the plans in the book. After that, he began using recycled lumber and tweaking the design to make more stick chairs. This chair is made with lumber from an old door that was destined for the landfill.

HONDURAN MAHOGANY, 27D X 27W X 44H

ROBERT WEBB
Inver Grove Heights, Minn.

Inspired by the clean lines of John Hartman's plant stand in the Gallery in *FWW* #309, Robert built his version with decorative spindles, framed ceramic tile, and a lattice shelf. The legs, with their 4° splay, are joined to the stretchers with floating tenons.

CURLY CHERRY AND SPANISH TILE, 13D X 13W X 30H

HAYWARD ZWERLING
Somerville, Mass.

Over the last several years, Hayward has been evolving his technique for orienting and gluing up different species into random configurations to create coasters, a cutting board, and this platter. While he had intended to have the pieces be used, his wife will not allow anyone to slice food on either the cutting board or the platter.

ASH, BIRCH, OAK, CHERRY, MAHOGANY, MAPLE, PURPLE HEART, SAPELE, WALNUT, AND WENGE, 12D X 20W X 1½H

STUART EASON
Queen Creek, Ariz.

Stuart had always wanted to build a kneehole desk. About 25 years ago, he found some plans by Allan Breed and stored them in his shop. When he finally decided to build the desk, he took a nontraditional, hybrid approach to carving the shells. He used a CNC to rough out some of the details, then hand-carved the shells to their finished state.

MAHOGANY, 20½D X 36½W X 32¾H

master class

Making a production of it

TEMPLATES AND JIGS UP YOUR EFFICIENCY, REPEATABILITY, AND ACCURACY

BY DOUG KING

Creating templates (flat patterns, often in MDF) and associated jigs (devices that cradle and guide the workpiece through a cutting operation) is a part of designing and building original furniture that I enjoy. Making the templates is when the preliminary drawings and ideas start to come to life.

When I have arrived at a shape that I am satisfied with and would want to duplicate, then I make jigs that reflect those templates. These jigs make the shapes easier to duplicate reliably and many times easier and safer to hold while machining.

Templates help me work out a design, but they also give me a concrete history of the piece I'm making. When finished, I have a full-size map to easily recreate the piece; if I want to evolve the design, I already have a place to leap from. This table (see "Glass-Top End Table," pp. 36–43) is the latest

Photos: Anissa Kapsales

Handling curves

The first curves you'll encounter in King's table project are in the individual leg parts. While the parts in this table have different shapes, the treatment for all of them is the same: trace, rough cut, rout.

First jig first. *This jig is for cutting the inside shape of the leg blank. It gets the leg to the glue-up stage and has marks to transfer the Domino locations to the leg. Set the blank in the jig and trace the shape onto it.*

Stick and go. *After bandsawing the shape close to the line, secure the leg to the jig with double-stick tape. The two shims on the jig fence create a point-to-point registration, which is more accurate than resting the whole side on the fence. At the router table with a bottom-bearing bit, rout the leg to shape.*

in a series of end tables, each building off and utilizing the templates of the previous one.

I save all my templates and jigs. After labeling them, I store them out of the way. Once you begin working with templates, you realize how quickly and accurately you can make your parts. You may find yourself doing it more and more.

Begin with a template

When I am making an original piece for the first time, I rout my parts to shape by attaching them to templates with double-stick tape and then flush-trimming them on the router table. I turn my concept into 3D, actual size, on ⅛-in. or ¼-in. MDF. I draw freehand and with straightedges, and with bendy sticks for curves and lines. Then I cut those shapes out on the bandsaw. After that, I fair the curves to my liking. That leaves me with

Extend the length of your bit. *If your bit isn't long enough to remove all the material, you can pull off the template and register on the portion you've already cut as the new guide to remove the rest of the material.*

Inner leg shape. *This jig tackles the curve of the inside of the leg assembly. Set the piece on the jig into the 90° fence and trace the curve.*

a hard version of the shape that I can run a flush-trim bearing on. Once I arrive at a design I want to duplicate into furniture parts, I make jigs from the templates, either incorporating the template in the jig or by making another template from the first to use in the jig.

Then come the jigs

With a jig, I can quickly put a part in, trace the shape on it, take the part to the bandsaw to rough cut, and then pop it back in the jig to flush-trim it on the router table.

