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June 2026 No. 323

- 3D-printing basics
- Sewing box
- Chisel handles
- Shading with iron

Plant stand with quiet curves, p. 32

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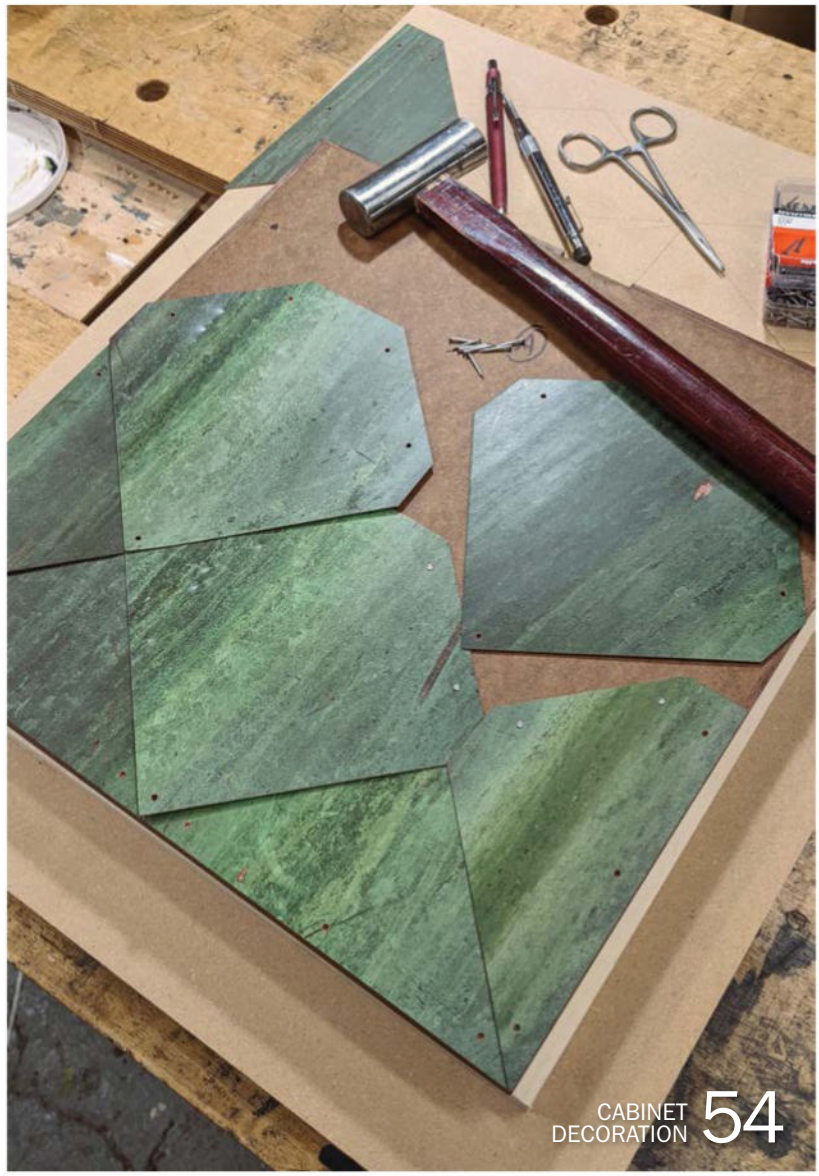

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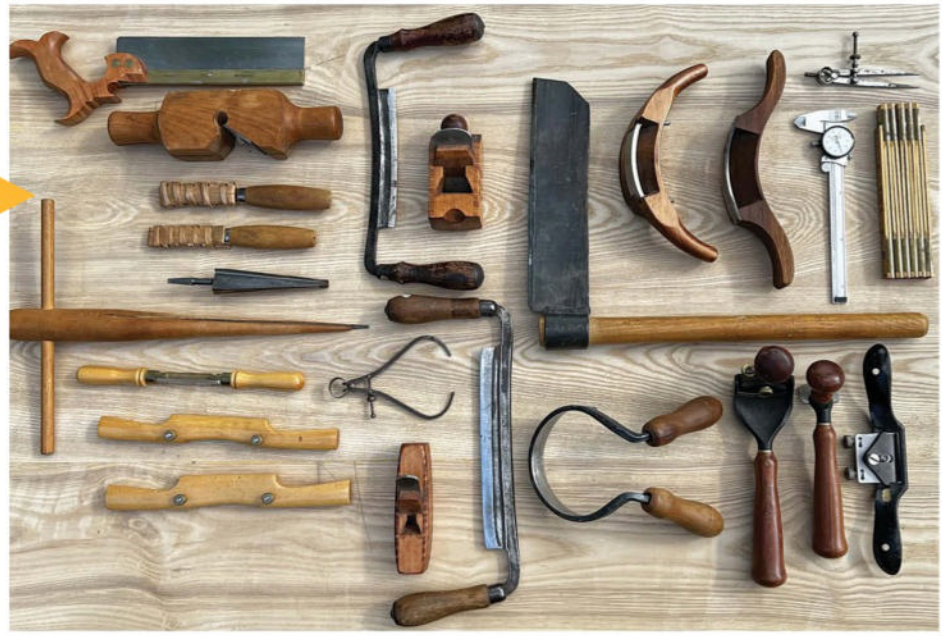

The Living Tools project

Rebecca Julliette-Duex is the coordinator of tool donations for the Chairmaker's Toolbox. The goal of the organization's Living Tools project is to honor retiring craftspeople by giving their tools a second life and by supporting the upcoming generation of new woodworkers.

VIDEO

Planes for shooting boards

Watch as Mike Pekovich puts planes for shooting through their paces, and see what he discovers.

A 3D-printer-assisted table repair

When Ben Strano was faced with a seemingly impossible mortise, he turned to one of his favorite woodworking tools.

VIDEO

Building a brutalist dresser

It's rare for a submission to the Gallery to come with a video documenting the entire build process. Watch as Jenn Park calmly crafts this sculptural white oak chest of drawers in her Texas shop.

VIDEO WORKSHOP

Shaker oval box

Follow along as Chuck Thorne from Hancock Shaker Village demonstrates how to construct this quintessential Shaker object. In this series you'll learn how to:

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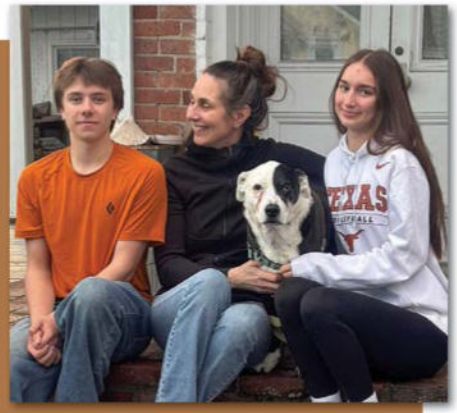

A *Fine Woodworking* editor for 20 years, **Anissa Kapsales** ("Committed Contributors") acquired an interest in woodworking from her father at a very early age. In her 20s she earned photography and English degrees while dabbling in woodworking and home building as she renovated an 1895 money pit in northeastern Pennsylvania. In her 30s she apprenticed with furniture maker Eric Keil and attended the College of the Redwoods before being hired at *Fine Woodworking* in 2006. Somewhere in there she made two humans, who are her favorite humans in the world and her finest projects. As excited about the work she does now as she was when she began, Anissa continues to be inspired by her colleagues, the authors she works with, and the readers she meets.

Canada's capital city may not be the hotbed of custom furniture making that its Ontario neighbor Toronto is, but for **Christopher Solar** ("Decorative Explorations"), Ottawa has been a productive launching pad. Since committing to full-time furniture making a decade and a half ago (following a stint as a software engineer), Solar has designed and built pieces for more than 50 Canadian embassies and ambassadorial residences around the world. Many of them include reclaimed copper roofing from Canada's parliament buildings, which lie two miles from Solar's workshop.

Bill Howes ("Replacement Gouge Handles") is a retired neurosurgeon who lives in Halifax, Nova Scotia, with his wife of 61 years, Susie. Howes spent his childhood summers helping his grandfather, an amateur boatbuilder, which set the course for a lifelong hobby of woodworking. Through his 35 years of operating with surgical tools, he kept his hands busy building furniture and reproducing his favorite old tools. His continued practice in woodworking includes volunteering as a furniture restorer at the Parker Street Food and Furniture Bank in Halifax.

Ben Strano ("3D Printing for Woodworkers") is the editor of FineWoodworking.com. A graduate of Berklee College of Music in Boston, Ben was formerly a recording engineer in Nashville. But in 2016 he accepted a position at *Fine Woodworking*. A self-proclaimed hobbyist woodworker, he has successfully blended woodworking with his love of music through lutherie, specifically crafting baritone ukuleles. Other hobbies include working with CNC machines, 3D printers, and even battle robots that he builds with his son, Razi. Their newest robot qualified for the National Havoc Robot League (NHRL) world championships in 2025.

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

Fine WoodWorking

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Fine Woodworking (ISSN: 0361-3453) is published bimonthly, with issues in Feb., Apr., June, Sep., Oct. and Dec., by the Home Group of Active Interest Media HoldCo, Inc. Subscription rate: $46.95 per year. Single copy price: $14.99 U.S., $16.99 Canada. The known office of publication is located at 2143 Grand Ave., Des Moines, IA 50312. Periodicals postage paid at Des Moines, IA, and additional mailing offices.

Postmaster: Send all UAA to CFS. (See DMM 707.4.12.5); NON-POSTAL AND MILITARY FACILITIES: Send address corrections to Fine Woodworking, PO Box 1477, Lincolnshire, IL 60069-9829

Canada Post: Return undeliverable Canadian addresses to Fine Woodworking, c/o Worldwide Mailers, Inc., 2835 Kew Drive, Windsor, ON N8T 3B7.

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For over a century, Powermatic has set the gold standard in woodworking machinery. Since 1921, the name Powermatic has represented precision, durability, and pride in craftsmanship. In workshops and at industry gatherings across the country, woodworkers speak to what it means to own a Powermatic machine—pride that's earned, not given. Today the company is building on that legacy with a renewed focus on deepening its connection to the woodworking community and redefining what ownership truly means.

At the center of this evolution is the initiative known as "The Powermatic Difference." Years in the making, this strategy reflects a realignment with the company's roots: producing premium machines while delivering an exceptional user experience. Rather than chasing short-term change, Powermatic is taking a holistic approach—supporting woodworkers before, during, and long after a machine enters the shop. This goes from large commercial shops with dozens of tools, to small shops at home.

Behind the scenes, product innovation remains core to the brand. Powermatic is rolling out updated machines, starting with lathes and planers. Larger digital readouts, improved dust collection, and durability-focused design updates reflect a continued commitment to thoughtful engineering. At the same time, Powermatic is refining its most trusted machines to ensure the tools woodworkers rely on continue to perform at the highest level.

An expanded commitment to service and support is equally important as the machine itself. Powermatic has streamlined their five-year warranty across the board with coverage you can trust. This includes an option to extend protection out to 10 full years and provide preventative maintenance plans further supporting long-term ownership.

With this commitment, Powermatic is redefining the customer journey. An updated website will offer a more seamless experience. This new website will include features such as extensive educational content, mentor profiles, and a customer service chat agent powered by AI that will allow order tracking, case creation, returns, and product assistance. For the first time, customers will be able to purchase new machines directly from Powermatic.com in addition to their local dealers.

Beyond products and policies, Powermatic is deepening its connection to the woodworking community. Collaborations with respected makers, educators, and craftsmen, like you, highlight the real-life impact of quality tools. From professionals to hobbyists, these voices underscore woodworking as more than a trade—it's a craft, a passion, and often a source of purpose.

This renewed direction isn't a single campaign. It represents an ongoing commitment to innovation, partnership, and user-focused design—reinforcing what has always set Powermatic apart: machines built with intention, supported with integrity, and trusted by generations proud to bring gold into their shops.

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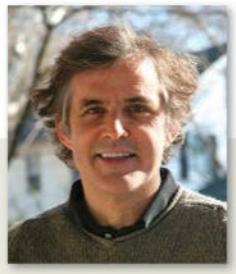
letters

From the Editor



A lifetime of tools

Sometimes a magazine's editors carefully orchestrate particular articles in an issue to present linked and complementary subjects. And sometimes the planets just happen to align. With this issue, it was serendipity at work placing two furniture makers two pages apart who were unknown to each other but whose interests are interlocked.

In our From the Bench essay, first-time contributor Mozi Weisenberg tells the story of how he unexpectedly came into a collection of woodworking tools in his early teens, a gift from a retired woodworker he had never met, and describes the impact that unlooked-for bequest has had on him.

Two pages past Mozi, on the back cover, you'll find extraordinary new work by Aspen Golann. Aspen is, yes, a Windsor chairmaker and sculptor, but her creativity also extends into the societal realm. She is the founder of the Chairmaker's Toolbox, a nonprofit that works to broaden inclusivity in the woodworking field. And the organization encompasses another project Aspen launched called Living Tools. Conceived after Aspen herself received an unexpected gift of woodworking tools, Living Tools accepts donations from later-career or retired woodworkers or their heirs and presents them to makers just entering the craft.

To read more about Mozi and Aspen, find your way to the back of the issue. To read a blog post with further information about Living Tools, you can go to FineWoodworking.com/323.

—Jonathan Binzen
Deputy Editor

Fixing mistakes

I have been an avid reader almost since your first issue was published. I have enjoyed many articles, and it has improved my woodworking skills. Every woodworker, however, makes mistakes. How these mistakes are corrected is the point of this letter. I have seen a few clever ideas over the years and have incorporated brass or different wood species into the mistakes I make rather than just starting over or trying to hide a repair job. Would you consider including a regular article on mistakes made and how they are corrected? We mere mortals make various mistakes, but there must be many creative repairs done by some of the master craftsmen from whom your readers could gain some ideas, insight or benefit.

—PETER SAXON, Summit, N.J.

Editor replies: Thanks for your letter. We have covered mistakes in various forms over the years. If you're a Fine Woodworking Member, you can locate these articles in the digital archive:

- "Fast Fixes for Joinery Mistakes" by *FWW* staff (*FWW* #233)
- "How to Fix Flaws and Mistakes" by Mark Schofield (*FWW* #228)
- "5 Smart Repairs for Veneering Mistakes" by Stuart Lipp (*FWW* #196)
- "10 Best Fixes for Finishing Mistakes" by Teri Masachi (*FWW* #192)

In addition, the Workshop Tips section has lots of other fixes that can be found by searching the Magazine Index at FineWoodworking.com.

Working with epoxy safely

Your article "Free-Form Coopering" (*FWW* #321) is very interesting, but it doesn't mention a major issue with the use of epoxy glues. Having built three boats and some furniture using (mostly) the West System, I've learned that exposure to epoxy can be hazardous to health unless precautions are taken—at a minimum, long sleeves, a shop apron, and a breathing mask capable of removing all dust and fumes while the glue is curing, and *always* while sanding it. Sometimes the wood dust itself can be a problem, but epoxy exposure is accumulative; someone can work with it without consequence for some time and then suddenly experience major health issues once their body absorbs enough of it. These can include respiratory, skin, and internal organ problems.

—CLIFF MOORE, Jacksonville, N.C.

Editor's note: For information on the potential health hazards of working with epoxy, and the proper precautions to take, go to the Safety tab on West System's home page: westsystem.com.

Correction

In "Birch-Bark Containers" in *FWW* #322, we provided an incorrect Instagram username for Svetlana Koreneva. The correct username is @koreneva_beresta.

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workshop tips

Sharpen hand tools with three inexpensive diamond cards

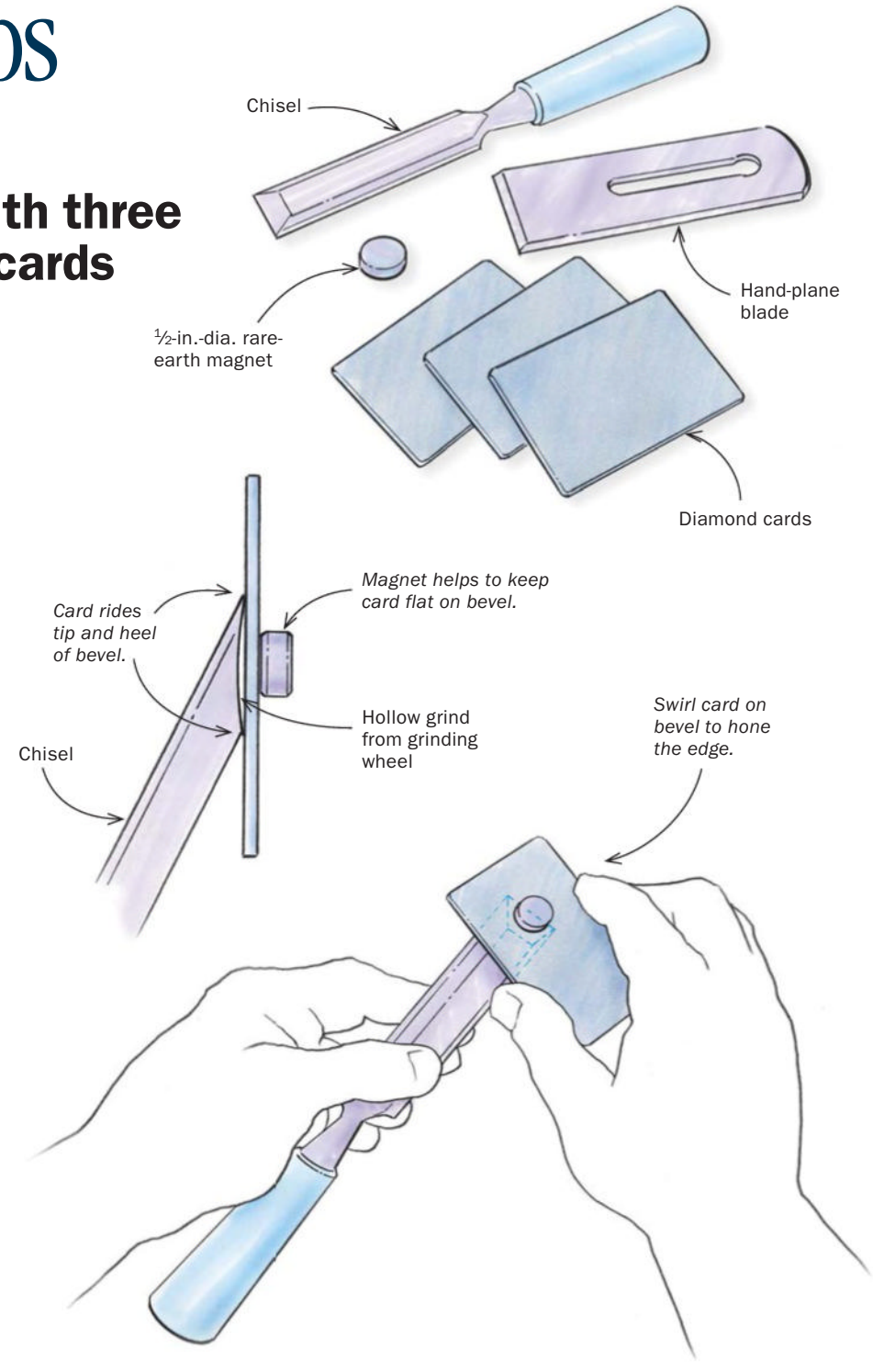
Lately I've been doing 99% of my sharpening with an inexpensive set of three diamond "credit cards." I hold the blade in one hand, and with the card in the other I press the card against the blade and rotate it. You can learn to do this freehand, but I recommend placing a ½-in.-dia. rare-earth magnet on the back of the card. The magnet makes it much easier to keep the card flat on the tip and heel of the bevel, especially when you are first learning how to do it. Putting the magnet on the card also makes it easier to avoid rounding the back—when you need to remove the tiny burr that builds up there.

A set of 2-in. by 3¼-in. cards (DMT Dia-Sharp Diamond Sharpening Stone Credit Cards) is just $34 on Amazon, and the grits are roughly 400, 800, and 2000.

I hollow-grind my bevels on an 8-in., 180-grit CBN wheel, so the diamond cards rest only on the tip and heel of the bevel, leaving them only a small amount of metal to remove. After grinding I work my way through all three cards, but only the finest one is necessary for subsequent honing.

My benchmark for sharpness is whether the blade will catch a fingernail and pare end-grain pine—and these little cards get my chisels there quickly. They also work well on plane blades, leaving them sharp enough for almost all of my hand-planing tasks. If I am planing something really tough, I still break out my 8000-grit waterstone, but it's been a while since I did that.

—SCOTT SONNENBERG, Newton, Mass.



Best Tip

Scott Sonnenberg became interested in woodworking as a teenager when he read *The Goldfinch* by Donna Tartt, a coming-of-age novel that includes a character who is a woodworker. Guided by YouTube, Sonnenberg cut his first dovetail joint with an old panel saw. He continued working wood in college, focusing on hand tools and ultimately building a walnut lowboy. Twelve years later he has a number of high-end commissions under his belt.

A Reward for the Best Tip

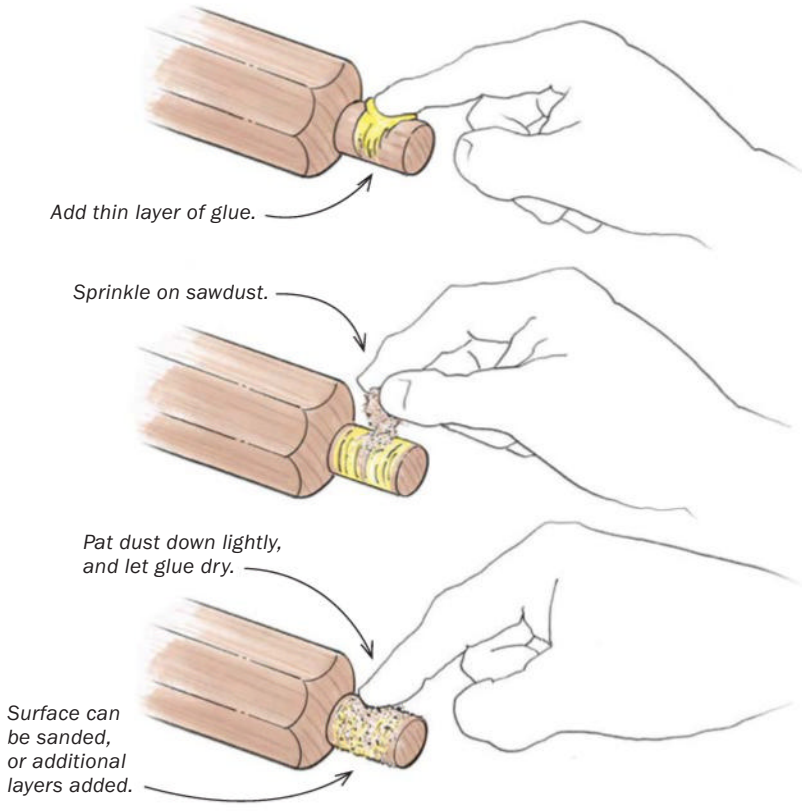
Send your original tips to fwtips@taunton.com. We pay $100 for a published tip with illustration; $50 for one without. The prize for this issue's best tip was two pairs of Jorgensen 90° Cabinet Master Parallel Jaw Bar Clamps: 24-in. and 48-in.

Drawings: Dan Thornton

Round tenons too loose? Just add glue and sawdust

Once when I was making round tenons, one came out just a hair loose. I applied a thin layer of glue and a sprinkle of sawdust, patted down the dust a bit, let the glue dry, and ended up with a perfect fit. The surface can be sanded smaller if necessary. And if the fit is still too loose, you can add another thin layer or two of glue and sawdust without compromising strength. This handy technique works for all sorts of round tenons—for pulls, chair parts, and more.

