April 2025 No. 316

Fine WoodWorking

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- Beading by hand
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Carved and painted coffer, p. 30

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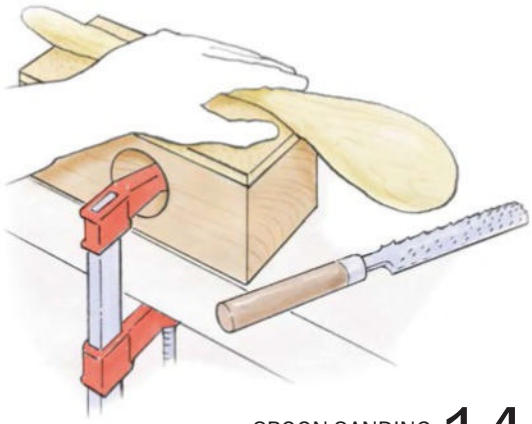
MARCH/APRIL 2025 ■ ISSUE 316

features

Cover photos: Anissa Kapsales

in every issue

66 GALLERY: MARQUETRY TABLE



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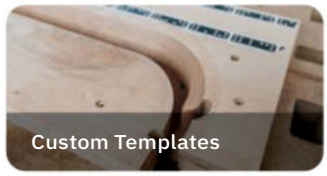

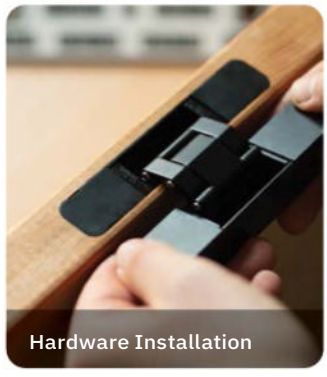

SHAPER

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VIDEO

Carved coffer

Chris Schwarz demonstrates how he carves his coffers using an inexpensive vinyl flooring cutter in a knife handle.

VIDEO

Machine made

Anissa Kapsales, who doesn't own a grooving plane, makes one of Chris Schwarz's coffers, cutting the joinery on the table saw.

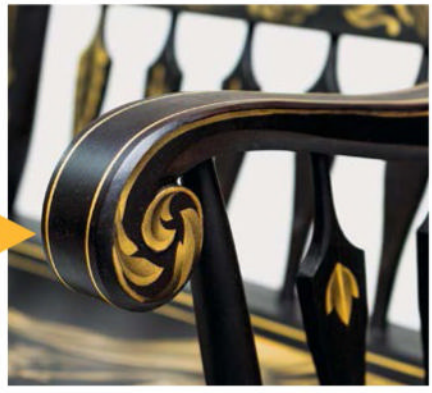
Book excerpt

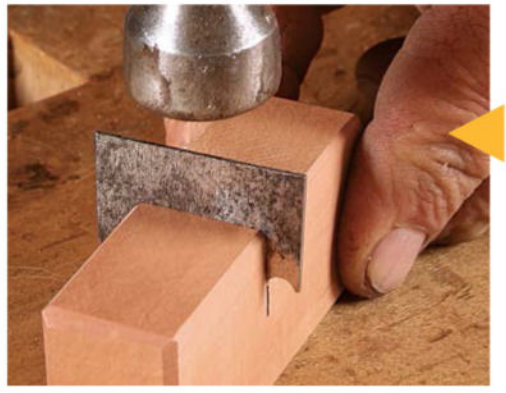
This section of Andrew D. Glenn's book *Backwoods Chairmakers: In Search of the Appalachian Chairmaker* gives a glimpse into the life and work of Randy Ogle, a third-generation woodworker in Gatlinburg, Tenn.

VIDEO

Add flair with air

Aspen Golann goes through her process for airbrushing fine details on furniture.





VIDEO

Making a scratch stock

Garrett Hack shows how to transform a small piece of scrap steel into a custom cutter for creating unique beads and other profiles.

VIDEO WORKSHOP

Enfield cupboard with hand tools

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

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

Andrew D. Glenn (Faces of the Craft) grew up on a farm in Richland County, Ohio, where he helped both of his grandfathers in their woodworking shops. By the time he was a teen, working summers on a carpentry crew, he was well on his way to a life of woodworking. However, after college he took a detour as business director at a Christian high school near Boston, which led him back to woodworking via two years at North Bennet Street School. After graduating from NBSS, Andy briefly worked at Phil Lowe's school, the Furniture Institute of Massachusetts, then as a live-in caretaker at NBSS. Two children later, the family moved to Maine, where he worked at a shipyard (grinding fiberglass, not making shavings), then to Kentucky, where Andy worked as the director of woodcraft in Berea College Student Craft's Woodcraft Program for four years. Now Andy and his family have settled back in Waldoboro, Maine, where he builds chairs, makes custom furniture, teaches, and writes.

Leah Amick ("Contemporary Towel Rack") is a furniture maker and product designer in Portland, Ore., where she shares a large shop with a few other woodworking pros. She studied industrial design at Purdue University and earned a master's in furniture design from the Rhode Island School of Design (RISD). Leah is currently navigating life as a new mom and working mostly at home, developing products and designing residential spaces for clients. But she makes her way to her shop space whenever she can find a spare moment.

Owain Harris ("Custom Finger Pulls") is a self-taught woodworker who operates a one-man studio in Gonic, N.H., where he builds custom furniture and cabinetry. He began his career in wood as a framing carpenter in 1997, and after several years working as both a finish carpenter and remodeler, he entered the shop full-time as a cabinetmaker in 2008. A member (and current chair) of the New Hampshire Furniture Masters, Owain shares his passion for furniture making and design as an instructor at the Center for Furniture Craftsmanship in Rockport, Maine.

Trained as a 17th- to 19th-century woodworker, **Aspen Golann** ("Golden Details") explores gender and power through the manipulation of iconic American furniture forms. She teaches furniture design at the Rhode Island School of Design and leads craft workshops internationally. In 2020 Aspen founded the Chairmaker's Toolbox, a project fostering access and equity in the field of chairmaking, and she has partnered with museums, schools, and chairmakers around the world. Born and raised outside of Boston, she now lives and works in New Hampshire.

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

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letters

Spotlight

What is the future of woodworking?

Imagine this: You're lying in bed, thinking about a beautiful new end table you would like to build, with maple for the casework and walnut for the framing. You mentally run through a list of furniture styles and settle on Krenov. You know this is a complex style, but you are sure you have the skill and ability to create a professional piece. You connect to your neural link, mentally call up the appropriate file, and think: EXECUTE.

You hear the machinery in your shop begin the process of wood selection as you drift off to sleep. The next morning you walk out to the finishing enclosure. It has automatically vented, and the UV finish that was applied is hard as a rock. The end table is perfect, of course. You admire the flush joinery and the flawless finish. You congratulate yourself on your woodworking skills and the amazing furniture you build.

Given the rapid pace of technological progress, this future is not far off. Woodworkers already use CNC (computer numerical control) machines to cut their wood into perfect pieces ready for assembly. Already we have cabinets cut by computers that require nothing more than simple assembly. We have other technology that could be easily adapted to woodworking. With computer programming, we could automate the process from CNC to assembly mechanisms and finishing spray rooms.

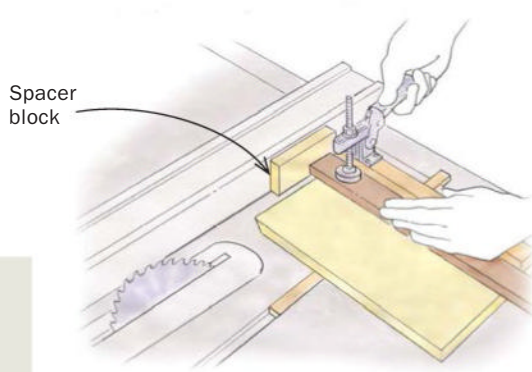
Is this really woodworking? If the use of CNC is considered woodworking, why wouldn't this fully automated future also meet that test? Progress has always challenged us to rethink what our life and efforts mean. Power tools changed woodworking throughout the 20th century. Some craftspeople consider hand tools to be the only implements that "real" woodworkers can use, rejecting power tools as cheating.

To me, the answer is that using CNC still requires considerable handling of the wood before it can become furniture. Rather than opening a box, woodworkers must first program the machine to cut the specific parts needed for the project, then choose their wood and load it onto the bed of the CNC. The woodworker also has to take the CNC-cut wood and prepare the parts for either prefinishing or assembly.

While I suspect that there will always be some semblance of what we now consider "woodworking," I can see a time when computers have become the dominant and, eventually, only tool used by most people to create furniture and other wood objects. I hope that one of the various woodworking conventions considers it worthwhile to present a roundtable discussion on the future of woodworking before we surrender the beauty, originality, and authenticity of the craft to artificial intelligence.

—TOM WALTMAN, Elk Grove, Calif.

Editor's reply: *Thanks for the note, Tom! Because woodworking always involves some sort of tool between us and the wood, the form that tool takes will always be up for debate. For me, and likely many readers, a big deciding factor is in the nature of the experience that a tool offers. Some of us are happiest at the workbench putting a hand tool to work, while others (myself included) find joy in engineering an effective machine setup. Still others like to embrace the latest technologies. I look forward to hearing from other readers regarding the work they find most rewarding in the shop.*



Sled setup speeded up

In reading the tip by Phil Grupposo (*FWW* #313, p. 13), I would offer one additional point to speed up the setup of his sled when cutting 45° miters. If the gap between the sled and the MDF spacer block is equal to the thickness of the workpiece, the first cut should be a perfect miter. As I do the setup, I use the workpiece as a spacer between the sled and the MDF spacer block.

—CLARK WADLOW, Hampstead, N.C.

More on table-saw safety

In "How to Prevent Table-Saw Kickback" (*FWW* #315), an important safety measure regarding older saws was omitted. On right-tilting saws, it is essential to move the fence to the left side of the blade when ripping a bevel to prevent trapping of the cutoff with resulting kickback (as I learned from personal experience).

—ALAN TASOFF, Egg Harbor Township, N.J.

The victim next time might not be a glue bottle

Thank you for your article "How to Prevent Table-Saw Kickback" (*FWW* #315). When I was just starting out, my table saw caught a thin cutoff between the blade and fence that instantly shot past me and penetrated halfway through my full plastic glue bottle on a shelf at the back of my basement shop. I was amazed it didn't knock over the tall narrow bottle.

I hope that can be a lesson for a current reader who, like me at the time, has not paid attention to safety details.

—JIM MENDENHALL, via email

Correction

In the drawing for "Contemporary Coat Rack" (*FWW* #313, p. 53), the angle of splay on the uprights is 10.25°, and the overall height is 71 in.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workshop tips

Easier way to hand-cut mortises

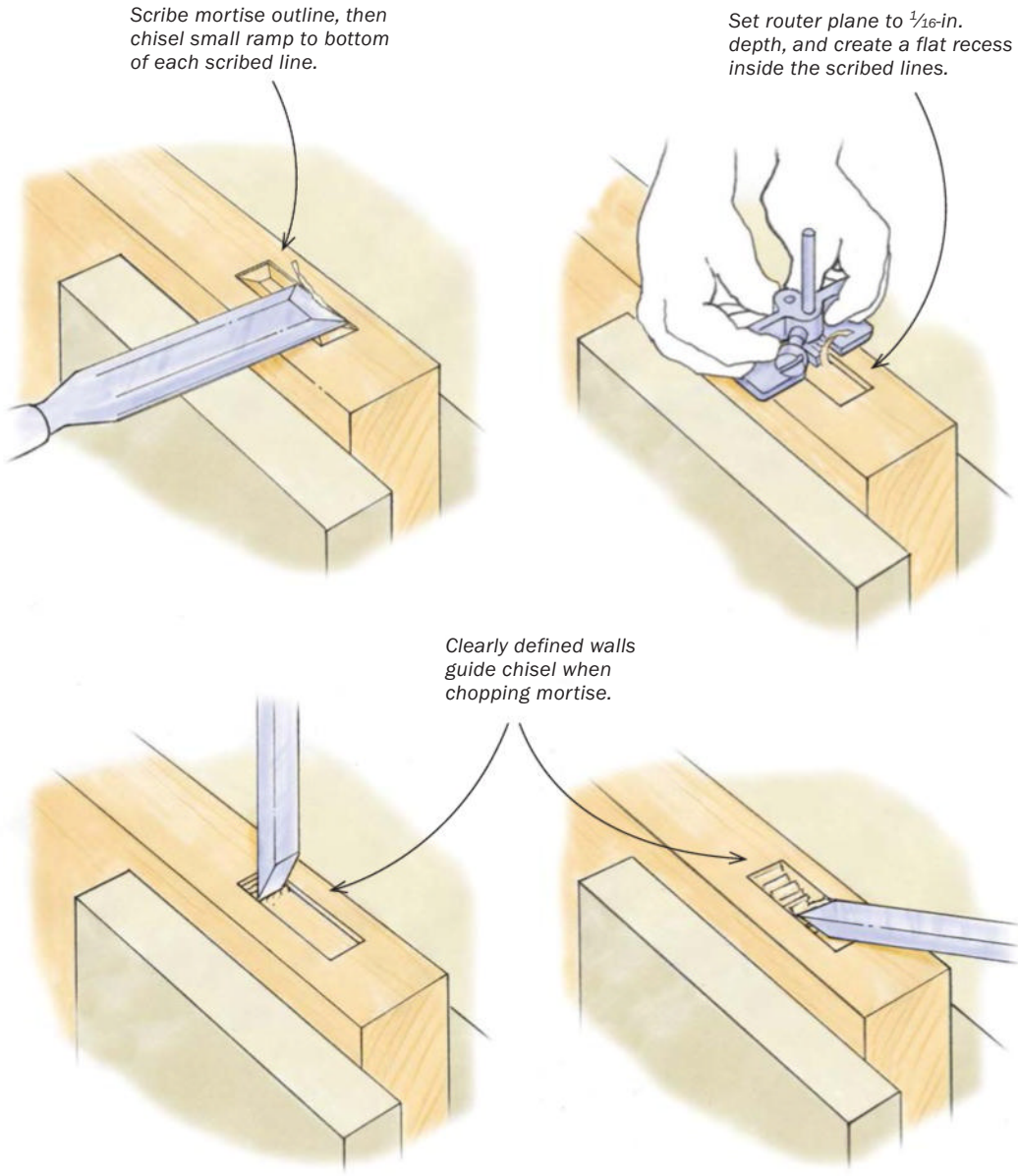
When chopping mortises by hand, beginners often find it difficult to maintain precise control of the chisel. The result is a mortise that is incorrectly sized, with walls that are out of square. To help them correct this, I teach the following method.

It starts in the usual way, with sharply scored lines made with a marking knife and marking gauge. But then you define those lines further by chiseling shallow ramps leading up to each line. The next step is to clean out the space between the lines with a small router plane set for a 1/16-in.-deep cut. This leaves short mortise walls. Use those as a guide for the rest of the process, resting your chisel against them as you chop out the mortise.

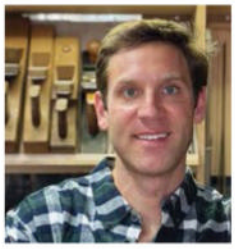
Not only does this approach allow any woodworker to chop clean, functional mortises, but it also trains them on the proper chisel orientation and feel for chopping a mortise, helping to establish the correct muscle memory.

If you are cutting a through-mortise, create the same shallow mortise walls on the other side before chopping, which will ensure clean results on both sides.

—JUSTIN MASONE, Washington, D.C.



Best Tip



Justin Masone, a sales executive for a scientific company, is a longtime hobbyist woodworker and boatbuilder. He teaches hand-tool woodworking to beginners in his garage workshop, as well as general woodworking in a six-month alternative education program for young adults at the Alexandria Seaport Foundation in Alexandria, Va.

A Reward for the Best Tip

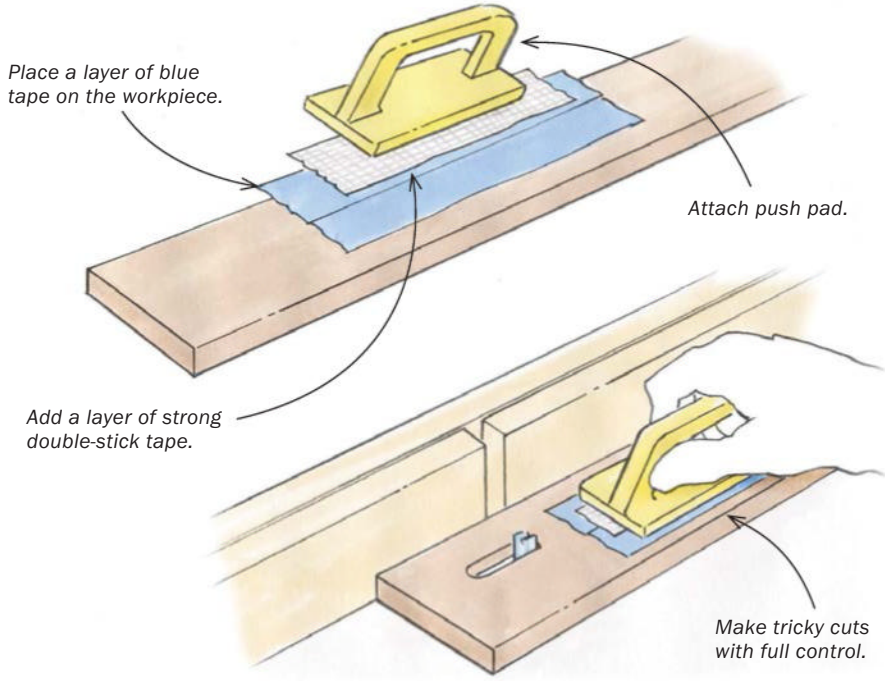
Send your original tips to fwtips@taunton.com. We pay $100 for a published tip with illustration; $50 for one without. The prize for this issue's best tip was a Narex Richter Mortise Chisel Set.

Drawings: Dan Thornton

Tape down push paddle for tricky cuts

There are times when you need to lower a workpiece onto a spinning router bit or table-saw blade to make a plunge cut of some kind. When possible, you should always pivot the workpiece against a stop block clamped to the router table or saw table. Unfortunately, that's not always possible with long workpieces. For those cuts and any other plunge cuts I'm uncomfortable with, I use double-stick tape to attach a push pad to the workpiece. To make it easy to remove the pad afterward without damaging the wood, I first put down a layer of blue tape and attach the pad to that. It works perfectly.

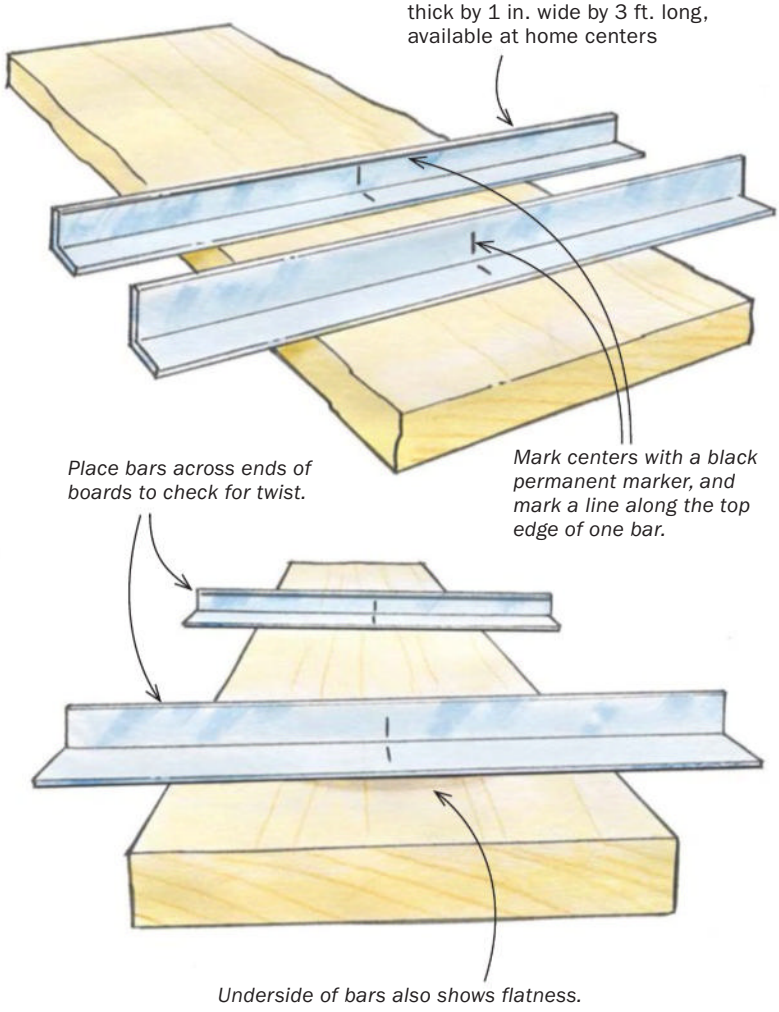
—PATRICK SEAGO, Mission Hills, Kan.



Angled aluminum bars make great winding sticks

"Winding sticks" are invaluable when you are dimensioning boards with hand tools, helping you to keep track of both flatness and twist (or "wind"). I also employ them when evaluating large slabs for possible use. To check for twist, you place a stick near each end of the board or slab and then sight across the two. Some folks make their own straight sticks from scrap wood, but this takes time and expertise. Also, wood sticks can warp over time. Instead, you can use two aluminum L-bars from your local home-improvement store. To aid with placement, I mark the center of each with a black permanent marker. Then I mark the top edge of one of the bars to create contrast with its mate, which makes it easy to see small differences in height.

—JOHN RANCOURT, Washington, D.C.