When I make a jig, I need to incorporate a flat reference surface in the jig to match it up with a flat reference surface on the blank. Also, I often lay out the joinery on the jig or template so I can transfer locations directly and consistently to the piece. I use

Inside and out

After the leg blanks are cut to shape and glued with the rails into two side assemblies, the interiors and exteriors get shaped with different jigs.

Template-rout. *After bandsawing the shape, attach the assembly to the jig with double-stick tape (left). Then reshape the inside of the leg interior as a whole (below). This eliminates any error that may occur in glue-up, reduces blowout because all of the fibers are supported, and returns you to consistency of shape between the two sides.*

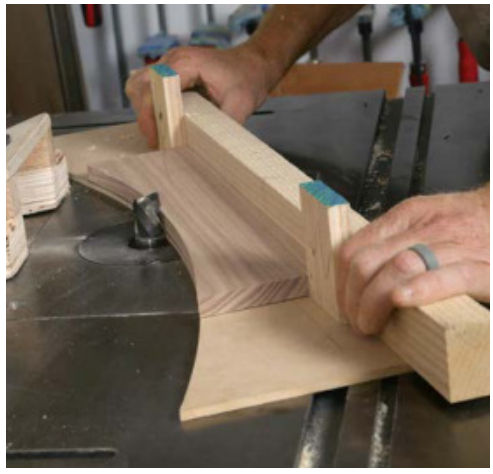
Outer leg shape. *Tape the leg templates to the bandsawn outer edges of the legs (left), and template-rout the exterior to final shape (above).*

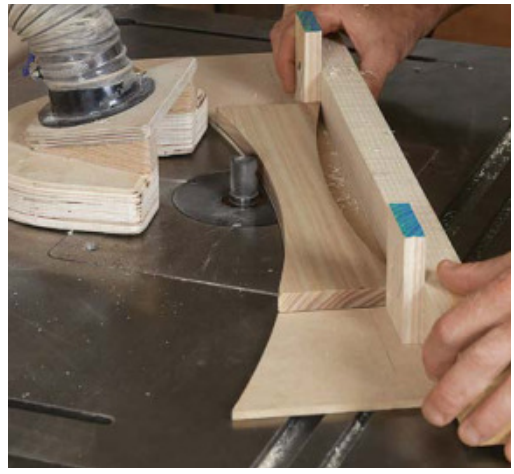
Two-sided profiles

The convex and concave slats are symmetrical, with curves on both sides. Three jigs give you precise, repeatable results for both shapes whether you are doing one table or many more.

Convex slats—jig one of two. *Rough cut the slat shape on one side of the blank only. Then insert the straight edge between the two registration blocks and against the jig. Rout to the final shape.*

Convex slats—jig two of two. *To cut the second side, set the half-shaped blank into the jig against two curved blocks on the fence. Trace and rough cut the shape on the bandsaw, then reinsert the blank in the jig and rout to final shape.*





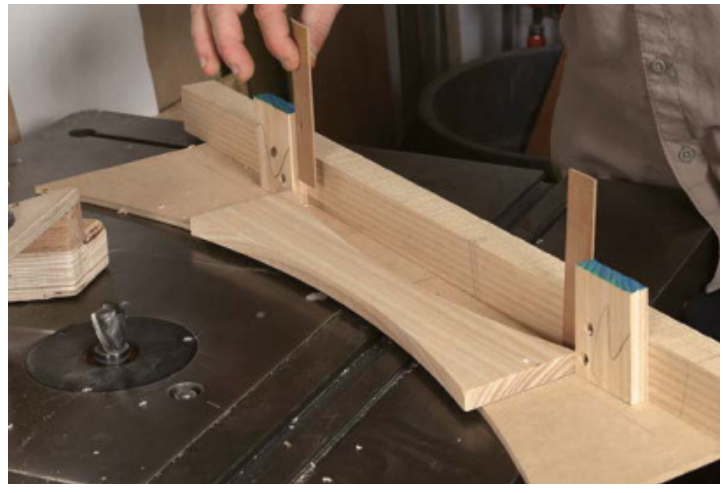
Concave slats—one jig, two passes. *This jig holds the squared blank to create the concave shape on both sides. It works for both cuts because the first, flat side registers against the jig fence, and then when it is flipped, the concave side sits point-to-point against the jig fence.*

MDF for the jigs (usually ¼-in.), and for the reference fences I grab leftover material from the shop that is milled flat and square. To locate the fences to the shapes, I drill pilot holes and fasten with short screws.