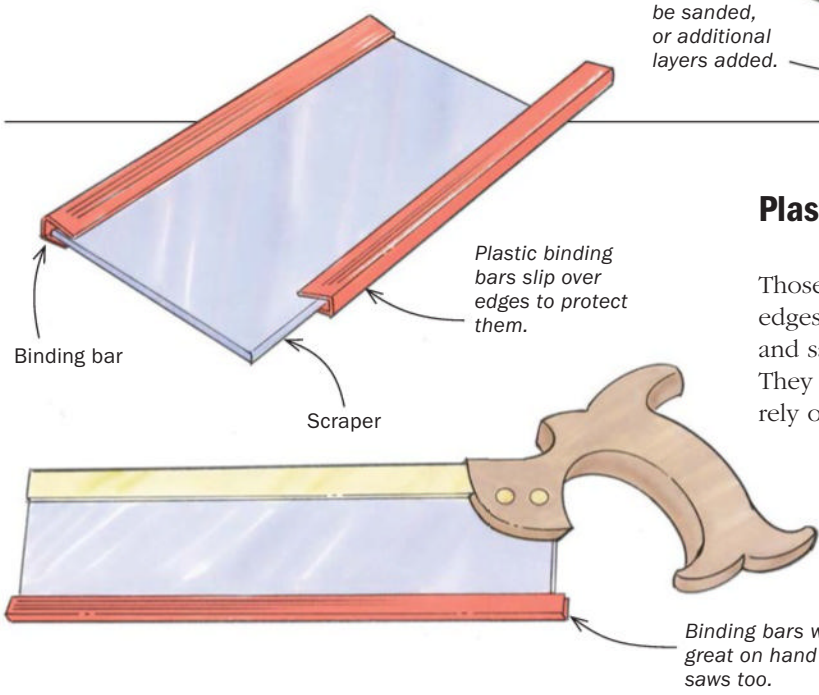
—DOUG STOWE, Eureka Springs, Ark.



Plastic binding bars make great edge protectors

Those sliding plastic bars (sold as "binding bars") that fit on the edges of report covers make great edge protectors for scrapers and saws. I use them when I store hand tools in a tool box. They are far more convenient than the painters tape I used to rely on.

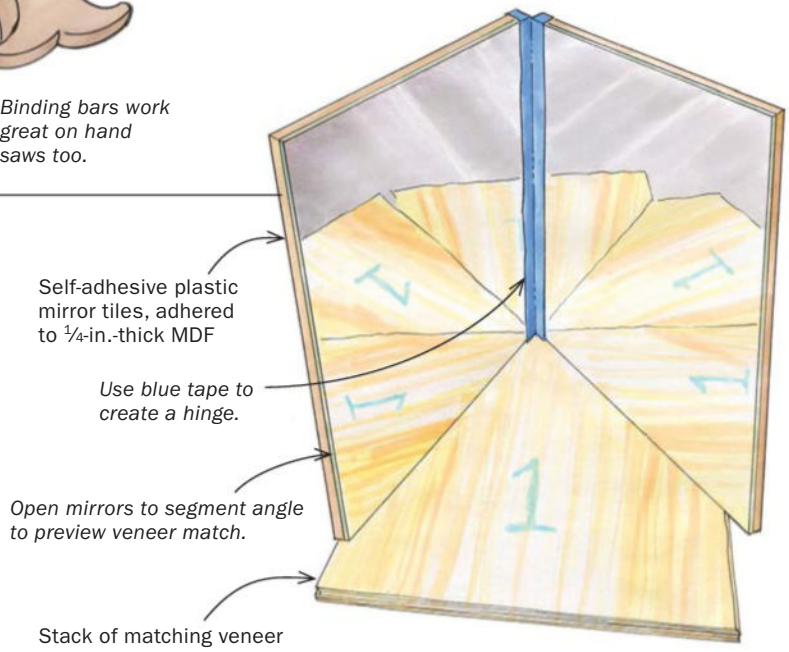
—CHARLIE JAMES, Williston Park, N.Y.



Use plastic mirror tiles to preview veneer matches

To plan veneer matches, such as a sunburst pattern, I connect mirrors with blue tape and position them over the veneer as shown. Instead of glass mirrors I use inexpensive plastic mirror tiles. They are self-adhesive, so I stick them to ¼-in. MDF for stability. You can cut the thin tiles with a knife, which makes them much easier to deal with than glass.

—COLTON SNYDER, Telford, Pa.



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NEW!

BENCHPILOT

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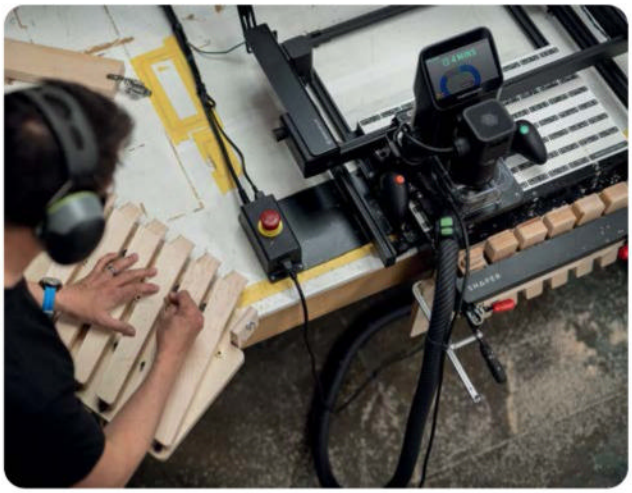


JIGS AND FIXTURES

Off-the-shelf crosscut sled

I USE SHOPMADE CROSSCUT SLEDS ON THE TABLE SAW nearly every day. I've always made them from scraps, and they are usually serviceable for a year or two. I scab on spoil boards and adjust runners with blue tape, probably longer than I should, to avoid making a new sled.

Rockler's new Table Saw Crosscut Sled and accompanying Drop-Off Platform was the first manufactured sled kit I have tried. I was skeptical how it could be that much better than the ones I've made. However, after spending some time with it, I think it's a good value.

The sled requires some basic assembly, which includes calibrating the runners to your table-saw miter slots and ensuring the fence is perpendicular to your blade. I had everything unboxed and assembled and was making accurate cuts in less than an hour. After a few test cuts, I cut a four-corner mitered frame that fit together on the first try without any fuss.

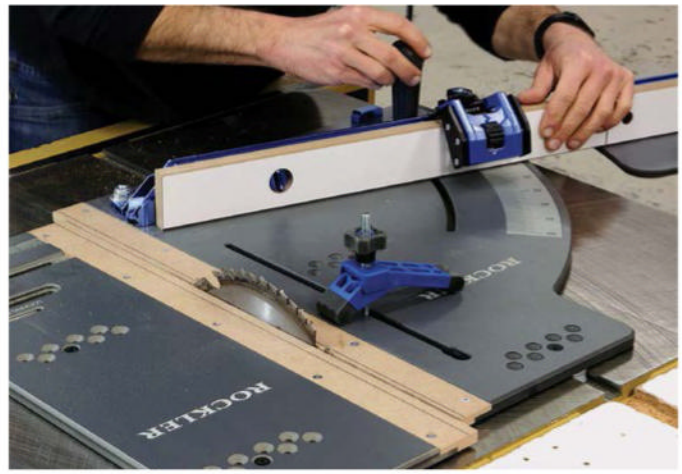
Several features stand out on this sled. First, the fence pivots smoothly and holds well with an easy-to-read protractor. The locking knob is rock solid—great for both safety and repeatability. The fence also extends to 38¼ in., which gives the sled a nice capacity for its small footprint.

Both the sled and the Drop-Off Platform have replaceable, MDF, zero-clearance inserts. These enable not only clean cuts but the flexibility to swap out another insert to make cuts with the blade tilted (for either compound miters in conjunction with the fence, or with the fence at 90°). These angled blade cuts are typically what eventually lead to "scabs" on my shopmade sleds and their short lifespan. The same is true on the fence. It has a spoil board that moves independently of the fence, so you can simply slide it into place for specific cuts and replace it when the time comes. Both the sled and the Drop-Off Platform have a stop block, which gives you multiple ways to set up repeated cuts.

The flexibility of this sled means that it effectively replaces multiple shopmade sleds in my fleet—saving me time and space over the long run.

While all of these features could be included in a shopmade sled, if you prefer the convenience, longevity, and adjustability of an off-the-shelf solution, this is a great tool. One trade-off: On a shopmade sled the fence typically spans both sides of the blade, allowing you to hold the offcut, slide it back from the blade, and remove it, all with the saw running. Rockler's Drop-Off Platform safely catches the offcut but leaves it beside the blade, so you may need to turn off the saw to retrieve it, which could slow down production work.

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



Easy set. *With the oversize protractor scale and solid stop block, Godet was able to create a perfect set of miters on the first try.*

Future proof. *The zero-clearance inserts are made out of 7/16-in. MDF, but replacements could be replicated out of readily available sizes of MDF you probably already have in your shop.*

Rockler Table Saw Crosscut Sled
$250
Drop-Off Platform
$60
rockler.com

Photos this page: Adam Godet. Photos facing page: FWW staff.

HAND TOOLS

Distinctive single-use plane

WHILE TECHNICALLY A SMALLER VERSION of the Veritas Shooting Plane, there's nothing petite about the Veritas Miter Plane. Roughly the size of a No. 4 plane and coming in at almost 5 lb., this beefy bevel-up plane is distinctive for its side-mounted horn. When you're shooting the ends of parts to length, the horn allows you to grip the plane while it is resting on its side. You could argue that a single-use plane is a luxury, but I've owned a shooting plane for years and find it an indispensable tool for sizing parts to exact length. While a standard bench plane can handle the job, the low-angle blade of the Miter Plane excels at slicing through end grain. The fit and finish of the plane are excellent, and it took mere minutes for me to hone a keen edge on the iron. The Miter Plane sells for $329, which is substantially less than the larger Shooting Plane, and I especially like how the horn allows me to hold the plane directly over the blade, offering greater control when planing.

—Michael Pekovich is the editor and creative director.

Veritas Miter Plane
$329
leevalley.com

Focused control. *The side handle of the Veritas Miter Plane is mounted right over the blade, giving the user exceptional control over the cut.*

Bauer 12-in. Variable-Speed Drill Press
$300
harborfreight.com

MACHINES

Drill press that delivers

THE BAUER 12-IN. VARIABLE-SPEED DRILL PRESS has been in my shop for a few months now, and it has performed exactly as I had hoped and expected.

I'll be honest—I'm not looking for a drill press that's loaded with automations and clever features. I need a drill press that drills holes cleanly. I need one with easy speed adjustments, a decent work light, and a table that's easy to adjust. The Bauer does all of that without a fuss, and for a fine woodworker who wants a capable, no-nonsense bench tool, that matters more than a spec sheet full of bells and whistles.

Enough power. *The Bauer didn't bog down when aggressively drilling in cherry with a 2-in. Forstner bit.*

The variable speed control is a particular standout. My shop doesn't stay in one lane; I might be drilling small holes in steel one minute and switching to a large Forstner bit in hardwood the next. The speed adjustment is smooth, intuitive, and accessible—exactly the kind of thing that encourages you to actually dial in the right speed for the material rather than just leaving it where it last was.

There was one area in which it came up short: the depth stop. The adjustment knobs were poorly cast and frustratingly difficult to move along the rod. It's a small thing, but on a tool you reach for repeatedly, it grates. I'll be swapping them out for something better. It's a fixable problem, but it shouldn't be one you're dealing with on a new tool.

Beyond that gripe, this drill press just works. The price is hard to beat, the performance is solid, and I'll likely end up buying this one when the review is done.

—Ben Strano is the editor of FineWoodworking.com.

POWER TOOLS

Detail sander earns its place

Milwaukee M12 Fuel Orbital Detail Sander
$159 (tool only)
milwaukeetool.com

A FEW MONTHS AGO I FOUND MYSELF IN NEED OF A DETAIL SANDER, but since it's not something I thought I'd reach for very often, I didn't want to spend a lot. A friend recommended the Milwaukee M12 Fuel Orbital Detail Sander, and since I'm already invested in the M12 battery platform, buying it was an easy decision.

The sanding pad has a distinctive "house" profile—essentially a square with a triangle on top. The square portion measures about 2½ in. across, while the triangle extends the total length to around 3½ in. The sander has four speed settings. Since I don't use it for aggressive tasks, I've never needed anything above level 1.

I reach for this sander far more often than I anticipated. Any time there's a small wisp of tearout or I need to quickly round over an edge, I grab this before even thinking about my random-orbit sander. I've started keeping it right next to my CNC so I can clean up surfaces on the fly as I'm milling. Pieces come off the machine already cleaned up. It's become a seamless part of my workflow.

There's no dust collection, though I'm not sure it's needed. This is not a sander you'll run for long stretches; it is a "pick it up, use it for 45 seconds, and put it back down" kind of tool.

If you're on the M12 platform, this is a great addition to the shop. It won't replace your random-orbit sander, but it'll earn its spot on the bench.

—B. S.

***Put baby in a corner.** The head of the sander can be rotated in almost any orientation. In Strano's shop, the sander lives with the point going backward, but he can easily spin it around using just an Allen key.*

Temple Tool Co. Dozuki Pull Saw, Fine Universal-Cut
$46
templetoolco.com

HAND TOOLS

One saw for rips and crosscuts

THE "LITTLE DEMON" DOZUKI SAW FROM TEMPLE TOOL CO. is a compact 6-in.-blade pull saw with a universal-cut tooth pattern. I was skeptical of the claim that this tool is effective with both ripping and crosscutting.

The saw's nickname comes from the *oni-ba*, or "demon teeth," that are placed at 7⁄16-in. intervals in a row of 25-tpi crosscut teeth, which are taller than those on my other saws. In front of the oni-ba, which do not appear to have any set, is a deep gullet for removing waste. The heel of the blade has only crosscut teeth. This is essential for starting a cut. I tried starting in the middle, but the gullet would grab the corner of the workpiece.

The saw worked as promised. With such a fine tooth count, crosscutting was a breeze. The real test was to see how it would rip. To my surprise, it worked well—and fast, so much so that the saw required attention when I was cutting. The kerf is 0.02 in., which I find to be in the sweet spot. It's thin enough to keep the cut straight but provides a little room to steer the cut if you sense it getting away from you.

The saw is well balanced and feels good in the hand. It's a small saw and has a limited rip capacity, with the spine 1⅞ in. away from the cutting edge at the heel of the blade. But this should be plenty for most furniture joinery and is perfect for small-scale work. For tenons and dovetails, I like a smaller saw such as this to match the scale of work at hand.

This tool would make a great first saw, but I bet that as your saw collection grows it will continue to be the one you'll grab the most.

—David Johnson rides his bikes in the hills of Los Angeles.

Photos this page: FWW staff

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- MTD - JOINT BONDING AGENT
- GUNSTOCKRX - RESTORES WOOD GUNSTOCKS & KNIFE HANDLES
- CHAIRX - FIRST AID FOR CHAIR & TABLE LEGS
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Committed Contributors

As we move into *Fine Woodworking* magazine's next half century, it is fitting to recognize a group of people whose contributions have been crucial to the depth and variety of information in our pages, to the longevity of the publication, to its stellar standing in the field of woodworking, and to the decades of inspiration and encouragement it has provided: our contributing editors.

A magazine's contributing editors are not relied on for editing. They're chosen for the quality and frequency of the articles they write and for representing the highest aspirations of a publication. Their names are proudly listed on the masthead. Having celebrated remarkable mentors in *FWW* #318 and boundary breakers in *FWW* #321, we're focusing in this issue on *Fine Woodworking*'s contributing editors through five decades.

While we on the staff have devoted ourselves to magazine making, we understand that our task is not the same as making a life and a living around woodworking and teaching. For that we turn to our contributing editors, who—even in the age of the internet and social media—remain the holders of the information that has made *Fine Woodworking* the place to go for answers.

Evolution of the contributing editor

Even before launching *Fine Woodworking* magazine, Paul Roman—though he was neither a woodworking nor publishing professional—instinctively understood that seeking out and nurturing content was a skill separate from day-to-day woodworking. He knew woodworkers would be the best sources for compelling content, so he sought out the best he could find to become the magazine's contributing editors.

In our 25th anniversary issue (#146), Jonathan Binzen wrote this about the founding of *Fine Woodworking*:

Over the next few months [in the spring of 1975], Roman spent evenings and weekends seeking out woodwork and woodworkers. Roaming from Virginia to New Hampshire, he visited woodshops and craft shows, bookstores and libraries, schools with woodworking programs and museums with furniture collections. . . . Roman's notebooks from those months brim with names that would soon become familiar to readers of Fine Woodworking: *Tage Frid, R. Bruce Hoadley, Alphonse Mattia, Bill Keyser, Jere Osgood.*

Born from Roman's intuitive sense, the mission of the contributing editors is to bring their hands-on expertise into *Fine Woodworking* by writing quality content based on the work they do in their shops and classrooms every day. They are consummate craftspeople, with unique and deep knowledge, who are committed to teaching new skills, introducing and refining techniques, answering queries (often in the magazine's former Q&A department), imbuing design sensibilities, and inspiring readers. And for the last 50 years the 29 people on the list at left have been the mainstay of ideas and talent behind the magazine.

The next 50 years

It's likely that neither the current contributing editors nor my colleagues and I will be around for the 100th anniversary tribute, but I believe *Fine Woodworking* will. I envision the current staff making room for and mentoring exciting new recruits, and I hope that the roster of contributing editors and authors continues to flow from expert to expert and that the content continues to teach and excite. It is my dream that the readers also share their knowledge and passion wherever, whenever, and to whomever—a collective passing of the torch that will glow beyond all our time here.

With that, I present the contributing editors, the titans of *Fine Woodworking* over the past 50 years. While all of them have had an enormous influence, we are highlighting in this article 18 who stayed the longest, wrote the most articles, answered the most questions, broke new ground, and reached beyond our pages by writing books, teaching, and otherwise promoting the craft.

The experts at the core of *Fine Woodworking*

BY ANISSA KAPSALES

1. Tage Frid, issues 1–174 (senior editor, issues 23–33)
2. Alastair A. Stair, issues 1–14
3. Robert Sutter, issues 1–4
4. R. Bruce Hoadley, issues 2–165
5. Jim Richey, issues 8–254
6. Simon Watts, issues 16–62
7. Richard Starr, issues 32–56
8. Michael S. Podmaniczky, issues 57–77
9. Graham Blackburn, issues 63–76
10. Christian Becksvoort, issues 72–present
11. Michael Dresdner, issues 72–91
12. Mark Duginske, issues 87–106
13. Robert Vaughan, issues 92–129
14. George Frank, issues 97–108
15. Sandor Nagyszalanczy, issues 101–118
16. Mario Rodriguez, issues 103–183
17. Chris A. Minick, issues 112–145
18. Gary Rogowski, issues 121–213
19. Mike Dunbar, issues 131–183
20. John White, issues 149–154
21. Lon Schleining, issues 151–174
22. Garrett Hack, issues 152–present
23. Roland Johnson, issues 167–present
24. William Duckworth, issues 177–189
25. Lonnie Bird, issues 184–190
26. Steve Latta, issues 191–present
27. Michael Fortune, issues 216–present
28. Chris Gochnour, issues 251–present
29. Bob Van Dyke, issues 277–present

Online Extra

To read Jonathan Binzen's 25th anniversary article and to see a PDF of Paul Roman's 1975 letter seeking charter subscribers, go to **FineWoodworking.com/323.**

Photo credits given clockwise from top left for each page, except where noted. Photos facing page: Paul Roselli; Anatole Burkin (2); Vincent Laurence; Susan Kahn.

Tage Frid

"Making Salad Servers"
FWW *#88, 1991*

The founder of *Fine Woodworking*, Paul Roman, was lucky to have met Tage Frid and even more lucky to have persuaded Frid to lend his name and talent to the maiden issue of the magazine as its first contributing editor. His tenure lasted for 174 issues.

Frid gave the magazine instant credibility. By the time it launched in 1975, he was already a highly respected master woodworker and teacher. Born in Denmark, Frid apprenticed with a cabinetmaker from the age of 13, worked and trained in Denmark and Iceland, and taught for decades at Rochester Institute of Technology and Rhode Island School of Design. The name Tage Frid signaled that the magazine was serious, professional, and rooted in craft.

Frid's articles were authoritative, educational, skill-focused, and salted with wit and banter. Frid wrote for hungry learners, not dabblers. His influence went far beyond merely authoring articles; he shaped what the magazine stood for, defining its standards and philosophy. Frid's articles established what fine woodworking means in the magazine.

"Veneering Over a Solid-Wood Substrate"
FWW #98, 1993

Additionally, Frid brought European cabinetmaking traditions and design to an American audience, championing clean, functional design over excessive decoration. He emphasized efficiency without losing precision. This balanced approach remains a core value of the magazine. Many of the *Fine Woodworking* authors who came after him were either his students, students of his students, or readers who were inspired by his methods and standards.

R. Bruce Hoadley

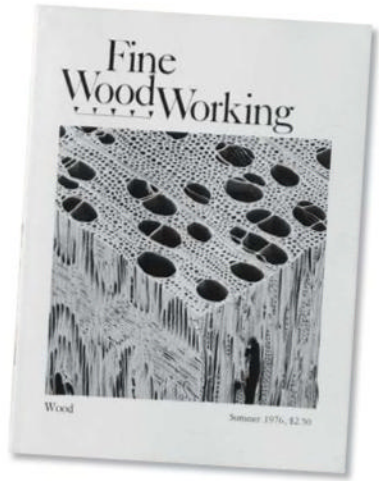
"Understanding Wood, Thanks to Hoadley"
by Garrett Hack
FWW *#146, 2001*

A contributing editor from issue #2, R. Bruce Hoadley took the romance of woodworking and broke it down into the science of woodworking. And *Fine Woodworking* readers were eager for as much of that as they could get. Hoadley was a wood technologist at Virginia Tech and the University of Massachusetts, which positioned him to contribute something no one else could at the time: deep, reliable wood science explained clearly for woodworkers. Hoadley was the technical authority on the complexities of wood.

He made wood science understandable and took the guesswork out of building with a living, shifting material. Using plain language, diagrams, and experiments, he taught about moisture and why wood expands and contracts, and about what causes warping, checking, and splitting. This helped readers make better design and construction decisions.

Hoadley also was a craftsman working with the material he studied. So he was able to connect theory to shop practice, not just promote science for its own sake. He answered practical questions: How dry should lumber be before building? How wide can a tabletop be before movement becomes a problem? How can a tabletop safely attach to a base? How do finishes affect moisture exchange? Why does a specific wood tear out during planing in any direction?

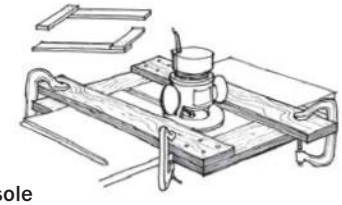
The science he touted shaped how woodworkers think about mistakes and how to avoid them: cracked panels, stuck drawers, twisted doors. Hoadley's thinking saved countless projects and raised overall craftsmanship. The discoveries he made have filtered down through the decades, and his science is so commonplace with experienced woodworkers that it's ingrained in the way they work. Hoadley gave us universal, practical gifts.



"Wood" FWW *#3, 1976*

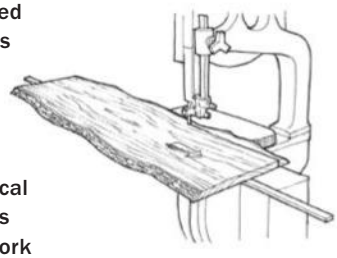
Jim Richey

A charter subscriber to *Fine Woodworking*, Jim Richey immediately began to submit proposals. By issue #16 he was the sole illustrator and editor of Methods of Work, the every-issue department of tips.



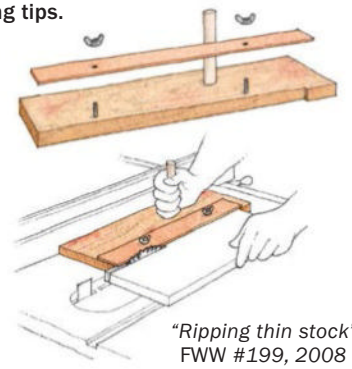
"Jig for cross-grain routing"
FWW #17, 1979

He selected the best reader-submitted ideas, rebuilding hundreds of jigs in his own shop to fully understand them, and then drew illustrations that helped woodworkers visualize and execute the techniques. Because his line drawings made complex mechanical ideas easier to understand, Richey was instrumental in making Methods of Work a staple of the magazine. A consistent presence in the magazine for decades, Richey produced well over a thousand beautifully illustrated woodworking tips.