Quick Tip

Hydrogen peroxide gets blood out of wood

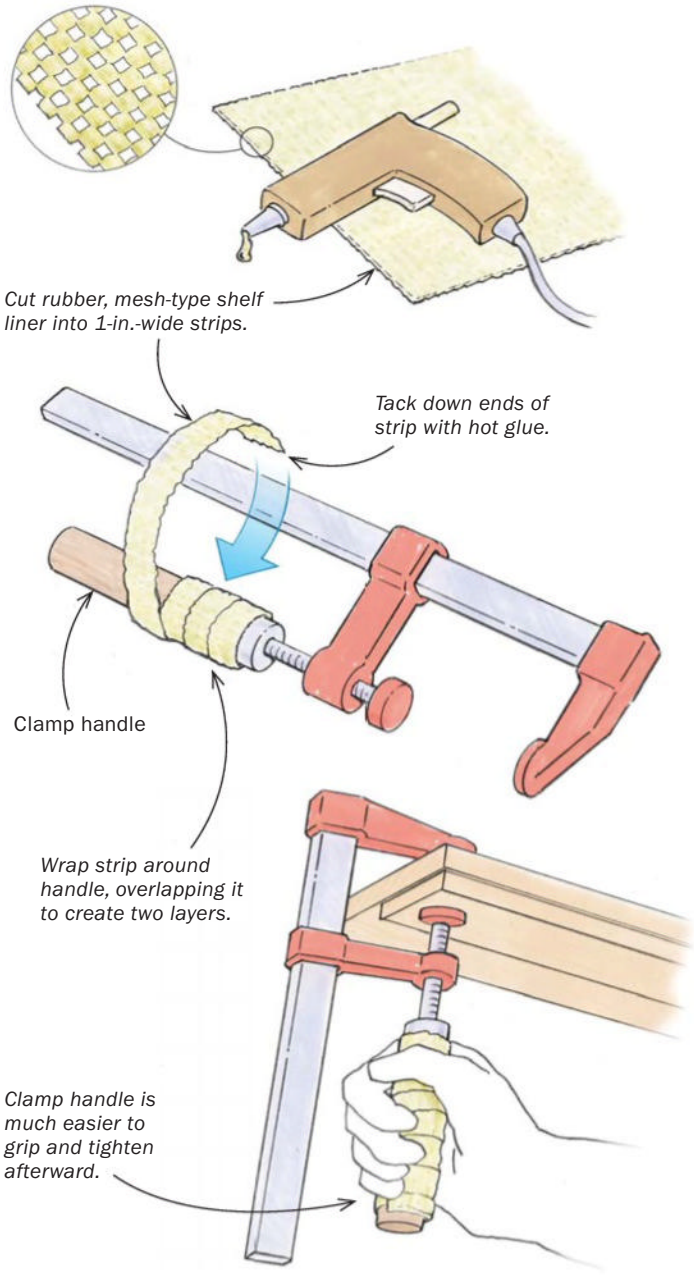
We all get little nicks and cuts in the workshop and then don't discover they are bleeding until a red stain shows up on our project wood. Hydrogen peroxide removes those stains with no visible bleaching effect. I use the 40% solution used to bleach hair, but the normal household solution might also work.

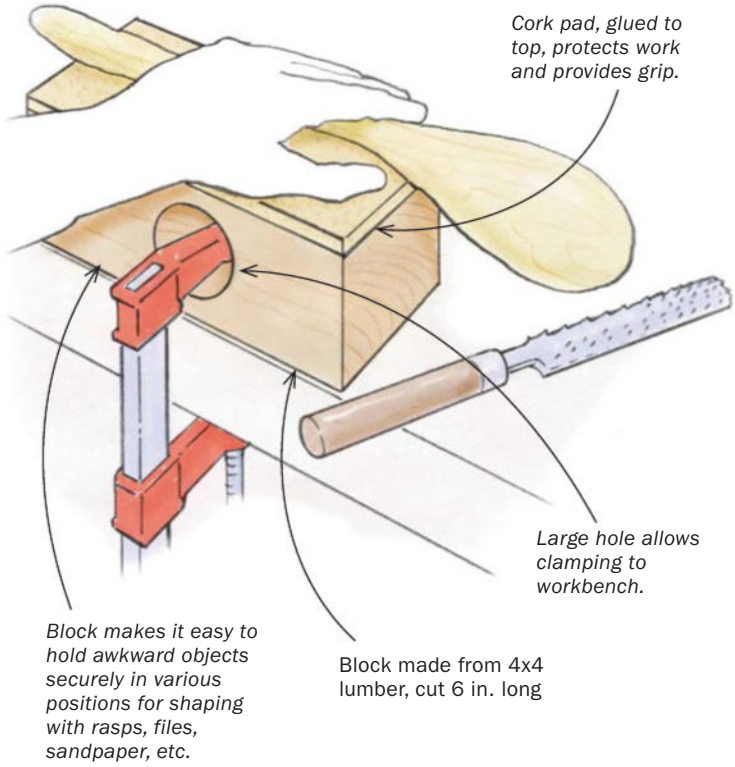
—PETER MILLER, Columbia, S.C.

Wrap clamp handles with shelf liner for better grip

As I grow older, I have more trouble twisting small, slick clamp handles, so I wrap them with shelf liner made with rubber mesh. The material is soft yet tough, and it makes the handles larger and easier to grip. It's widely available in home-improvement stores. I cut it with scissors into 1-in. by 30-in. strips, apply hot glue to one end, and wrap it around the handle from one end to the other, overlapping the strips to create two full layers. I tack down the end of the strip with more hot glue and then smooth the end while the glue is still soft. To protect my hand from the hot glue, I wear an old leather glove.

—GARY DAMRON, Capitan, N.M.





Elevated pad for sanding spoons

I've made a bunch of spoons and spatulas over the years. The most difficult and tiring part of the process is holding them securely for shaping and sanding. This elevated pad makes it easy to hold the spoon in various positions and allows better access for my shaping tools. It's just a chunk of 4x4 lumber with a hole drilled in it for clamping to the bench and a cork pad glued to the top. Rubber also works. When the pad gets worn out, it's easy to replace.

—DAN FRIEDRICHSEN, West Chester, Pa.

Quick Tip

Acetone releases double-stick tape

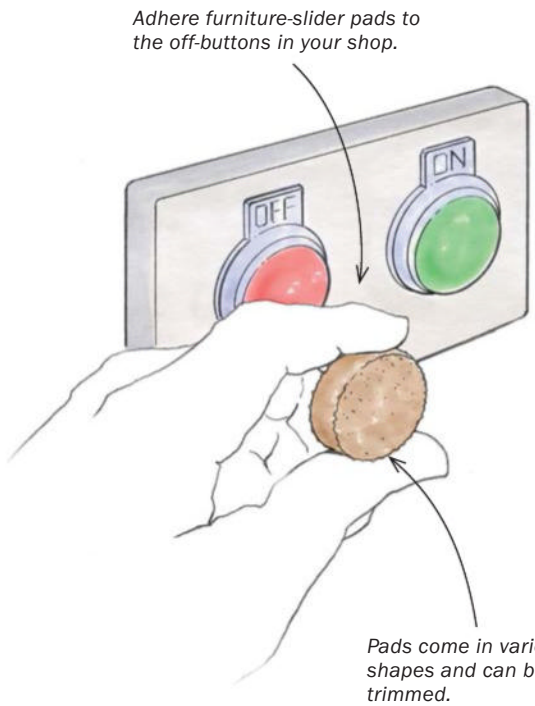
When you use double-stick tape to attach a small piece of wood to a larger one—to run it through a planer or a table saw, for example—you might have difficulty separating the pieces afterward. Insert a thin metal paint scraper between the two, as far as you can, and pour acetone on the scraper. Capillary action will pull the solvent into the joint, quickly dissolving the tape adhesive. Acetone will also clean up any leftover adhesive on the surface.

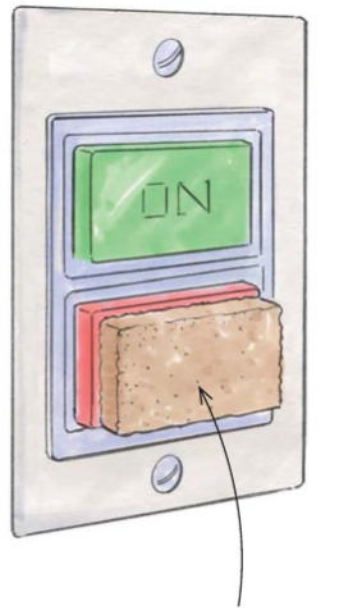
—MIKE ZELMAN, Aurora, Colo.

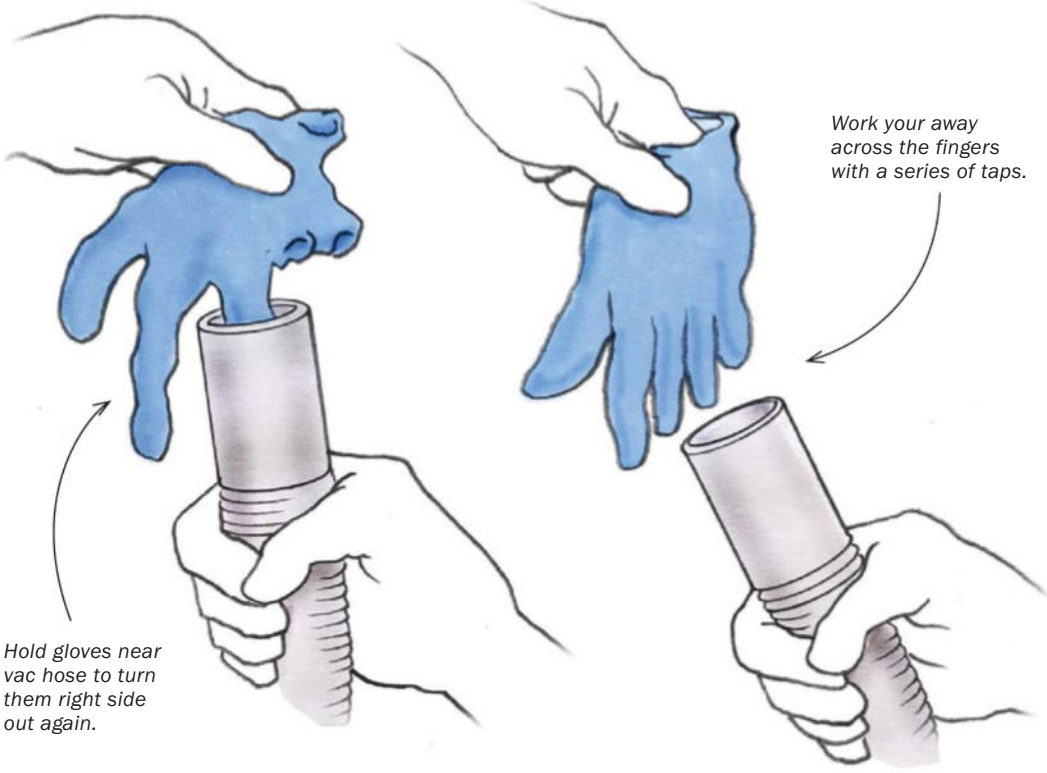
Felt furniture sliders make it easier to find the off-button

It's nice to be able to locate the off-buttons on machines quickly and without looking, especially in an emergency. Self-adhesive felt pads are the answer. Sold as furniture sliders, they can be attached to the off-button on any machine, letting you find it quickly by feel, without looking away from the work. By default, these little pads will also help you locate the on-button. The thick felt pads come in a variety of shapes and can be trimmed with scissors. They are a cost-effective way to make your shop safer.

—NEIL GODLEWSKI, Washington, D.C.







Shop vac turns protective gloves right side out

Because of the way that protective gloves turn inside out when removed, many of us chuck them in the trash after applying one quick coat of finish or one use of epoxy, whether the gloves are still usable or not. That can get pricey, especially if you use expensive gloves like the nitrile type. It's also unfriendly to the environment. I used to turn gloves right side out by blowing a puff of air from my mouth, but the moisture from my breath made them tough to reuse. Now I use my shop vac to reinvert them. It's quick and easy, and no moisture is introduced.

—JOHN HAY, Lansing, Mich.

JIGS

Mortising jig offers easy clamping and quick setup

WITH THE HELP OF YOUR OWN PLUNGE ROUTER and router bits, this cleverly engineered jig from Woodpeckers will cut beautiful mortises up to ½ in. thick and 3½ in. wide. The router is guided by a bushing that is supplied with the kit.

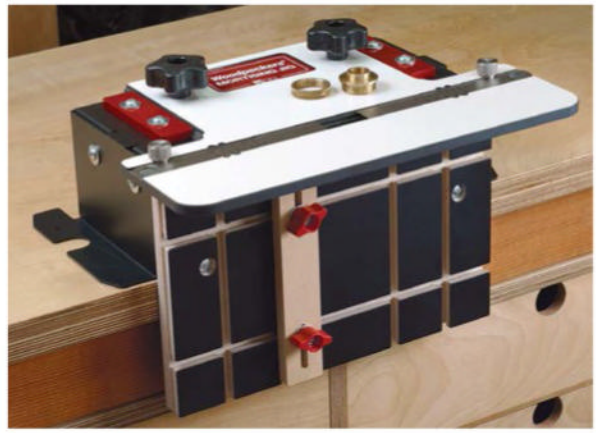
Setup is very easy. The vertical clamping face has a grid of dovetail-shaped grooves for use with Match-Fit-style F-clamps (sold separately). Woodpeckers also sells little clamp handles for making your own fences for repeat positioning. The system works great.

Once the workpiece is clamped in place, setting up the jig for a specific mortise is just as easy. You slide the top of the jig fore and aft to position the mortise on the thickness of the part, and then adjust a pair of sliding rulers to determine the length of the mortise. Pointers inside the mortise opening make it easy to align the jig with layout lines.

The fit and finish of this jig are also excellent, and I especially love how the sliding action of the table can be adjusted. The clamp slots are a little tight at first, but they break in quickly. Also, the ⅜-in.-thick top has a bit of flex, but that doesn't affect mortising, and a thinner top maximizes the depth of the mortises you can make. Also, you'll need to center the guide bushing in your router in order to cut accurate mortises, which is normal for a jig like this.

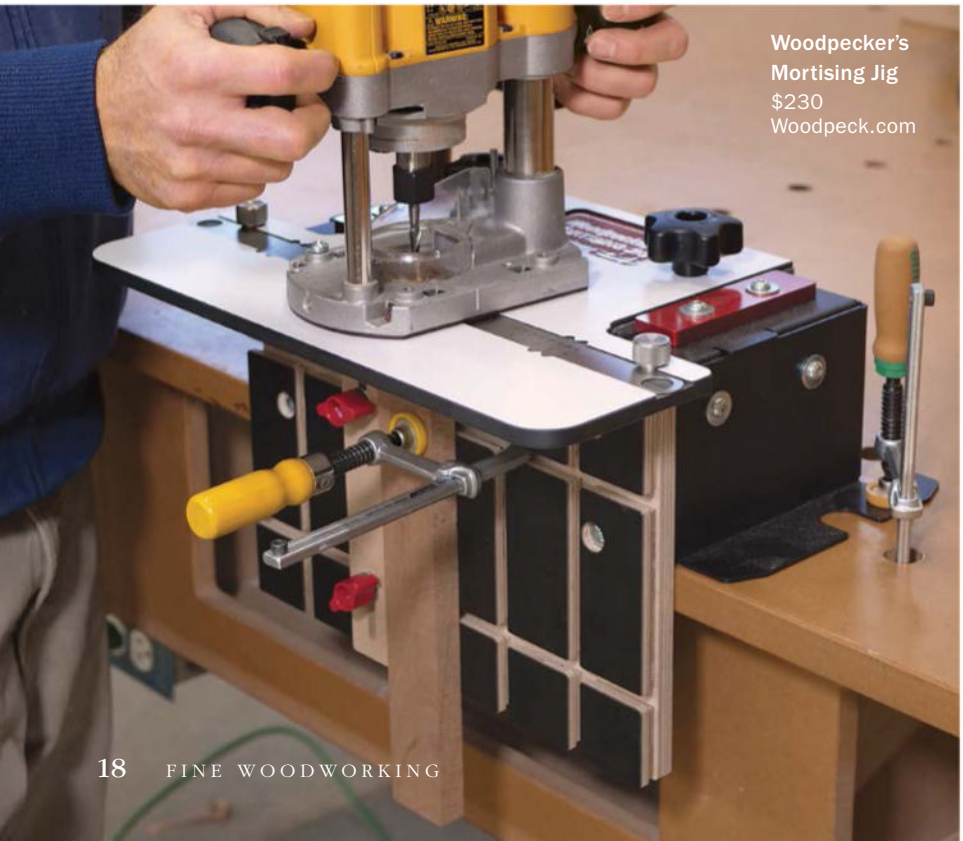
This is a great jig at a great price. It's especially great for making matching mortises in mating pieces, for use with "loose" (separate) tenons.

—Mike Farrington is a pro woodworker in Aurora, Colo.

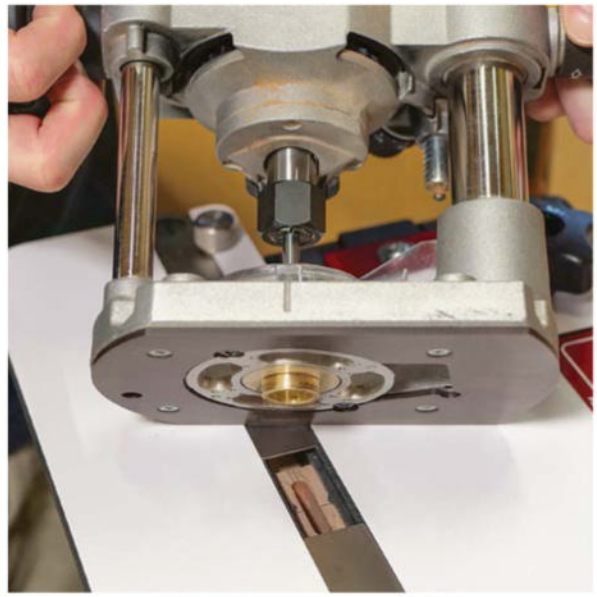


Compact and capable. *The jig clamps solidly to your bench, and the vertical face has dovetail-shaped slots for attaching fences and clamps.*

Slick top. *The top is covered with low-friction laminate, and it slides fore and aft to position mortises on a workpiece. Sliding rulers control mortise length.*



Woodpecker's Mortising Jig
$230
Woodpeck.com



Fast, accurate mortises. *The jig works with your plunge router to cut mortises up to ½ in. thick and 3½ in. long. Add clamps and simple fences to hold workpieces in a variety of positions.*

Photos, except where noted: Asa Christiana. Bottom photos this page: Mike Farrington. Bottom photos facing page: Jeff Miller.

DUST COLLECTION

HEPA-rated shop vac offers good value

ROCKLER'S NEW DUST RIGHT SHOP VAC is a very solid operator, with a handy tool-triggered mode. At 73 db, it's a bit quieter than my Festool CT26 and about the same as my high-end Bosch, both relatively quiet shop vacs. Along with the other vacs in my shop, the Dust Right filters its exhaust to a HEPA standard, keeping the most dangerous wood dust out of your airways. But the Rockler vac is half the price of the others.

The Dust Right includes a filter-cleaning mechanism designed to eject fine dust that has packed the folds of the filter. Just like the filter-cleaning mechanisms I've tried on other HEPA vacs, however, this one doesn't do very much.

Like its competitors, Rockler recommends using proprietary paper bags as a prefilter, and those do a great job capturing dust and keeping the filter clean, which in turn keeps the suction powerful.

The Dust Right has other nice touches, such as a 12-ft.-long hose and large, easy-rolling casters. And it comes with lots of vacuuming attachments, making it a bargain at $300.

—Roland Johnson is a contributing editor.

User-friendly details. *These include the HEPA filter, tool activation, a 12-ft. hose, and a flexible strap for managing the hose.*

Bang for the buck. *Rockler's new shop vac has top-flight features, and it beats its competitors on price.*

Dust Right Tool-Activated HEPA Dust Extractor
$300
Rockler.com

HAND TOOLS

Handy little block plane tucks into your apron

SHARP RIGHT OUT OF THE BOX, the new WoodRiver Apron plane works great for chamfering and refining the edges of your work—very common jobs. At just 4 in. long, the body is too small to push really firmly, as you would need to do to make full-width cuts, but it can smooth small flat areas in a pinch.

The machining is good, with eased edges and nicely finished surfaces, and the D2 blade is thick and stable. While the sole on my plane was about 0.001 in. out of flat, that's probably not enough to affect its use on edges. But I lapped it flat anyway.

If you tuck one of these planes in your apron, you will find yourself reaching for it quite often.

—Jeff Miller is a professional woodworker in Chicago.

WoodRiver Apron Plane with Blade
$100
Woodcraft.com

Refine your edges. *This nimble block plane is great for chamfering and refining edges, and other light duties.*

Always close at hand. *At 4 in. long, it's small enough to tuck into an apron pocket.*

The chisels are tough and beautiful. *Zen-Wu's pricey X-1 chisel managed up to 50% more chops in hard maple than a high-end Veritas PMV-11 chisel. But the company's Y-1 chisel also edged out the PMV-11 while costing significantly less.*

Zen-Wu Z-1 Chisel, $79
Zen-Wu Y-1 Chisel, $69
Zen-Wu X-1 Chisel, $312

HAND TOOLS

New edge tools perform amazingly

I RECENTLY TESTED A FEW CHISELS AND PLANE BLADES from Zen-Wu Toolworks, a new company in China that uses a range of proprietary alloys—each designed for its task. I tested the X-1, Y-1, and Z-1 chisels, as well as a plane iron with a "Magnacut" edge. Everything arrived with dead-flat backs and sharp edges. The Z-1 chisel and Magnacut plane blade are a laminated combo of titanium and tool steel, designed to dampen vibration and decrease weight.

I compared the Zen-Wu plane blade to the stock A2 blade that came with my Lie-Nielsen No. 4½ plane. The Zen-Wu blade made 600 clean strokes in curly maple before it began to feel dull, while the Lie-Nielsen blade began to dull in less than half the time—after 250 strokes.

Then I compared the performance of the Zen-Wu chisels to a Lee Valley/Veritas PMV-11 chisel, made from a very tough powdered-metal alloy. While the Veritas chisel managed an impressive 800 chops before it needed sharpening, all three Zen-Wu chisels outperformed it. The pricey X-1 chisel was the standout, able to deliver 1,200 chops before it needed sharpening. But the much more affordable Y-1 chisel managed 870 hits, and the Z-1 managed 900. That said, the Z-1's steel felt springy under mallet blows, and one corner chipped. So I would go with the Y-1 for best value.

—Adam Godet is a pro woodworker in Washington, D.C.

Plane blade is a big upgrade. *The Zen-Wu blade managed twice as many passes in curly maple as a Lie-Nielsen A2 blade before both needed sharpening.*

Zen-Wu Magnacut Plane Blade and Chipbreaker $164 (for No. 4½ plane)
ZenWuToolworks.com

Photos this page: Adam Godet (top right and bottom left)

WORKSHOP

Outfeed table travels with your saw

IT'S GREAT TO BE ABLE TO PARK YOUR TABLE SAW IN ONE SPOT and attach a permanent outfeed table to it so the saw is always ready for action. In my tight shop space, however, everything has to be on wheels, including the table saw. So I sized the legs on my workbench to allow the benchtop to do double-duty as an outfeed table. That setup has worked OK, but every time I need to use the bench as an outfeed table, I have to clear almost everything off of it, and I can't stack workpieces there as I use the saw.

This new Rockler folding table frame is the solution. It lets you hang an outfeed table (you make the tabletop) off the back of your saw and includes two adjustable legs that pivot down to support the table. When you need extra space in the shop, or you need to move the saw, you fold the legs up into the frame and fold the table down, where it simply hangs out of the way.

If you have a dust hose coming out of the back of your saw, it helps to attach a flex hose or a 90° elbow to it to keep the hose out of the way and allow the table to fold down freely. Otherwise, you'll need to detach the hose when you fold down the table.