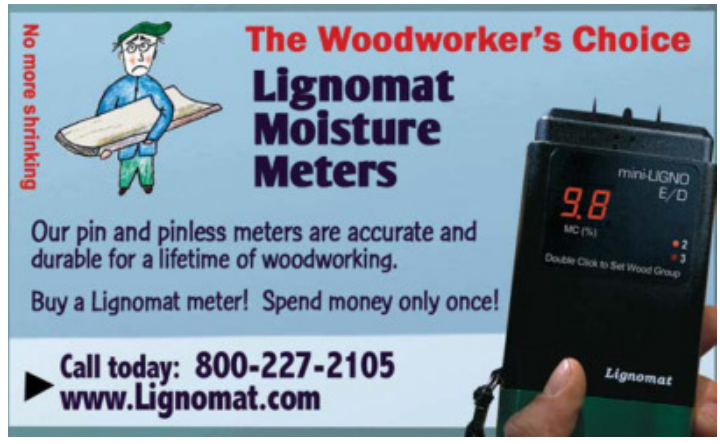
Putting the jigs to work

Although both sides of the legs are curved, I must start with a straight edge for reference. The outside edge remains straight for now. I rough cut the parts, joint an edge, and square an end. That squared corner and straight edge are my references in the jig. I set a leg blank into the jig, trace the shape onto the blank, bandsaw close to the line, and then shape the inside. I mark Domino centers on the jig to transfer to the piece after shaping.

There are five shelf slats: three convex and two concave. These need to get milled straight and square all around for



Just a trim. *If you need to shave some material off the concave slats when you are fitting them between the convex slats, add thin shims to the jig fence, set a slat against the shims, and trim it at the router table.*



Mating pairs

When you have to make matching parts, use the first piece as the pattern for the second so they can be an exact pair.

Cut the curve at the foot. *Use a template to draw the shape of the scooped bottom of the sides. Rough cut the shape, and template-rout it at the router table.*

The part becomes the pattern. *Locate the two sides to each other by engaging the slat Dominoes between them. Trace the shape of one onto the other.*

the jigs to work. To shape the convex slats, I use two jigs; one holds the rectilinear blank and the other cradles the blank after one side is shaped. The concave slat is made with just one jig.

The table's top amounts to a square with a hole in the middle. The location of the corner joints in relation to the outside corners is more interesting than a conventional mitered corner. Again, the blanks begin with a straight edge and a square end. The straight edge is the reference for the angled joinery surface, and the square end is the reference for cutting all four parts to the same length.

Once that square frame is glued, I center the circle jig by lining up crosshairs on both the circle and the square. I rough cut it with a jigsaw and template-rout it with a handheld router. I use a template to draw the outside curves, bandsaw close to the line, and then do a final template-routing at the router table.

Doug King is a custom furniture maker in Missoula, Mont.

Stack attack. *Cut the shape on the bandsaw, dry-fit the pieces together again, and then use the first side piece as the router template to trim the second side to final shape. You'll have an exact match, with the joinery in the precise locations on both sides.*

Top it off

The top has four five-sided pieces, each with one 90° outside corner, two 24° angled sides, and one side left oversize that gets cut off and rounded into the circle after the four pieces are glued together.

Angle-cutting jig. *The squared corner of the work sits into the squared corner of this jig so you can cut the shorter angled side. Once you figure out the final length of the piece, you can cut the longer angled side to length using a template.*