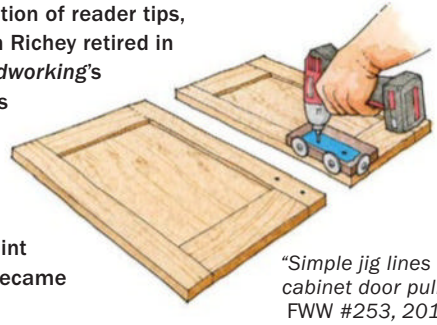
"Ripping crooked stock on the bandsaw"
FWW #114, 1995

Many of Richey's tips were compiled into books, such as Fine Woodworking *on Proven Shop Tips* and *Methods of Work: The Best Shop Tips from 25 Years of* Fine Woodworking (a four-volume set). These books extended his influence beyond the magazine.

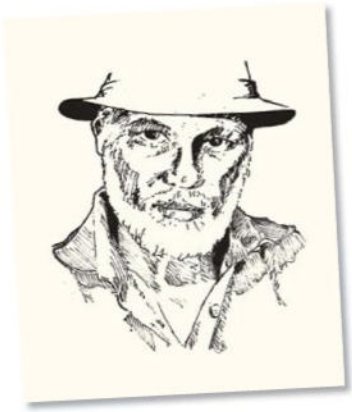


"Ripping thin stock"
FWW #199, 2008

Richey's contributions were foundational to the magazine's practical, problem-solving ethos because of his editing, organization of reader tips, and artistic skill. When Richey retired in 2016, it was *Fine Woodworking*'s 40th anniversary. In his honor, the name of the department he shepherded for 36 years was retired with him. From that point on, Methods of Work became Workshop Tips.



"Simple jig lines up cabinet door pulls"
FWW #253, 2015



"Panel-Raising by Hand"
FWW #67, 1987

Graham Blackburn

It has never been difficult for *Fine Woodworking* to find uber-talented contributing editors. Rarer, though, is the multifaceted woodworker who turns in articles with the caliber of illustrations that Graham Blackburn produced. His meticulous drawings went from pencil to print without intervention. Added to that were his reverence for traditional hand-tool woodworking, a high level of wordsmithing, a deep historical knowledge of furniture and craftsmanship, and an innate and developed sense of design.

"A Short History of Design"
FWW #146, 2001

People often discuss the creative spark of a piece as something they've seen or felt that propels them into action. Blackburn suggested that if you have trouble turning that initial vision into something pleasing to the eye, then you are likely missing at least one crucial element of the design equation--perhaps history, or maybe a little geometry. In "A Guide to Good Design" (*FWW* #168), Blackburn says, "Even if you should be blessed with a good eye, it's not easy to design a piece of furniture without using some underlying paradigm for determining its dimensions and the inner proportions of its parts. . . . A piece of furniture that disregards proven design may look clumsy, unbalanced, or awkward." He then presents such a paradigm, breaking down the golden ratio in plain language, with examples and illustrations.

Blackburn walked through the past in articles such as "A Short History of Design," "A Short History of Workbenches," and "A Short History of Clocks." Then he advocated using history to propel us into unique, thoughtful designs. In a time heavily dominated by power tools, Blackburn emphasized the skill, control, and quiet working style of traditional hand-tool woodworking.

"Hollows and Rounds"
FWW #69, 1988

Photos this page: Asa Christiana; FWW staff (2). Photos facing page: Jonathan Binzen (left); FWW staff (top right); Susan Kahn (bottom right).

Christian Becksvoort

"Don't Fear the Hand-Cut Dovetail, Part 1"
FWW #238, 2014

Christian Becksvoort came on board as a contributing editor in 1988 (in issue #72) and remains in the current lineup. No *Fine Woodworking* author has been as prolific for such a long period of time. (He is nearing the 100-article mark.) Spending much of his career working alone in his shop, he has made the dream happen. He has successfully made a living by selling custom furniture, balancing the art of woodworking with the business of woodworking.

Becksvoort is widely regarded as the leading modern expert on Shaker furniture, and *Fine Woodworking* became the primary place where he shared that knowledge. *Fine Woodworking* is where many readers first learned about the Shakers and Shaker furniture; that is largely due to Becksvoort. He has explained authentic Shaker proportions and construction and emphasized the importance of visual balance and restraint.

Parallel to Becksvoort's historical and practical knowledge of Shakers and the Shaker style is his method of working. He is the epitome of efficiency, constantly reinforcing the notion that woodworking is design plus the execution that goes along with a specific design, not just cutting joints accurately. (He does, by the way, cut all his joints with extreme precision.) He models the idea that design and construction have a symbiotic relationship, evolving together for each piece, whether that be a Shaker reproduction or one of his original designs.

Becksvoort suffers no fools. He delivers his decades of experience simply, concisely, and with a wry sense of humor, constantly reiterating that simplicity requires thought and precision, not minimal effort. It is not by chance that Christian Becksvoort is one of *Fine Woodworking*'s most revered and trusted authors.

Michael Dresdner

"Compressed-Air Systems"
FWW #82, 1990

Michael Dresdner began apprenticing as a wood finisher in the early 1970s and came on as a contributing editor (with Christian Becksvoort) in 1988. In the same way that Becksvoort and Tage Frid helped define the magazine's approach to furniture, Dresdner defined its approach to finishing.

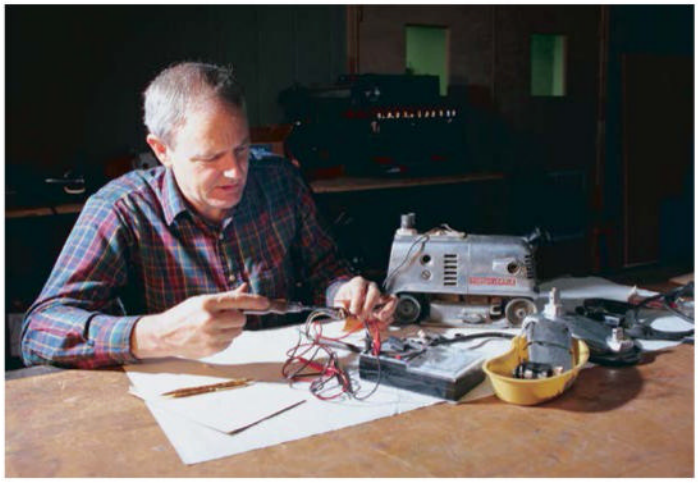
Dresdner wrote dozens of articles for *Fine Woodworking* but answered even more reader questions. Finishing questions flooded in, because until then there had been a dearth of trustworthy information on the topic. Because he understood the science of finishing and was also an accomplished woodworker and instrument maker, Dresdner became the authoritative finishing voice of the era.

Prior to Dresdner's articles, applying finish had often been a confusing topic, full of folklore and habits people picked up along the way. Dresdner steered readers away from myths and vague instructions and toward repeatable, evidence-based methods.

His advice was practical, tested, and clearly explained. He debunked common finishing misconceptions and explained the chemistry behind how finishes work, not just how to apply them. Among many other topics, Dresdner showed how to get creative with finish by dyeing and bleaching wood, and how to remove an old finish. He produced a history of finishes but also wrote about what was new, and he bestowed the confidence to explore new techniques and products.

"Removing an Old Finish"
FWW #93, 1992

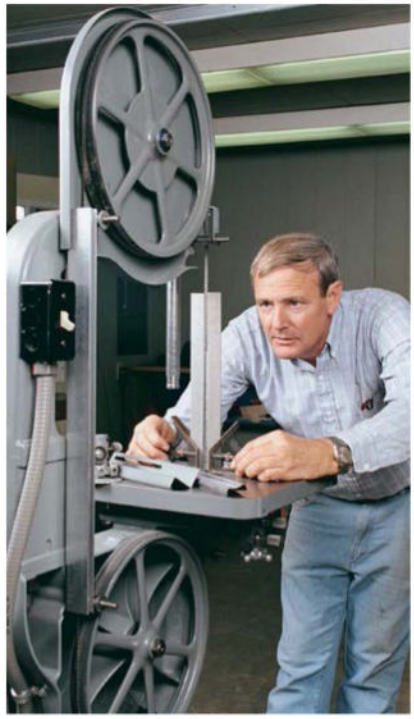
"Bleaching Wood"
FWW #86, 1991



"Basic Repairs for Portable Power Tools"
FWW #126, 1997

Robert Vaughan

When Robert Vaughan became a contributing editor in 1992, all of a sudden readers had a personal shop-setup and maintenance advisor. Vaughan was an expert at tools and machines—refurbishing them, buying them new, comparing them to each other, setting them up, using them safely. And he was a master at conveying information on how to do all that. He understood what was most important to focus on and what the most efficient approach to each situation was.



"Fine-Tuning a Bandsaw"
FWW #124, 1997

Being a successful woodworker requires a combination of talent, education, patience, skill, and more. Your shop setup is one of those factors, and having the best tools and machines will only take you so far; without the ability to choose, maintain, and repair tools and machines, your work will suffer. Vaughan shared his expertise with an easy writing style and friendly voice, as if he were in your shop helping out his friend.

His practical, shop-oriented articles provided guidance on selecting everything from Forstner bits to combination jointer/planers, diagnosing and fixing common problems, tuning up machines for optimal results, and buying used equipment. He began most of his articles by highlighting the pitfalls of a given tool or machine or even a part like a blade or a ball bearing. He led with the potential problem and then explained how you could avoid the situation if possible, and what to do if you couldn't. His knowledge was vast, covering everything from tool rests to overhauling vintage machinery.

Mario Rodriguez

"Hudson Valley Chest of Drawers"
FWW #262, 2017

Mario Rodriguez's meandering path to professional woodworker began early, with formal training at the High School of Art and Design in New York City. Then after a stint in the military, he entered a four-year training apprenticeship in exterior construction, millwork, and cabinetmaking with the Carpenters and Cabinetmakers Union in New York City. After working in construction for a time, he earned a BA in applied art at Lehman College.

All that led him to hang out his own shingle and focus on restoring and reproducing period furniture. Before too long he was writing about woodworking and teaching antique restoration at the Fashion Institute of Technology, conducting woodworking master classes at the Philadelphia Furniture Workshop, and teaching woodworking to middle schoolers at the Waldorf School of Philadelphia.

Adept at writing about design, Rodriguez explained not just how to build things but also how to see them. He stressed that creating good design doesn't come from talent alone but is a learnable skill. So he wrote about concrete ideas, proportion, rhythm, balance, and visual weight.

But Rodriguez was equally knowledgeable about techniques and building full projects, and his articles covered a range of topics: building rocking chairs, mantels, tables, stools, and cabinets; following a log to lumber; and answering questions about tools and techniques.

"Build a Fireplace Mantel"
FWW #184, 2006

Rodriguez's presence in the magazine and his dedication to teaching reflect both his mastery of the craft and his commitment to sharing that knowledge.

Photos this page: Anatole Burkin; Jonathan Binzen; Mario Rodriguez; Michael Pekovich; Anatole Burkin. Photos facing page: Mark Schofield (2); Barry NM Dima (2); Michael Pekovich.

"Waterborne Finishes Come of Age"
FWW #187, 2006

Chris A. Minick

In 1991 Michael Dresdner's departure left a vacancy in the area of finishing expertise that wasn't filled until 1995, when Chris Minick, who had the same level of expertise, became a contributing editor. In his youth, Minick had worked for his grandfather, a master finisher by trade. Then he took a job as a chemist at a large manufacturing company, all the while maintaining his status as a hobbyist woodworker. As the new finishing authority at *Fine Woodworking*, he drew on his professional background as a chemist and his practical shop experience to explain how finishes interact with wood, how various products compare in durability and appearance, and how to apply finishes effectively in easy-to-understand terms.

"Wipe-On Finish Test"
FWW #178, 2005

His articles on finishes, finishing, and adhesives covered everything from the versatility of shellac, how to fill grain for a glass-like result, choosing and using spray systems in small shops, outdoor finishes, painting furniture, handling the intricacies of finishing kitchen cabinets, surface-prepping wood, protecting machine surfaces, using wood putty, and storing unused finish.

But perhaps even more valuable than Minick's full-length articles were the thoughtful, personalized answers he gave to hundreds of readers who asked very specific questions, such as these:

What are the deleterious effects finishes have on archivally kept photographs and rare books?

I have tried to re-glue my belt sander belts with many different adhesives, including epoxy, but to no avail. Is there any method for repairing these belts?

I use water-based polyurethane varnish, and the brush marks keep showing; in other words, I end up with a rough finish. Can you help?

Can you suggest a finish that is safe to use indoors? Without ventilation?

Online Extra

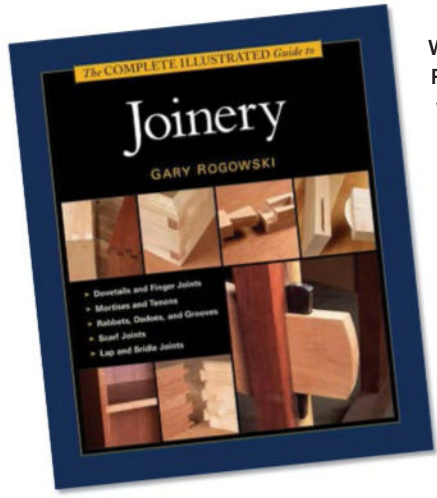
To read Minick's answers to these questions, go to **FineWoodworking.com/323.**

Gary Rogowski

"Techniques for Taming Tearout"
FWW #282, 2020

Though self-taught woodworker Gary Rogowski was named a contributing editor in issue #121, he had been writing for the magazine as early as issue #69. In a craft that is steeped in history, Rogowski helped bring focus to contemporary studio furniture and process-oriented craftsmanship. Without ignoring its historical influences, he treated woodworking as a flexible, creative discipline rather than a rigid set of steps.

Rogowski's English degree from Reed College and his practical teaching experience meant that his technical skills were as finely developed as his creativity. His articles ran the gamut of topics—from multiple ways to tackle breadboard ends, to building a futon couch, to fine-tuning a design prior to building—although a few common threads became apparent. He often focused less on fixed recipes and more on how to think through a build, how to adapt techniques, and how to recover from mistakes.



The Complete Illustrated Guide to Joinery
The Taunton Press, 2002

Founder of the Northwest Woodworking Studio in Portland, Ore., Rogowski writes like an instructor, giving thoughtful, efficient, and occasionally philosophical advice. Throughout his woodworking career, Rogowski has consistently given to the world of woodworking through his articles, video workshops, and books, particularly *The Complete Illustrated Guide to Joinery*, which is in its 20th printing.

John White

An experienced engineer, designer, cabinetmaker, and machinist, John White managed the *Fine Woodworking* woodshop for almost a decade. While White was only a contributing editor for five issues, he came on staff full-time as shop manager for another 39 (*FWW* #155–#194), during which time he continued to write magazine content. White's mechanical genius fundamentally shaped how the magazine—and much of the woodworking world—approached and understood machines, accuracy, and shopmade solutions.

White approached machines and power tools with the same reverence as hand tools, not as crude shortcuts. He didn't just explain how to use the table saw, jointer, planer, bandsaw, and drill press—he taught how to tune them up, measure, and verify accuracy, which gave readers the ability to be self-sufficient in their one-person shops. He introduced many to the joy and precision of dial indicators, feeler gauges, test cuts, and repeatable results. He showed that shopmade jigs could outperform commercial accessories and that you can get accuracy through patient setup and good practice, not just from good luck or high-priced devices.

White's mind was never idle, never inefficient. He was straightforward regarding smart workshop organization and storage ideas, but he could brilliantly trick out a router table or a sanding station in ways you never realized you needed. White's delivery, whether in print or video, was always accessible no matter how complex the topic. He also had smart techniques for even the simplest tasks, such as uncoiling a bandsaw blade, and he left no reader's question unanswered.

"Smart Shop Storage"
FWW *#230, 2013*

"New-Fangled Workbench"
FWW *#139, 1999*

"The Wired Workbench"
FWW *#223, 2012*

"The Essential Workbench"
FWW *#167, 2003*

Lon Schleining

Boxes, bending, and benches are the three areas Lon Schleining has written about extensively in *Fine Woodworking* and in books. But Schleining's expertise goes far beyond those three topics. By the time Schleining became a contributing editor in 2001, he had been building staircases in Southern California for decades, had taught woodworking at Cerritos College and the Marc Adams School, and had written dozens of articles for *Fine Woodworking* as well as *Fine Homebuilding*.

"Thomas Jefferson's Writing Desk"
FWW *#144, 2000*

Because of his extensive background, readers have turned to Schleining for his wisdom, particularly regarding benches. His article "The Essential Workbench," published in 2003 (*FWW* #167), struck a chord with readers. They wanted more, and so in 2004 his book *The Workbench* was published. He had already written two other books: *The Complete Manual of Wood Bending: Milled, Laminated, and Steambent Work* and *Treasure Chests: The Legacy of Extraordinary Boxes*.

Schleining's time building staircases made him an authority on things such as compound joinery, angled and curved work, and bending wood. To do that work he had to break down complex geometry into manageable decisions, consider reference surfaces and layout logic, and understand the whole picture to figure out sequencing. All of this was reflected in the articles he wrote and the questions he answered, whether he was discussing metalwork in woodworking, the Thomas Jefferson writing desk, random-orbit sanders, or anything in between. Schleining's influence in the woodworking community is far reaching and undeniable.

"Lamination Bending"
FWW *#164, 2003*

Photos this page: Michael Pekovich; Asa Christiana; Michael Pekovich; Tom Begnal; Matt Kenney; Jefferson Kolle; Steve Scott. Photos facing page: FWW staff; Thomas McKenna; John Tetreault; FWW staff; Thomas McKenna; Jonathan Binzen.

Garrett Hack

"Garrett Hack's Favorite Handplanes"
FWW #307, 2023

Around the time John White and Lon Schleining came on board as contributing editors, so did Garrett Hack. While White and Schleining added technical and mechanical advice, Hack brought an element of adventure to the pages of *Fine Woodworking*. Hack had been building custom furniture since attending Boston University's Program in Artisanry in the late 1970s, and his contemporary interpretations of classic forms were something readers looked forward to seeing. Hack became known for his personal style and artistic license.

Hack combined creative elements, advanced skill, and historical reference in his custom designs, and it resonated with readers. He explained furniture proportions and visual harmony and showed how small design choices affect the whole piece.

Beyond design, Hack is a master with hand tools and is *Fine Woodworking*'s resident hand-plane aficionado, tackling articles about smoothing planes, rabbet planes, block planes, tuning hand planes, and the anatomy of hand planes. His books, *The Handplane Book* and *Classic Hand Tools*, are themselves classics. Additionally, there is no shortage of hand-plane questions in *Fine Woodworking*, and Hack has answered 90% of them. Examples: *Why not make hand planes like jointers? What's my best strategy for avoiding tearout? How do I sharpen a router-plane blade?*

Hack is active in the New Hampshire Furniture Masters and teaches throughout the United States and abroad.

"The Versatile Huntboard"
FWW #187, 2006

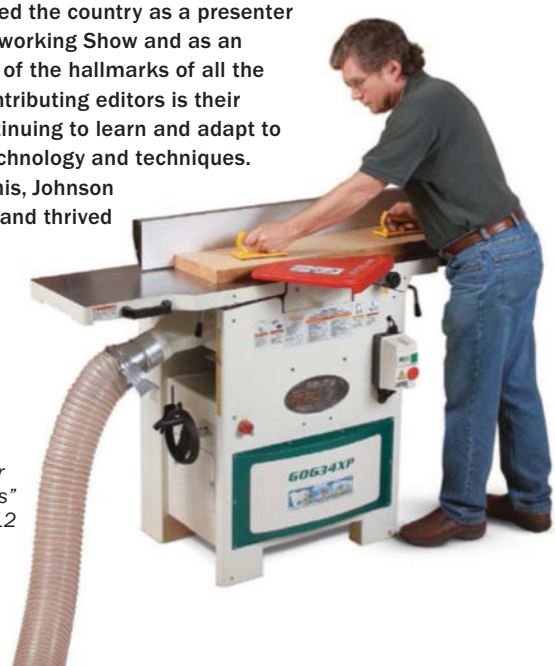
Roland Johnson

"Make a Bargain-Basement Plane Perform Like Royalty"
FWW #216, 2011

In 1997 Roland Johnson's first article for *Fine Woodworking*, "Dry-Brushing Wood Stains," was published in issue #123. At that point he had been in the woodworking business for about a year. It was his finishing techniques that the magazine first noticed, but it became obvious very quickly that Johnson was a gearhead to the core, and his articles shifted from finishing-based content to anything technical or tool- and machine-related. By issue #167 he was invited to become a contributing editor, a position he still holds.

Between single-tool reviews, Q&As, tool tests, and feature articles, "Rollie," as Johnson is widely known, has produced approximately 230 pieces of content. There isn't a hand tool, power tool, or machine he doesn't know inside and out. His extensive knowledge of machinery and fascination with how things work have made Johnson the go-to tool and machine expert for *Fine Woodworking*. He continues to write articles that explain techniques; that compare tools and machines; that demonstrate maintenance, setup, tuning, and safe use; and that provide news on the latest tools and machines and how they perform.

But Johnson doesn't just write. He creates video classes, and for years he traveled the country as a presenter with The Woodworking Show and as an instructor. One of the hallmarks of all the magazine's contributing editors is their interest in continuing to learn and adapt to advances in technology and techniques. Exemplifying this, Johnson has embraced and thrived in the realm of handheld CNC, becoming a master-class instructor for Shaper Origin.



"Jointer/Planer Combos for Less"
FWW #225, 2012

Steve Latta

"Pennsylvania Spice Box"
FWW *#196, 2008*

Steve Latta's impact as a contributing editor (beginning in 2007) is significant and ongoing. He brings a deep expertise in traditional woodworking combined with modern techniques.

While Latta was working at a bike shop during college, a customer noticed his aptitude for fine work. That customer owned a furniture shop and offered Latta a job. He accepted it—and never looked toward anything but woodworking again. He developed an affinity for period furniture and worked in a few shops, learning as much as he could and fine-tuning his skills. With that skill set, Latta spent the next couple decades as a professor of cabinetmaking and wood technology at Thaddeus Stevens College of Technology. His students became known as highly skilled woodworkers. Latta writes prolifically, lectures and teaches woodworking across the country, and has developed a modern inlay tool for Lie-Nielsen Toolworks.

As an instructor, Latta knows how to convey the basics; therefore, his articles have been staples in the Fundamentals department, teaching readers things like miter-gauge essentials, tips for square glue-ups, and habits of highly effective woodworkers. As a master woodworker himself, Latta has also written for the Master Class department. There he has broken down such processes as making dentil moldings and creating traditional stringing or banding. As a furniture maker, Latta has demonstrated his process for making a serpentine sideboard, a Federal card table, a Pennsylvania spice box, and other projects. A mechanically minded, efficient worker, Latta has also covered topics like cutting perfect tapers on the table saw and getting the most from your crosscut sled.

"Build a Serpentine Sideboard, Part 1"
FWW *#222, 2011*

Michael Fortune

"A Revolution in Chair Making"
FWW *#227, 2012*

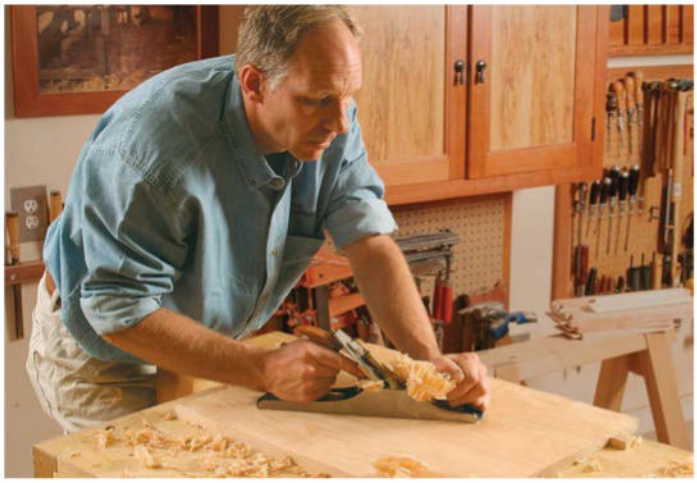
Michael Fortune began contributing to *Fine Woodworking* in issue #30, long before he became a contributing editor. He is unique in that his work for the magazine melds bold design, high-level craftsmanship, and technical discipline. He pushes readers to explore new frontiers in design and at the same time introduces innovative jigs and clever techniques. Fortune's accomplishments are not just as a maker and author. He teaches, mentors, volunteers, and promotes woodworking as a vocation.