The frame attaches to any table saw with a Biesemeyer-style T-square fence, but it won't work with rip fences that secure at the back (which is most common on small job-site saws). The frame's thick, strong attachment brackets have clever jack bolts built in. These brackets let you set the height of the outfeed table just a hair below the saw table and lock in that relationship permanently.

To make sure the tabletop won't drag on the floor when folded down, you need to limit its length by the height of your saw. But I ended up with 44 in. of outfeed support behind the blade of my SawStop; that's plenty for most jobs.

You'll need to retract the legs completely in order to fold them out of the way and fold down the table, so you lose their height setting when you do. But it's easy to reset the legs to the right height when you put the table back into use.

At $100, this heavy-duty folding outfeed kit is a bargain.

—Asa Christiana, editor-at-large

Rockler Rock-Steady Knock-Down Table Saw Outfeed Kit
$100
Rockler.com

Solid system. *The frame sits solidly on two adjustable legs. You make the wood table to fit your saw and your space.*

Down and out of the way. *When you need to move the saw (on a mobile base) or just need extra space in your shop, the legs fold up and the table folds down.*

Legs fit into the frame. *You need to retract the adjustable legs fully to lock them into the frame, and then reset their height when you fold them down again.*

Smart bracket. *The corner bracket locks the legs solidly and easily in their vertical and horizontal positions. Leg length adjusts just as easily.*

1

2

3

Ladderback life

BY ANDREW D. GLENN

While working at Berea College I became fascinated by the prevalence of handmade ladderback chairs in the area. I began taking trips into the eastern Kentucky foothills to seek out more chairs and their makers. That led to my love of the chairs, their history, the people keeping the tradition alive, and to writing *Backwoods Chairmakers: In Search of the Appalachian Ladderback Chairmaker*. Ladderback chairs, using the most basic definition, have horizontal slats across the back that loosely resemble a ladder. They are often post-and-rung construction. The form can be traced back to Europe, with paintings depicting versions of the chair beginning during the Dark Ages.

A variety of American ladderback

When I think of the ladderback, three American chair forms come to mind: early New England ladderbacks, the Shaker chair, and bent-back chairs of Appalachia. Early New England chairs were often boldly turned with finials upon the back posts, along with straight backs and a rush seat. Shaker chairs were

Top photos: Michael Pekovich. Photo left: Anissa Kapsales.

Evolution of a chair

1. Glenn's earliest three-slat ladderback, made of black oak, has bent-back posts, and all the parts are shaved round. The hickory for the seat was some of the first bark he harvested.

2. Glenn first came upon the chamfered slat design he used here in chairs made by the Mace family of Madison, N.C. His chair combines his favorite details of Appalachian-style chairs: three-slats, octagonal posts, a bend on the back posts above the seat, and the hickory seat.

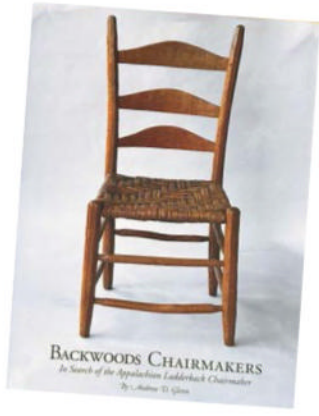
3. While this low armchair in black oak feels more contemporary due to the slat layout, the arms and front posts are similar to those found in early Kentucky chairs of the 1800s.

4. Glenn wanted to make something a little smaller, with reduced mass, and he had Sam Maloof's dining chairs in the back of his mind as he worked toward this design. The front legs and back posts have both rake and splay, which creates more visual movement as the chair is viewed from different angles. The upper section of the back posts has a subtle reverse curve.

5. Smitten with the woven-back chairs found throughout Appalachia, including a gorgeous Windsor (Curtis Buchanan's Mantis side chair), Glenn made a woven-back piece of his own, imagining it for sitting beside a woodstove with a good book in hand.

refined and reduced in design, with thin, unembellished turnings and a cotton tape seat. Their lightness of form is still admired today, though the upright back reduces comfort. That uprightness is a challenge in the design. Too vertical, and users feel as if the chair is pushing them forward. But simply tilting the straight posts back to achieve some comfort makes the chair more likely to tip backward.

It's the third form, the Appalachian ladderback chair, that resonated with me during my family's time in the region. Whenever I close my eyes and think of a ladderback, it's the contemporary form of Brian Boggs's Berea chair that appears in my mind: turned, with three horizontal slats, box rungs that are pushed upward to give the chair a lighter look and feel, and a refined hickory bark seat. This chair is an example of taking a traditional form and then pushing it forward.



Backwoods Chairmakers. *Glenn's book takes you inside the shops of 20 makers, with photos and interviews about their lives and techniques. To read an excerpt, go to FineWoodworking.com/316.*

Focusing on the Appalachian chair

The Appalachian chair is too broad a tradition to be reduced to a few narrow design details. But an Appalachian chair often has a bent back post, little to no ornamentation, and a woven seat typically of hickory bark. Perhaps it's the seat material of choice because there is an abundance of hickory to be found within the forests of the region.

These chairs are ideal for green woodworking. Their strength and resilience comes from the post-and-rung joinery. With green (or air-dried) materials, the posts are wetter and shrink as they dry. The rungs are dried below the ambient moisture content, either in a kiln or beside the woodstove or radiator, so the tenons swell once they're added to the chair. The joints are a tight fit only made once, during assembly. There is no dry fit. That locking action, associated with green-wood chairmaking, is enough that some chairmakers do not use glue during assembly. I always use glue.

The hickory seat

A post-and-rung ladderback creates an ideal frame for a woven seat. A number of material options are available; Shaker tape, Danish cord, splints, flat reed, leather, and seagrass are all commonly used. I am partial to hickory bark, as it is both long-lasting and durable, while also being warm and inviting. The bark offers a comfortable seat that holds its shape.

Harvesting hickory bark

After you've shaved away a 4- to 6-in.-wide section of the rough outer bark down the length of the log with a drawknife, you can begin harvesting the inner bark. With a utility knife, make as straight a cut as you can along the length of the log. Then go back and make a cut parallel to that one. You will not achieve perfectly straight and parallel cuts, but that's OK. Starting at the end, peel the bark back and work your way down the length of the log. You'll find the bark lifts off easier in some spots. Adjust your firmness as you feel it holding tighter in other sections. Be careful not to coil it too tightly, since it can mildew during storage.

The challenge is obtaining it. Hickory bark is available online, often with significant lead times. But there is nothing more rewarding than harvesting the bark that you use to weave the seat on a chair you built. It is harvested in the spring, when the bark is slipping. Slipping bark easily peels away from the trunk. It sticks to the tree the rest of the year.

After harvesting the bark, you can weave it directly into a chair. It works like leather when wet and dries firm and strong around a chair frame. You can also store it in coils in a dry place and soak it in water to regain its workability when you're ready to weave it.

Tools and tree selection

When I go out in the woods to harvest bark, I carry a bucket of supplies: drawknife, knife, sharpening/diamond paddles, cant hook (to roll larger trees), crosscut saw, tape measure/yardstick, and tarp (to cover the tools if it rains).

I'm not a dendrologist or a skilled cutter, and so I need to rely on a

Photos: Michael Pekovich (top left); Anissa Kapsales (center and right)

Fine-tuning the bark

Once you're back in the shop, you can address the thickness and width of the bark you harvested. If you chose to save time in the woods by cutting wide strips from the log, you can cut the bark to weaving width by running it through a leather-strap cutter. Glenn screws his cutter to a piece of pine, which he then clamps to his bench. You can adjust the cutter to the width you desire. One way to get the bark thinner is to split it. Use a knife to score the end and start the split. Then use your hands to split the bark down its length.

forester's experience to find and drop the hickory trees. Recently Berea College forester Phil Vogel went out with me to walk the woods and knock over a few trees. There are only a couple of days to get the bark off a tree once it's on the ground; after that, it starts to adhere again to the wood beneath.

The right part of the bark

The bark usable for weaving is found just under the rough outer layer. After the outer bark is removed, the inner bast is cut into strips ½ in. to 2 in. wide, pulled off the log, and rolled into coils.

The larger the tree, the thicker the bark. Bark from larger trees is often too thick to use in a chair. But thicker bark can be trimmed thinner or else split in two, with the inner layer (the one closest to the cambium) being of higher quality.

You can shave bark to thickness (around ⅛ in. thick is ideal) at the shave horse with a spokeshave. Or you can pull it apart by hand. This method of splitting thick bark may yield a second coil, which is the one I prefer.

Online Extra

See how to weave a hickory bark seat with Peter Follansbee at **FineWoodworking.com/316.**

Stripping the bark

Once the tree is on the ground, I shave off the outer layer of bark. After I clear a 4- to 6-in.-wide section the full length of the log, I use a knife to score a deep line along the length, followed by another cut at the desired width. It's difficult to keep an even width, and the line usually wanders ⅛ in. or so. I'm not concerned by minor variations; they feel and look right in a handmade chair. At times, peeling requires a firm hand to lift the bark safely off the tree. I loosely coil the bark while peeling it and then store the freshly harvested bark in a cool, dry place with air movement or a fan.

Once I get a full-length section with the outer bark shaved off and then the inner bark cut and peeled away, I keep turning the log and repeating the process until I've gone all the way around the log and removed all the bark.

Weave the seat. *Once you've harvested the hickory bark, weaving the seat is the easy part.*

An alternate processing method

I sometimes skip cutting the strips to final width in the forest. I'll peel pieces 3 to 4 in. wide from the log, then go back to the shop and run the pliable bark through a leather-strap cutter. This provides improved uniformity (though the strips are still not perfectly sized). I like this method because it's easier than crouching and slicing all the coils on the forest floor. You can purchase strip cutters online starting at $35. With the strips cut to width, you're ready to weave the hickory into a chair seat.

Andrew D. Glenn is a furniture maker, teacher, and author in Waldoboro, Maine.

Photos: Anissa Kapsales (top); Michael Pekovich (bottom)

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This small shepherd's coffer, based on examples from Central Europe's High Carpathian mountains, is sized for holding papers and writing tools. Traditionally, no matter how rich or poor, almost every family in the region owned a few of these chests and coffers.

The joinery for this chest is entirely tongues, grooves, and wooden pegs. You can make all the joinery with a tongue-and-groove plane. And the exterior is engraved with symbols (some might call them spells or prayers) intended to protect the owner of the coffer and its contents.

One plane does it all

A tongue-and-groove plane, such as a vintage Stanley No. 48 or the modern Lie-Nielsen No. 48, does most of the work. These ingenious planes cut both tongues and grooves. You need only to rotate the plane's fence to change between cutting tongues or grooves. The plane is designed to center on ¾-in. stock, leaving ¼-in.-wide tongues and grooves. If you are using narrower or wider boards, the tongue will be offset from center but will still mate with the groove if you reference from the same side on both pieces. Once the pieces are together, you'll never notice the offset.

The No. 48 is simple to use. Lock the fence to make tongues or grooves. Plane the surface to cut the joint. The plane will stop cutting when the joint is complete. The cleverly designed plane makes joinery that automatically fits snug.

Groove the legs

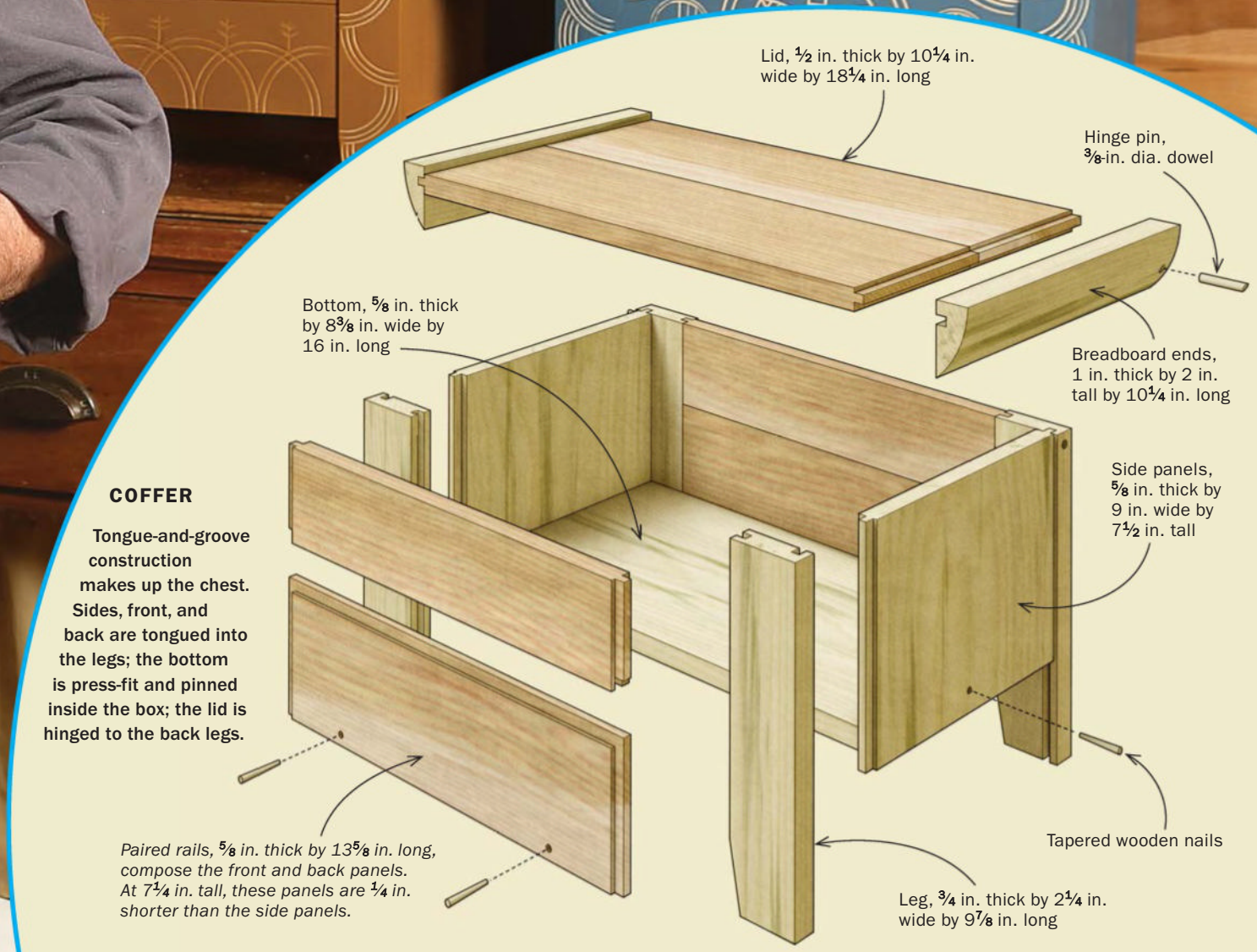
Begin by grooving the chest's four legs. Scribe a cabinetmaker's triangle on the legs so you can keep track of what needs a groove. Groove one edge of the front and back legs. Then groove a face of each leg to receive the side panels.

Photos, except where noted: Anissa Kapsales. Drawings: John Hartman.

Charming Coffer

Cut the joinery for this Carpathian box with a single hand plane

BY CHRISTOPHER SCHWARZ



COFFER

Tongue-and-groove construction makes up the chest. Sides, front, and back are tongued into the legs; the bottom is press-fit and pinned inside the box; the lid is hinged to the back legs.

A single plane for all the joinery

With the Lie Nielsen No. 48 or its ancestor the Stanley No. 48, you can easily cut perfect tongue-and-groove joinery with a single plane.

SOURCES OF SUPPLY

LIE-NIELSEN NO. 48
lie-nielsen.com

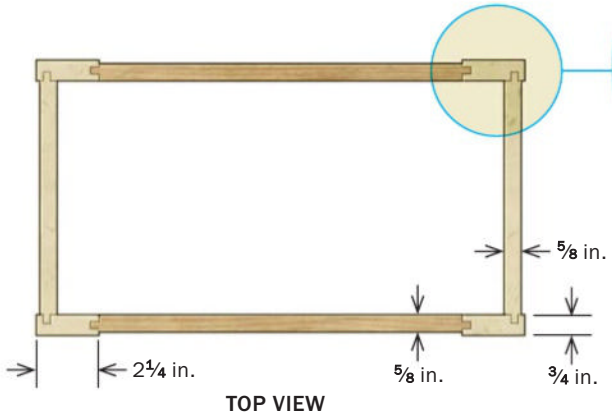
K2 MEDIUM DUTY ALUMINUM KNIFE
excelblades.com

EXACTO ROUTER FLOORING BLADES DIAMOND PEAR SHAPE
amazon.com

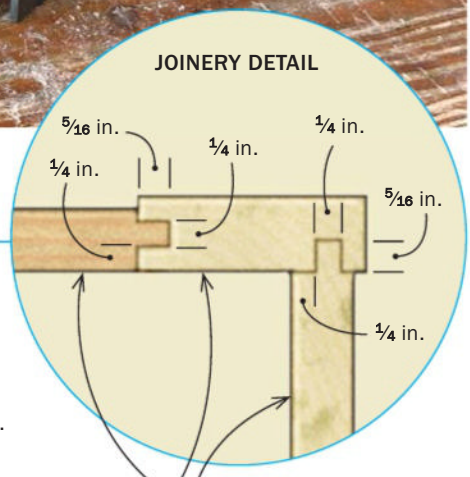
CRUCIBLE ENGRAVING TOOL
lostartpress.com

KAKURI WOODEN NAILS FOR WOODWORKING (3/16 IN.)
amazon.com

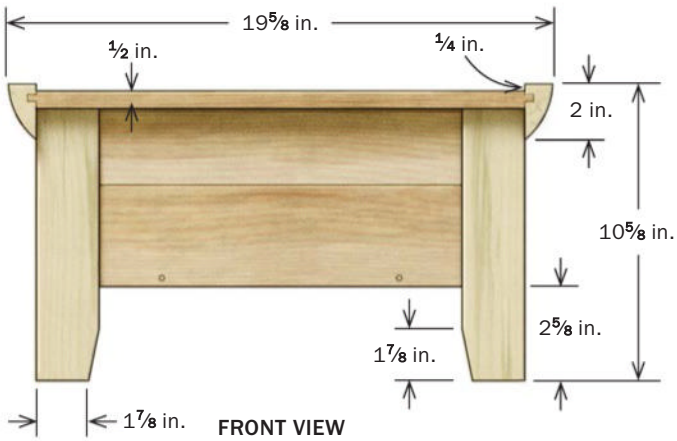
An eccentric fence. *The fence on this plane rotates to reveal the one groove cutter or the two tongue cutters, with no other adjustments necessary.*



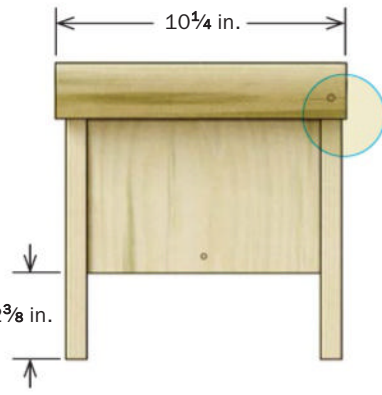
TOP VIEW



When cutting the joinery, keep the fence of the tongue-and-groove plane running against the inside face of the rails, panels, and legs.



FRONT VIEW



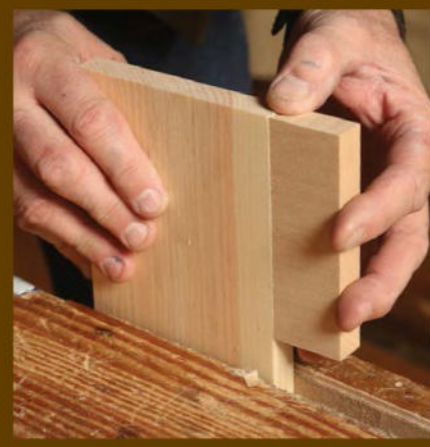
SIDE VIEW

Top photo: Christopher Schwarz

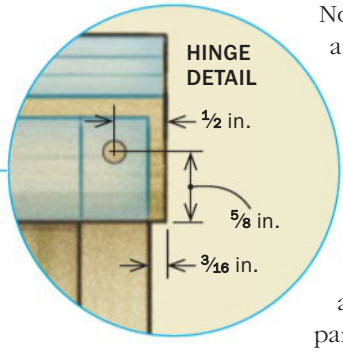
Hold the plane properly. *Instead of grabbing the plane's front knob, wrap your thumb around it. This eliminates the chance that you will tilt the tool and crack the joint.*

A workaround for planing end grain

Spelching, also known as blowout, is an issue when planing end grain. Tongue-and-groove planes weren't designed to plane end grain, but it can be done with this simple tip.



Spelching be gone. *A scrap clamped to the outfeed end of the joint protects it from splintering off. You'll need this tip when cutting the tongues on the ends of the rails.*



Note that the rails and side panels are ⅝ in. thick; the legs are ¾ in. thick. This difference in thickness makes the rails and side panels recessed in the assembled chest. To make a chest that will actually go together, be sure that on each cut with your tongue-and-groove plane you run the fence against the inside face of the rails, panels, and legs.

The last detail on the legs is to cut a decorative shape on the feet using a bandsaw, a coping saw, or a handsaw. Simple curves or angled cuts are typical shapes with these coffers.

Tongue the rails and panels

Here is where it gets odd. Tongue-and-groove planes weren't designed to plane end grain. But they do it just fine—as long as you clamp a sacrificial block to the outfeed side of the board so it isn't spelched or splintered off.

After cutting the tongues on the ends of each rail, finish the rails with the easy cuts: tongues and grooves that are parallel to the grain of the board. Then cut tongues on the side panels. Note that the grain of the side pieces is vertical.

It might seem complicated to figure out which boards need tongues and which need grooves. But once you are working on the project, it will be obvious.

After you have tongued and grooved all the pieces for the carcase, the assembly is simple. Paint glue in the grooves and mate the legs, rails, and side panels. Then clamp things up.

Leg grooves hold it all together

Through-grooves on the inside edge of each leg hold the front and back rails, and grooves on the face of each leg receive the side panels.

Orient the legs. *Place the legs together and mark a triangle across the top end of all four. Also mark the inside faces so you can always reference the plane off the inside of all the parts. This will ensure proper orientation and fit when the pieces come together.*

Make the lid

The lid is simpler than the carcase. Cut tongues on each end of the lid, again using a sacrificial board to absorb any spelching on this end-grain surface. Then groove the breadboard ends, holding the plane sideways to cut the grooves as you did with the legs (see top right photo below). While the front and back rails are within the glue's flexibility tolerances, the lid is wider. To accommodate that, assemble the lid, applying glue to only the front half of the breadboard joints. This will allow the lid to expand and contract with the changes each season.