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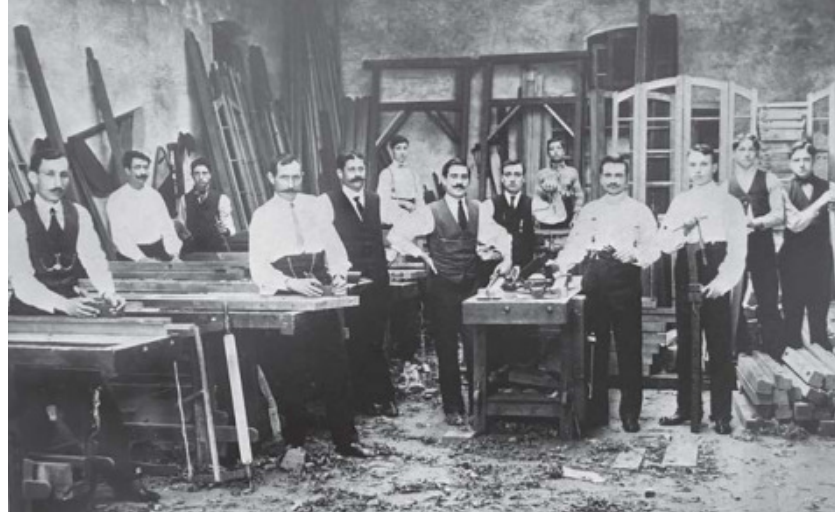
from the bench

The secret book

BY TOM DEANGELIS



The book's maker. *Americo DeAngelis, at center with hand on hip, in Buenos Aires, Argentina, circa 1910. His book is in the photo at left; his grandson Tom DeAngelis made the ones pictured below.*

I was 13 when my 80-year-old grandfather, Americo DeAngelis, called me into the kitchen one afternoon. On the table sat a large wooden book. He picked it up, placed it in my hands and said, "I made this a long time ago. If you can open it, you can have it."

I turned it over in my hands, searching for a hinge or seam, but the covers wouldn't budge. Finally, he revealed the secret: With a four-step series of movements, the top slid open smoothly to reveal a hollow chamber. Even though I hadn't figured it out myself, he handed it back to me and said, "It's yours now."

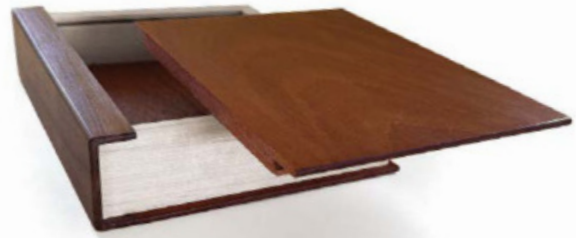
My grandfather, born in Buenos Aires but reared in Benevento, Italy, became an apprentice cabinetmaker at 16, and two years later traveled back to Buenos Aires to further his cabinetmaking skills with his uncle. He later immigrated to the United States in search of a better life, settling in Waterbury, Conn. There he worked as a cabinetmaker for the Scigliano Lumber Company, making moldings, windows, cabinets, and staircases until retiring at age 75 in 1967.

His real joy came from his home workshop, a four-car garage he built by hand despite never owning a car. His workshop—and his wooden book—sparked my own love of woodworking and shaped my early career as a carpenter and builder.

The tools from that shop—his bench, table saw, bandsaw, jointer, mortise press, chisels, and planes—passed from him to my dad and eventually to me. When I'm not at my day job, I'm in my own shop building furniture, helping friends with projects, or teaching family, friends, and neighbors how to make hand-cut dovetails. Watching someone proudly hold up their first tight-fitting dovetail is one of the most rewarding moments I know. Whenever I enter my workshop, the smell of walnut, oak, and poplar brings back an emotional rush of feelings and memories from when I was a child with my dad and brother in my grandfather's shop.

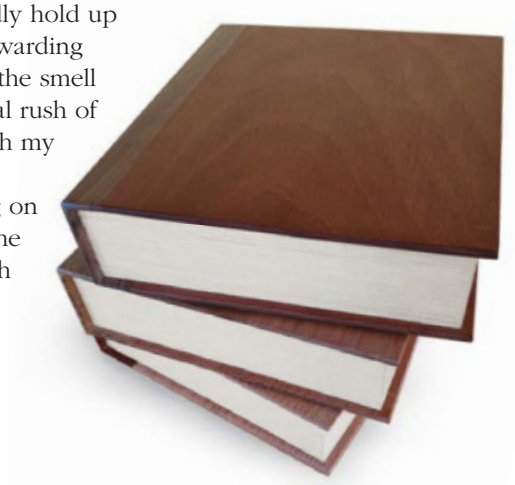
Two years ago I realized that the book, still sitting on my shelf, had quietly turned 105 years old. For all the time I'd admired it, I'd never tried to recreate it. With the skills, tools, and memories of my grandfather's hands guiding me, I focused on creating a version that preserved his secret opening system while incorporating my own design ideas.