When Fortune submits an article proposal, the topics run the entire range of possibilities. He is as adroit at discussing design inspiration as he is at conveying all his tricks for getting the most out of the bandsaw. Fortune can wax poetic about the perils of glue-ups and in the next breath present you with four original ideas for pulls. Fortune can demystify tapered laminations, hot-pipe bending, or steam-bending.

Highlighted on the magazine's prestigious back cover more than once, Fortune brings value not just with his design ingenuity but with his ability to condense a somewhat mystical topic into concrete ways of thinking about, improving, and implementing design. This is true particularly in articles such as "Inspiration for a Bedside Cabinet" (*FWW* #171), "9 Tips for Better Design" (*FWW* #192), and "Put Your Designs in Perspective" (*FWW* #220). He cajoles us to look to history, to design first and engineer after, to use new materials, and to experiment thoughtfully.

"7 Secrets of Steam-Bending"
FWW *#238, 2014*

Photos this page: FWW staff (2); Matt Kenney (2); Michael Pekovich; Steve Scott.
Photos facing page: Thomas McKenna; FWW staff; Michael Pekovich; Barry NM Dima; Skylar Nielsen; John Tetreault.



"Plane Like a Pro"
FWW #204, 2009

Chris Gochnour

"Build a Longboard"
FWW #253, 2016

Chris Gochnour began woodworking as a teenager in his grandfather's basement, where he built custom skateboards to sell to local board shops. Gochnour never lost his passion for woodworking and eventually began building custom furniture. In addition to building and writing, he teaches woodworking at Salt Lake Community College and the Marc Adams School of Woodworking, and he mentors out of his shop.

Gochnour has been writing for *Fine Woodworking* since 1998 and came on as a contributing editor in 2016. While he is well versed in all aspects of woodworking, he has carved out a spot as a hand-tool expert. When there's a hand tool that needs to be reviewed or a method that needs to be explained, we turn to Gochnour. His articles cover all of it, whether you want to know which coping saw or honing guide to buy or how to file a joint down for the perfect fit. The number of tools Gochnour has reviewed is unprecedented. His information is always thorough and comes from the perspective of a professional in a one-man shop.

His knowledge base goes far beyond hand tools and reviews, though, as does his design sense. Time and again Gochnour's project articles—"Contemporary End Table" (*FWW* #295), "Build a Curved-Front Desk" (*FWW* #225), or "Strong, Stunning Sideboard" (*FWW* #277)—based on his original designs, are some of *Fine Woodworking*'s most popular articles. We rely on Gochnour also to demonstrate how to manage more complicated techniques such as the mitered bridle joint, or how to build a stout workbench. Given Gochnour's breadth of experience, no topic is too small, too large, or out of reach.

"Build a Curved-Front Desk"
FWW #225, 2012

Bob Van Dyke

William and Mary Highboy

The most recent addition (in 2019) to the contributing editor roster is Bob Van Dyke. Initially Van Dyke used woodworking as an outlet during his 18-year career as a master chef. In 1993 the outlet became the career, and in 2000 he and his business partner opened the Connecticut Valley School of Woodworking in Manchester, where he is the director.

Van Dyke's unbridled enthusiasm and energy is beyond compare. While tirelessly running the school, teaching classes, and scheduling some of the best woodworking teachers in the country, he also writes for *Fine Woodworking*, teaches and speaks across the United States, records E-learning classes, and never stops building, researching historical pieces, and visiting museums. One of his greatest strengths is his vast knowledge of historical furniture and woodworking traditions.

Additionally, his skill set has no gaps or deficiencies. Van Dyke excels at handwork as much as with power tools and machines. His jigs and sleds—smart, efficient, and always with safety at the forefront—have changed the way people work.

He has seen thousands of people at every skill level learn how to build. He has watched hundreds of instructors teach. With a mind that never shuts down, he synthesizes all that information and gives the final versions to all of us. Wearing his signature black button-down shirt, Van Dyke is a clever, efficient bridge between modern-day woodworking and its history.

"Jigs for Routing Perfect Curves"
FWW #283, 2020

When I designed this plant stand, I wanted to accentuate its verticality, so I made the legs long and kept the table surface fairly small, allowing the plant to continue the upward movement of the piece. The shape of the legs was at the heart of the design. Years ago, while I was a student at the College of the Redwoods studying under James Krenov, I was attracted to a piece he had made that had five-sided legs. The fifth side of those legs projected out diagonally from the corners of the cabinet, giving the piece an engaging, satisfying stance. I adapted that leg design for my plant stand and emphasized its importance by running the legs right up past the table top and notching them to receive the top.

Wood and grain selection

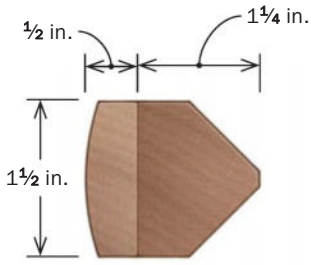
I chose a plank of black walnut for the stand's legs and rails and for the bridle-joined frame of the top. For the top's panel I used narra, a lovely species from Papua New Guinea that pairs well with walnut. I could have made a floating, solid-wood panel, but I opted for a veneered one, which allows a tight fit to the frame without the need to consider wood movement. If I had used solid wood, I would have needed a gap around the panel; that didn't sound like a good idea, since dirt from the potted plant could get into that expansion space. I also preferred the crispness of the panel surface connecting directly to the frame. So I sliced the narra into thick veneers and glued them to a stable substrate. Cutting your own veneers and gluing up your own panels is surprisingly approachable and is quite a versatile furniture-making method. (For a full description of how I made the veneered panel, see Skills Spotlight, pp. 76–80.)

When you lay out the parts in your plank, the legs are a natural starting point. For a traditional leg, a plank with riftsawn grain is a good choice, since it ensures that all four faces of the leg will have

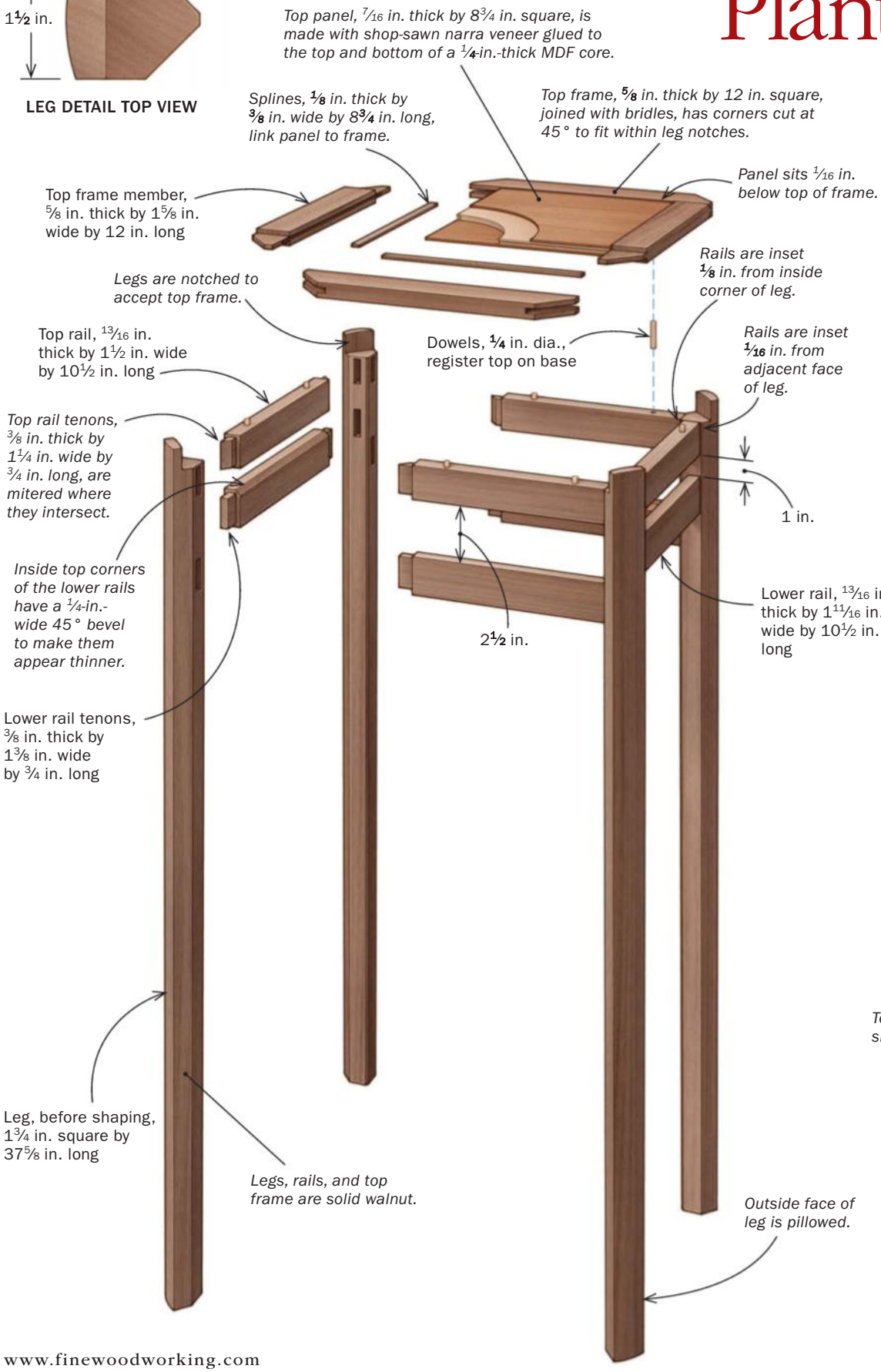
Build a Contemporary Plant Stand

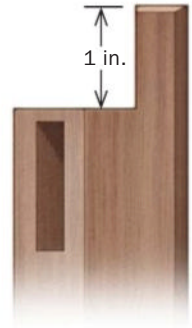
Five-sided legs and a shop-sawn veneered panel elevate the design

BY CRAIG VANDALL STEVENS

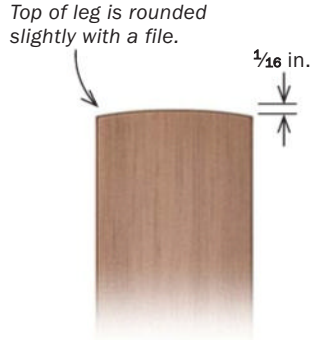


LEG DETAIL TOP VIEW



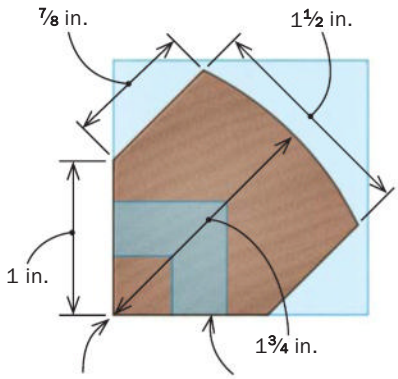


LEG DETAIL SIDE VIEW



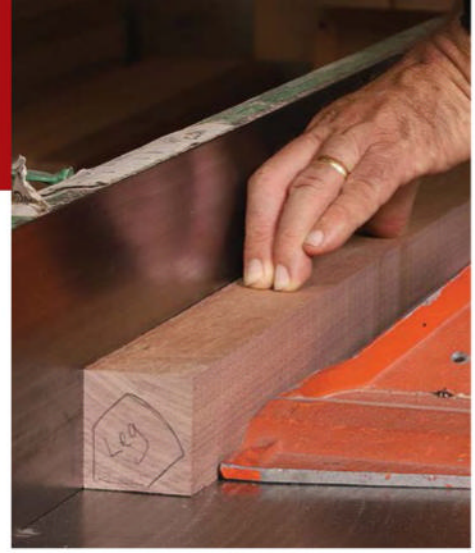
LEG DETAIL OUTSIDE VIEW

Base joinery



Mill blank so inside corner is 90°. *Mortises are cut with leg blank still square.*

Find the parts in the plank. *A cutout of the leg's five-sided cross-section helps you orient the leg in the rough plank to avoid flatsawn faces.*



Square to start with. *After bandsawing the leg blanks from the plank, mill them square to prepare for cutting the joinery.*

Mark out the mortises. *A story stick with a registration hook at the top end simplifies accurate layout of the mortises.*

Tenons meet at the top. *The mortises for the top rail tenons intersect, so those tenons are mitered to maximize glue surface.*

similar straight grain patterns. But with the five-sided leg, using true riftsawn grain may result in one of the leg's faces being flatsawn. To avoid having the little Krenov on my shoulder give me the side-eye, I made a paper cutout of the leg's cross-section and held it up to the plank's end grain. After rotating the cutout until I could see I wouldn't be getting fully flatsawn grain on any of the faces, I traced the cutout.

Leg and rail joinery

After you've determined where the legs will be cut from the plank, bandsaw them out, leaving plenty of margin around the layout. Then mill the leg blanks square, making sure that the two faces comprising the inner corner of the leg—where the mortises will be cut—are at 90°. To simplify the mortising,

Preliminary construction. *With the legs still square, fit all the joints and dry-assemble the base. Once that's done, you can disassemble and begin shaping the legs.*

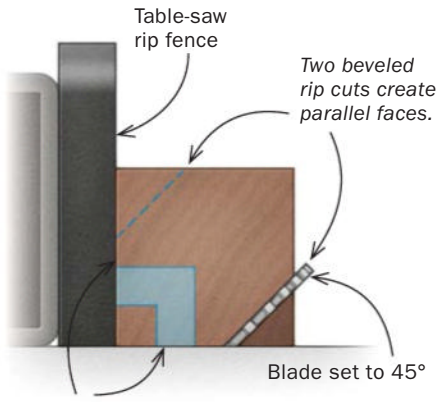
don't cut the legs to their five-sided shape until all the joinery is cut and fitted. I cut the mortises using a hollow-chisel mortiser with a ⅜-in. hollow chisel.

The mortises for the upper rails are all at the same height, and they intersect. Their depth is important. You don't want to cut them so deep that you remove the far wall of the intersecting mortise, which would reduce good glue surface. I set the depth of the mortiser so that a small amount of wood needs to be pared away with a chisel, leaving a straight wall for the long tenon cheeks. The lower rails are located at two different heights to add visual interest to the upper part of the base. This means that the mortises don't intersect and the tenons can be full size, strengthening the joinery.

I cut the rail tenons on the table saw using a finger-joint blade set—a pair of square-ground blades together measuring ⅜ in. wide. This setup cleanly cuts the shoulders and cheeks at the same time. To maximize the glue surface of the upper rail tenons, miter their inner cheek. The miters can be cut on the bandsaw or with a handsaw.

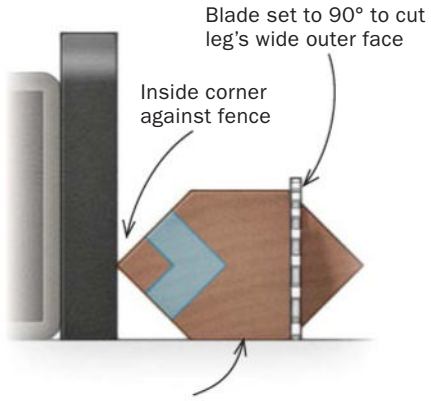
Leg shaping

Begin with two bevels. *With the table saw's blade set to 45°, make two rip cuts to create a pair of parallel faces.*



Joinery faces ride against table saw's rip fence and table for these cuts.

Rip the fifth face. *Return the table saw's blade to 90° and make a rip cut to create the outer-facing fifth facet of the leg.*



One of the leg's newly cut parallel faces rides table.

Make the notch at the top. *The legs are notched to receive the plant stand's top. Cut the shoulder of the notch at the table saw, and then cut the cheek at the bandsaw. Clean up the sawn surfaces with a chisel.*

Pillow the fifth facet. *Strokes from a hand plane give the wide fifth face a rounded surface. The four other faces all remain flat, but Stevens planes them to a very slight taper. This makes the leg narrower at the bottom.*

Slots first. *Begin the bridle joint by cutting the open mortises. Stevens uses a tenoning jig and a flat-grind rip blade to cut a clean, flat-topped slot.*

Bridle joinery

Shape those pentagonal legs

After fitting the mortise-and-tenon joints individually, dry-assemble the entire base to be sure that all the joints are nicely closed. The legs, still oversize and square, will look out of balance with the small rails. But you're about to change that equation.

Disassemble the base and take the legs to the table saw. To cut the two parallel faces of the leg, make two rip cuts with the blade angled at 45° and the leg's joinery faces riding on the table and the rip fence. Then readjust the blade to 90° and, with the inside corner of the leg against the rip fence and one of the parallel faces on the table, rip the wide, fifth face of the leg.

Next comes the notch at the top of the leg, which expands the area where the top panel will sit. The shoulder of the notch is flush with the top of the upper rails. Cut the shoulder at the table saw and the cheek at the bandsaw.

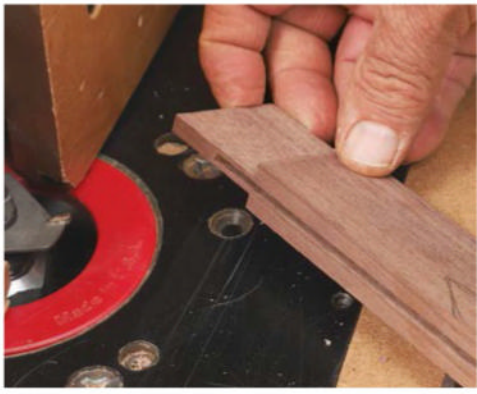
Then at the bench, use a sharp hand plane to pillow the leg's wide outer face. Shopmade V-blocks work well to support the leg as you do the planing. Draw the curve on the ends of the leg to guide the shaping. Once you've achieved the basic curve, adjust the plane blade to a lighter set to refine the faceted surface. Finally, use a very lightly set, freshly sharpened blade to leave a beautiful surface. Alternately, you could smooth the curve with a sanding block and fine sandpaper.

I taper the four flat faces of the leg very slightly with a hand plane, taking a little more off the bottom of each face than the top. In the end, the difference in thickness is probably not much more than 1/16 in., yet it does prevent the leg from looking bottom-heavy. I also put a long tapered chamfer on the inside corner of each leg. These tapers are also very slight, but they improve the stance of the project.

Inset the end grain. *Stevens uses the mortised frame members to lay out the bridle tenons. Having milled the parts 1/16 in. over final width and then cut them to final length, he insets their ends 1/16 in. at layout. That makes it easier to clamp them fully home. He trims off the extra width after assembly.*

Crosscut shoulders. *A sled on the table saw takes care of the shoulder cuts for the bridle tenons.*

Upright for the cheeks. *Stevens goes back to the tenoning jig to cut the bridle-tenon cheeks.*



A smaller slot. *A slotting cutter at the router table cuts the grooves for the splines that join the panel to its frame.*

Photos: Jonathan Binzen. Drawings: Christopher Mills.

PANEL

Shooting for a perfect fit. *To cut the top panel to exact size, Stevens measures the dry-assembled frame with story sticks. He uses a shooting board to plane the sticks' end grain and dial in the exact length.*

A perfect rip. *After using a story stick to set the table saw's fence, Stevens rips the panel to width.*

Impeccable crosscut. *Stevens uses a second story stick to set a stop block on the crosscut sled and cut the panel to length.*

Frame-and-panel top

For the frame around the top, I chose bridle joints, a strong and versatile option for joining frames. When laying out the bridle joint, it's important to keep the upcoming glue-up in mind. Make the frame parts 1/16 in. wider than the finished dimension, but crosscut them to finished length. This will make it easier to clamp the joints all the way home, since part of the joint is recessed.

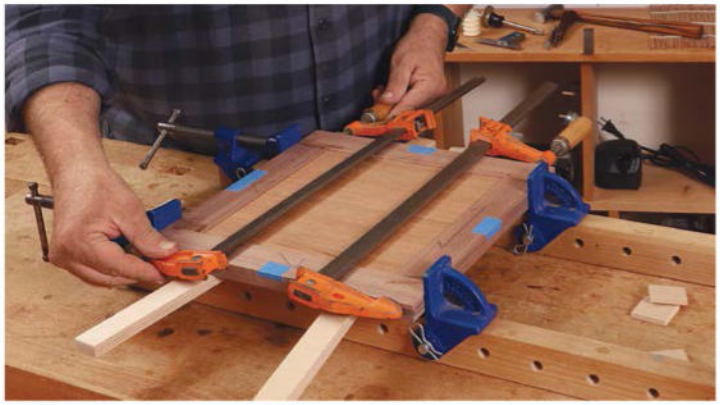
To cut the joints, I used a tablesaw blade with flat-ground teeth so that the bottom of the open mortises in the bridle joints would have no gaps. An alternate top bevel blade (ATB), by contrast, will leave a fox-ear notch that doesn't look as clean.

Spline slot. *At the router table, use the slotting cutter to make a groove for the spline around the perimeter of the panel. Adjust the cutter's height so the panel will sit slightly below the frame.*

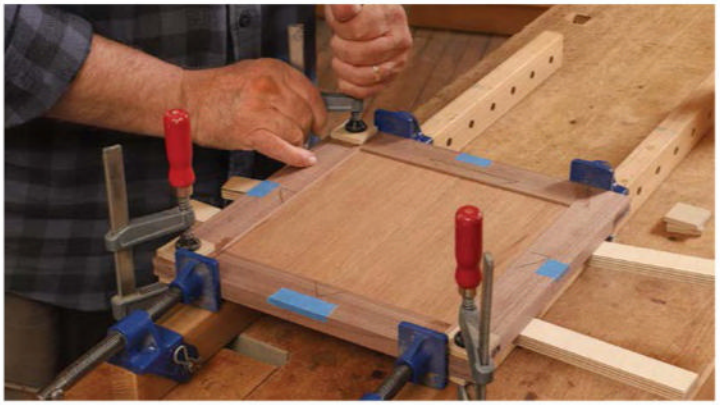
Assembly

Start with the panel splines. *A little glue in the panel grooves keeps the splines from shifting. But to avoid squeeze-out, apply glue just to the bridle joints, not to the edge of the panel.*

With the frame dry-assembled, I bandsawed slices of veneer for the panel, then glued them to an MDF substrate. To achieve a perfect fit of the panel to the frame, I carefully made two story sticks—one that fit the frame's side-to-side interior distance, and the other its front-to-back distance. The story sticks started out slightly overlong; I trimmed them to exact length by shaving their end grain with a shooting board. Then I took them to the table saw and used them to set the distances for ripping and for crosscutting the finished panel.



Crisscross clamping. *After pressing the frame tight by hand, apply moderate pressure on the tenoned frame members with bar clamps from below, then add clamps on top to tighten the mortised members.*



Sandwich clamps. *After removing the crosswise clamps, add a clamp to each corner to exert pressure on the cheeks of the bridle joint.*

Stage two. *After gluing the legs in pairs, connect the two subassemblies. Make V-block clamping cauls that fit the five-sided legs.*

Once you have the panel fitted to the frame, use a three-wing slot cutter mounted in a router table to cut spline grooves along the inside edge of the frame pieces and around the perimeter of the veneered panel. Adjust the height of the slot cutter to create a step-down from the frame to the panel.

Glue up the frame and panel in one go, with horizontal clamps pushing the bridle joints home in both directions and smaller vertical clamps squeezing the faces of the joints. When the glue cures, trim the excess from the edges of the frame with a hand plane. The recessed end grain will provide a depth reference.

Nip the corners. *Once the top is assembled and trimmed to size, use a miter gauge at the table saw to cut the corners at 45°. Be careful with the measurements to achieve a firm press fit between the leg notches.*

Mark the panel. *With the top fitted, insert dowel points in the holes you bored in the top rails, and push the top into place. Use a mallet to knock the top downward and crisply transfer the dowel locations.*

Top joins the base

To glue up the base, first make clamping cauls to cradle the unusual contour of the legs. Do the assembly in three stages: Glue up one pair of legs, then the other pair, then join the two pairs together. When the base assembly is finished, fit the top between the leg notches, cutting off its corners at 45° on the table saw. To get a perfect fit, I use story sticks once again, fitting them between notches on the diagonal and using those distances to trim the top to size.

With the top fitted to the base, use dowel centers to transfer the location of the holes in the rails to the underside of the top. Then drill the top, insert dowels, and glue the top in place.

I used Fish Stick glue from Lost Art Press for this project. Fish Stick's 90-minute open time makes for a relaxed glue-up. I'm a fan of reversible adhesives like this one. It cleans up with hot water, is plenty strong, and is easy to use. And there's nice artwork on the label!