Add the bottom and the lid

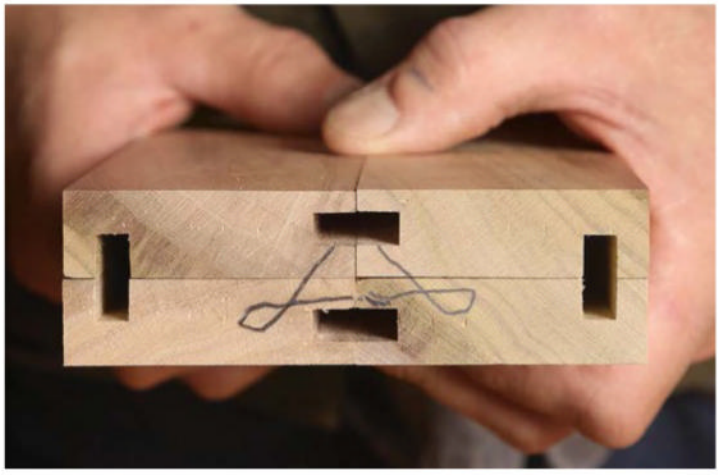
Friction-fit the bottom board into the carcase, then peg it in place with bamboo skewers or tapered hardwood nails. (I like the wooden nails from Kakuri.) The lid is attached to the carcase with ⅜-in. dowels, which serve as hinges.

Painting and engraving

To paint the exterior, I use a linseed oil paint if I can allow a week for it to dry. If I don't have the luxury of time, I use acrylic.

Edge grooves. *Place the legs horizontally in the vise and, with the fence in the grooving position, cut the grooves.*

Horizontal grooving. *While the No. 48 wasn't intended to be used this way, the easy way to groove the face of a board is to clamp it in your face vise and turn the plane on its side to cut the joint.*



Check your triangle. *When you've finished cutting the leg joinery, check that everything's in the right place. If you reassemble your triangle, all the grooves for the rails and side panels should mate up.*

Feet not first. *After the leg grooves are cut, shape whatever foot design you choose at the bottom of the front legs.*

Assemble the front and back panels

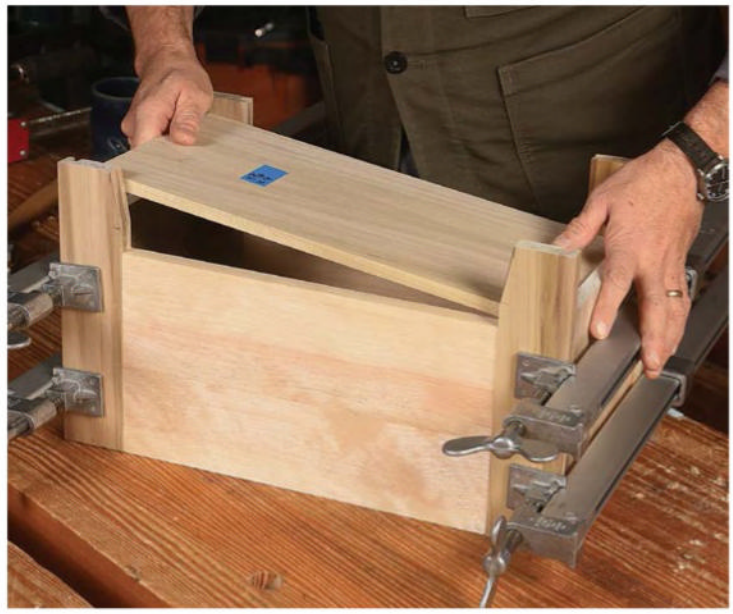
As far as glue-ups go, this one is stress free, especially if you use liquid hide glue to extend your open time. All the originals Schwarz studied used two rails on the front and back, so he stayed true to the originals. Sometimes the border between them was incorporated as part of the engraving, with the lower rail representing earth; the top, heaven.

Rails first. *Before gluing the rails into the legs, glue them to each other.*

One leg at a time. *Apply glue to the groove in the edge of the leg and insert the first end of the rail assembly. Then, on a flat surface, tap the leg and rail assembly perfectly flush. Add the second leg. Glue and tap the second leg into place on the other end of the rails, and clamp until dry. Then repeat the process with the other two legs and rails.*

Complete the assembly

Use the two side panels to join the front and back assemblies to each other, and then install the bottom.

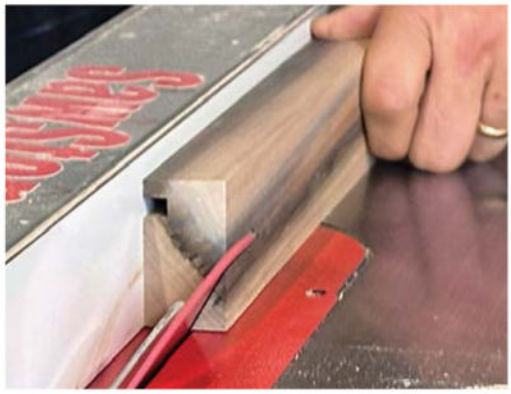


Add side panels and bottom. *Glue the side panels into the front assembly. Add the back assembly and put it all in clamps. While the glue dries, friction-fit the bottom into the case, which will square things up.*

Peg the bottom in place. *Schwarz likes to use tapered wooden nails by Kakuri. You drill for them with a mating tapered bit, also available from Kakuri. When you have the bottom set in place, drill with the tapered bit, tap a nail in place, and then cut it flush with a handsaw.*

A simple lid to top it off

A solid wood panel with breadboard ends is hinged to the box with dowels.



Add a little shape. *After you've grooved the face of a long piece of breadboard end stock using the No. 48 plane, rip a 30° angle onto the opposite face.*

Add hinge holes. *From one long workpiece, cut two breadboard ends to length and drill a hole in each for the dowel hinge.*

Glue the breadboard ends to the panel. *To accommodate wood movement, apply glue to only the front half of the breadboard joints.*

After the paint is nice and hard, you can cut through the paint to decorate the coffer. Some cultures used carving gouges. Others used engraving tools that were pulled against a straightedge or inserted in a compass to make arcs.

My engraving tool is a simple cutter used to trim the welds on vinyl floors. I hold it with an inexpensive craft knife. I turn down the soft aluminum handle of the blade to fit into my compass. The coffer here is made of pine and poplar, which is easy to engrave. Basswood is another easy-to-engrave option. Most diffuse-porous woods are easily engraved.

The engravings shown on this coffer are protection glyphs common throughout Europe. Each culture has its own special set of symbols that guard people from sickness, famine, or loneliness. A little searching through the ethnological literature of your ancestors' culture will likely turn up lots of ideas for shapes and symbols. You are the only limitation to the design you choose to engrave. □

Christopher Schwarz is a furniture maker and writer in Covington, Ky.

Fit the hinges. *Prop up the front and back edges of the lid with ¼-in. scraps to give clearance for the lid to swing open. Drill through the holes in the breadboards and into the rear legs. Tap in the dowels partway to check the swing. If all is working well, remove the dowels. You'll set them in place fully after you've painted and carved the piece.*

Painting and carving

As if building the coffer weren't fun enough, painting and carving it notch up the excitement. A choice of paints and colors and endless design possibilities for carving can change the look and feel of the piece.

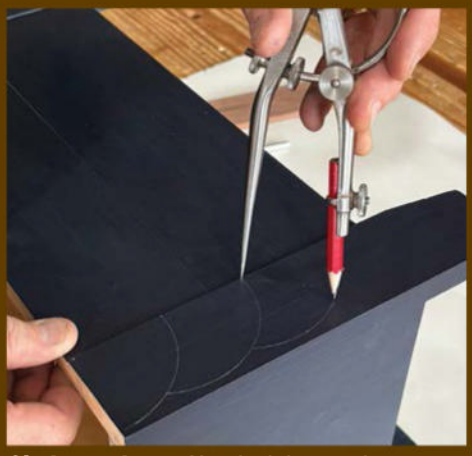
Adding color. *If he has time to wait about a week for the paint to fully cure, Schwarz prefers to use linseed oil paint because the color and depth are richer than those of acrylic paint. If time doesn't allow, he uses acrylic.*

Online Extra

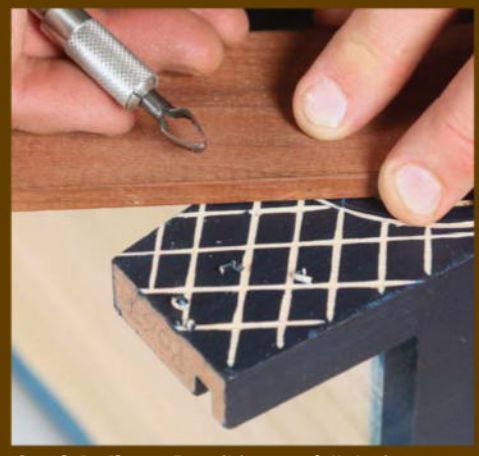
To read "Some Common Symbols and Spells in Europe," from *American Peasant* by Christopher Schwarz, go to **FineWoodworking.com/316.**

The carving tool. *While not historical, this tool is easy and inexpensive to assemble. It's a vinyl flooring cutter in a knife handle. To cut curves and circles, it can be fitted in a compass. Or, without the compass, it can be used with a straightedge to cut straight lines.*

Sharpening the carving tool. *On the inside curve Schwarz uses a small-diameter oil stone (see "Sharpen Odd Shapes,"* FWW *#305). Then on the outside he dresses the blade with sandpaper on a block.*

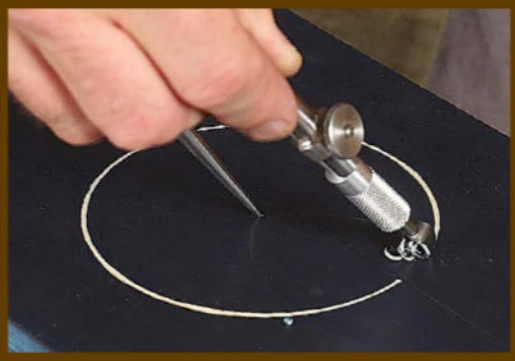


Circles and arcs. *You don't have to lay out every line of the carving. For example, if you pencil in the largest of the arcs on the leg and use them to guide your first cuts, you can then simply adjust the compass to cut smaller concentric arcs without having to pencil them in. The same goes with concentric circles.*

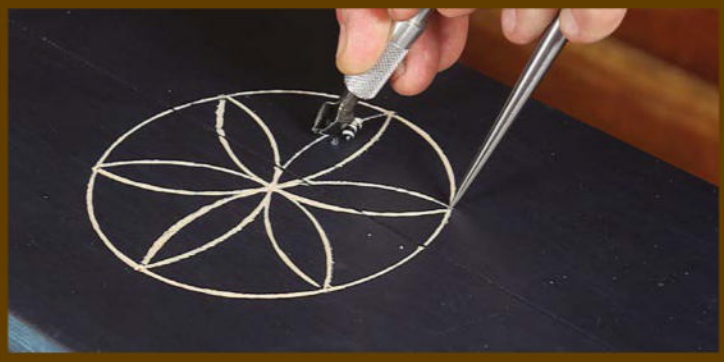


Straight lines. *Pencil in your full design. Then go back with a straightedge and the carving tool, without the compass, to carve out the design.*

Lay out a hexafoil. *Set the compass to the radius of the circle you desire (2⅛ in. here) and draw the circle. Then press the point of the compass at the 12 o'clock position on the circle and swing an arc from one edge of the circle to the other. Next, put the compass point in one of the intersections where your arc and circle meet. Swing another arc inside the circle. Repeat the process at the next intersection. Repeat until the design is complete.*



Carve the hexafoil. *Repeat the layout process for the hexafoil; instead of a pencil, however, use the carving tool.*



Add concentric circles. *Now that you have the outline of the hexafoil carved, you can set the compass to make a couple of concentric circles around it and add a ring of half circles between them.*

The little details. *Here Schwarz enhances the design by adding intersecting arcs. There is no right or wrong design. You can plan ahead and draw the entire plan out, wing it, or do something in between.*

Custom

When I first started to build furniture, the pulls were often an afterthought in my design process. I would get most of the way through building a piece only to realize that I needed some way to open up the cabinet doors and drawers. The common result was a piece of hardware that never felt fully integrated into the overall feel of the cabinet. Now I try to consider my options for pulls from the very first sketches.

This inset pull is one I have developed over the last few years and have used successfully in many pieces of furniture. The design and materials can be changed to suit a wide array of different furniture forms and styles. You can select wood for the pulls to introduce a contrasting or complementary tone. I often pick dark wood, and wenge is a favorite. It's helpful if the wood you choose has fairly straight grain so that tearout is less of a concern during the fabrication process.

Resawn blanks

These pulls are made by resawing a blank, shaping finger holes in the thicker half, gluing the two pieces back together, and then crosscutting the blank into individual pulls. To perform all the operations safely, it's important to use long blanks. Even if you only plan to make one or two pulls, I recommend milling a blank at least 16 in. to 18 in. long. The pulls need to be thick enough so they're comfortable to use when you insert a finger into the recess, but not so thick that inlaying the pull into the door becomes a problem. I typically set the pulls in a mortise ⅜ in. deep, and the front of the pull sits proud of the door or drawer front by 1⁄16 in. to ⅛ in. You lose a little thickness when you resaw the blank apart, so I find that ⅝ in. is a good starting thickness for it. The blank's width should be about ⅛ in. over the final width of the pull; this allows for some trimming after the blank is reassembled.

Start by milling the blank, then resaw it, cutting a ⅛-in.-thick slice off of what will be the back of the pulls. This lets you bore holes through the main body of the blank and shape a cove into the backside of the finger openings. I like the bandsaw for the resawing, but it could be done on the table saw. After separating the two parts, skim the sawn faces with a pass through the planer to prepare them for being glued back together. I use a melamine auxiliary bed in the planer when running these thin parts.

Photos, this page: Charley Freiberg. Top photo, facing page: Michael Pekovich. All other photos: Jonathan Binzen.

Finger Pulls

Inset pulls add an elegant, ergonomic touch to doors and drawers

BY OWAIN HARRIS

Openings

Next, you'll lay out and cut the openings for the pulls. A circular hole is the easiest to produce, as it can be cut using a Forstner bit in the drill press. If another shape is desired—an oval, for example—most of the pull-making steps are identical, but you'll need to create a router template for the opening. (To see how I make a template for oval pulls, go to FineWoodworking.com/316.)

For pulls with round openings, lay out centerpoints along the body of the blank. To establish the spacing between centerpoints, factor in the length of the pulls plus an extra ¼ in. of waste between pulls for final trimming. Chuck a Forstner bit in your drill press and set a fence so the holes will be centered in the width of the blank. Then drill out each hole all the way through the piece.

Whether you've made round holes or oval ones, it's now time to shape the underside of the cutout to make it more pleasing to the touch. For this operation, I use a bearing-guided coving bit at the router table. The bearing will trace the inside shape of the cutout and create a ¼-in. cove on the inside edge that's perfect for a fingertip to drop into.

For safety's sake, it's essential to make this cut in multiple light passes, each taking no more than 1/32 in. Raise the bit slightly after each pass. If you take too heavy a pass, there's a risk that the excessive vibration could cause you to lose control of the piece and let go, which is especially dangerous with the bit inside a closed loop. So creep up slowly on the cut, making sure that all the openings get a pass at each height before you raise the

SHAPE THE BLANKS

Begin by splitting the blank. *At the bandsaw or table saw, place the blank on its edge and resaw it in two. Make the main body of the blank a bit over ⅜ in. thick and the back piece ⅛ in. thick. Then, to create glue surfaces for eventual reassembly, smooth the sawn faces with a light pass through the planer.*

Drill the opening. *At the drill press, use a Forstner bit to cut holes right through the blank body.*

ROUT THE COVES

Covert operation. *A cove routed into the underside of the blank body provides finger purchase in the finished pull. For safety, use a long blank and cut the coves with a series of very light cuts, raising the bit 1/32 in. between passes.*

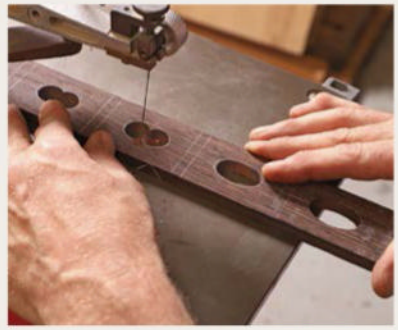
Smooth the circles. *Using a file and then sandpaper, smooth the narrow inside lip of the pull opening. Sand the cove smooth as well.*

bit. Also, make sure to cut in the correct direction; a climb cut here is dangerous. I keep raising the bit until the flat above the cove is a little more than 1/16 in. wide.

Once the underside of each opening is shaped, the two halves of the blank can be reunited. Before gluing them back together, do any final hand-shaping and sanding on the lip and in the cove. It's important that the pull be enjoyable to interact with, so the edges need to be softened, and the parts that will come into contact with the fingertips need to be silky smooth. I don't always apply finish to the interior of these pulls, but if you would like to, now would be the time to do so. Just make sure to tape off the glue surfaces so the blank can be laminated back together.

Glue management is the name of the game when doing this assembly. It's basically impossible to clean up any squeeze-out in

For an oval opening

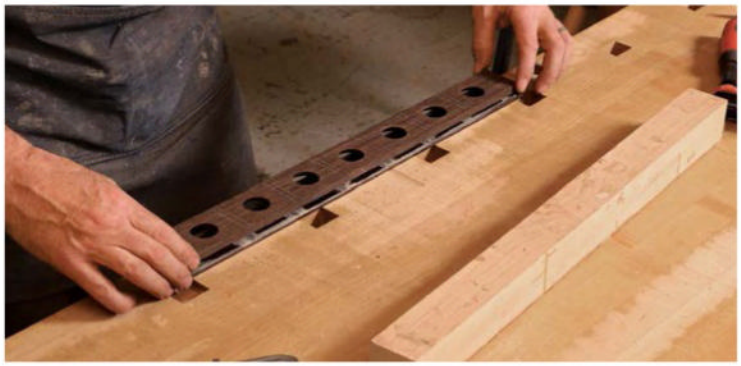


You can make pulls with openings of various shapes using the same techniques described here. For ovals, Harris removes waste wood with a drill, then cuts close to the oval layout lines with a scrollsaw. To cut the ovals to finished size, he attaches a template to the blank with double-stick tape and routs the ovals one at a time. For more on the template technique, see FineWoodworking.com/316.

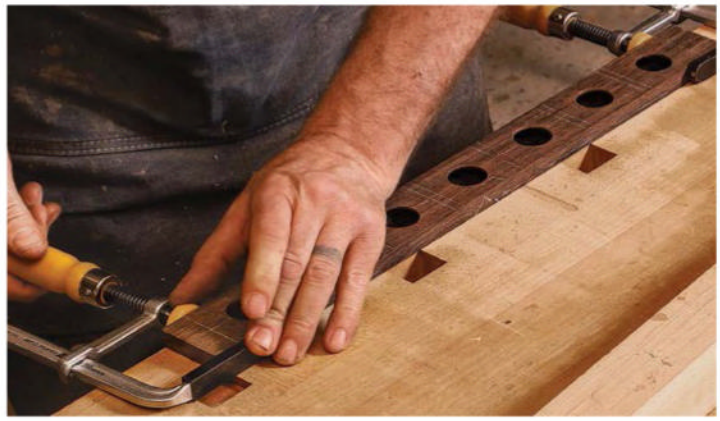
REASSEMBLE THE BLANK

Finish the back piece. *It's not essential to apply finish to the inside of the pulls, but if you elect to, be sure to tape off the glue surfaces beforehand.*

Be frugal with the glue. *It's virtually impossible to clean up squeeze-out inside the pull, so be sparing and deliberate as you apply the glue.*



Accurate assembly. *Place the blank body on the back piece, and use a pair of small clamps to keep the two parts from sliding out of alignment.*



the interior cavity, so only apply as much glue as strictly needed, and keep it away from inside edges as much as possible. Use a couple of small clamps to manage the tendency for the two halves to want to slide apart, and then clamp the whole thing down to the edge of a rigid surface with a caul on top to distribute the pressure evenly.

Cut apart and shape the pulls

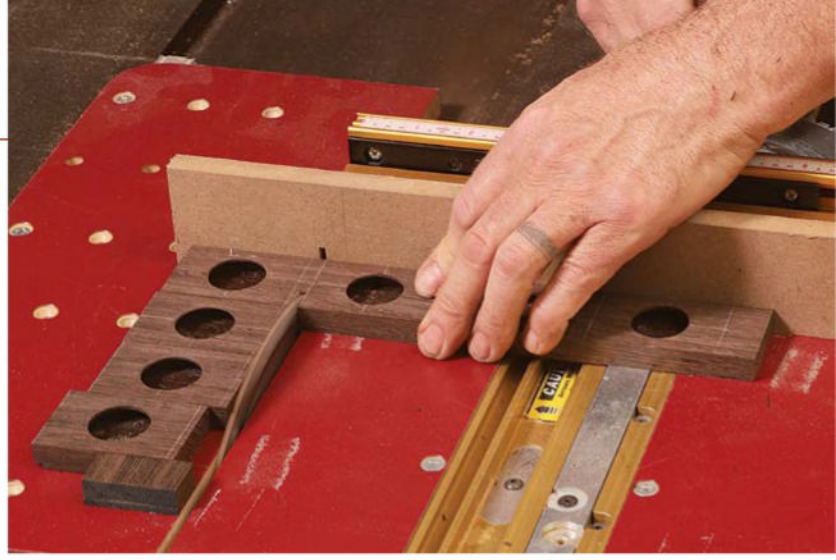
When the glue is dry, trim the blank to final width. Double-check to make sure the cutouts are centered in the pull, and rip accordingly. Then crosscut the blanks to separate the pulls. Use a miter gauge or crosscut sled at the table saw, and use a stop block to ensure all the pulls are the same size.

I break the outside edges of each pull at this point with either a small roundover or a chamfer. It helps the edge of the pull flow into the door and makes the overall effect more cohesive. Once that's done, the pulls could be installed as they are, and I have certainly done it that way. But with experience I realized that cutting a shallow rabbet around the perimeter of the pull makes the joint between it and the door much cleaner and easier to hide. And the small lip at the top of the rabbet provides some insurance against glue squeeze-out.