The final piece is composed of six precisely cut components that fit together without screws, nails, magnets, or hardware, just like my grandfather's. I used quartersawn soft maple for the "pages," wrapping the grain continuously around the corners to enhance the illusion of paper. The joinery accommodates seasonal wood movement while maintaining the clean geometry required for the sliding motion. It provided a great opportunity to experiment with different species of wood, since, like books, each wood has its own tone and texture. The mechanism is simple but precise: (1) slide the front cover upward, (2) raise the heel of the cover slightly, (3) slide the cover back down, and (4) remove the cover. The finished wooden book sits naturally on a shelf with real books, yet it opens smoothly to reveal a hidden compartment for keepsakes or mementos.



This project became a lesson in refinement. I upgraded my setup with a thickness planer, a router table, and a set of aluminum setup blocks, and rediscovered the quiet precision of hand tools. I practiced zero-tolerance dimensioning, fine chisel work, and the discipline of sequencing every step. I even fell back in love with wood files—tools I'd once overlooked—for refining subtle transitions.

Re-creating my grandfather's wooden book allowed me to honor his craftsmanship while leaving a piece of my own for the next generation. It isn't just a keepsake box—it's a bridge linking his world to mine and, I hope, to the world of anyone who finds meaning in the simple but enduring beauty of a handcrafted creation.



Tom DeAngelis works wood in Clinton, Conn.

Photos: courtesy of Tom DeAngelis

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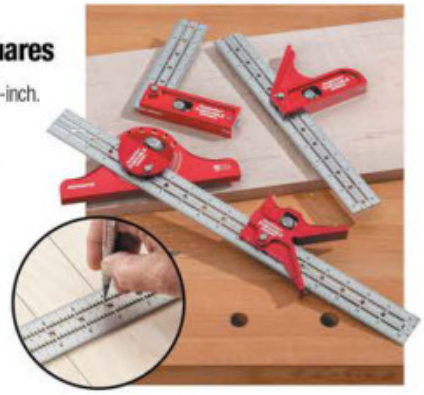

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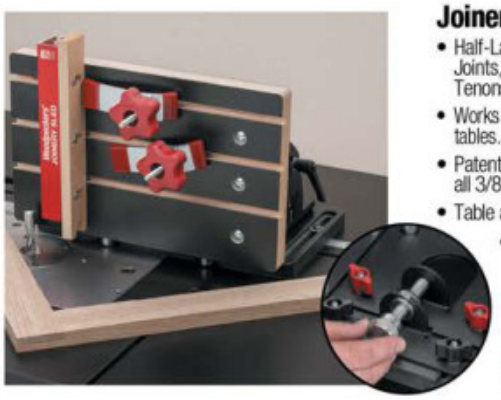

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Teacup Desk

Made in 1994, Michael Hurwitz's Teacup Desk was a rebuke to the 1980s "power desk," that looming, massive, impenetrable furniture form designed to express an executive's status and swagger. Hurwitz had just returned to Philadelphia from a six-month stay in Japan and had been impressed by the cultural civility in Japan, where even simple business encounters frequently began with an offering of tea. Arriving home in a heat wave and in need of an apartment, Hurwitz found himself sweltering in a Philly real estate agent's vestibule, attempting to transact business through bulletproof glass with people in the air-conditioned office. "I was in reverse culture shock," he says. "Those stark differences were on my mind." When he took up a pen to design his desk, Hurwitz was aiming to capture civility with a language of lightness and transparency. He created an open structure of tapered, bent-laminated ash ribs and overlaid them with short sprigs of ash in a herringbone pattern to impart a sense of upward motion. The rings at the desk's base, apron, and around its top are bent laminations of ash veneer. The desk's top is a mosaic of tiny marble tiles that Hurwitz and his assistants sliced with a tile saw from mismatched marble scraps they scavenged from the dumpster at a marble company.

To see more furniture by Hurwitz and five other innovative designers of the past half century, turn to "Enlarging the Envelope," pp. 44–55.

—Jonathan Binzen

Photos: Tom Brummett