I finished the stand with two coats of Osmo oil, covering all surfaces, then wiping off all remaining oil with fresh rags. It's important to wipe off all the oil. Otherwise it stays sticky and doesn't dry well. I soak used rags in water, spread them out to dry outside, then throw them away. □

Craig Vandall Stevens is executive director and principle instructor at Philadelphia Furniture Workshop.

Two-man drill press. *With a friend (the eagle-eyed Greg Horton) helping him stay plumb and a brad-point bit to ensure that he drills right into the divot made by the dowel point, Stevens cuts dowel holes in the top with a handheld drill.*

Dowels in and clamps on. *Apply a smidge of glue in the dowel hole with a skewer, then knock in the dowels and clamp the top. The plant stand is now complete.*

Replacement Gouge Handles

Bring new life to your carving tools with a classic design

BY BILL HOWES

Recently I purchased a couple of secondhand carving gouges to add to my collection. The gouges themselves were fine, but I was disappointed with the handles. They felt short, they were round, and they rolled on my bench. I noticed the sweep was no longer stamped on the blade, something tool manufacturers stopped doing years ago. Also, the number that had been stamped on the handle had worn over time to the point where I could no longer identify the sweep or size, which often left me searching for the right gouge. It was time to stop searching and start making new handles.

Identify the sweep

The sweep of a gouge refers to the curvature of the blade. It ranges from #1, which is flat, to #10, which is a semicircle. Above #10 you start to get into V-shaped or veining tools. At times it can be confusing to identify the sweep. I printed out an illustrated chart from Chris Pye's *Woodcarving Tools, Materials, and Equipment* that has every width and sweep, and it now hangs in my shop. When I have an unknown tool, I hold it up to the chart and can easily identify correlating numbers, which I then stamp onto the new handle. But first I need to shed the old one.

Photos: Owen Madden. Drawings: Derek Lavoie.

Removing the old handle is simple. I start by securing the blade of the gouge in a shopmade tool clamp with just the handle protruding. With a wide chisel and mallet, I split the handle by setting the blade of the chisel parallel with the grain on the butt of the handle and giving it a good whack with the mallet. The handle should split around the tang of the blade. I make sure not to use my favorite chisel in case it hits the metal tang hidden within.

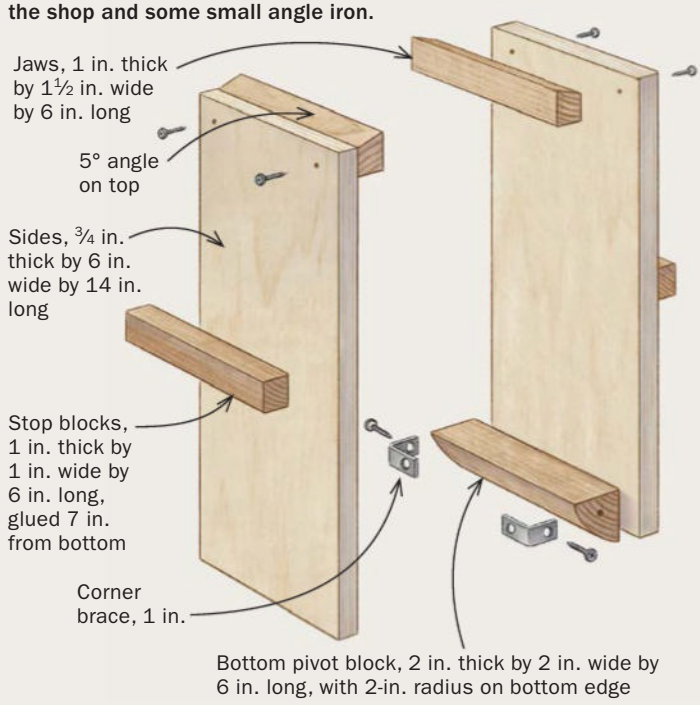
A handle shaped by history

I make all of my handles the same as the one on my Herring Bros. veining tool. The handle is a tapered octagon that is the perfect length to balance the weight of the blade. It is flat on the top end to accommodate the use of a mallet and has a ferrule where the blade meets the handle. If it's the original handle, which I think it is, it has lasted over a hundred years.

When considering a new handle, I look to my scrap box. There are many suitable species, including walnut, mahogany, apple, cherry, ash, oak, maple, beech, and even hawthorn (thanks to a windstorm a couple of years ago). While a new set of uniform handles from the same material would look nice, I wanted to make use of the mix of materials I have on hand. I designated particular species to different sweeps, making them easily identifiable. For this handle, I'm using an offcut of English walnut that has a very pale-tannish hue.

Sturdy tool holding

For holding my gouges, I use a Scandinavian-style tool clamp. This workbench accessory, commonly used to file sawteeth, is commercially available at stores like Lee Valley (Sjobergs Tool Clamp, $112), but it is also easily made from wood lying around the shop and some small angle iron.

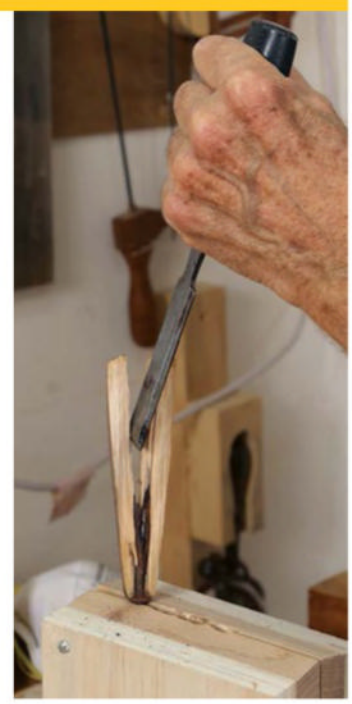


Start at the end

Before the new handle is shaped, the old handle must be removed to measure the blade's tang.

Tool holding. *To save the faces of his bench vise from being marred by the metal blade, Howes uses a shopmade wooden tool clamp with sacrificial jaws that can be replaced when they get damaged.*

Split the handle. *Setting the chisel parallel to the handle's grain makes for a nice clean split.*



Proceed with caution. *Tangs vary in size, so you never know where one might end.*

Roughing the shape

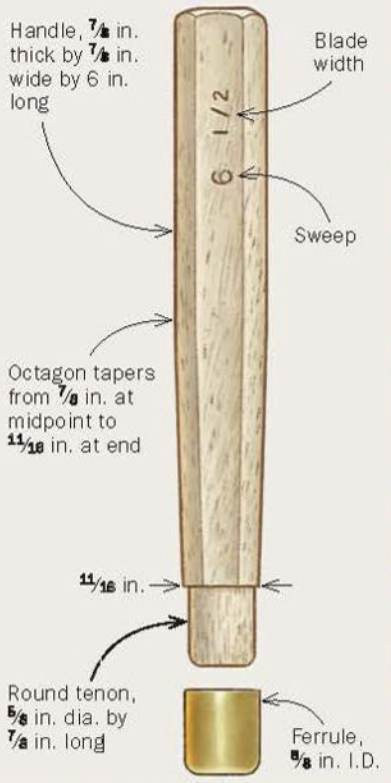
Working from the center point of the handle ensures an even weight balance and accurate cutting.

Mark the center. *Before shaping the handle, Howes scratches two diagonals with a center square to find the center point for the lathe.*

Good practice. *For a better hold in the lathe, punch a center mark with an awl and saw kerfs on the diagonals for the drive center to grab.*

Shape the octagon

With a bench plane, knock down the corners to create a handle with eight even facets.



Add a ferrule for strength

A brass sleeve, or ferrule, adds strength and support where the metal blade meets the wood handle. Pictured here is a 5⁄8-in. brass ferrule from Lee Valley.

Turn to the interior diameter of the ferrule. *Mark the length and turn the handle with a parting tool until the ferrule is snug. Make sure to round over the end to mimic the interior of the ferrule so it seats fully.*

A delicate balance

The handle must be long enough to allow a second hand to steady the tool, but not so long as to throw off the balance. By trial and error, I found 6½ in. to be an appropriate length for the wider and heavier blades—that is, ones around ¾ in. to 1 in. wide. For blade widths of ½ in. to ⅝ in., I shorten the handle to 6 in. For anything narrower, I take it down to 5½ in. I also accommodate the thickness of the handle to the width of the blade—1 in. thick for wider blades, down to 13⁄16 in. for my smallest. Considering all the variables, taking these steps to balance a tool may seem like overkill—until you use it.

As I start shaping the handle, I like to keep the blank extra long so that if I make a mistake I can just chop it off and keep going without wasting the whole piece. I mark the diagonals on the ends to find centers for the future lathe work. For some extra hold on the lathe, I score the diagonal lines with a saw and drill the center. Next, I hold the piece between dogs on my workbench and plane the corners down to make an octagon. I take an equal amount of passes with my plane from each corner to keep the facets uniform.

Taper the handle. *Plane a straight taper from the midpoint down the facets to the ferrule to add comfort in the hand and a clean aesthetic.*

The key to longevity

A ferrule is a brass sleeve used to reinforce a wooden-handled tool at its weakest point—where the blade meets the handle. It's not uncommon to forego using ferrules, but I like the added strength and stability they offer. Ferrules are sized by interior diameter (I.D.), from ⅜ in. to 1½ in. For gouge handles, I find the most common are ½ in., ⅝ in., and ¾ in. The size I use is governed by the size of the bolster, or shoulder of the blade—in this case, ⅝ in.

I mount the octagonal blank on the lathe and turn the end to the I.D. of the ferrule. The ferrule is slightly rounded over on the end, so I turn a little roundover at the end of my blank to match. I test the fit before I move on to the next step. The ferrule should be tight enough that you can't seat it by hand. A loose fit is no cause for worry; the blank is extra long, so I can cut it off and start again.

Drive it home. *Howes drills a block to match the shape of the ferrule, preventing deformation when driving the ferrule home.*

Drill in two steps

Because the blade's tang is square and tapered, drilling two holes of different diameters is required to achieve a good fit and avoid splitting the handle.

Drill the first hole. *The first hole is drilled to match the full length of the tang. The diameter of the hole is determined by the thickness of the tang approximately ⅜ in. from the tip.*

Determine the second hole's depth and diameter. *The depth of the second hole is an estimated distance from the bolster to where the tang makes contact with the first hole. The diameter of the second hole is the approximate thickness of the tang measured ⅜ in. from the bolster.*

Drill the second hole. *Antique blades were often shaped by hand, so the tang may not be an even taper. Test the fit after drilling. If it feels too tight, drill a little deeper until it fits nicely, with about ⅜ in. between the end of the ferrule and the bolster of the blade.*

Before seating the ferrule, I taper the octagon. I make a mark 3 in. from the shoulder of the turned end to act as the starting point for the taper. I use a block plane and work down each facet from my pencil mark to the turned shoulder. I estimate the thickness of the ferrule and stop just before I work past it so the taper dies right into the brass of the ferrule. To set the ferrule, I have a scrap of hardwood with a ⅜-in. hole in it. I set the ferrule in place on the handle and insert it in the hole, then pound the end of the blank with a mallet to drive it home.

Set the handle

I do the drilling for the tang on the lathe to ensure the hole is centered. I start by drilling a ⅛-in. hole the entire length of the tang. Most tangs are between 1½ in. to 2 in. long and are a tapered square shape. To find the diameter for the outer hole, I hold calipers near the shoulder of the tang and take the average of the two widths (straight across and on the diagonal). I make the depth of the second hole about two-thirds of the length of the tang. Next, I take the handle off the lathe and test-fit the blade. The shoulder

Set, shorten, stamp

The final steps in fitting the handle are all about feel. The handle should be perfectly square to the blade and well balanced, essential qualities for an heirloom tool.

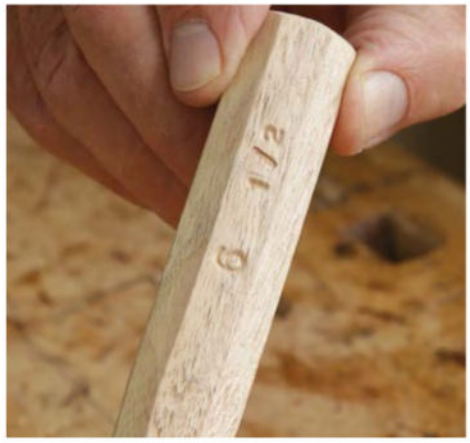
Mount the handle. *Set the gouge parallel with a facet of the handle. This lets the tool rest flat without rolling about. Keep it in that position while you transfer the tool to the clamp for setting with the mallet.*

should stick out about ⅜ in. If it's too far out, rotating the tang in the hole will ream it out, which may help. But care is crucial—there is nothing more dangerous for the user and the chisel than a loose tang. It's important to line up the blade square to the handle and in alignment with the facets. I drive the blade home by setting the gouge back in my tool clamp and giving it one last whack on the end of the handle. I saw the handle to length, slightly over the dimension, and check the balance, then shorten the length on the disk sander until it is perfect. I slightly round the end to protect against the constant beating of the mallet.

For an easy finish I wipe the handles with a rubbing varnish, being sure to soak the end grain. I also stamp the width of the blade and the sweep number on the front and back of the handle so the gouges can be identified even when stored in a canvas roll with the blades facing in. □

Bill Howes is a retired neurosurgeon who enjoys woodworking in Halifax, Nova Scotia.

Cut the handle to size. *Every gouge is different, so handle lengths will vary. Cut the handle slightly overlength with the saw, then sand away the end until the balance is perfect.*



Finishing touches. *Labeling the sweep and blade width with a punch set ensures easy identification even when the blade is buried in the pocket of a tool roll.*

3D Printing for Woodworkers

To secure a place in my woodshop, a tool needs to make my shop time more productive, more accurate, and more enjoyable. My 3D printer checks all three boxes. It has allowed me to create custom jigs, templates, layout aids, and problem-solving accessories. Instead of adapting my work to commercially available products, I can design and print exactly what I need, sized precisely for the task at hand. These days it's hard for me to imagine not having a 3D printer nearby.

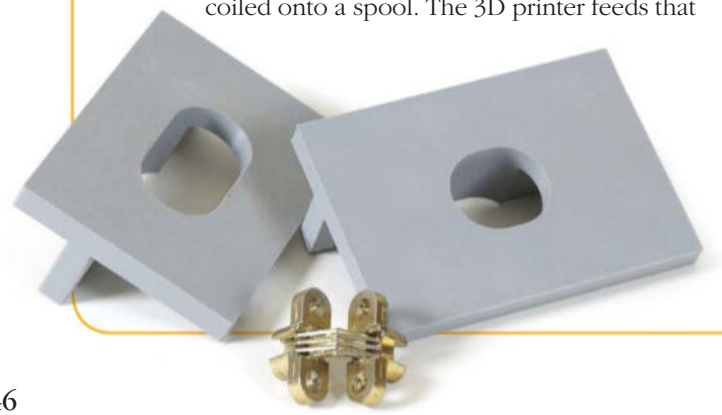
This machine works overtime to earn its spot in the shop

BY BEN STRANO

The printer

For woodworking purposes, an exotic or industrial-grade machine is unnecessary. A reliable, mid-priced printer with a reasonably sized build area will handle nearly everything a woodworker needs. Most printers are physically similar, but the firmware, software, and support for more-established brands are worth the added expense. I mostly use the Bambu Lab P1S ($399) and often recommend (and sometimes use) a Bambu Lab A1 ($299). Print-bed size matters more than fancy features. A larger bed allows you to print larger jigs and templates whole instead of breaking them into parts. A larger bed also allows you to run multiple prints at once.

In addition to the printer itself, the material it uses, called filament, is incredibly important to the success of your 3D-printed parts, or prints. Filament plastic is molded into a long, thin strand and coiled onto a spool. The 3D printer feeds that strand into a heated nozzle, melts the plastic, and moves around while squirting the plastic, building up layer after layer of whatever you tell it to make. The type of filament I use most is PLA (polylactic acid), which costs about $19 per roll. For most woodworking needs—like jigs, templates, drill guides, layout tools, and shop fixtures—PLA is the preferred material. Yes, there are dozens of filaments out there (e.g., carbon-filled, nylon, TPU, PETG) and even an entire industry devoted to discussing filaments and how game-changing they are, but just as I don't need a car that goes faster than I am capable of driving, I don't need a filament that does more than I need it to.



Simplify 3D design

You don't need to be an engineer to operate a 3D printer, but you do need some basic computer literacy. Having said that, some of my favorite prints require no more effort than downloading a file someone else has designed and then sending it directly to the printer.

Although many printers can be monitored and even controlled from a phone or tablet, serious work—file preparation, design tweaks, and setup—requires a computer. This doesn't mean that to use a 3D printer you need to be an expert in CAD programs, but eventually you're probably going to want to update and customize models instead of accepting them as they are. As I made more prints, I practiced the program and became quite adept at using CAD. Often I could model something in a couple of minutes, send it to the printer, go eat lunch, and then find a customized jig waiting for me when I returned.

Becoming familiar with a slicer will also serve you well. A slicer is basically a translator program between the model and your 3D printer. You drag a model file in, and the software does the heavy


Bambu Lab
A1

Simple setup

Having become increasingly intuitive in setup and operation, 3D printers can now be essential tools in any woodshop.

It starts with the filament. *Placing the roll of filament on the support arm allows a snag-free feed into the machine, making the hardest part about loading the filament picking the color.*

PLA all day. *Strano prefers PLA filament for its availability, price, and strength. It is applicable for almost all 3D printing needs.*

Filament

Filament usually comes on plastic spools, and empty spools add up fast. If you care about waste (or just hate clutter), some manufacturers offer filament on recyclable cardboard spools like those offered by Overture. A few companies now even offer refillable spools, so they send just the filament, which cuts down even more on waste.

SOURCES OF SUPPLY

Downloadable files are available from these websites:

thingiverse.com

makerworld.com

lifting. It's called a slicer because it takes that solid 3D model and breaks it into hundreds (or thousands) of thin layers—slices—that the printer will build one on top of the next. You can make some macroadjustments to a model in the slicing software, such as scaling a model up or down or even cutting a model up to print a segment of it. For example, if I'm printing something that needs to fit onto something else, like a dust-collection fitting, I will tell the slicer to print just that section of the model so I can test the fit and don't waste time and material printing something that doesn't fit properly.

Printing techniques

Most printed parts aren't solid; they're mostly air, with a strong internal grid structure, or infill, sealed within. Typically my shop prints have around 15% infill, which is plenty for a lot of jigs and fixtures, and that keeps print times and material costs low while being durable enough to hold up to the wear and tear of the task at hand. The slicing program chooses the infill pattern, generates the internal structure, and creates the tool paths to make it happen without any extra work from the designer. These default settings in the program are what make it so powerful and efficient.

Parts are printed from the bottom up, and when there is overhang on a model, with nothing beneath that section to build upon, parts can sag or not print at all. To hold up the problem area, the slicer will generate a temporary, or ablative structure, which breaks away cleanly after the print is finished. But support comes with trade-offs: more printing time, more plastic, and a rougher surface where supports touch the part. If I'm modeling with 3D printing in mind, I try to design around the areas that will need support. That might mean flipping the model on an axis and printing it taller than it is wide. With taller prints, you can easily run into a problem with the part not sticking to the build plate or moving

Let the printer do the work. *Letting the printer create the jig for you feels like having an apprentice in the shop who lets you do the work you want to do—which in Strano's case means designing more jigs.*

while printing. A key technique for keeping everything clean and sturdy is creating a "brim." A brim is a single layer on the bottom of the print that is wider than the part itself. This added surface area keeps the print on track and is easily peeled away after the print is completed. Adding a brim requires just one click of a setting, and then the software will take the reins with the default settings and automatically add the correct size brim for your print.

It's easy to get lost in tweaking settings, but when you're getting started with 3D printing, you'll find that presets are almost always good enough. Use a standard layer height, keep infill reasonable, and focus on the basics: orientation, fit on the bed, and avoiding unnecessary supports.

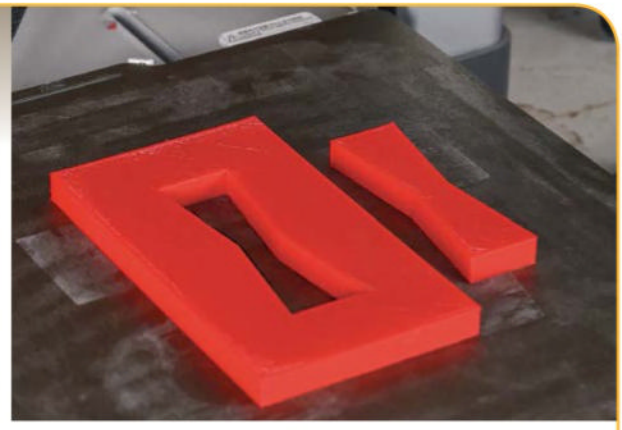
Problem-solving prints

Some of the most satisfying prints are the little problem-solvers that you'll use all the time. A perfect example is a glue-bottle opener: a small wrench-like doodad that helps you crack open a Titebond bottle that's glued shut. Going through the effort of making this sounds silly until you've fought a stuck cap at the worst possible moment. Then it feels like the smartest print you've ever made.

One day pigs will fly and power tool manufacturers will agree on the size of dust ports they put on their tools. Until that day, however, I am happy to print custom adapters and ports for my tools. With only a few measurements and a little time, I can model and print exactly what I want. Often you can find adapters online that someone else modeled and graciously made available to everyone. I've started adding a slight taper to the female interiors of my adapters, making the fit perfect every time but easy

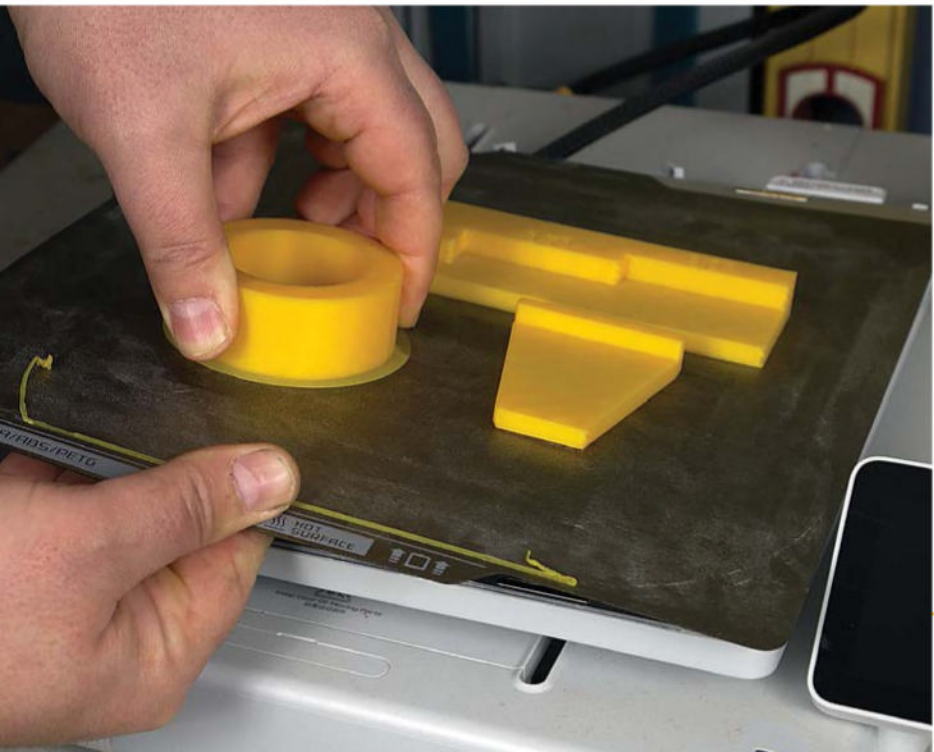
Dialing in the details

With modern printers, the default settings do a great job for most prints. However, users can easily tweak settings, increasing infill for strength or adding supports or brims for more complex prints.