Caul pressure. *A thick caul and a flat benchtop make for a good glue-up as the two parts of the blank are reattached.*

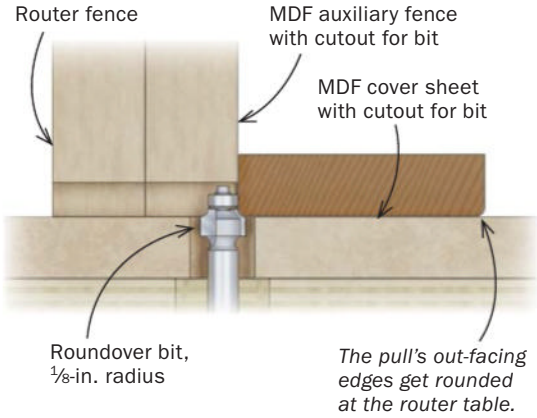
CUT THE PULLS APART

Rip and cross. *With the glue cured, rip the blank to final width, being sure the holes are perfectly centered. Then crosscut the individual pulls to length.*



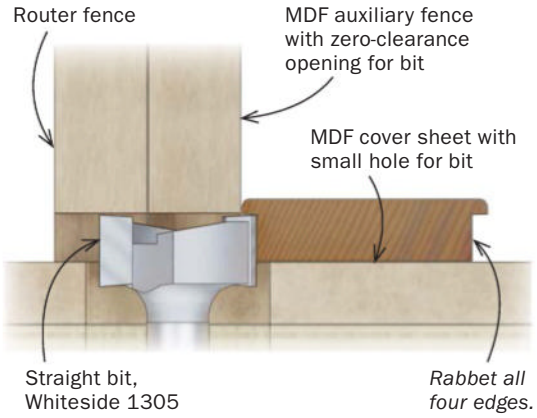
Ease the corners. *At the router table, with a ⅛-in. radius roundover bit protruding from an auxiliary fence, round the edges around the top of the pull. Use a push block to hold the pull down and a backer block to advance the pull and support the bit's exit.*

EASE THE OUTSIDE EDGES



Rout a rabbet. *Still at the router table but with the roundover complete, switch to a straight bit and another zero-clearance auxiliary fence and cut a rabbet right around the pull. Again, use a push block and a backer block.*

RABBETING AT THE ROUTER TABLE



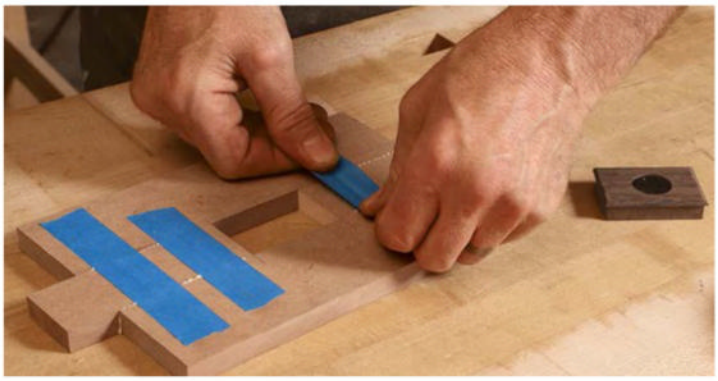
When cutting the rabbet, it's important to set up your router table to prevent tearout and to make this operation with small pieces safe. I start by laying an MDF cover sheet over the top of the router table. The cover sheet, which has just a small cutout for the bit and another cutout for the height-adjustment knob, eliminates any inconsistencies between the lift plate, the throat, and the table, so the small parts can't get hung up on an edge.

I cut the rabbet with a Whiteside 1305 mortising bit, which is relatively inexpensive and has a shearing cut that helps to ensure a clean edge. To protect the wood fibers at the delicate top edge of the pull, and to maximize safety, it is important to have a zero-clearance auxiliary fence as well. A piece of ¾-in. MDF is my choice here. A piece of ½-in. MDF could work, but anything thinner has too much flex in it. Clamp it onto your router-table fence, making sure the clamps are above the height of the pulls so they don't interfere. The rabbet will be ⅛ in. deep at most, so it's not necessary for the bit to extend any more than that through the face of the auxiliary fence.

When cutting the rabbets, use a hold-down paddle and a backer block to keep the small pieces flat to the table and square to the fence and your hands away from the bit. The order of cuts is important. Make the first cut across an end-grain side; that way, any

Drawings: Dan Thornton

INSTALL THE PULLS



Tight-fitting template. *To create a mortising template for inlaying the pulls, rip a piece of MDF to the exact width of the pull, then crosscut it in half and glue it between two wider pieces of MDF. The opening between the two middle pieces should match the length of the pull exactly.*

Making the mortise. *Use a plunge router and a pattern-cutting bit with a top bearing to follow the template as you rout the mortise for the pull. If you have multiple mortises to cut that are located alike, you can tack a fence to the template to guide placement of the mortise.*

tearout at the corner will be removed as you make the subsequent pass down the long-grain edge. Ditto for the two following passes.

Cut the mortises and install the pulls

You now have pulls ready to be inlaid into the door. I use a router and template to cut the mortise. For one or two pulls you could lay out the mortise, rout the waste freehand, and chisel to your layout lines. But even for just a few pulls, I find it easy enough and much more accurate to make a template and pattern-rout the mortises. I use a pattern-cutting bit with a top-mounted bearing to do the mortising, so my template can be one-to-one with the pull.

I make the template using ½-in. MDF and the assembly method. First, I rip a piece of MDF to the exact width of the pull. I crosscut that piece in two and then glue those two pieces between larger pieces of MDF. I separate the two small pieces to match the length of the pull, creating a window that perfectly fits the pull. Make sure the template is large enough to accommodate clamps. If you have multiple doors or drawer fronts with pulls in the same location, you can add a fence to the template to help locate it relative to the edge of the workpiece.

To rout the pocket, clamp the template in place and plunge the bit into the door or drawer front. A plunge router is the best option for this, but a fixed-base router can be used; you will just have to tip the bit into the cut. Depending on the bit you are using and the material you are cutting into, this may need to be done in a few passes, which is another good reason to use a plunge router. When installed, the pull should bottom out completely in the mortise, taking advantage of the long-grain glue surface there without leaving a gap at the top edge.

I finish the doors and the pulls separately before glue-up. It's much easier to finish a door or drawer front when it's flat, and the pull when it can be handled. To glue the pulls in, I use a block with a cork face as a caul. Make sure not to put too much glue in the mortise, as it will have nowhere to go and could prevent the pull from seating fully. □

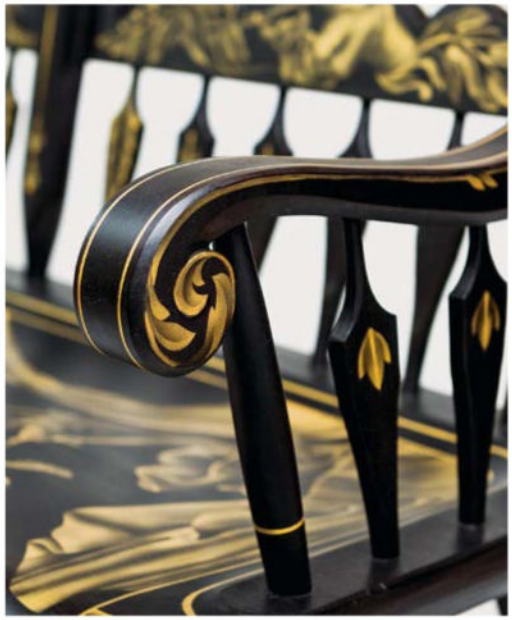
Squaring up. *Chop the corners of the mortise square with a chisel.*

Snug and secure. *Check the fit of the pull, spread glue in the bottom of the mortise, and clamp down with a cork-lined caul.*

Owain Harris makes custom furniture in Gonic, N.H.

Golden Details
Airbrushing for Fine Furniture

BY ASPEN GOLANN



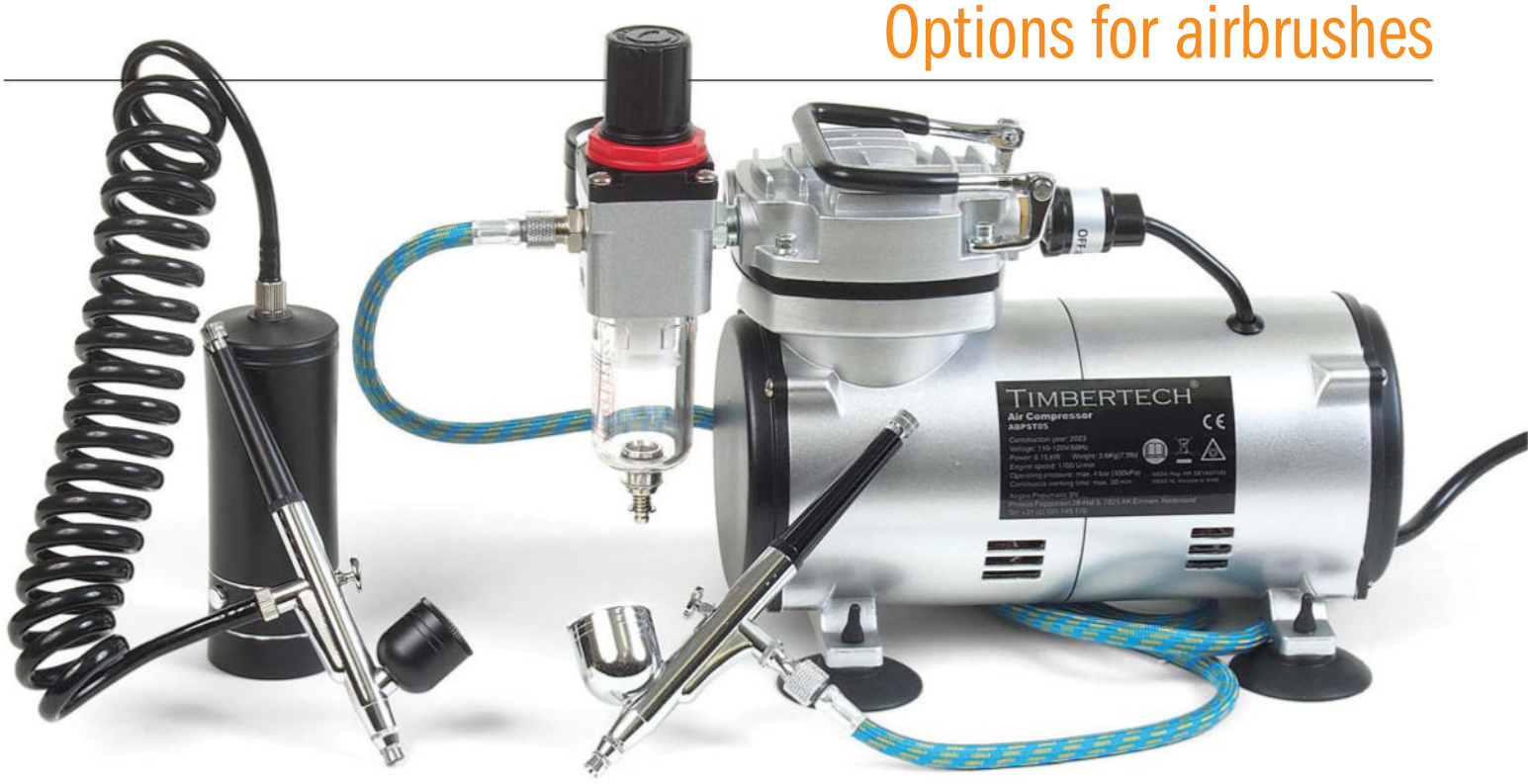
Period painted furniture. *Lambert Hitchcock and other furniture makers used stencils and bronze powder or gold leaf to create intricate images on 19th-century furniture.*

I split my time between painting and British and early American furniture making. That combination inevitably led me to the splashes of gold imagery on the omnipresent Hitchcock chair. You may not own one or have looked closely at an original, but there's no doubt you've seen them in kitchens, thrift stores, or books. Bronze stenciling became popular in the early 19th century, and while Connecticut manufacturer Lambert Hitchcock was famous for it, he didn't invent the style. Instead, it started in Pennsylvania and New York with people who admired the filigree and inlay of imported French furniture. Thrifty and ingenious U.S. cabinetmakers replaced the expensive metal inlay with bronze powder and gold leaf. In some ways it was a simplification, but it was still high-style craft, requiring enormous skill and time.

While I was inspired by the history, what I really wanted to do was develop my own images. To do so I had to figure out how to execute the style without using the antique stencils Hitchcock was known for. That's how I landed on the airbrush. This little tool unlocks a degree of detail, control, and creativity that a stencil can never rival. In time I honed my airbrushing skills, and along the

Photos, except where noted: Amanda Russell. Photos facing page, top: Michael Pekovich.

Options for airbrushes



EASY ENTRY

An inexpensive nail-art tool is a great way to start experimenting with airbrushing without having to commit to higher-end equipment. This one, from Ykall, is available on Amazon for $30.

WHEN YOU'RE SERIOUS

An airbrush kit, complete with a compressor and all the tools needed to get started, will give you unlimited possibilities for applying stenciled art to your furniture pieces. Pictured is a kit from Timbertech that sells for $80 on Amazon.

Pour in your paint. *Airbrush paint is widely available in many varieties. For best results, it should have a consistency like milk. Add airbrush media or some form of thinner one drop at a time, checking the viscosity as you go.*

Practice makes perfect. *A sample board gives you the opportunity to experiment with different angles and adjustments on your airbrush.*

Surface prep

Paint and seal the board, cover it with tape, then apply your image. The layer of tape lets you cut away parts of the image, delivering the clean results and convenience of a stencil.

Milk paint goes down first. *The goal is to create an opaque surface for your imagery. Black under gold is a classic, high-contrast pairing, but feel free to experiment with other combinations.*

Coat with shellac. *After the milk paint fully cures, shellac seals it and allows you to scrape away any mistakes without ruining your base coat.*

Cover with painter's tape. *Golann likes 3M's Safe-Release because it's thin, easy to cut, doesn't pull up the finish below when you remove it, and doesn't leave a sticky residue behind. Plus, it comes in extrawide rolls.*

Add your image. *Draw your design directly on the layer of tape, or use spray adhesive to affix an image on top of the tape.*

way I developed an approach that simplifies the process so fellow woodworkers can easily create stunning painted furniture without years of drawing practice. Whether you're designing original furniture, repainting a set of chairs, or embellishing an instrument or a small box, my process will help you take a creative and contemporary approach to a traditional American style.

The airbrush

The first thing you'll need to do is collect a small set of essential tools and materials. The list obviously starts with an airbrush, which uses a compressor to push air and paint through a needle tip, allowing for lots of fine lines and detail.

Next, you'll need paint and an airbrush medium. You can buy airbrush paint in a wide variety of colors from online retailers. However, I find that most paints, whether you buy them mixed or you mix the pigments yourself, are too thick for my airbrush, leading to clumping or unintentional speckling. To get the right viscosity, I add an airbrush medium one drop at a time until the paint is the consistency of milk. There are two kinds of airbrush media: thinners and flow improvers. A thinner is used simply to thin the paint, whereas a flow improver can be useful for already thin paint, detail work, and small needles. Flow improver has a drying retardant that keeps the tip of the airbrush from drying out. If you just need a thinner, denatured alcohol, which many of us have on hand already, works well.

The airbrush is a delicate tool and requires regular cleaning. It's easier to clean the brush before the pigments dry inside the barrel and tip, so I get ready to clean before I even start painting.

The controls on the airbrush are simple: There's a trigger and a slide. The trigger controls how much air passes through the nozzle, and the slide controls how open the nozzle is, which determines how fine your line is. Opening the slide just a little bit produces a fine line, and pulling the slide back farther makes the line wider. Pressing down harder on the trigger makes the line darker. For this type of Hitchcock painting, I do a lot of my work with the trigger half down (to let out just a bit of paint) and

Paint by numbers

It's crucial to plan carefully the order in which you'll remove tape. If you cut the stencil away too soon, you'll be left without its protection when you need it.

Number each section. *This helps you organize which parts get painted in which order. You want to paint opaque sections first so that any overspray from subsequent layers will only make these first sections more opaque and won't muddy the design.*

Gently cut along the lines. *Be sure to slice through only the tape (or your image and the tape) without damaging the wood beneath. This is much easier with a sharp blade that's delicate, such as an X-Acto #11.*

the slide pulled all the way back to get a wide, even stroke. The airbrush lays down paint quickly, but keep a steady motion. Gingerly add a little bit of paint at a time.

If the tool begins to spit or clog during use, press the trigger and pull the slide back until the clog clears and the brush sprays evenly again. If this doesn't work, temporarily pour your paint into a container and clean out the airbrush. Before restarting, assess the consistency of your paint and consider thinning it a little.

Imagery

My method begins with coats of milk paint and then shellac on the surface to be embellished. When those cure I cover the surface with painter's tape and draw

Spray the exposed area and give it a few seconds to dry. *Holding your airbrush 3 in. to 6 in. from the surface of the workpiece, apply paint in multiple thin layers. It's easy to darken an area by going over it multiple times, but drips are impossible to remove without sandpaper. The paint will also dry faster with thinner coats and be less likely to stick to the mask.*

Keep it neat

As you remove more sections of tape, you'll need to paint more gingerly and mindfully.

Remove the next section of tape. *Once the opaque areas are filled in—here, the stems and the mid-ribs—move on to the leaves, beginning with the ones that are "on top," or overlapping lower leaves.*

Blocking paper protects from overspray and creates sharp transitions. *Cut cardstock or thick paper scraps to the shapes you need for your pattern. You're more likely to need them as you remove more tape for your final sections.*

Angle the airbrush for gradients. *Tilting the tool lets you paint a layer with varying opacity, which is great for elements like shadows.*

my design on the tape. I then cut away parts of the drawing, removing the tape to yield a stencil.

There are a few things that determine what type of image will make a good stencil. The Hitchcock style is typically monochromatic or grayscale, and ideal images are high contrast, with sharp lines between light and dark. So it's important to visualize or draw your image in grayscale to see if it is still easy to read and retains its visual impact. The other trick to a realistic, eye-catching image is to choose your lightest lights and darkest darks ahead of time and make sure not to mix them or blend them together. Your eye perceives dark areas as farther away or "lower," and light areas, or highlights, it perceives as closer to the eye or "higher." Use your lights and darks intentionally to maintain the power of the illusion, and keep them in mind throughout the process. In this image, the lightest lights are the solid gold sections in the foreground, and the darkest darks are the areas in the background, which remain the black milk paint of my base coat.

As you cut away parts of the drawing, the little trimmings of sticky, discarded tape can get messy. (You may be pulling them out of your hair and off your bench for weeks.) To keep your workspace clean, have a single place to put the sticky scraps. Some people use a weeding cup to contain the scraps; I often just stick them to a piece of paper or the back of my hand.

One piece at a time

A very important part in this process is determining the order in which to remove the bits of tape. I often sit down with a cup of coffee to think it through before numbering the pieces, just like a paint-by-numbers. The order depends on the image, but there's a key to success: Begin with any sections that will be fully opaque. In this design, those are the solid gold sections in the foreground. Tackle these first; that way, any overspray from later sections won't muddy the design. To limit overspray, you can use cardstock or thick paper scraps to shield other sections of the image.

With the fully opaque sections finished, I move on to the less opaque areas, in this case the midground and then the back-

Remove the tape and clear coat. *Golann finishes with Osmo and shellac. Whatever you use, it's essential to make sample boards as you paint to guarantee that your final finish doesn't damage your work by dissolving your pigment, thinner, or both.*

ground. I keep working this way until I reach the lowest level of leaves. It's important to note that this process is entirely additive, so once a color goes down, it's there unless you sand or scrape the painted section, reapply shellac, and start again. Slow and steady is the name of the game. When you're finished painting, wait until the paint is dry before removing the rest of the mask to reveal your work.

I hope you enjoy this process and use it to explore new ways to ornament your designs. It took playfulness and innovation to develop these techniques in the 1800s, and by honoring, critiquing, and evolving them we keep them alive. □

Aspen Golann is an artist and furniture maker in New Hampshire.

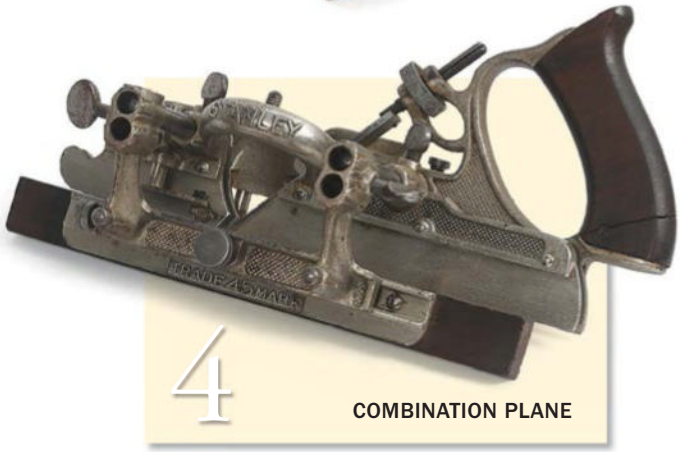
FINISH WITH A DEEP CLEAN

After painting, disassemble the brush and clean off the needle, the nozzle, and the paint cup. Cleaning kits are cheap and easy to find, but cotton swabs, cotton balls, and denatured alcohol work well too.

Side Beads

Four hand-tool approaches to a classic molding

BY BILL PAVLAK



Photos, except where noted: Anissa Kapsales.
Photos 2 and 3, this page: Bill Pavlak.

Screw stock

Primitive yet sophisticated, this is the easiest tool you'll ever make. A screw in a small scrap of wood, it takes five minutes to make, is easy to use, and does an excellent job at cutting half a bead.

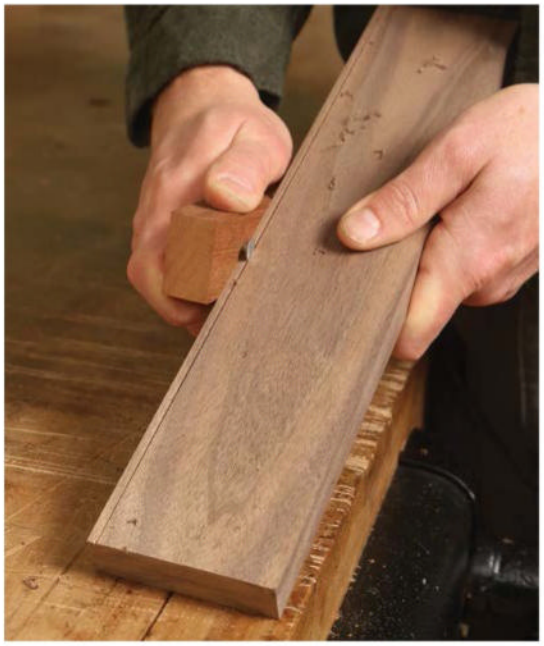
Make the tool. *Drill a hole in the middle of a small block of wood, and then use a mill file to flatten the head of the screw and create a sharp edge at either end of the slot.*

For a simple and effective way to enliven an edge, cabinetmakers have long turned to the humble bead. This rounded-over edge, set apart from the adjacent flat surface by a quirk (a deep narrow channel), adds an elegant interplay of shadow and light along the edges of pieces like straight table and chair legs, face frames, drawer fronts, and shiplapped backboards. There are many ways to sink a side bead into a board with hand tools, and they range from super cheap to very expensive. Here's a look at four of them.

Screw stock

Among the cheapest and most clever tools in existence, the screw stock is simply a slotted wood screw protruding a desired distance from a scrap of wood—that's it. Just secure the screw into a block of wood and file the head of the screw flat.

The screw stock's virtues—cost and the precise adjustability of the screw height—are offset by the fact that you only get half of a bead; the slot cuts the quirk while the underside of the screw head compresses the wood to form the inner half of a bead. Sometimes I find that the shadows that gather in the quirk add enough visual interest that a full bead is not necessary. But when I want one, I'll use a file or block plane to quickly round over the outer edge.



The first half. *Take care to keep the fence (i.e., block of wood) tight against your workpiece, and then push and/or pull the tool to scratch a little bead. You may have to play with your angle of attack to engage the screw slot so it's making shavings. This will leave you with the inner half of a bead. Using the same flat block, you can also work a bead along curved edges that aren't too tight, like on the stiles of the chair on the facing page.*

The second half. *To get to a finished, full bead, you can easily round over the outer half with a file or a block plane.*

Scratch stock

Scraps of metal and wood come together in an affordable, shopmade beading solution.

Create the cutter. *Use a permanent marker to lay out the shape of your bead on the scrap-metal blank. Secure the blank in a vise, and use a round file (at 90° to the blank) to create the profile. The scratch stock will cut in both directions, so hone both faces of the cutter on a fine stone. And hone the curved edge as well.*

Prepare the holder. *Draw a layout line on an L-shaped block, and then use a handsaw or bandsaw to cut a kerf along that line. At the end of the block, use a Forstner bit to cut a shallow countersink for a bolt head. Then drill a clearance hole for the bolt.*

Assembly. *After sliding the cutter into the kerf in the handle, put the bolt in place, and tightly secure a nut on the end.*

Scratch stock

A screw stock is likely the only tool that could make a basic scratch stock seem pricey. Small beads with nice full profiles are easy to make with a scratch stock on straight and curved edges alike. You make the cutter by using a round file on scraps of steel harvested from old cabinet scrapers or sawblades. It will cut cleanest if both faces and its curved edge are polished on fine sharpening stones or sandpaper. The finished blade can be held in a scrap of wood with a sawn slot and a bolt or two. If scratch stocks have a downside, it's their tendency—shared by most scraping tools—to struggle in softer woods.

Side bead plane

Side bead planes are designed to do one thing and in one size only. Want a different size

Photo this page, top right: Bill Pavlak

Using is easy. *To cut a bead at the edge of a workpiece, set the blade next to the fence. Start with a few light passes, keeping the inside of the L (the fence) snug against the workpiece. For best results, experiment with the angle at which the blade engages the wood. To make a bead farther from the edge, flip the cutter and slide it over toward the bolt.*

bead? Buy another plane. That said, they do their job very well and with great efficiency. The beauty of molding planes like these lies in their combination of a well-supported blade, which leads to cleaner cuts, and two user-friendly features—a built-in fence and a depth stop—that ensure consistency and ease of use.

The first drawback of beading planes is obvious: It can be expensive to buy one let alone a whole stable of them. New planes from top makers cost $250 or more, though user-grade antiques can be found for a fraction of that cost. While side beads are some of the easiest molding planes to use, they are among the fussiest to sharpen and maintain.

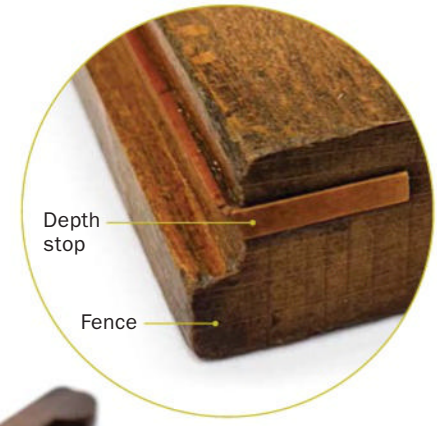
Combination plane

Combination planes can be among the most expensive tools on both the new and antique tool markets. That cost is potentially easier to swallow when you consider the tool's versatility; it can cut grooves, rabbets, beads, flutes, etc. While this jack-of-all-planes

Scratch stocks are versatile. *You can make a variety of custom holders. To cut multiple beads on a rounded column, Pavlak made a holder that straddles the column. With the column in a fixture clamped to the bench, he cut a bead along its length, then slid the cutter to the next position and cut the next bead.*

Side bead plane

With an integral fence and depth stop, these planes are a treat to use, and it's hard to argue with the consistent results.



Set and use. *Set your blade and wedge in place. These planes have a built-in fence and depth stop, so just keep the fence tight against your workpiece and plane the bead until the plane stops cutting.*

Sharpening a small beading blade. *If the blade just needs honing, create a fine burr on the bevel by working its back through sharpening stones, finishing on a 10,000-grit waterstone. Remove the burr with a fine Arkansas slip stone. If it needs more than a quick honing, work the bevel aggressively with sandpaper around a dowel and then progress to the fine slip stone.*

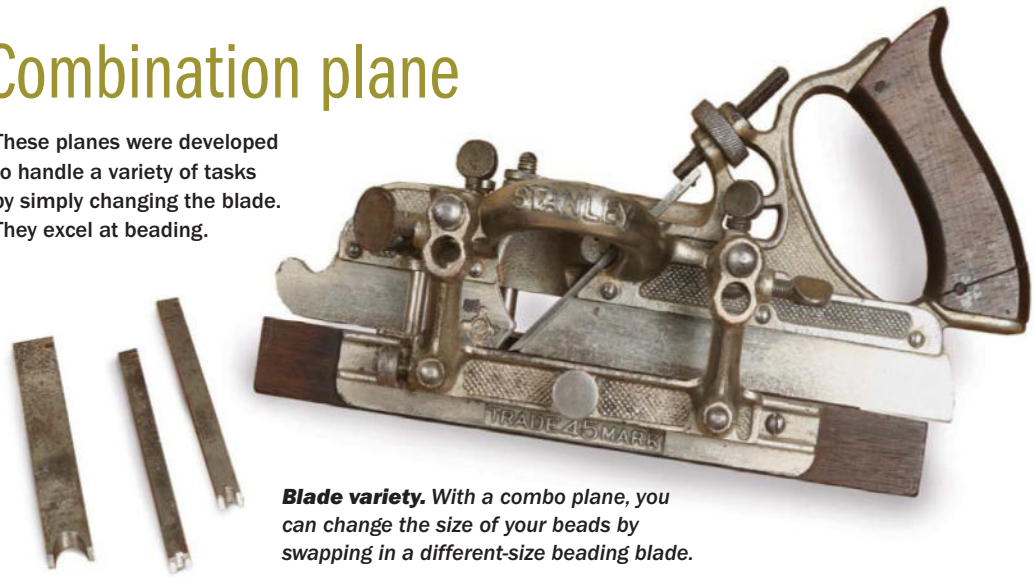
Photos this page, top left: Bill Pavlak

does not do everything well (I'm looking at you, cross-grain work), it excels at things like beads. The narrower beads preferred for furniture (⅛ in. to ⅜ in.) receive enough support from the plane's adjustable bed for smooth cuts. The adjustable fences and depth-stops allow it to be used along an edge or further in on a workpiece with consistent results. □

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

Combination plane

These planes were developed to handle a variety of tasks by simply changing the blade. They excel at beading.



Blade variety. *With a combo plane, you can change the size of your beads by swapping in a different-size beading blade.*

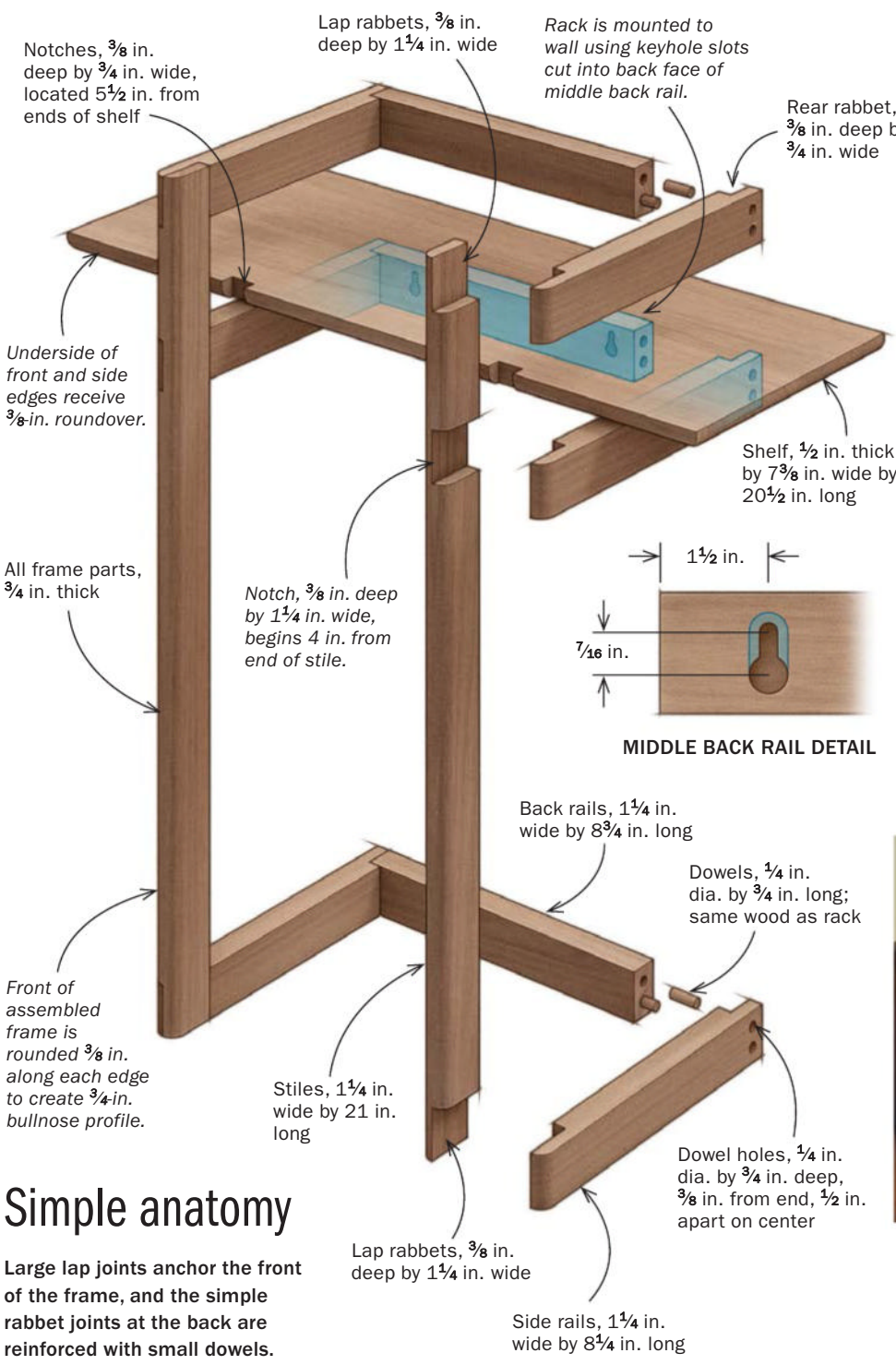
Choose your location. *Cut a bead at the edge of a board (above), or adjust the fence (below) and cut beads farther in as well (right).*

Contemporary Towel Rack

Wall-hung unit brings storage and style to any bathroom

BY LEAH AMICK

Photos: Asa Christiana. Drawing: Christopher Mills.



Simple anatomy

Large lap joints anchor the front of the frame, and the simple rabbet joints at the back are reinforced with small dowels.

Easy to hang

Keyhole slots are a strong, invisible way to attach wall-hung projects.

Go with drywall anchors. *The frame of the rack is too narrow to line up with wall studs, so it's easiest to attach it with drywall anchors. Amick used anchors that flare out behind hollow areas of the drywall and hold their screws securely.*

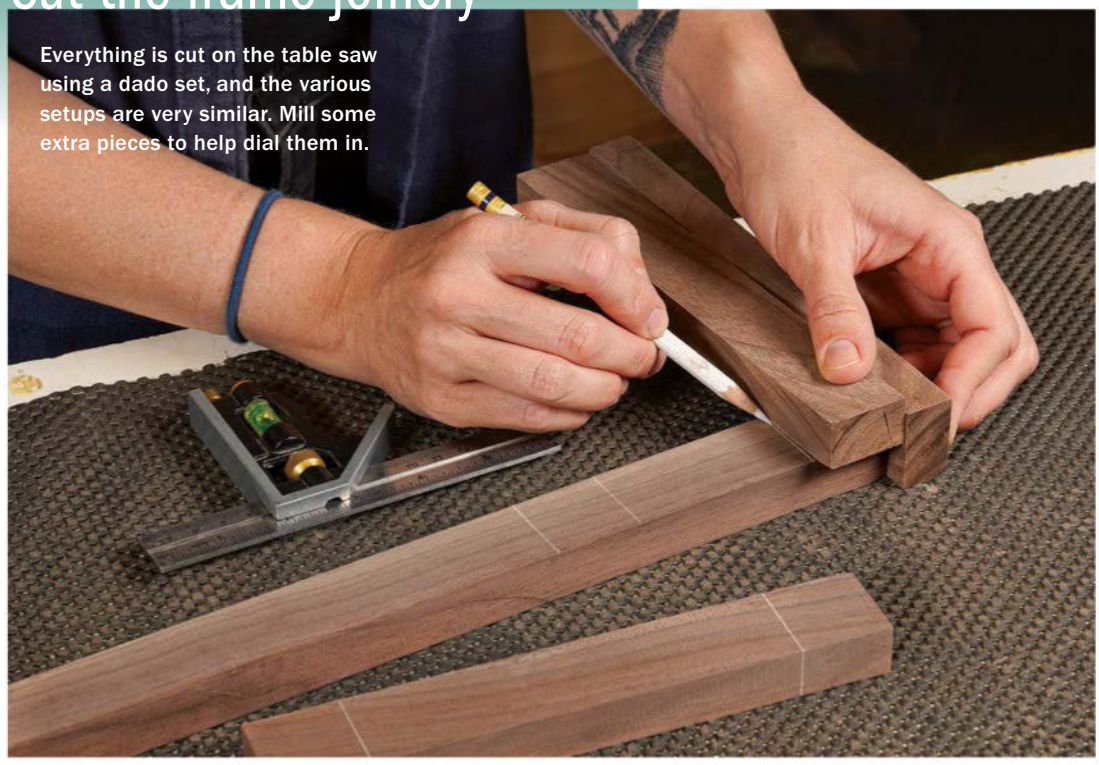
Fit the keyholes over the screw heads. *Slide the shelf into position, and then hang the frame on the screws.*

I designed this piece after my husband and I purchased our first home and realized that our guest bathroom lacked storage for towels and toiletries. With floor space at a premium, a wall-hung unit seemed like the right solution. The rack holds rolled-up towels in two sizes, with room for toiletries and decorative items.

This is an easy project that should take only a day or two to build, not counting finishing. All of the frame joinery is cut on the table saw using a dado set. The front of the frame is joined with lap joints, and the joints at the back are simple rabbets, reinforced with dowels. And one of the back rails receives two keyhole slots for hanging the rack securely and invisibly.

The shelf is also notched with the dado set to keep it in place against the front of the rack, and no fasteners are needed to keep it stable. In addition, these shallow notches keep the front edges of the frame aligned properly.

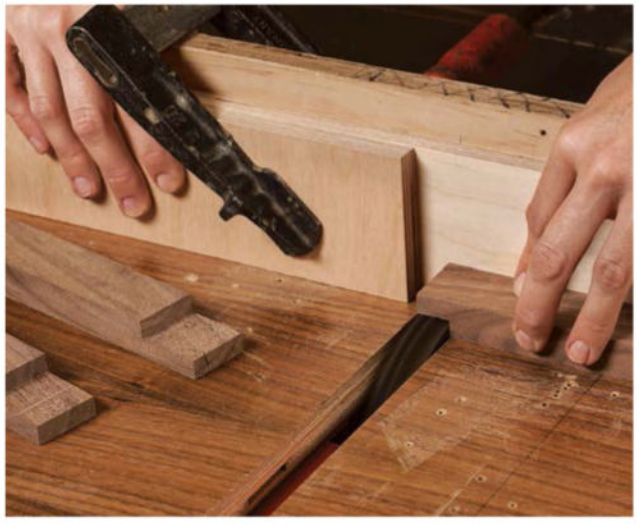
Cut the frame joinery



Everything is cut on the table saw using a dado set, and the various setups are very similar. Mill some extra pieces to help dial them in.

Lay out the lap joints. *To ensure a good fit, Amick used mating parts to lay out the large rabbets and notches. A white pencil shows up nicely against the dark walnut.*

Start with test pieces. *Use extra pieces to fine-tune the setup for the lap joints at the front corners of the frame. The goal is for the ends and faces of the joint to end up flush.*



Take it in two passes. *Place a sacrificial backer piece against the fence of the sled, and clamp on a stop block to limit the length of the notch. Cut away half of the waste at a time, finishing with the workpiece against the stop block.*

I rounded the edges of the frame and shelf to match the soft aesthetic of the bathtub tray I wrote about in *FWW* #304. The wood is the same also—walnut—but any other species will work.

Cut the frame joints

The frame parts are all ¾ in. thick, which makes milling easier. The shelf is ½ in. thick, and you can make it from one solid piece or glue it up from two or more.

When cutting the frame parts to width and length, I made a few extra parts as backups in case I made a bad joinery cut. I also held on to the offcuts to help me set up joinery cuts.

Lap joints first—Start by laying out the lap joints in pencil to help you keep track of their orientation. The lap joints are essentially large rabbets that are cut on the table saw using the dado set. Stack the dado blades a little under ¾ in. wide, and then set their cutting depth to about 3⁄16 in. to start. I support the parts with my crosscut sled, clamping on a stop block to control the length of the rabbets, although a miter gauge could also work.

Dial in the setup using your offcuts, ensuring that the mat-

Cut the center notches. *The stiles are notched for the middle side rail. Cut these in two passes, using the rip fence as a stop for one cut and a stop block for the other.*

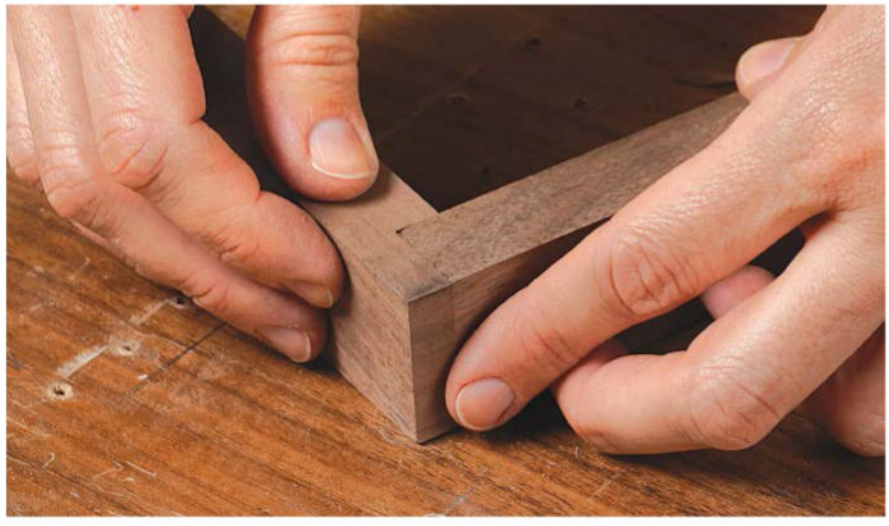
ing parts end up flush with each other. And make the cuts in multiple passes, creeping up on the right depth of cut and the right stop-block position.

If you lack a dado set, the lap joints can be cut with a straight bit on the router table, with a miter gauge or a square backer board keeping the stock square to the fence.

Dry-fit the lap joints before moving on, making sure their mating surfaces are as close to flush as possible. And leave the table-saw setup in place for the next steps.

Rabbet the side rails—To connect the frame parts at the back of the rack, I simply rabbeted the side rails to fit over the back rails. The middle back rail has keyhole slots for attaching the rack to the wall, so it carries the weight of the rack and its contents. I went with the same sled setup to cut these rabbets, using a test piece to dial in the cuts. After assembly, these rabbets are reinforced with small dowels, made from the same wood species as the rack, so they blend in.

Don't forget the rear rabbets. *The side rails have rabbets at their back ends to receive the back rails.*



Check the fit. *The back and side rails should end up flush at the back, but a small amount of misalignment can be planed and/or sanded away later.*

Glue up and round the side assemblies

You'll need to assemble the joints at the front of the rack in order to round their edges.

One joint at a time. *Tackle these joints one at a time, feeling with your fingers to be sure the ends are flush as you tighten each clamp. You'll end up with two flat side assemblies.*

Round the front edge. *Lay each assembly flat on the router table to round its leading edge. Use a ⅜-in. roundover bit, flipping the assembly to create a full bullnose profile.*

Build the frame in stages

The frame is assembled in several steps. First, the side rails are glued to the stiles. This creates two side assemblies that you can lay flat on the router table for rounding the front edges of the frame.

Start with the lap joints— Dry-fit the joints to make sure the side assemblies are mirror images of each other and the lap joints come together square and flush. Then apply glue and clamps.

The fully rounded profile on the front edges is shaped with two passes on the router table, using a ⅜-in. roundover bit. If you've got your shelf ready, use the same router-table setup to round its front and side edges.

Rout the keyhole slots— The central back rail gets keyhole slots for attaching the rack to the wall. The rail isn't long enough for the keyhole slots to line up with two wall studs 16 in. apart, so I recommend using drywall anchors to hang it. That will let you place the rack wherever you want to.

Cut the keyhole slots on the router table using a 25⁄64-in. keyhole bit. Begin by drilling ½-in.-dia. starter holes for the router-table operation. Use a Forstner bit, and set the depth for ½ in.—the same depth as the keyhole slots to follow.

Now set up the router table with the keyhole bit. If your table has a miter slot, use a miter gauge to support the rail. Otherwise, you can push it along the fence with a piece of plywood or MDF with a squared corner. In either setup, the end of the rail contacts the router-table fence, which locates the slot in one direction, and a stop block limits the forward travel of the rail and therefore the length of the slot.

To set up the cut, start with the router off, and drop the starter hole onto the keyhole

Cut the keyhole slots

These go in the middle back rail. Here's how to cut them safely and easily, using a Forstner bit and a 25/64-in.-dia. keyhole router bit.

Drill starter holes. *A drill press and Forstner bit work best here. Set the depth to ½ in. The drill bit should be a little larger than the fat part of the keyhole bit. For a 25/64-in. keyhole bit, use a 7/16-in. or ½-in. Forstner.*

bit. Then set up the fence and stop block for the first cut.

Start the cut the same way, with the router off and the bit in the starter hole. Then turn on the router and push the rail forward. When it hits the stop block, turn off the router, slide the rail backward, and lift it off the bit.

Each keyhole slot requires a different setup. Just be sure

Start with the router off. *Set the keyhole bit's height so it matches the starter hole's depth. With the router off, place the hole over the bit.*

How the setup works. *The miter gauge is set square to the fence, which supports the end of the workpiece. The stop block determines the length of the slot. With the starter hole placed over the bit and the workpiece held securely, turn on the router and push the workpiece forward.*

Clean and neat. *Turn off the router and lift the workpiece off the bit. Your keyhole slot should look like this. You'll need to reverse the router-table setup to cut the other keyhole slot.*

Finish up the assembly

Add the back rails and the shelf. The rack is now complete.