Infill. *The interior structure, or infill, dictates the density and strength of a print. There are endless options of infill style and density, but it's often easier to stick with the defaults until you notice something more is needed.*

Support. *With printing complex shapes, an overhang might sag or fail without extra support. The printing program will recognize those spots and add temporary support pillars that can be snapped off cleanly after the print is completed.*



Brim. *A brim is added around the base of a print that has the potential of moving on the print bed. This thin layer increases the surface area where your print meets the build plate, decreasing the odds of unwanted movement. After the print is finished, the brim easily tears away.*

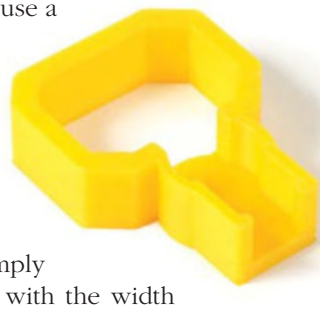
The more you print, the more you realize, "I can just print that." It's a sentiment Strano applies to problem solving around his shop.

enough to remove. Normally a tapered cylinder isn't an easy shape to make by hand, but it's only a simple adjustment on the computer.

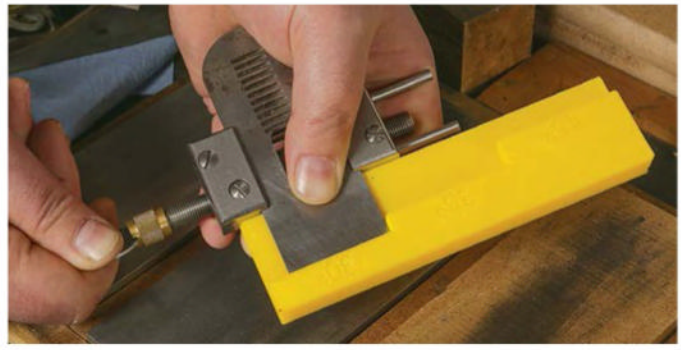
I recently harnessed the power of the 3D printer toward my lutherie projects. In one instance, it helped shape the bridges of my ukuleles. Bridges are a complex and delicate shape, one that I make using multiple machine setups. I printed a setup block that I use to set the machine cuts so all of my heights and angles are consistent. I also printed a negative of the setup block's profile, which I use as a caul when clamping a bridge down; it distributes the pressure evenly without damaging the small, intricate grooves along the bridge.

Template-routing jigs

If I were on a desert island building fine furniture and could take one power tool with me, it would be a router. Two tools? A 3D printer and a trim router. The duo can work hand in hand, creating custom jigs that adapt to all types of bearings or bushings. Whether you use a ¼-in. bearing-guided bit or a ½-in. bushing with a ⅜-in. bit, creating the same shape with either is as simple as adjusting the model in the software and clicking Print.



Once when asked to create a batch of bowties to inlay, I adjusted the variables of the bowties by simply typing in the overall length along with the width of the waist and the wings and then clicking Print. In about 40 minutes I had templates to pattern-rout both the mortise and the butterfly itself.

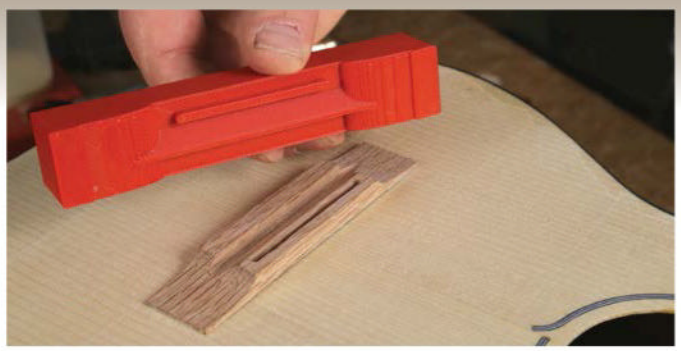


Sharpening setup. *An easy-to-print jig to set the bevel angle on a honing guide is handy to have around the shop. The PLA material is easy to clean and, with its bright yellow color, hard to lose.*

Glue-bottle gripper. *This may look like a useless print until you start tussling with a defiant glue bottle. Then you realize it cost just $0.39 to make and you didn't have to lift a finger except to click the Print button.*

Versatile dust extraction. *This effective port allows ideal dust collection at the bandsaw. Magnets embedded in the print hold the port in place but allow easy removal for regular maintenance. Add a coupler to increase your hose diameter when the dust really starts to fly.*

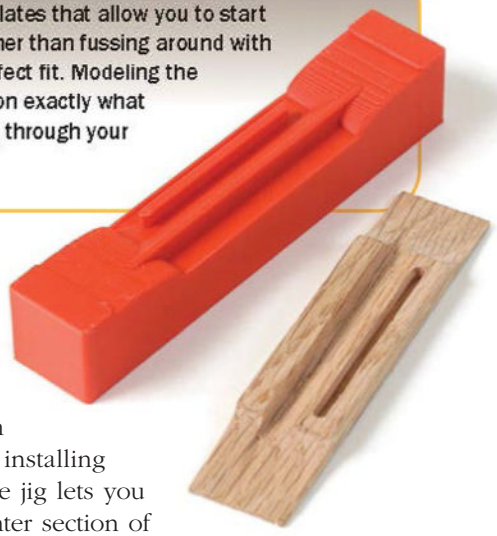
Woodworking jigs



Creative clamping. *Shaping cauls to fit a profile is a great way to ensure even clamping pressure across a delicate piece, like this ukulele bridge. The 3D-printed caul provides a simple way to pinpoint exactly where the pressure is to be applied to achieve a good glue bond.*

Dovetail marker. *It's not all router jigs here. You can print a variety of angled markers and then experiment until you find your favorite dovetail angle.*

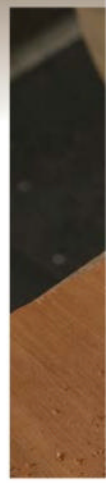
Easily print jigs and templates that allow you to start on work that matters rather than fussing around with MDF trying to get the perfect fit. Modeling the jig first lets you home in on exactly what you want without burning through your whole scrap pile.



Two-stage jigs are one of my favorites with a 3D printer. I modeled the two jigs shown on the bottom of the next page for installing concealed hinges. One jig lets you excavate the deep center section of the mortise for the body of the hinge; the second excavates the longer, shallower section. I made sure the jigs were centered so they could be lined up to the same mark to ensure a proper fit. For knife hinges I follow the same idea (next page, top), using the end of my jig as a reference point, this time for the offset from the side of my case to the hinge. This allows the top and bottom hinges to be perfectly inline when the case is assembled.

Get creative with it

With a little bit of CAD modeling skill, you're no longer limited to tools set to common angles. If you're a fan of dovetails at 12°, print a dovetail marker at 12°. If you find yourself marking out a 14° angle a lot, print a guide just for that. The same goes for when you are sharpening your hand tools—you can make dedicated setup blocks at varying angles that are labeled and color coded so you never have to second-guess which angle you did



Printed inlay template. *If you want to make and mortise in bowties, you can easily print a router template using parametric modeling, which allows simple adjustment of the size while keeping the same proportions.*

Frustration-free knife hinges. *Mortising for knife hinges can be tricky, but Strano designed a template to work simply with a router, leaving minimal chisel cleanup for a perfect pressure fit.*

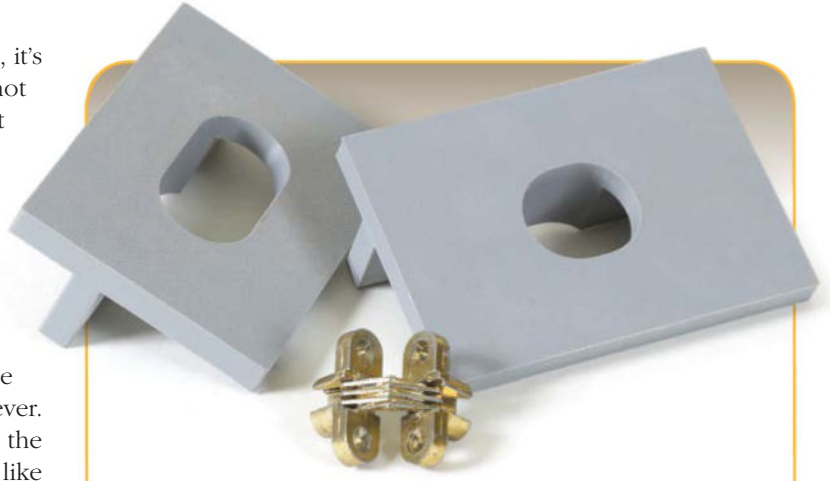
Online **Extra**

To see how Strano repaired a table with the assistance of a 3D printer, go to **FineWoodworking.com/323.**

last. Unlike in woodworking, it's important in 3D printing not to be too sentimental about your prints. You're usually only risking pennies worth of plastic—and the upside is a custom solution you can't buy off the shelf.

One of the underrated joys of using a 3D printer is that it runs in the background. Once you've got multiple parts arranged on the bed, you click the Print button and the machine does its thing while you do something else: clean the shop, build a project, eat dinner, hang with your kid—whatever. You can even monitor prints from your phone, which makes the printer feel less like a machine you have to babysit and more like what it really is: a shop helper that works while you work. □

Ben Strano is the editor of FineWoodworking.com.



Easy concealed hinges. *Concealed hinges add a simple look to any design but are far from simple to mortise for without a proper template. No matter what brand or size you're using, printing your own jig will get you the perfect fit each time.*

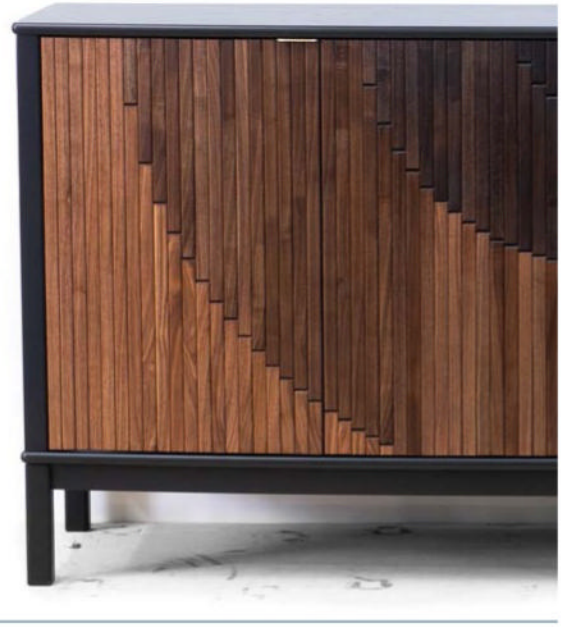
Decorative

Photos, except where noted: Christopher Solar

Explorations

Vivid patterns and various materials embellish understated cabinets

BY CHRISTOPHER SOLAR

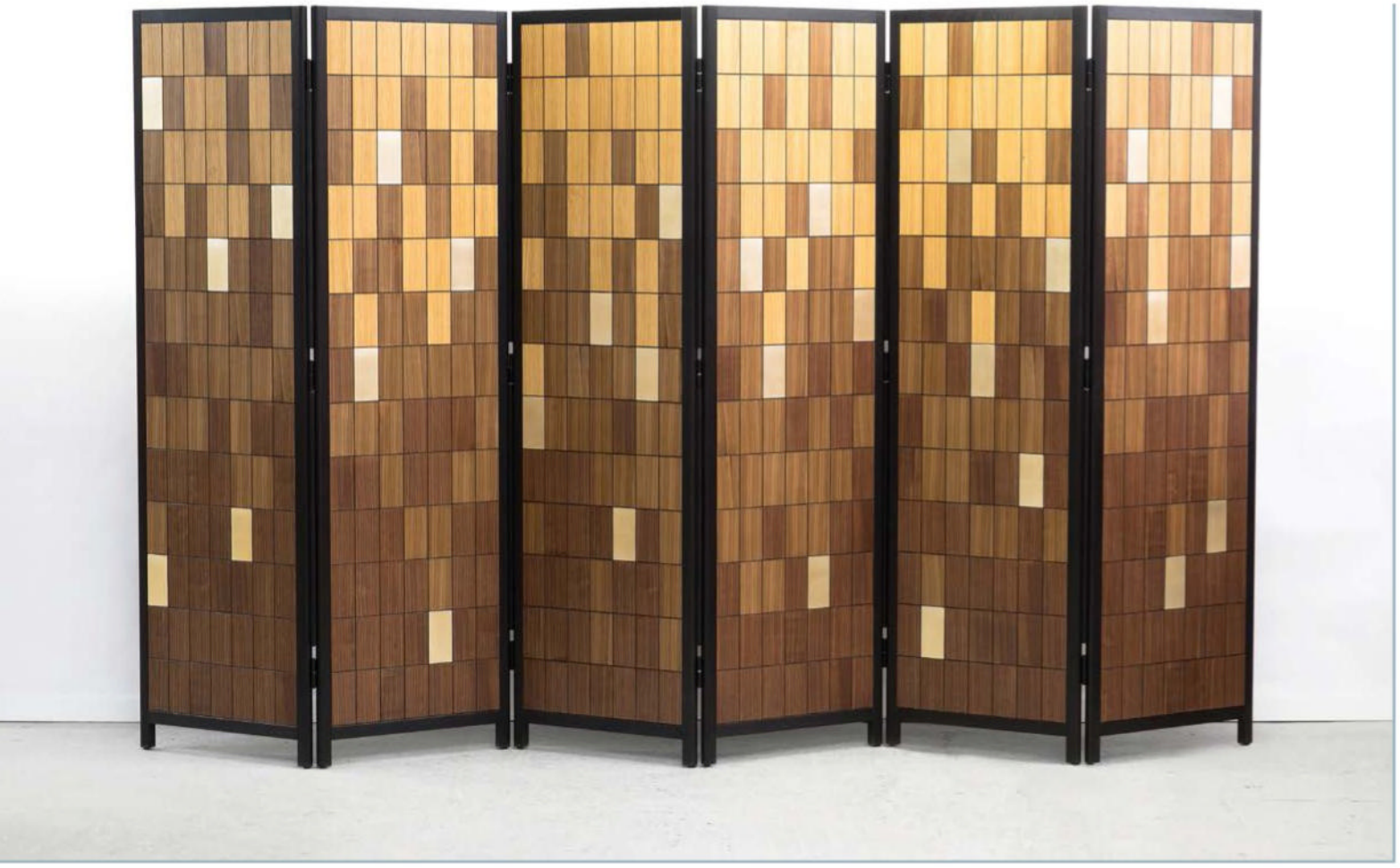


Patternmaker. *Solar's approach to furniture often involves straightforward cabinets embellished with vibrant patterns that combine fractured geometry with a stunning use of color.*

I got serious about being a furniture maker a little over a decade ago, and in that time I've been fortunate to have some clients who have given me wide latitude to experiment with decorative design ideas. I am really drawn to designs where a large number of simple shapes or pieces are combined to form a pattern that plays out across an expanse. I also tend to gravitate to designs that follow some kind of logic or controlled geometry. Sideboards and standing screens are furniture forms that I particularly like in this regard because their façades offer plenty of space for those patterns to unfold. For case pieces, I usually try to make the cabinet body as simple as possible. The pattern elements on the doors might be subtly echoed in the shape of a leg or panel edge, but otherwise the case is there to support the doors without drawing too much attention. To that same end, my case pieces are often finished with flat black lacquer. □

Christopher Solar makes furniture in a former bread factory in Ottawa, Ont.

Tilework



Cascade screen

In 2019 I was asked to do a large six-panel folding screen to occupy one end of a formal dining room. With each panel 7 ft. high and 2 ft. wide, this was far and away the largest object I'd made, especially in terms of surface area. My geometric impulses converged on a sort of pixelated gradient made of uniform rectangular tiles. I made the tiles—546 of them—of ⅛-in. Baltic-birch plywood covered in three different tones of wood veneer (white oak and two shades of walnut), plus a few in pure silver leaf. The tiles have black-painted beveled edges to add some texture and really reinforce the grid.

The arrangement of the four materials might look random at first, but it was the result of painstaking planning. I used code on my computer to generate semi-random distributions of the colors, then adjusted those by hand to get what seemed like the ideal layout. The tiles were bonded to 1-in.-thick hollow-core panels (thin MDF skins over a honeycomb core), which provided rigidity without too much weight. I bonded all 91 tiles for each panel in one go in a vacuum press, using epoxy as the adhesive. The blackened oak frames were then assembled around each tiled panel. Lift-off hinges connect the panels, allowing the screen to be configured in different shapes and sizes.

Screen gems. *To make the cascading pattern on this standing screen, Solar arranged thin plywood tiles that he veneered variously with white oak, two tones of walnut, and silver leaf.*

Remix cabinet

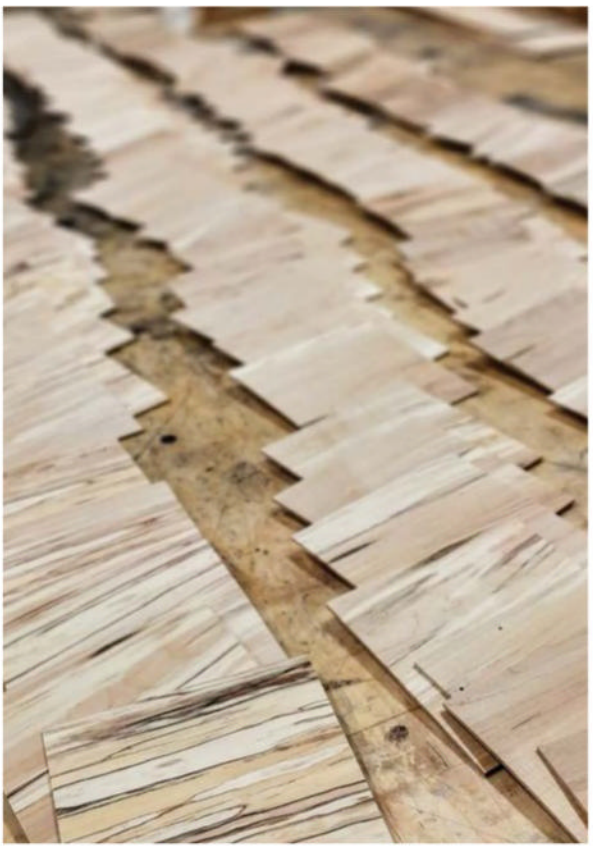
Not long after finishing the tiled screen, I was asked to make a cabinet for a new home outside Ottawa. Some maple trees had been removed during construction, and the clients had them milled into lumber in the hope of using it for furniture.

They asked me to design a sideboard to hold sheet music and instruments. When I got my hands on the wood, however, it was clear that it was not going to be useful structural material; it had warped badly during drying, and discoloration was present throughout the boards. There was some vivid spalting, but only in a few inches at one end of the stock—not enough to make normal door panels.

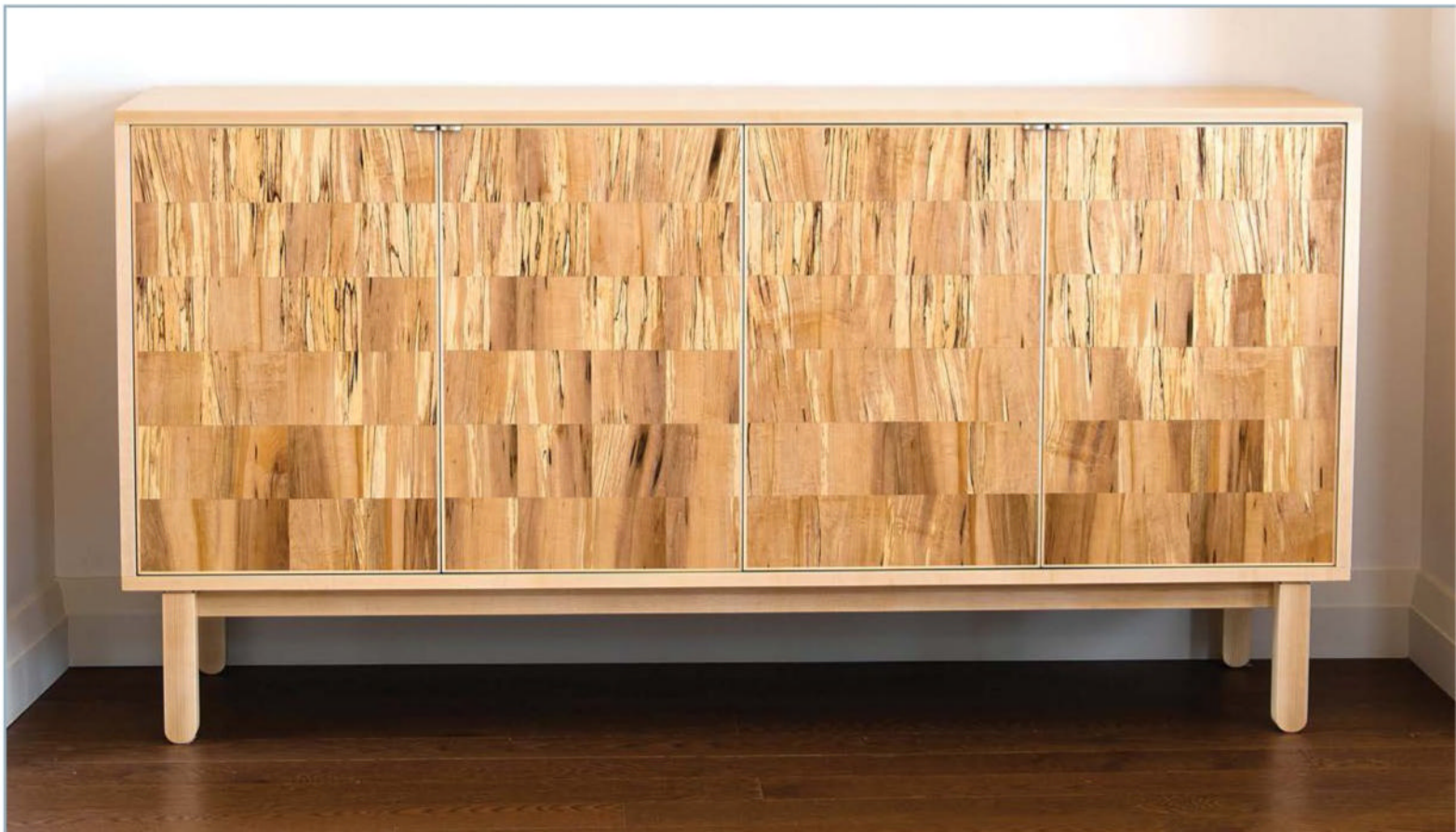
With tile grids still on my mind, I decided to cut the clients' wood into 1/16-in.-thick veneer pieces about 4 in. square and then mix them up in a semi-random pattern on the doors. These small pieces let me make the most of the limited amount of spalted stock, and even the areas with dark blotches or stains ended up being useful when turned into a small part of a larger pattern. The rest of the cabinet could then be made from clean, uniform commercial maple stock and as understated as possible.

For smaller pieces like this I make my pattern and layout decisions on the fly. Once these tiles were made, I spread them all out on a worktable and started organizing them into 24-tile groups for each door. I might have a general idea about how the tiles will be arranged—maybe a light-to-dark gradient, for instance—but that's just a starting point.

I often stand on a stepladder so I can look down on the whole layout in one go. I try not to focus on individual details but instead get a general sense of the flow of colors and tones across the whole pattern. If something looks out of place or unbalanced or just too orderly, I rearrange tiles until I'm satisfied.



Shuffling the planks you're dealt. *To make use of some spalted maple boards with sentimental value for his client—but mostly challenges for himself—Solar sliced the boards into thin tiles, arranged them in an intriguing pattern, and glued them to a stable substrate.*



Design with dyed veneer

Bedazzled. *To create the sliding doors on this credenza, Solar cut dyed veneer into strips of various widths, then joined them edge to edge and on the diagonal.*

Dazzle cabinet

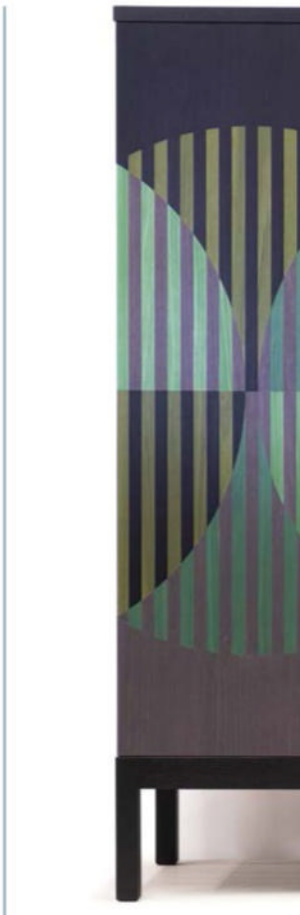
For this long, low credenza, my client was interested in something with bold patterns and colors. I was excited to break out of the brown palette of natural wood and decided this was a good opportunity to try working with dyed veneer.