Glue in the back rails. *Before applying glue, clamp a spacer panel between the stiles to align the parts and hold them in position for an easy assembly.*

Round the shelf. *Amick rounded the shelf's front edge first and then decided to round the ends as well. But the choice is up to you.*

the slot ends at the same point so the rack will hang level on the wall.

Add the back rails—Once again, start with a dry-fit. Make sure the rail with the keyhole slots is the middle one and that its keyhole slots are facing the right way up.

When it all looks good, glue and clamp the back rails into the rabbets in the side rails. To help manage this tricky assembly stage and ensure the frame ended up square, I clamped a plywood spacer panel between the stiles (photo left).

Add the shelf

After milling the shelf to size, round over its edges on the router table. Then cut the notches on its front edge that locate the shelf on the rack. To lay out the notches accurately, hold the shelf against the frame and transfer the location of the frame parts to the shelf (as shown in the top photo on the next page). The stiles will need to be spaced evenly for this step, so keep the plywood spacer in place from the earlier assembly step.

I cut the notches with a dado set on the table saw, with the shelf standing on edge on my crosscut sled.

Reinforce the rabbets—Now you can remove that spacer panel and carry the rack over to the drill press for boring the dowel holes. You could drill them with a handheld drill instead, but I like the precision of the drill press. I also recommend using a brad-point bit, as a standard twist drill will tend to wander.

Mark the hole locations, and drill the ¼-in. holes at least ¾ in. deep. If possible, use dowels made from the same species as the rack so that they blend in, and make sure they fit the holes nicely before you apply glue. If the fit is too tight, you can sand the dowels.

Cut the dowels a bit long, and chamfer their tips to make them easier to insert. Then spread a modest amount of glue in the holes before driving in the dowels.

I trimmed off the excess with a flush-cut saw and then sanded the surfaces flush.

Finish and hang the rack

As I did on the bath tray in *FWW* #304, I sanded the parts to 220 grit, raising the grain before the final sandpaper pass, and finished them with two coats of Osmo Polyx-Oil, a blend of oil and wax that resists water surprisingly well.

To hang the rack securely, I used drywall anchors, which come with screws that fit the keyholes perfectly. Slide the keyholes over the screws, add some nice towels and toiletry items, and the project is done.

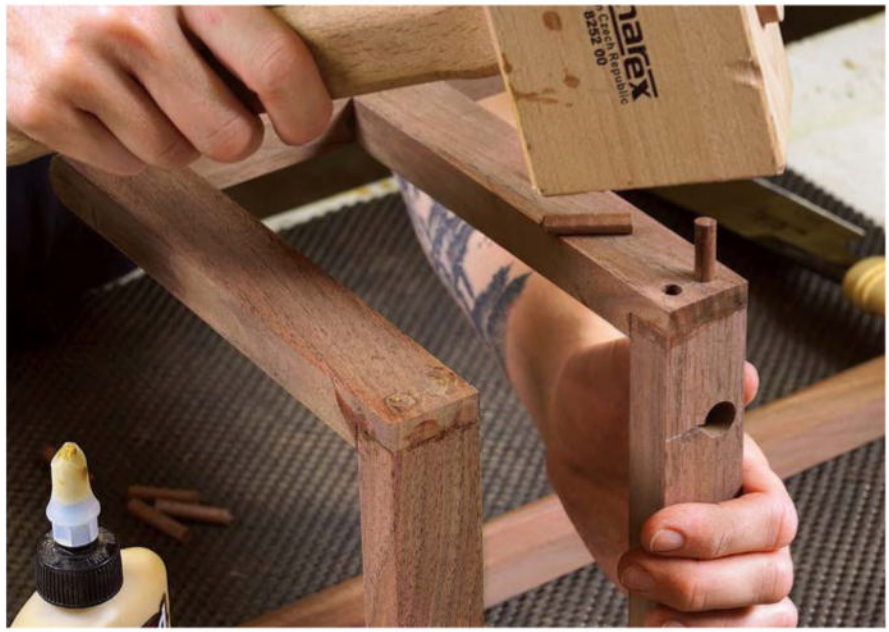
I installed my bath rack four years ago, and I continue to receive compliments on it. People ask me where I got it, and like every woodworker, I'm happy to tell them. □

Leah K.S. Amick is a furniture maker and product designer in Portland, Ore.

Lay out the notches in the shelf. *With the rack still clamped to the spacer panel, position the shelf and mark the edges of the notches.*

Cut the notches. *Use the sled and dado set again to cut these shallow notches. You can align the cuts by eye here, creeping up on a good fit with the frame.*

Drill for the dowels. *The rear rabbets are reinforced with ¼-in. dowels. Amick brought the rack to the drill press to drill holes through the joints, but a handheld drill would work also.*



Drive the dowels home. *It helps to chamfer their tips first. Squirt a small amount of glue in each hole, drive the dowels, and trim off the excess.*

gallery

Inspiration for our readers, from our readers

TRACY FIEGL

Fillmore, N.Y.

Tracy builds furniture in western New York on land overlooking the Genesee River valley that has been in his family for generations. He often finds inspiration on daily walks through the fields and woods, and he creates furniture from wood that is salvaged from his own forest. This box was also inspired by Ernest Gimson designs.

WALNUT, WENGE, AND MAPLE
12D X 16W X 8H

COREY CARLSON

Golden, Colo.

The design of this piece was inspired by a similar kitchen island Corey built. Both pieces share what he calls a rib design. Corey says, "I love to use negative space. Although this piece is massive, it feels as though it incorporates more air than wood. The skinny ribs float next to each other but don't touch. The cabinet boxes float inside the structure with air surrounding them on all sides."

WHITE OAK, 17D X 72W X 30H

Photo: Bryan Rowe

BLAYNE BERARD

Mitchell, Man., Canada

Blayne built this table during his time in the apprenticeship program at Red River College Polytechnic in Winnipeg. The assignment was strict regarding the design and measurements of the table, but students were free to choose the materials and marquetry design.

SAPELE, WALNUT, AKO, LACEWOOD, EUCALYPTUS, BUBINGA, AND PADAUK, 11½D X 28W X 30¾H

Show your best work

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

SCOTT BECK
Novelty, Ohio

Although he originally intended this to be a sofa bed with identical ends, Scott broke one of the legs at the router table. His wife said that it was fate. He changed course and turned the piece into a chaise instead. Having done much leather work on stools and chairs, Scott expanded the technique to the larger form of the chaise.

WALNUT AND LEATHER, 72D X 30W X 32H

Photo: Scott Morrison

JUAN-MANUEL PINZON
Brooklyn, N.Y.

The form of this table is modeled after the shape and proportions of insects, and it is also inspired by Brian Newell's work.

MAPLE, 30D X 52W X 29H

Photo: Josh Blankfield

HUNTER MENKEN
Iowa City, Iowa

When Hunter found the elm board for this piece, he was a student at the Krenov School. Immediately struck by the gorgeous streaks running through it, he knew he had to use that board.

ELM, IROKO, AND NUTMEG, 14D X 26W X 42H

Photo: Todd Sorenson

KIYA VEGA HUTCHENS
North Troy, Vt.

This chest of drawers is inspired by the work that pioneering women Zulma Steele and Edna M. Walker did at the Byrdcliffe Arts and Crafts Colony in Woodstock, N.Y., in the early 1900s.

CHERRY, 18D X 34W X 35H

Photo: Hel Hamilton

DAVID McGARRY
Amherst, Va.

This Federal demilune card table was modeled after the table Steve Latta made in *FWW* #180. David had always wanted to build this type of table but didn't feel ready to try for a long time. He followed the article closely, and this was his first attempt at veneering. The table lives in the entryway of his oldest son's home.

MAHOGANY, POPLAR, WHITE OAK, AND HOLLY
17¾D X 35¾W X 29½H

ALBERT KLEINE
Laurel, Md.

This box is Albert's attempt at bringing the art of body horror in filmmaking into woodworking. The piece itself is fairly standard—a dovetailed box made from home-center white pine. The wounds are held together using pillowed East Indian rosewood stitches, and the interior is hand-textured padauk intended to imitate human viscera.

WHITE PINE, EAST INDIAN ROSEWOOD, AND PADAUK
13D X 13W X 5½H

GREGORY LECHNER
Fremont, Calif.

As a student at the Krenov School, Gregory was influenced by James Krenov's early wall cabinets, but also by cave paintings. The ochre brown streaks and black shapes from the spalting reminded him of the ancient artwork and became a focal point of the piece.

EUROPEAN CHERRY AND SPALTED MAPLE
4D X 17W X 15H

Photo: Todd Sorenson

Layout kit for dovetails

BY MICHAEL PEKOVICH

The thought of cutting dovetails can be stressful. A big challenge is that it doesn't consist of a single task. Instead, it requires a number of steps that involve multiple skill sets. This is not to say that it needs to be a daunting proposition. Rather, success lies in understanding the process and having a sound approach to each step.

While the prospect of cutting this relatively complex joint with a handsaw may demand much of our attention (and cause stress), it is actually a small and not particularly important part of the process. In teaching hundreds of students to cut dovetails, I have found that the most challenging and important step is transferring the location of the tails onto the pin board before cutting the second half of the joint. The angle and spacing of the tails themselves are not critical. When you transfer the tail locations directly to the pin board, you can end up with a gap-free joint no matter how badly you missed your lines when cutting the tails.

The real key to success when cutting dovetails lies in accurate layout. If you cut exactly to a line but the line is in the wrong place, there's still a lot of work to do. For that reason, I take time and care

Photos: Michael Pekovich. Drawing: John Tetreault.

when laying out the joint before I start cutting. If I do a good job of it, the rest goes easily and accurately.

Over the years, I've developed a simple process for layout that incorporates a pair of alignment jigs and helps my students get off to a good start. After that, it's just a matter of building skills and confidence.

Aids for accurate dovetail layout

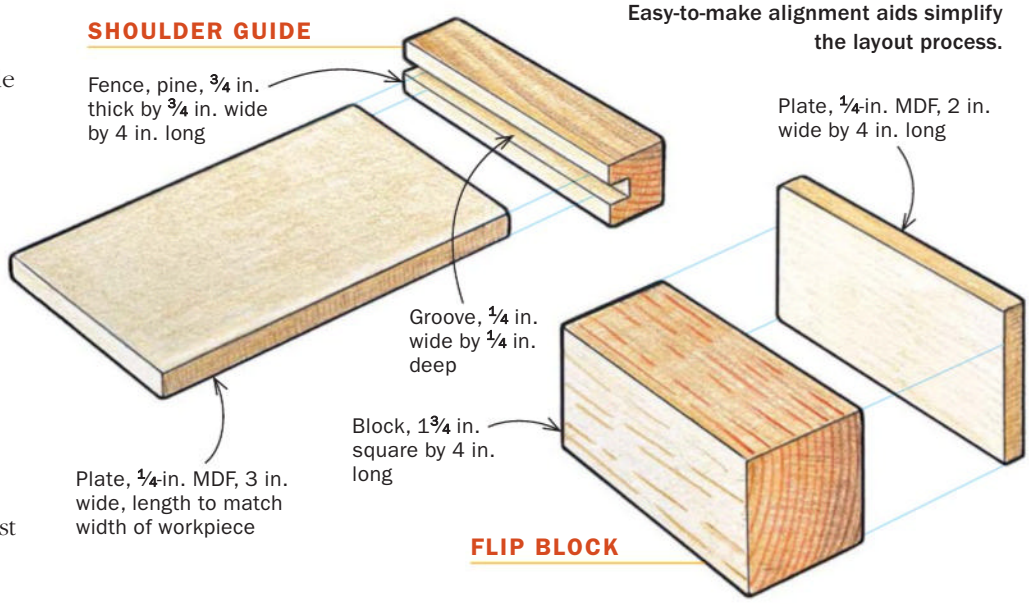
There are a lot of challenges to address when transferring the tail locations to the pin board. The boards must be aligned accurately side to side and end to end. They must be aligned square along their length as well. Once the boards are positioned correctly, you must hold them steady as you scribe. Any movement while scribing will result in errant lines. Finally, you must be able to see your knife line easily, and you need some indication of which side of the line you should be cutting on. Cutting on the wrong side of even a precisely positioned knife line will result in gaps before you even begin fitting.

Applying blue tape along the end grain of the pin board takes care of the last two concerns. By scribing through the tape and peeling it away from the waste areas, you are left with a clear road map for cutting. The tape also serves as a guide for paring.

The most critical part of layout is positioning the tail board accurately for scribing. A tip I learned from Steve Latta

A PAIR OF SIMPLE JIGS

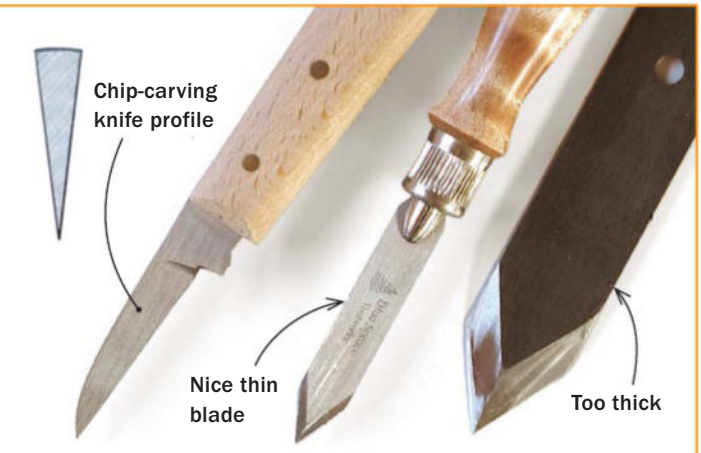
Easy-to-make alignment aids simplify the layout process.



Fast assembly. *When gluing on the fence of the shoulder guide (far left), use a square to ensure accurate alignment. When gluing the flip block (near left), make sure the MDF plate only overlaps one edge of the block.*

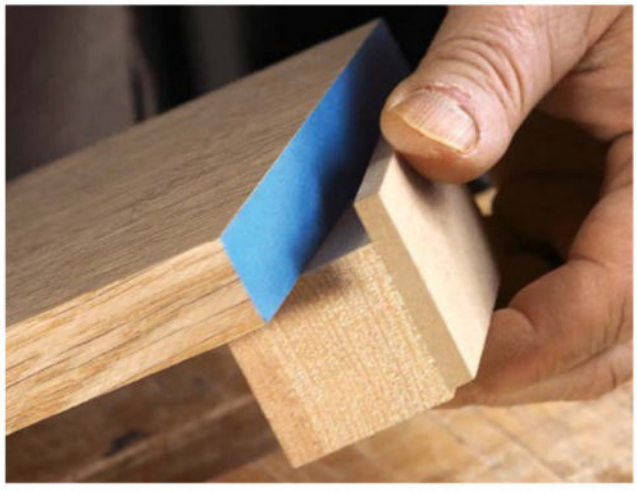
PICK THE RIGHT KNIFE FOR THE JOB

For accurate scribing, the author prefers a chip-carving knife with a triangular cross-section, or a spear-point knife that is beveled on just one face. When buying a spear-point knife, choose one that is not too bulky to fit into the pins socket. Each type of knife allows you to register the blade flat against the workpiece when scribing, which will result in a perfectly placed knife line.



BEGIN WITH A SOLID FOUNDATION

Tape guides the way. *Apply painter's tape to the end grain of the pin board before scribing. It helps you to see the line and tells you which side of the line to saw on.*



Clamp the pin board in the vise. *To set the height of the pin board, pinch the flip block against the board with its lip flush against the end. Lower them together into the vise until the block contacts the benchtop.*

Flip the block and use it to support the far end of the tail board. *This creates a bridge that allows you to apply plenty of pressure while keeping your free hand clear while you scribe.*

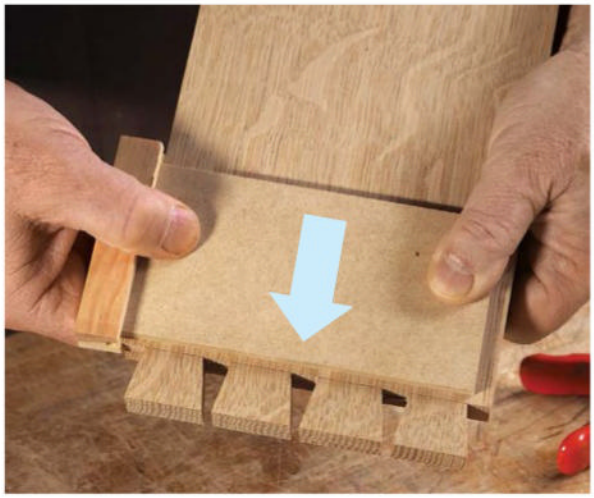
many years ago is to cut a shallow rabbet along the inside face of the tail board even with the shoulder line. The rabbet then acts as a positive stop when aligning the boards.

While this is an effective alignment method, cutting the rabbet introduces its own challenges. Once you alter the thickness of the tail board by rabbeting, you need a second marking-gauge setting to scribe the baseline for the pins. So instead of using the rabbet, I use a shoulder guide, clamping a piece of ¼-in. MDF along the inside face of the tail board adjacent to the shoulder line. To aid in side-to-side alignment, I glue a fence to the end of the MDF that registers against the edge of the pin board.

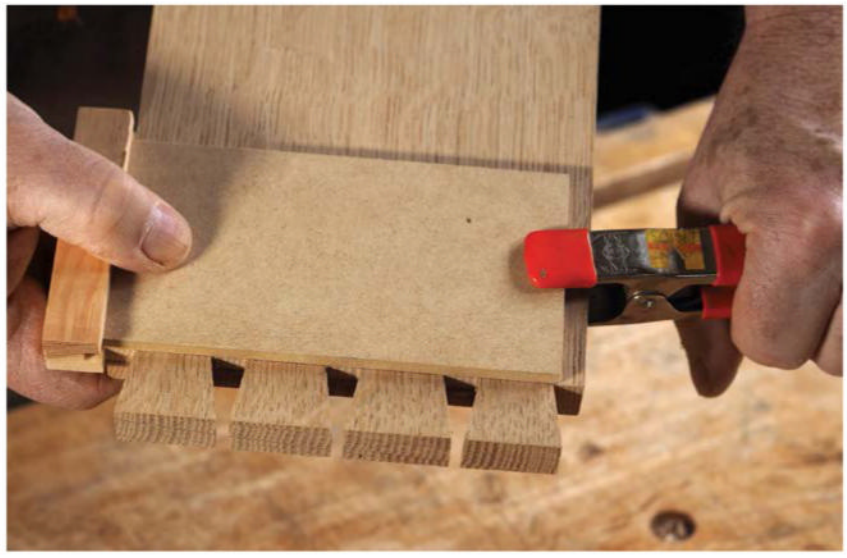
Dial in the fit with a shoulder guide

The placement of the shoulder guide in relation to the scribe line can alter the fit of the joint for better

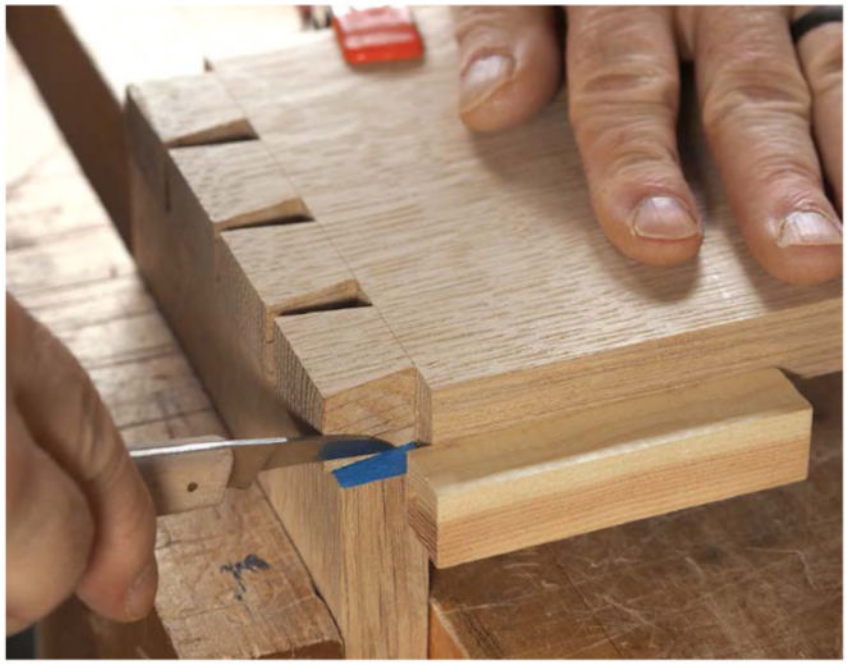
GET INTO POSITION FOR SCRIBING



Slide it to the line. *Position the shoulder guide on the underside of the tail board. Register the fence along the edge and slide the guide forward until it is adjacent to the baseline. Use a spring clamp to hold the guide in place.*



Everything in place for scribing. *Gently slide the tail board forward until the shoulder guide registers against the inside face of the pin board. Then slide it over until the guide's fence contacts the edge of the pin board. Apply pressure with your off-hand to keep the board in place while scribing.*



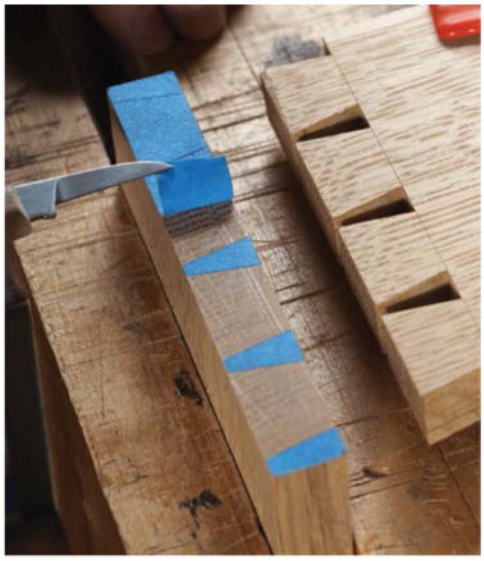
or worse. When working with hardwoods that have little to no compression, align the guide right at the scribe line. You don't want to cover it up, nor should you leave a line of stock between the guide and the scribe line. This would create a joint that is too tight. When using softwoods like pine that compress easily when fitting, I often cheat the guide lower than the scribe line for a snug-fitting joint.

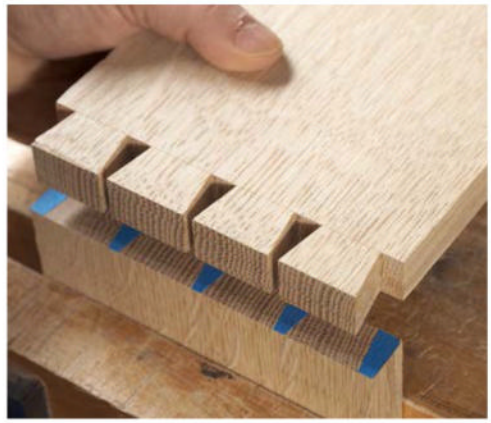
To help hold everything in place for scribing, I make a flip block: a square length of stock with a ¼-in. MDF strip glued to one face to create a lip. To position the pin board in the vise, pinch the flip block against the pin board with its lip flush to the board's top edge. Lower them together until the block contacts the bench, and tighten the vise. Next, lay the flip block flat on the bench to support the far end of the tail board. This lets you apply pressure on the tail board during scribing while keeping your off-hand out of the way and stationary. I used to lay a plane on its side for this, but the block is faster, and means one less tool on the bench.

For scribing the pins, I prefer a knife with a triangular cross-section to the blade, as opposed to one with straight walls and a bevel. This allows me to place the side of the knife directly against the stock when scribing (see drawing, p. 71).

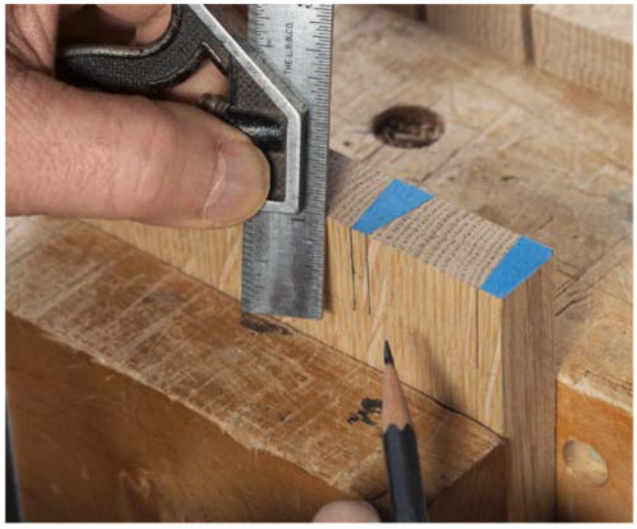
Once you're finished scribing, peel away the tape from the waste areas. To check your work, leave the shoulder guide in place and position the tail board back over the pin board. The tail board should lock in place between the remaining tape areas. Look closely, using a light if you need to; there should be no gaps between the tails and the tape. If there are slivers of wood visible, just remove the tape, put on a fresh layer, and try it again. A big benefit of the tape is that even if you need to make a couple of tries, you won't be guessing between multiple scribe

GET READY TO SAW





Peel and check your work. *Remove the tape from the waste area and put the tail board back in place. At this point the tape has created a set of very shallow dovetails, and the tail board should lock in place. Check for any exposed wood. If you see a sliver of wood between a tail and the tape, it means that the tail board moved during scribing or the knife was not flush against the tail board. In that case, remove the tape, add a fresh layer, and try again.*



Add some vertical lines. *Use a square to pencil lines from the edges of the pins to the baseline. This will provide a guide for sawing straight. It will also help to identify errant cuts later.*

lines when making a cut. Taking the time to get this step right provides a big payoff later.

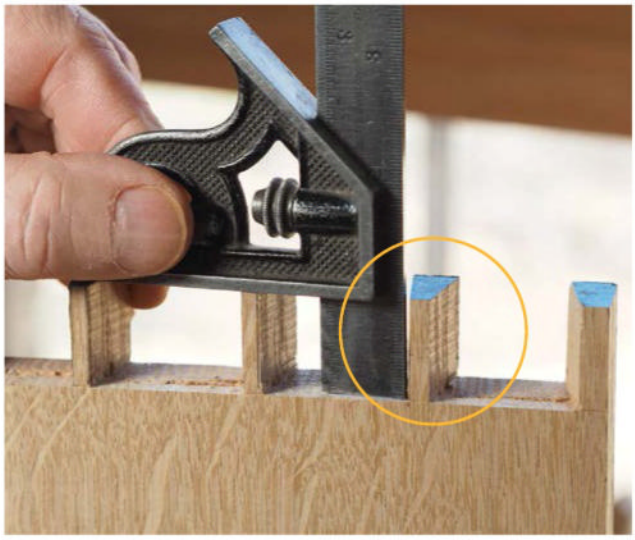
The last step is to strike a pencil line down the face at each pin location. This provides a visual guide during sawing and offers clues when you're paring the walls vertically during fitting. If it's been a while since you used your dovetail saw, clamp an offcut into your vise, scribe some vertical lines down the face, and take a few warm-up cuts. If you hit the line more often than not, you're ready to cut dovetails.

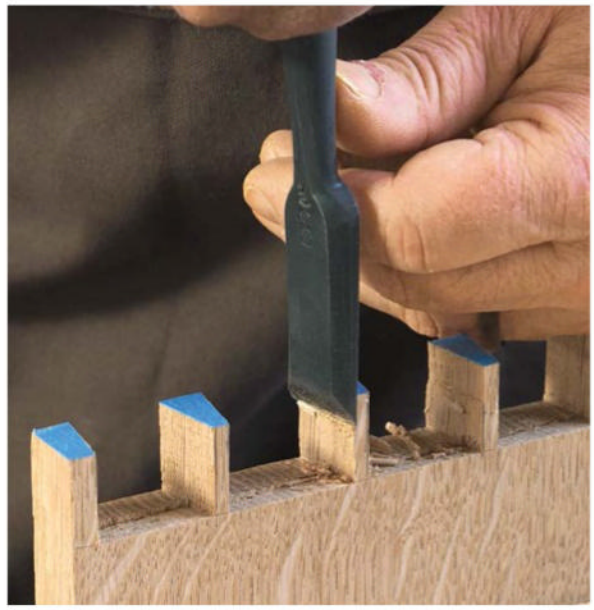
Tips for final fitting

As my friend and mentor Bob Van Dyke is fond of saying, all that is left is to get rid of the waste without cutting into the good stuff. First, make sure

Saw to the tape. *Aim to start the cut adjacent to the tape without cutting into it. Look for any remaining waste between tape and kerf (far right), and mark those spots. They can help when you're dialing in the final fit.*

SNEAK UP ON THE FINAL FIT



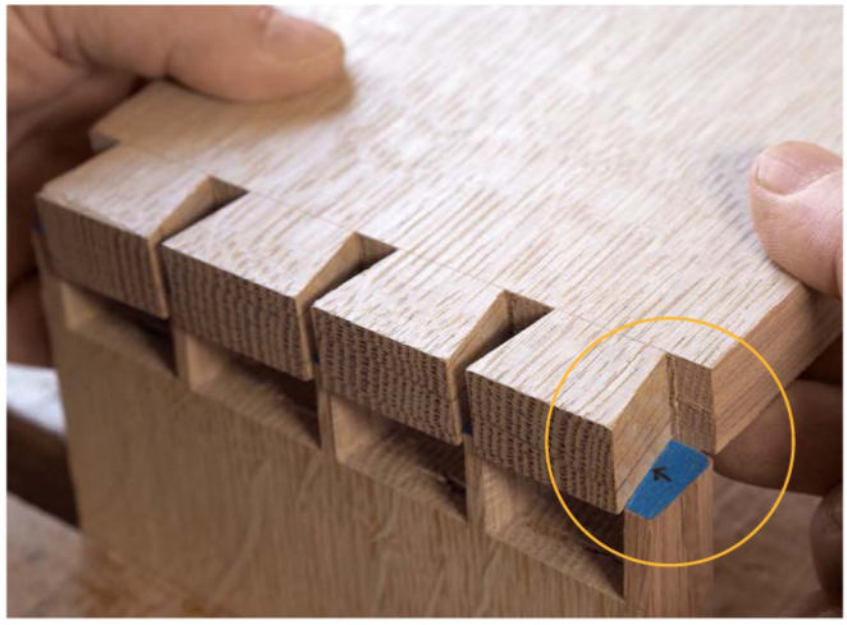


Begin by checking the walls of the pins. *It's critical for the pins to be vertical before you attempt to fit the joint. Register a square against the pins and look for light. If there's a gap at the top (far left), it means that the pin is wider at the bottom and could cause the boards to split when they're driven home. Use a chisel to square up the pin.*

that the sawn walls of the pins are vertical. The pencil line comes in handy here. I also use a small combination square. Once I am sure that the pin walls are square, I turn my attention to fitting.

First, I take a look to see where I may have sawn outside my tape lines. I don't pare anything just yet, but I note where I may need to trim. Then I set the tail board in place. If you've sawn close to the tape, there's a good chance the joint will seat at one end or the other. If you've done excellent sawing, the joint may fit right off the saw. In that case, great job! If there is still some work to do, use the tape as a guide when paring, making sure to keep the walls vertical. If you've done a careful job with the layout, paring to the tape should be all that you need to do.

Michael Pekovich is Fine Woodworking's *editor and creative director.*



Check before paring. *If you've done a good job to this point, you should have at least a partial fit. Before paring away any slivers of waste you had previously identified, check that they need to be removed (above). Pare the problem areas while keeping the pin walls vertical, and you should be close to a nice fitting joint.*

Turned serving dish

BY MATT MONACO

Photo this page: Matt Monaco. All other photos: Jonathan Binzen. Drawing: John Tetreault.

BEGIN WITH THE BOTTOM SIDE OUT

Blank gets a faceplate. *After bandsawing your circular blank, use short screws to fix a centered faceplate to what will be the upper face of the serving dish.*

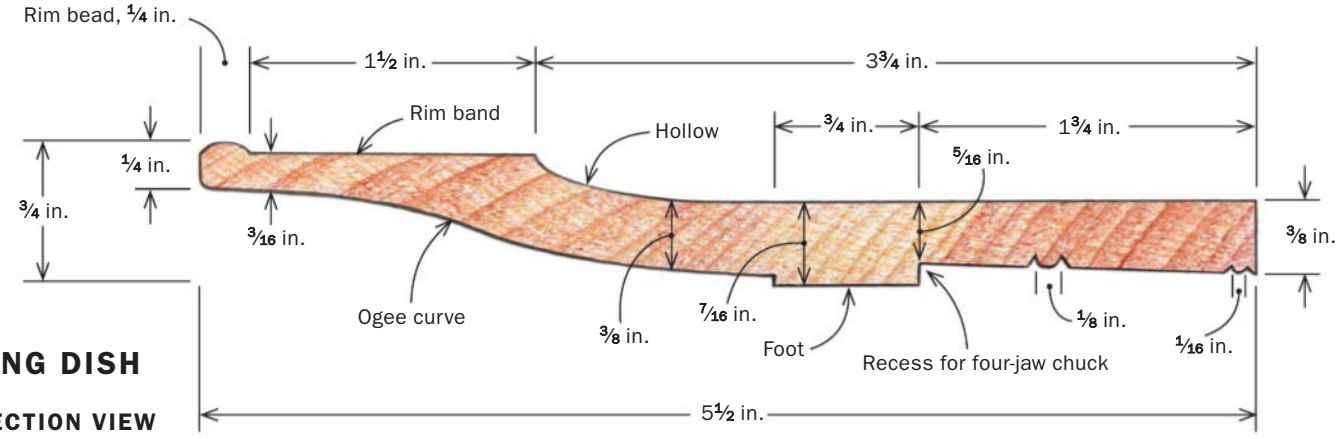
True the perimeter. *A ⅝-in. swept-back bowl gouge, making passes toward the headstock, quickly trues the perimeter of the blank.*

Flatten the bottom face. *Again using a ⅝-in. swept-back bowl gouge, true the bottom face of the dish blank.*

When I was working as in-house turner for the Vermont woodworking and ceramic artisans ShackletonThomas, I made scores of dishes and platters in cherry and walnut. They were simple forms with a single bead at the rim. I always admired the elegance and utility of those designs, and this serving dish is inspired by them. Here I've used bubinga, choosing it for its hardness, durability, and—with this particular stock—for its marvelous quilting, chatoyant grain, and brilliant natural coloration. This isn't a complex piece to turn, but to make it really sing, the surfaces should be super clean and the transitions and details extremely crisp.

True the inside. *Monaco uses a wing of the ⅝-in. swept-back bowl gouge to shear scrape the other face of the blank.*

Getting ready for a recess. *With both faces flat, adjust a pair of dividers to the diameter of your four-jaw chuck, then transfer that measurement to the blank. You'll turn a recess here to accept the chuck.*



SERVING DISH

HALF-SECTION VIEW

SHAPE THE BOTTOM OF THE DISH

Ogee layout. *The underside of the dish will be cut to a shallow, sweeping ogee curve extending from the foot to the rim. In pencil, mark the outer diameter of the foot and then, right on the rim, make a pencil mark where the ogee will end.*

Turn the S-curve. *To begin shaping the gentle ogee curve, use the nose of a swept-back bowl gouge, cutting from the rim to the outer edge of the foot.*

Make a foot to fit the chuck. *The inside of the foot is defined by the scribe line for the four-jaw chuck. Starting at that line, use a square-end scraper to turn a ⅛-in.-deep recess for the chuck. The walls should be 90° or slightly dovetailed.*

Fine work inside the foot. *A small bead or two inside the recess dresses up the underside of the dish. A ½-in. swept-back shallow detail gouge does the trick.*

A final pass. *After completing the foot, make a finessing pass or two to give the ogee its final form. Monaco here uses a 1-in. spear point with convex wings.*

Halfway finished. *With the bottom of the dish complete, apply mineral oil, wet-sanding through the grits from 220 to 600. Buff on wax, but leave the chuck recess unwaxed for now.*

Side one

Begin by bandsawing a circular blank between 9 in. and 11 in. across. Then screw a faceplate to what will be the top of the dish. The screws should protrude from the faceplate at least ⅛ in. less than the depth of the dish's hollow. Here I added a spacer beneath the faceplate to compensate for the length of the screws I had on hand. After mounting the blank on the lathe, true up the perimeter and flatten both faces.

With the bottom of the dish facing out, your next move will be to lay out the ring-shaped foot. Measure the span of your four-jaw chuck with dividers and transfer that dimension to the blank; it will be the inside diameter of the foot. Use a pencil to mark the outside diameter of the foot. It should be ½ in. to 1 in. greater than the foot's inside diameter. On the edge of the blank, make a pencil mark ¼ in. from the front face; the material below this line will be removed as you turn the ogee-curved underside of the dish.

With a bowl gouge, roughly shape the bottom face of the dish, using push and pull cuts between the foot and the rim. Before making the finishing cuts on

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ON TO THE UPPER FACE

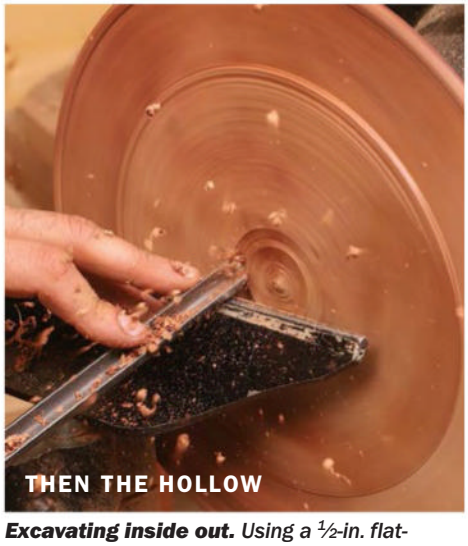
Reverse and remount. *Unscrew the faceplate and remount the dish, fitting your four-jaw chuck in expansion mode into the recess you turned inside the ring-shaped foot.*

Flatten first. *With the dish remounted, retrue its upper face.*

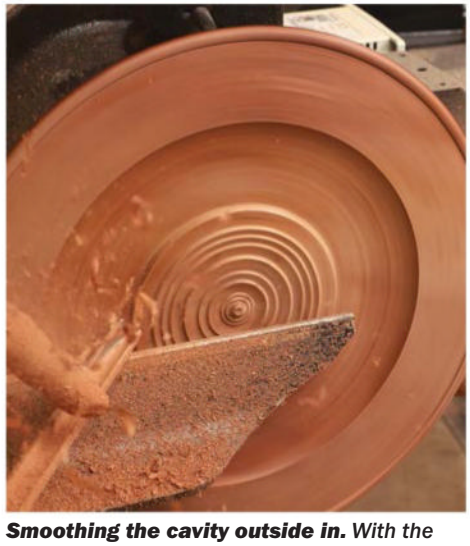
Relieve the rim band. *Using the wing of a swept-back bowl gouge, true up the broad, flat rim band.*

Turn the bead. *With the rim band relieved, use a ½-in. swept-back shallow detail gouge to turn the bead and define the outer edge of the rim.*

The band gets flat. *A ¾-in. convex, square-end scraper flattens the rim band and sharpens the corner between the bead and the band.*



Excavating inside out. *Using a ½-in. flat-ground interior bowl gouge, begin the rough hollowing with cuts near the middle of the dish and move outward cut by cut.*



Smoothing the cavity outside in. *With the rough hollowing complete, use the interior bowl gouge to make sweeping shear cuts from the rim band toward the middle of the hollow.*

Final finessing. *With the last passes of the interior bowl gouge, ensure that the hollow is fully smooth and nearly flat-bottomed.*

Finishing up. *The completed upper face of the dish also gets wet-sanded with mineral oil, then buffed with wax. After that, it's on to the dinner table.*

the softly sweeping ogee curve, use a square-end scraper to create the recess inside the foot for the four-jaw chuck. A depth of ⅛ in. is adequate. Clean up the ogee curve and cut any fine detail you like on or inside the foot. Then apply finish to the bottom face of the dish.

Side two

After unscrewing the faceplate, remount the workpiece on the four-jaw chuck. Begin work on the upper face of the serving dish by truing the whole surface again. Then make a push cut from the perimeter inward to establish the broad flat band just inside the rim. Roll a small bead right at the rim with a bowl gouge, then flatten the rim band with a convex square-end scraper.

Finally, using a 60° interior gouge, begin hollowing the dish. Start at the center and work your way outward, making your hollowing cuts just slightly deeper than the screw holes for the faceplate. After completing the hollow, wet-sand the upper face with mineral oil, running through the grits from 220 to 600, and then, lastly, buff with carnauba wax.

Matt Monaco turns at home in Kansas City, Mo., and teaches turning all around the country.

A sycamore surprise

BY BLAKE DAVIS

Like a lot of romances, my relationship with quartersawn sycamore began with a sideways glance. Then it got complicated. I was visiting Whispering Pine Farms in North Carolina, a small farm-based operation that specializes in sawing slabs, large timbers, and quartersawn lumber. Scott Smith, the owner, had left me to peruse the planks, which were arranged vertically in aisles that looked like caves of wood.

In one corner, an eruption of ray fleck and flake caught my eye. The figure was so dazzling I couldn't see the vertical grain. Oak, I wondered? I removed a few of the boards. Couldn't be. The grain was too fine, and there were pastel tones of orange, red, and yellow. Whatever it was, I wanted some. "That's sycamore," Scott said, when he returned to measure the boards I had chosen.

After that purchase, it took me a year to find a client interested in this lesser-known wood. Then the drama began. When I started milling lumber for the cabinet I planned, little chunks seemed to eject spontaneously; it was tearout in the extreme. Sycamore, which is sometimes called American lacewood by old-timers, has interlocking grain. No matter the direction you cut, you always work against some of it. If I'd had a helical head on my old Minimax jointer-planer, it would have helped. But I found I was able to remediate some tearout with lighter, skewed passes on the jointer.

Typically, after jointing and planing, I use hand planes to remove the machine marks. That's what I did here. Again there was tearout. Placing the chipbreaker at the very edge of the plane iron, so just a hairline of blade was visible, helped. To tame the remaining tearout, I grabbed my card scraper. That worked to remove the tearout, but it left a fuzzy, stringy surface. I repeated my workshop mantra: "I will not throw tools. I will not throw tools. I will not throw tools."

I spent a few minutes at my sharpening station and returned to work. I find scrapers often produce poor results on soft or medium-soft woods like sycamore, but if they're extra sharp, devotedly square, only lightly burnished, and presented to the wood at a skewed angle, they will give a clean cut. Voilà. Now the sycamore looked stunning, even more so after light hand-sanding to a high grit.

According to my current supplier, C. P. Johnson Lumber in Culpepper, Virginia, sycamore lumber is not widely available mostly because sawyers find it difficult to source and complicated to mill in a way that yields good figure. And sycamore, a member of the maple family—it's sometimes called Virginia maple—is similarly prone to discoloration when drying.

Yet there's a strong case to be made for quartersawn sycamore, even beyond its spectacular looks. The wood is supremely stable (though only when quartersawn). The trees are abundant in the eastern U.S. They grow quickly and become massive—so big that some early Colonial settlers lived in the hollowed-out trunks of giant sycamores before building their primary shelters.

My advice about sycamore? Beg your supplier to be more adventurous. Don't let that interlocking grain deter you. Quartersawn sycamore has its challenges, but so do other excellent woods. Sapele, for instance, with its interlocking grain, is similarly prone to tearout. But don't buy sycamore plain sawn. It's just … plain.

So get out your scraper. Sharpen it judiciously. And set to work with sycamore. In the process, you will learn how to deal with any figured wood, if you don't know already. And perhaps you'll begin an affair of your own.

Blake Davis builds furniture in Richmond, Va.

Photo: Blake Davis

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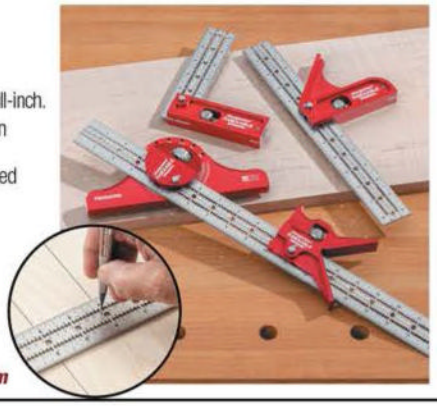

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Conical Play

John Makepeace was enchanted as a child when he found a cache of offcuts left behind by a carpenter working on his family's house. Wood was rationed in postwar England and hard to come by, so the boy began visiting "the old gentlemen making cricket bats" at a local workshop; he would usually leave with some material to work with. All these years later, Makepeace's passion for playing with wood is undimmed. And after a long, legendary career, his latest furniture remains fresh and fascinating. As a teenager in the 1950s, Makepeace visited Copenhagen several times and was impressed by the work in the annual cabinetmaker's exhibitions there. But when he returned to England and apprenticed in a shop where Danish designs intended for production were copied and made by hand one at a time, it struck him as "a bit of a nonsense." He says that the experience "underlined for me that individual makers need to find a language of their own to open up possibilities for distinctive forms and inventive methods of making." A recent piece, *Conical*—a collector's cabinet in scorched English oak and ripple sycamore with circular drawers that can be slid right out and placed on the shelf—is yet more evidence that Makepeace found his own language; and that he continues to design furniture of exceptional inventiveness, power, and finesse.

—Jonathan Binzen

Photos: Stephen James