The doors are all based on the same layout, with bands of veneer set at opposing angles, but each door has a different arrangement of stripes. I used black-, gray-, and red-dyed veneer, plus natural maple. The angular stripes remind me of the "dazzle" camouflage pattern used on ships in World War I. It may not have been very effective at confusing submarines, but I think it's right at home on furniture.

Sliding doors are a favorite of mine, and what I liked here was not just how the diagonal lines flow across the doors but how they interact and change as one door slides past another. To maximize this effect, I made the doors overlay the vertical dividers of the cabinet, so there are no interruptions in the pattern.

To make each door, I used a veneer slicer and a straightedge to cut strips of veneer into different widths. I taped these together into multi-strip groups and then cut the angled seams where they meet each other and the edges of the door. I was following a basic scheme, in which gray is the dominant color and there is a balance of the other tones and line weights.

My original plan was to have the doors oriented the same way, as four Vs in a row. Once I had the panels veneered I wondered if something else might be better, so I propped up the doors in the cabinet and took a photo of every possible permutation. Seeing all the options laid out on my screen at once made it clear that this zigzagging layout was better.

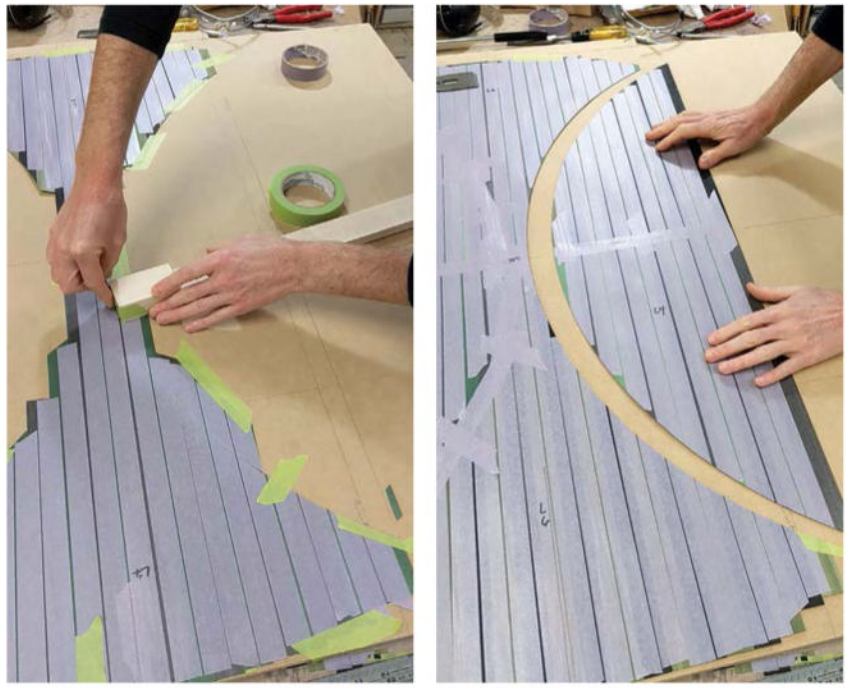


Eclipse cabinets

A year after making the Dazzle cabinet, I turned to dyed veneer again for a pair of wardrobe cabinets. These were to be placed side by side in a reception area and were meant to be a colorful focal point in the space.

My client had asked for something "organic," a request I really struggled with. As much as I admire people who can do organic, flowing designs well, I know I am not one of them. Everything I was sketching just reminded me of those decals that swoop down the side of an RV. Eventually I came up with a large pattern of overlapping circles that flowed across the four doors. In truth, this is as hypercontrolled geometrically as anything I've ever done, but I guess the fact that it contained curves was enough.

Dyed veneer only comes in a few colors, and I was worried it would be a bit basic looking if applied to large expanses like on these doors. My idea was to blend the veneer tones by interleaving them in narrow strips. In this case I used three different greens combined with gray and black.



Celestial striping. *Solar made a pattern on these paired wardrobes that echoes the time-lapsed path of a planet. After edge-gluing strips of dyed veneer, he used a shopmade trammel—a stick with a pivot point pin at one end and a razor knife on the other—to cut mating arcs.*

Conceptually, at least, this was simple: First, slice the veneer into uniform 1-in.-wide strips using a straightedge and a spacer. Tape the strips together to make striped panels, then cut the panels into circle sections. The curved seams all have the same radius, so I cut them using a shopmade trammel—a length of wood with a pivot pin at one end and a magnet on the other to hold a utility-knife blade. I made a full-scale layout board so I could position the veneer panels accurately before cutting the arcs. Once the segments for a door were cut, they could all be taped together to make one big veneer sheet. By the time I'd done all four doors I had used a mountain of masking tape!

I didn't want to use water-activated veneer tape, because it can make the veneer curl; with the sheer number of seams, that seemed like asking for trouble. Masking tape was safer, and removing it after vacuum pressing was not a problem as long as I warmed it with a hair dryer.

PARLIAMENT COPPER PIECES

For the past four years I've had the unique opportunity to work with sheet copper salvaged from the roofs of Canada's Parliament buildings. These buildings are less than two miles from my studio in Ottawa and are in the midst of a long-term renovation. Some of the old roofing has been set aside for creative use in projects for Canadian embassies and official residences abroad. The copper is deeply patinated in a range of blue-green tones. It's also full of bends, scrapes, and other damage consistent with being ripped off a roof and thrown in a bin, so using it has not been without challenges.

My main strategy is to break the sheets down into small pieces, working around the worst areas of damage, and then arranging those into interesting patterns. The whole appeal of the material is the pre-existing patina, so I have to take care not to damage that top surface whatever I do. I can't get glue on it or fix a problem by sanding it. I use handheld power shears to do the initial breakdown of the big sheets, and a small benchtop shear/brake to do the final clean cuts.

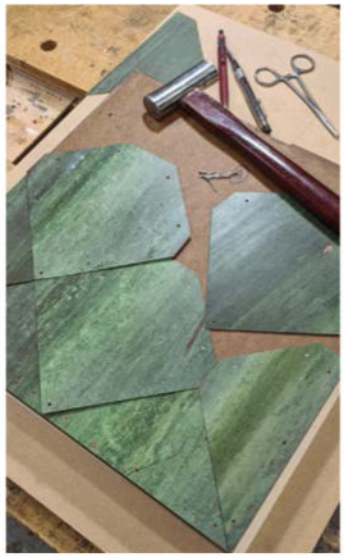
From roof to ridge. *A benchtop brake—which also incorporates a shear and a roller—helps prepare the copper pieces as Solar assembles them in a pattern evoking a receding mountain range in Western Canada.*

Ridgeline cabinet

When designing this long cabinet, I was asked to use the Canadian landscape as inspiration. I was struggling with how to interpret this request until one evening during a trip to Vancouver, B.C. As I was looking out from the shore, I saw lines of gray-green mountains

Forest cabinet

For this small foyer cabinet, I designed a pattern of overlapping diamonds of copper that covered the surface of each of four square doors. The copper was coated in a clear lacquer that sealed the patina but also altered the colors, making the underlying brown copper tones more prominent on some pieces. I was able to arrange these diamonds in a way that to me evoked forests and mountains.



Reclaimed roofing. *In a number of projects, Solar has made patterns using reclaimed copper roofing panels. He cuts the copper using tin snips or power shears and fastens it to a stable substrate with copper nails and various adhesives. He leaves the copper's patina unaltered.*

On these doors the copper tiles are layered like shingles and fastened with nails. Most of the nails are hidden, but the exposed ones are copper-plated, and I darkened them with a sulfur solution so they'd blend in. I paired the doors with a sleek cabinet whose crisp lines suit the angular tile pattern.

On this case the top and sides are mitered panels that wrap around an inset bottom. Aside from the clean aesthetics, this is a format I like because once those three mitered panels are assembled, I can spray-finish all the surfaces of the cabinet inside and out before the piece is fully assembled.

fading into the distance. On the plane ride home I sketched out an abstracted version of what I'd seen that I could repeat across four cabinet doors.

When I rummaged through the bins of scrap copper, I was able to pick out the light and dark pieces I needed to make the layered design work. Each door has plain veneer in the top third, and raised ribs of wood that divide the face into strips. The layered copper pieces were cut to size, cleaned, and attached with nails (when they could be hidden) plus construction adhesive.

Artwork with iron acetate

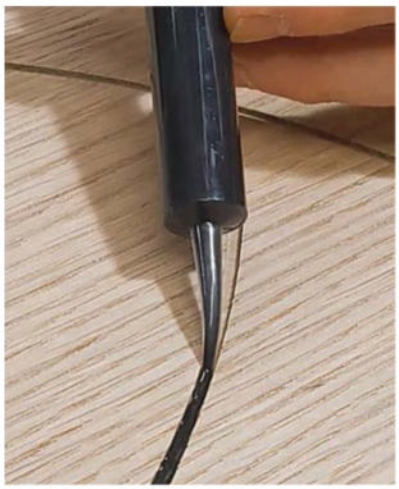
Transit cabinet

When I come up with a pattern I like, it tends to repeat in different forms across multiple projects. The overlapping-circles pattern from the Eclipse wardrobes was something I wanted to use again, and it seemed a good fit for a long, low, two-door credenza.

Still a little traumatized by all the cutting and taping that I went through with the dyed veneer, I wondered: What if I applied the pattern to the wood instead of making it out of wood? This cabinet also had to be a little more understated tonally, so my plan was to veneer the doors with plain white oak, then create a monochrome pattern on that surface using black lines and shading.

The shading used the familiar steel-wool-and-vinegar solution often used for ebonizing tannic woods such as white oak. I made different strengths of this solution to create intermediate gray tones in the 1/16-in.-thick veneer. (To see the details of my iron-shading process, see pp. 64–65.)

The circle outlines in the design were made by carving 1/8-in.-wide grooves with a router on a trammel and then filling the grooves with black epoxy resin. The panels were sanded after the epoxy cured, leaving me with clean veneer and crisp black lines. The outlines are important visually, but they serve a practical purpose as well—namely, acting as impermeable boundaries between sections. They enabled me to apply the stain solution to one region at a time without fear of it bleeding into the neighboring regions.



Iron and epoxy. *The various tones on the doors of this credenza are all white oak veneer. Some areas are left uncolored, and others are treated with iron acetate in various concentrations. The pattern is defined by lines of black epoxy laid into arcing grooves cut with a plunge router on a trammel arm.*

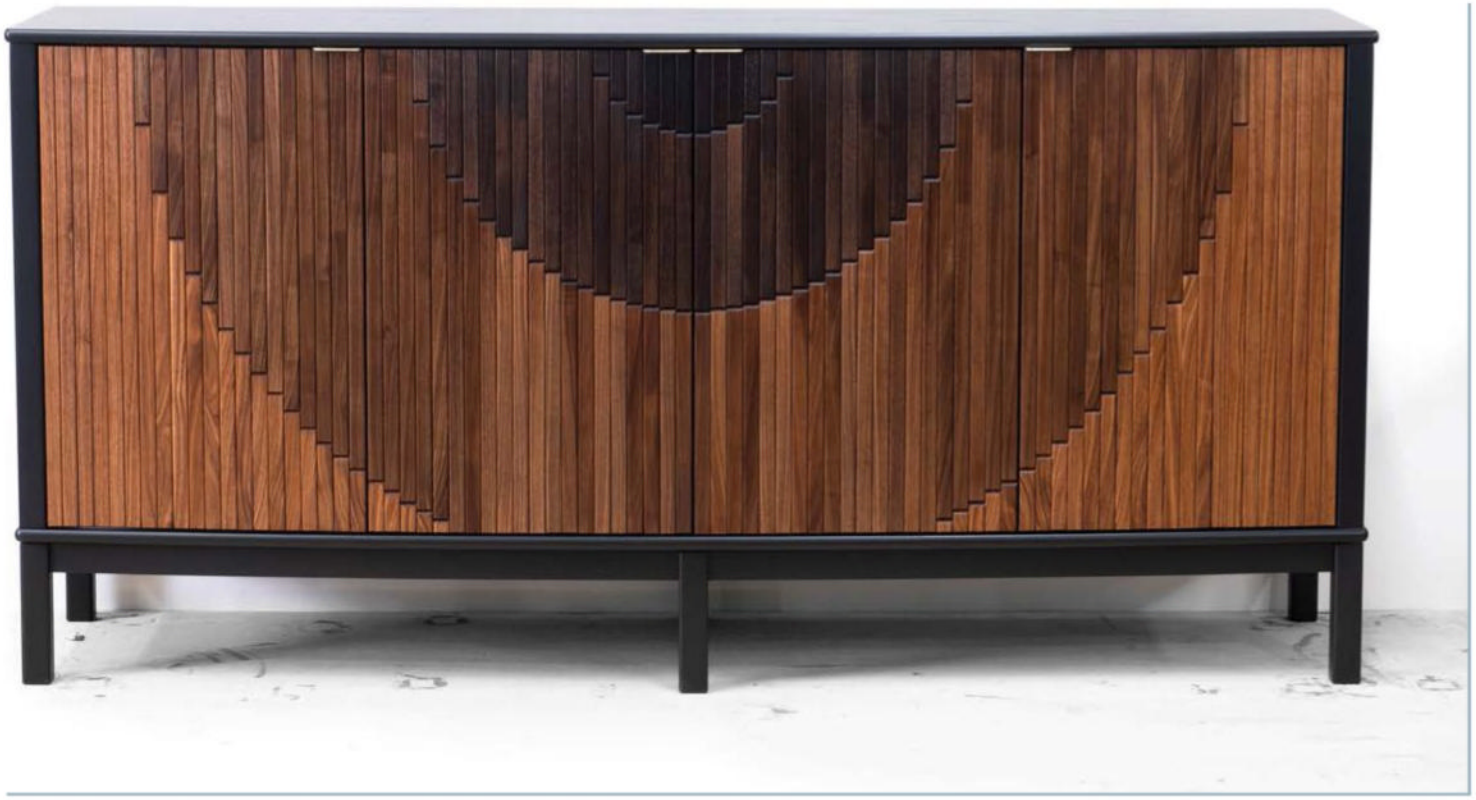
Penumbra cabinet

The iron-shading technique seemed like it was worth revisiting, and I had a chance to try it on another cabinet that would be faced in walnut, also a tannic wood. The cabinet had a gently curving front with four doors clad in walnut strips. Each door is very slightly coopered—two panels joined at a shallow angle—to better track the curve of the cabinet. The rounded edges of the strips disguise the angles, and together they read as one smooth curve.

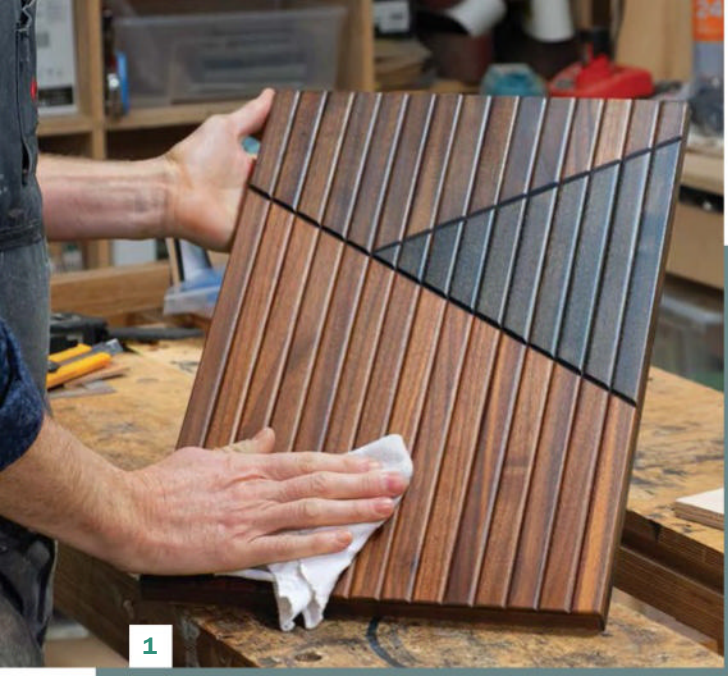
In the previous cabinet, I was brushing the stain directly to a veneered surface and found that it was difficult to control. Because this stain is reactive, even small discrepancies in how much goes on will change how dark a tone is generated. For this project my plan was to apply the solution to individual pieces of walnut that would then be assembled into a door afterward. This way I could be sure of building up the tones gradually and evenly.

I came up with a pattern of concentric half-circles radiating out across the façade. The iron stain would be used to make a tonal gradient within the pattern, darkest in the middle and with untreated walnut at the edges. Working on a full-scale layout, I drew the arcs for the pattern boundaries and mapped them onto the strips. I cut pieces of walnut to follow the pattern, resulting in about 40 pieces of various lengths for each door. With the pieces still loose I could apply the shading solution until I gradually reached the tone I wanted for each region. The strips were bonded to the door panels and then oiled.

Stripped and stained. *Strips of solid walnut treated with iron acetate in a range of tones comprise the pattern on the doors of this cabinet.*



Artwork with iron acetate (continued)



1

Calibrated shading. *Using different concentrations of the same base mixture of steel wool and vinegar, Solar produces three distinct shades on strips of black walnut stock.*

2

Ingredients for iron acetate. *Steel wool soaked in ordinary vinegar creates the ebonizing solution. Use steel wool that contains no oil, and weigh it on a kitchen scale. Measure the vinegar carefully, adding 100ml for every gram of steel wool.*

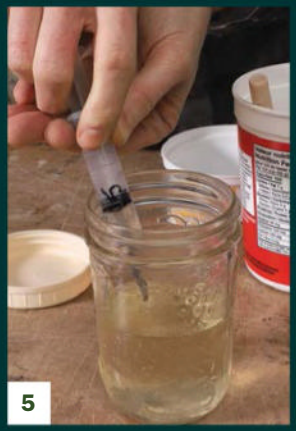
Shading with iron

Using an iron solution is a well-known method of ebonizing wood. Most often this technique is used on species that contain tannins, such as white oak and walnut. A full-strength iron solution will produce a rich black on tannic woods, but it is also possible to produce intermediate shades by diluting the solution with water. I use different solution strengths to produce a range of tones in a single wood species.

The basic iron stain is made by dissolving steel wool in vinegar, producing an iron acetate solution. I use superfine steel wool from Lee Valley because it dissolves quickly and isn't contaminated with oil. The exact ratio is not critical, but I generally use 1 gram of steel wool per 100ml of vinegar. This original base solution will go quite a long way because it will be diluted before it is applied.

To make the solution, I put the vinegar in an empty yogurt tub or similar plastic container and add the wad of steel wool. Before putting on the lid, I use the bottom part of a second plastic tub to keep the steel wool fully submerged in the vinegar. A hole poked in the lid allows the small bubbles of hydrogen gas produced by the reaction to escape.

After a day or two, the vinegar will be a little darker and the remaining steel wool will appear as a gray sludge. There's no benefit to leaving it longer; it will just start to rust, turning the solution a dark orange-brown. The solution will still work to



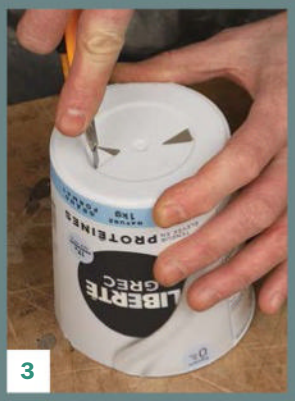
5

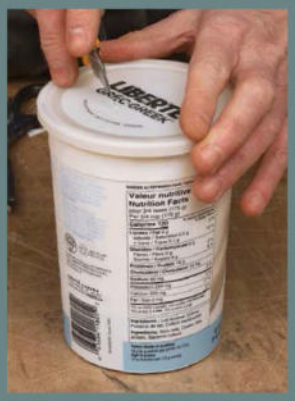
Base delivery. *Use a syringe to extract a measured amount of the base solution, then transfer it to a low cup suitable for dipping into with your brush.*

6

Pinpoint portion of water. *Using a graduated plastic beaker, mete out water for adding to the base solution. Write the ratio of water to base on test sticks so you can repeat or alter it to achieve the shades you prefer.*

Photo this page, top left: Christopher Solar. All other photos this page and facing page: Jonathan Binzen.





3

Add a submersion sleeve. *A second plastic container with its rim cut off and holes cut in the bottom is inserted to keep the steel wool submerged in vinegar. Escape holes punched in the lid allow the hydrogen produced by the reaction of steel and vinegar to escape.*

4

Filter out the steel. *After letting the mixture steep for two days, pour it through a coffee filter into a clean, lidded glass jar.*

produce black tones, but the additional rust color might not be welcome. Decant the solution into a glass jar, passing it through a coffee filter or a paper towel to filter out any particles of undissolved steel.

Because the iron solution is mostly water, it will raise the grain of wood. Do a thorough grain-raising step with plain water first, resanding lightly to get rid of any fuzz. After applying the iron stain, you may need to buff the wood very lightly with something like a maroon nonwoven pad, but not enough to cut through the stained wood.

For a wood with large open pores, like white oak, it can help to add a drop of dish soap to the solution. The soap reduces surface tension, helping the liquid flow into the pores.

Avoid dipping your brush directly into the jar of base solution. The brush will have picked up tannins from the wood that will then be transferred to the solution in the jar. I always pour my working amount into another container.

If you want to use intermediate tones in your work, test the solution on scraps to determine what dilutions you need. For light tones, I've used mixtures as weak as one part of the base solution to 75 parts of water. It's better to err on the weaker side. You can always apply more coats for a darker result, but you can't undo the stain short of sanding it off.

7

Finding the right shade. *When you have produced a shade you like on sample strips, use the same mix to treat your workpieces.*

8

Doubling up. *Additional coats produce a darker shade. A hair dryer dries the work between coats, and a fine abrasive pad knocks down the grain.*

Making a Sewing Box

Scrap wood and handwork dovetail in a superb container

BY ISRAEL MARTIN

Photos: Israel Martin

Recently, between building furniture commissions and teaching in my shop, I decided that it was time to make something for myself. I wanted it to be something that wouldn't take too much time and that could be made largely with leftovers from other jobs. What would it be?

I love going to the mountains, whether near where I live in northern Spain or elsewhere, and I really like the backpacks and other gear used in climbing and mountaineering. A few years ago I got a sewing machine and started making my own climbing gear. For furniture making, I use hand tools and solid wood, but my sewing process is the opposite of that. In this endeavor I use machines and almost no natural textiles, which is a refreshing change. I soon accumulated quite a collection of sewing threads and tools. What about a box to organize all that stuff?

As for the design, I wanted a compartmented container that would hold everything and separate the spools by color, but I didn't want it to look like a sewing box. I also wanted to challenge myself to

Quilt making. *For a woodworker who operates almost exclusively with hand tools, leftover parts hand-milled for other projects are a precious commodity. For this sewing box, Martin raided his scrap bin repeatedly, finding chestnut sides and a mahogany bottom for the outer box, Swedish pine sides and quartersawn oak bottoms for the inner boxes, and an array of conifer cutoffs for the lids.*

The elbow is the engine. *Martin's dedication to handwork begins with dimensioning. Here he resaws red cedar. The Swedish pine sides of the inner boxes were resawn from reclaimed beams.*

Fun woodworking. *After the exertion of milling the parts to size by hand, cutting dovetails is a treat. The quartersawn chestnut Martin used for the outer box was left over from building a tool cabinet.*

make two boxes that would have a piston-fit inside a third, larger box. Although I wanted the inner boxes to fit nicely inside the outer box, I didn't design them to rest right on the bottom. Instead, I elevated them on ledgers, giving me a shallow space beneath them where I keep scissors, fabric cutters, and other thin or flat items. With its straight simple lines and crisp joinery, the design also owes something to Matt Kenney's work, which I admire.

The outer box

Because I always use hand tools in my work, from dimensioning rough lumber to the finished product, I prize my cutoffs. When I can use leftovers in a new piece it greatly speeds up the process, since the scraps are already flat and square and a lot closer to final dimensions. In addition, I don't have to explore a raw plank looking for the best grain; that has already been done.

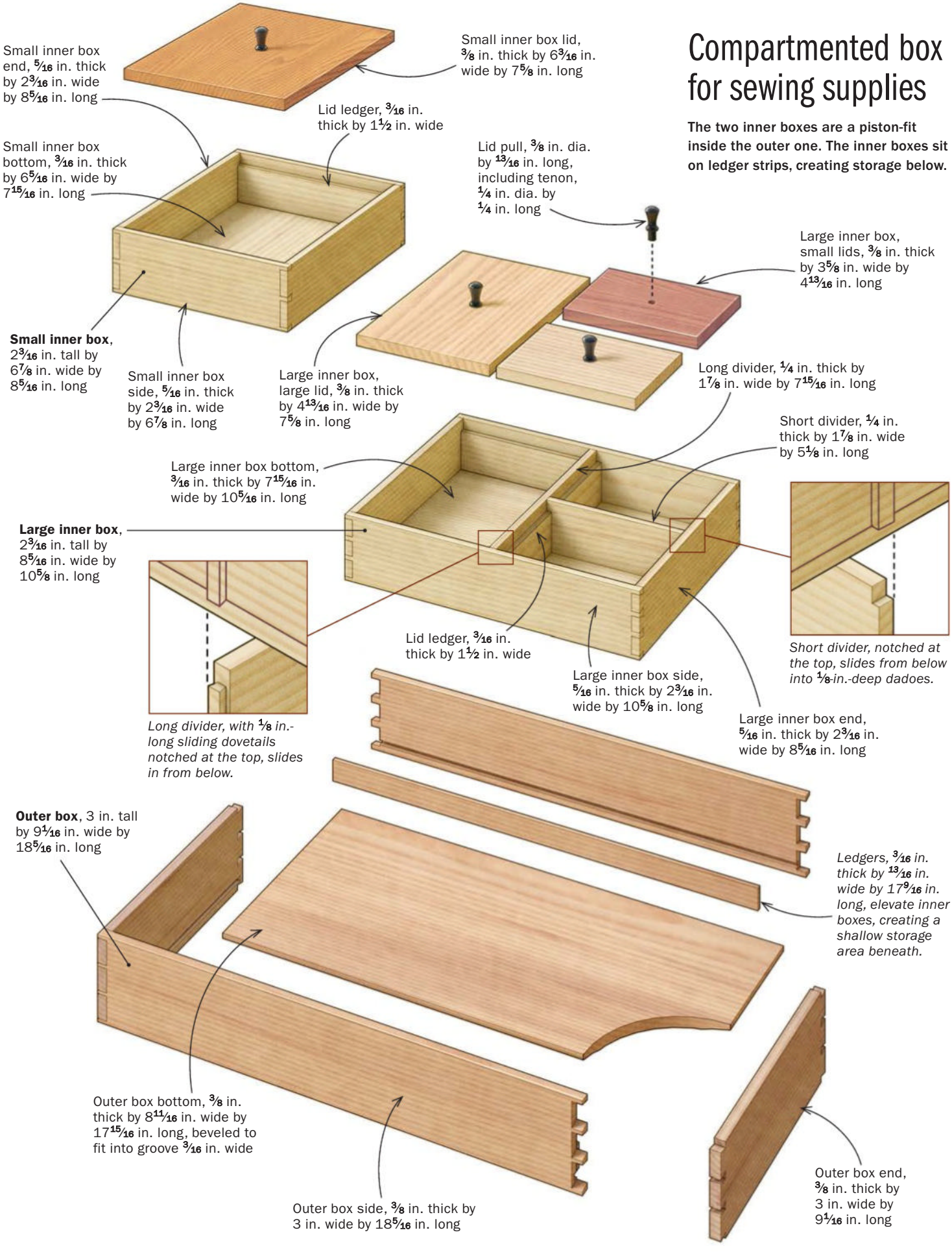
The outer box is made from a piece of quartersawn chestnut left over from making a tool cabinet. I started the sewing box by planing some of that chestnut and sawing it to thickness. While resawing the piece, I realized it was time to sharpen my Disston D8. I like sharpening this 5½-ppi saw because its big teeth mean that when it's sharp, it's super fast. After sawing all the carcase pieces, I planed them again and cut them to final length. Then the fun part began: making dovetails. Chestnut is a really nice wood to work with, soft like pine but with shorter grain, and cutting joinery in it is a real pleasure.

I always start with the tails. After making the tails, I cut the grooves for the bottom: through-grooves on the pin board with a plow plane, and stopped grooves with chisels

Drawings: John Hartman

Compartmented box for sewing supplies

The two inner boxes are a piston-fit inside the outer one. The inner boxes sit on ledger strips, creating storage below.



Challenger. *The design of Martin's sewing box was determined in part by a challenge he set for himself: to make two inner boxes with a flawless piston fit inside an outer one.*

Tops. *Martin chose to make the lids for his sewing boxes from assorted conifers. The species, clockwise from top left, are Spanish juniper, cedar of Lebanon, southern yellow pine, and red cedar.*

Spool pulls. *Martin designed pulls for the sewing box derived from the shape of what would be within: spools of thread. He turned the pulls in pairs from ebony on his mini lathe.*

and a mini router plane on the tail boards. I used the groove to help align the boards as I transferred the tails to the pin board.

For the bottom of the outer box I used a piece of mahogany—for its stability and because it was a wide, flat-sawn piece. After planing it, I cut bevels on the underside, reducing the thickness to fit into the grooves in the sides.

Inner boxes

For the sides of the inner boxes, I used some more-or-less quartersawn Swedish pine. I resawed the sides from beams that were left over after I renovated our house. I cut out the knots in the beams and then looked for the straightest grain. I always tell my students that pine is a wonderful wood for testing your sharpening skills because of the way hard rings alternate with very soft ones.

My original plan was to have one lid covering the whole box. But toward the end of the build I decided to make a separate lid for each compartment, and I thought that using different species of coniferous woods for them could be nice. The woods I used for the lids were Spanish juniper, cedar of Lebanon, southern yellow pine, and red cedar. Most of the pieces were offcuts that were close to the right thickness, so I didn't have to work on them too much.

I made the lid pulls out of ebony. I like working on my small Proxxon lathe, the one electric woodworking tool in my shop. It's relaxing to use after the exertion of handwork. I like Shaker-style pulls, but for something slightly different, something specific to this box, I made pulls in the shape of thread spools. □

Israel Martin builds furniture and teaches woodworking in the Cantabria region of northern Spain.

gallery

Inspiration for our readers, from our readers

MATTHEW ROMICK

Linthicum, Md.

The first time that Matthew saw this cabinet design, at North Bennet Street School, he knew he wanted to build one. The original, by instructor Lance Patterson, was made from walnut, but Matthew chose mahogany for his version.

MAHOGANY, 6D X 16W X 28H Photo: Lance Patterson

MARC-OLIVIER GRENIER

Saint-Romuald, Quebec

Marc received a grant from the Council of Arts and Letters of Quebec, which led directly to this project. He wanted to get out of his comfort zone and push visual exploration. The design was inspired by Art Deco furniture, particularly the striped legs and the fan-shaped veneer pattern.

BLACK WALNUT AND MAPLE, 21D X 24W X 32H

IAN GAUDETTE

Greenville, S.C.

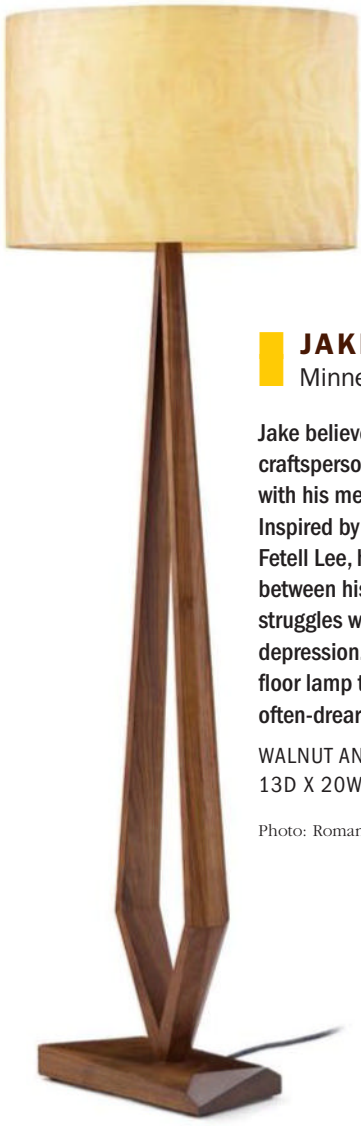
A grown-up version of a child's toy box, this chest was sized to fit a collection of board games, with a drawer to fit smaller items. The stand was inspired by the arched entry table in *Foundations of Woodworking* by Michael Pekovich. The curves from the stand echo across the lid and drawer pulls.

WALNUT AND CURLY MAPLE, 20D X 40W X 42H

JENN PARK
McKinney, Tex.

Jenn wanted to create a piece that felt like sculpture rather than just a functional chest of drawers. As she was researching different styles, she came across brutalist architecture and was drawn to its repetitive patterns, which she incorporated into this piece.

WHITE OAK, 19½D X 42¾W X 49H



JAKE BROWN
Minneapolis, Minn.

Jake believes his growth as a craftsperson is synonymous with his mental health journey. Inspired by the writing of Ingrid Fetell Lee, he saw parallels between his portfolio and his struggles with anxiety and depression. He designed this floor lamp to "bring light to our often-dreary world."

WALNUT AND WHITE BIRCH, 13D X 20W X 62H

Photo: Roman Moreno

MICHAEL BOSSIN
Sharon, Mass.

Begun as an experiment using wood dyes, this project evolved into a cabinet. Sections of dyed figured maple are separated by cherry to produce the stained-glass effect. Michael based the overall design on early 1900's Glasgow School architectural elements.

CHERRY, BIRD'S-EYE MAPLE, AND CURLY MAPLE, 9D X 30W X 34H

ANTHONY NOCKET
Elverson, Pa.

Anthony had considered building a version of Garrett Hack's huntboard (*FWW* #187) for a long time. Stumbling upon some particularly inspiring spalted maple that seemed destined to be resawn into raised panels, he decided to take action.

CHERRY, SPALTED MAPLE, HOLLY, AND EBONY
16D X 42W X 36H

Photo: Georgeanna Foley

SHEA ALEXANDER
Timberville, Va.

The classic books by J. R. R. Tolkien were integral to Shea's youth, so when Christopher Schwarz posted plans on his blog for a "Hobbit Chair," he was all ears. Though Schwarz's backsplat was unadorned, Shea couldn't help but use it as a canvas for some carving.

RED ELM, 18D X 18W X 32H

Photo: Harleigh Cupp

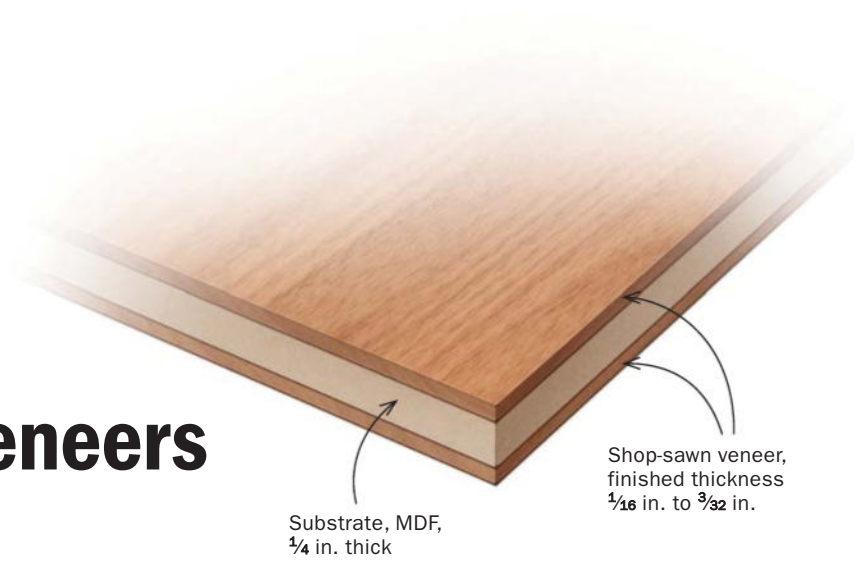
ARI KARDASIS
Pine Plains, N.Y.

Ari designed this piece to nod at sci-fi and biological influences. The inlay pattern was derived from electromagnetic equations, and the mating pockets and plugs were cut on a CNC. The slender black legs are meant to hold the top as if it's floating or ready to spring back to its web at any moment.

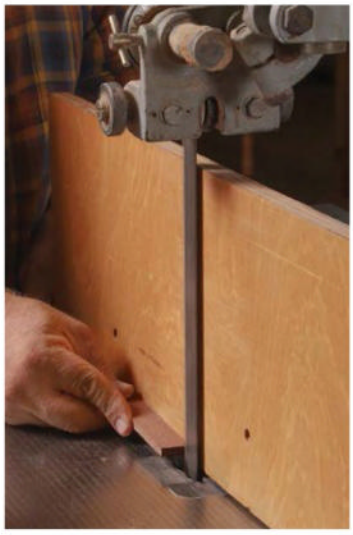
WALNUT, BIRD'S-EYE MAPLE, AND ASH, 29D X 15W X 21H

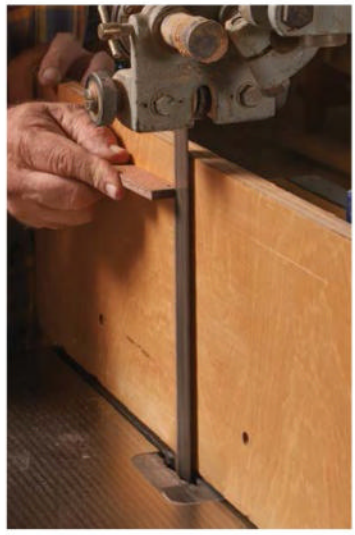
Making a panel with shop-sawn veneers

BY CRAIG VANDALL STEVENS



A primary panel





Fine-tune a tall fence. *A well-set tall fence is essential when sawing veneers. To be sure the fence is parallel with the bandsaw blade, make a stopped cut in a scrap while holding it near the saw table, and then make an even shallower cut near the top of the fence. If the kerfs don't coincide exactly, tweak the fence.*

Thick slices. *Cut the veneer about 1/8 in. thick. If your bandsaw cuts smoothly, the bandsawn face will be fine as a glue surface, and you won't need to face-joint the blank after each pass.*

Bench jointing. *To prepare for edge-gluing a pair of veneers, joint their edges with a hand plane. A jointer would also work.*

Perhaps you've heard about other furniture makers sawing their own veneers and pressing them onto panels. It may sound tricky, but shop-sawn veneers are easily sliced on a bandsaw, and because they're cut much thicker than commercial veneers, they can be worked with hand tools like solid wood; yet once they're glued to a stable substrate, they don't pose any wood-movement issues. Since the panel's not expanding and contracting like solid wood, the design door opens wide, multiplying a woodworker's options. If you haven't tried these techniques, I think you'll be surprised to discover just how approachable they are. Making a small panel like the one I used for the top of my plant stand (pp. 32–39) is a great place to try them out.

For the panel in my plant stand, I chose narra, a spicy-smelling Southeast Asian species that complements the color and texture of the stand's black walnut base and frame. After selecting a

Photos: Jonathan Binzen. Drawing: Christopher Mills.

Tape is the hinge for book-matching. *Place the jointed edges together and pull tape across the seam. Then fold them back on each other and apply glue to the exposed edges.*

Open the book and close the joint. *Fold the veneers flat, then clamp across the glue joint with blue tape stretched tight.*

Leaf scraper. *When the glue sets, flatten the joint with a card scraper.*

section of the narra plank that had nice grain and a subtle bee's-wing figure, I jointed one face and one edge and resawed four veneers, each a little less than ⅛ in. thick. This gave me enough leaves for a book-matched layer on both the top and bottom surfaces of the panel. It's important that veneer be applied to both sides of the plywood or MDF core so the panel is balanced and remains flat.

I do the resawing at the bandsaw and use a shopmade fence that is about 10 in. tall. The fence can be clamped to the bandsaw table or to the bandsaw's factory fence. Set the resawing fence so that it's a shy ⅛ in. from the left-side bandsaw teeth. Once the fence is secured, there's a simple way to verify that it's parallel to the blade. Using a flat scrap of wood held against the fence and bandsaw table, make a ½-in.-long cut. Then move the scrap up to near the top of the fence and make a shorter cut, checking that the sawblade has cut perfectly in the kerf created by the first cut. If the second cut created a little step on either side of the original kerf, relocate the clamps or add shims to tweak the fence until it's parallel to the bandsaw blade.

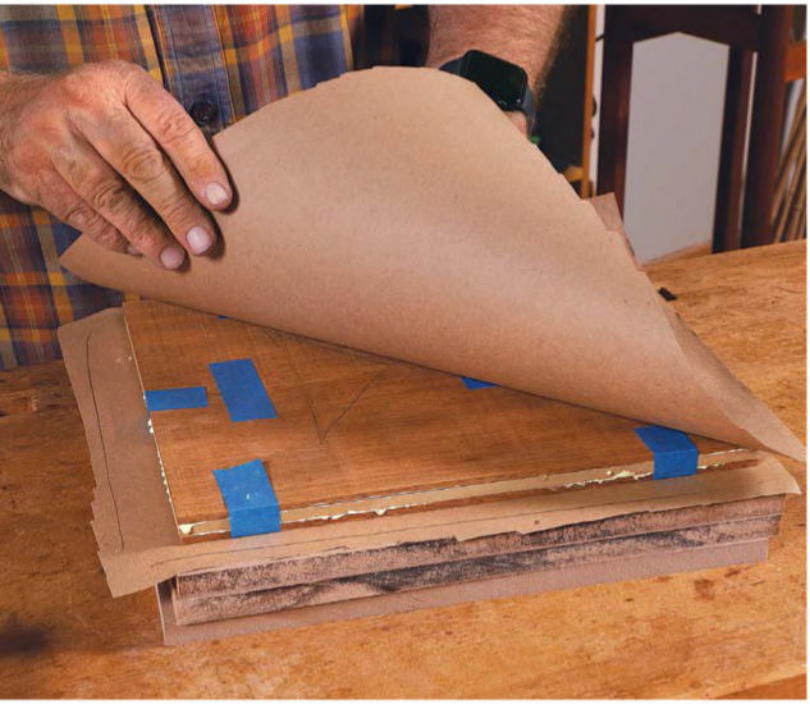
Panel lamination. *Spread glue on the substrate—in this case ¼-in. MDF—and tape the veneers in place top and bottom. The tape will keep the veneers from shifting under clamp pressure.*

To cut the veneers, use a steady feed rate. A pause tends to leave a little bump on the surface of the blank you're slicing, and that can impact the quality of the next veneer you cut. If you do pause, check to see if a bump can be felt on the blank's surface; if it can, use a block plane across the grain to lightly shave it away. You can do that right at the bandsaw. After a couple of cross-grain block-plane strokes, resaw the next veneer.

If your bandsaw cuts relatively smoothly, the surface left by its blade will be perfectly fine as a glue surface when you're adhering the veneers to a core, so it's not necessary to rejoint the blank after each veneer pass. But after four or five veneers have been sawn, you will probably want to rejoint the blank's face and edge to restraighten them. You can also leave the bandsawn surface on the show face of the veneers when you press the panel; it will be easier to smooth afterward.

When you've sawn your veneers, use a hand plane to edge-joint the ones that will be glued edge-to-edge. I do this at the workbench, elevating the veneer an inch or so on a flat scrap and laying the plane on its side. I place the veneer so its long edge extends ¼ in. or so from the scrap, then I take a few swipes with the plane.

Blue painter's tape works well for clamping the edge joint. Stretch a few pieces of tape tight across one side of the dry-fitted pair of veneers. Then fold the pair open, exposing the edges of both pieces. Apply a thin bead of glue along the edges, then unfold the veneers to adhere the edges. Stretch more blue tape across the top face of the joint, and leave the glued-up leaves on the bench or another flat surface to dry.



The rest of the sandwich. *Stevens uses pieces of ¾-in. MDF as cauls; they protect the panel, keep it flat, and distribute clamp pressure. Sheets of kraft paper prevent the panel from sticking to the cauls.*

Plenty of pressure. *For a panel of this size, cauls and F-clamps provide all the pressure you need to make a flat and flawless veneer lamination. For much larger panels, a vacuum bag simplifies the process.*

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Smooth it now. *After glue-up, flatten and smooth the show veneer faces with a hand plane, and follow up with sandpaper on a block. The panel could also be sent through a wide-belt sander.*

Joint the package. *At the jointer (or with a hand plane) joint one long-grain edge of the panel, then rip it to width at the table saw. That done, cut it to length using a crosscut sled.*

After about 30 minutes, the tape can be removed and the veneers glued to a core. The core can be either Baltic-birch plywood, which is high quality and free of voids, or MDF, which is usually very flat, although less pleasant to work with. When you're using Baltic birch, you can glue thin layers together to build up to a required thickness rather than starting with the actual thickness. That results in a flatter plywood core. For example, if you are aiming for a ½-in.-thick core, rather than buying ½-in. plywood, try making it by gluing up four pieces of ⅛-in. plywood. This requires a couple of simple steps, but the flatter results are worth it. I recommend gluing up the core first and gluing on the veneers afterward.

I often use a vacuum bag when gluing up veneered panels, but on a small panel like this one, using clamps is just as effective and efficient. Be sure to use adequate cauls and plenty of clamps. For cauls, I stacked two ¾-in.-thick MDF panels on the top and bottom of the glue-up. Once the veneered panel is dry, the show faces can be hand-planed smooth or sanded with a sanding block.

Craig Vandall Stevens is director and lead teacher at the Philadelphia Furniture Workshop.

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Unexpected inheritance

BY MOZI WEISENBERG

For the last five years—a solid third of my life—I have been planing, sawing, chiseling, and, above all, reading inhuman amounts of *Fine Woodworking*. I began my craft journey one summer at age 10 with a singular vision—to build a kayak from scratch. I had developed a deep fascination with the idea of kayaking, despite only having kayaked once in my life. By the end of that summer, after obsessively reading online tutorials, watching YouTube videos, and buying books on the subject, I had crafted an 8-ft. kayak out of marine plywood and fiberglass. Paddling that kayak in a small pond, then paddling it a half mile across a reservoir, gave me a satisfaction that I had never experienced before. One day there was some wood on a workbench; the next there was a beautiful boat three times as tall as I was. More than anything else, I grew addicted to the look of oiled wood.

Each curiosity led to another. I turned our basement into a shop when I was 11, built desks and tables, and used my new skills to start a tool repair and sharpening business when I was 12. At first I was sharpening for friends, but soon the word spread and strangers from the neighborhood were bringing me their tools and kitchen knives. Despite the inflow of sharpening funds and my parents' generous contributions, there were still holes in my tool lineup (not to mention in my woodworking skills!) that prevented me from attempting certain projects.

Then in the spring of 2023 the *Philadelphia Inquirer* wrote an article about me: "Mount Airy Seventh-Grader Runs His Own Knife-Sharpening Business." I had jumped at the chance to have the article written; I saw it as an opportunity to make the adults in my life proud. I was totally unprepared for what happened next, however. A few days after the article was published, the reporter forwarded me a note from a man named Martin Todt:

Thank you for your article on Mozi the woodworker. I read with great interest in this remarkable young man. I am a 73-year-old retired contractor and woodworker. I live in Bensalem and have a complete woodworking shop filled with old tools left to me by my grandfather and great-grandfather that I have enjoyed using to build furniture for 50 years. I have no one to leave these tools to and was hoping to find a place for them to continue to be used. I would let Mozi take his choice at no cost to him.

Soon after I received Martin's note, my father and I drove an hour to his home. Standing outside, I looked up at him and tried to give him a good handshake. We had connected in such a quirky way, and I felt nervous. However, as soon as we entered his shop, the language of woodworking bridged the gap. He explained that many of his hand tools, such as the Stanley No. 45 multi-plane he showed me, which was made in the 1910s, had been passed down from his great-grandfather.

His great-grandfather literally had bought the plane from the store! I couldn't believe it. Martin explained the various kinds of work he had done through niche tools he showed me. One was a tool for marking stair-tread cut lines. Another was a jig hooked up to his grinder for sharpening.

When my father and I pulled back into our driveway later that day—our van loaded with tools including a bandsaw, the Stanley No. 45, multiple other planes and chisels, lathe tools, and a number of clamps—I realized I had become not just the owner of a shop's worth of tools, but the inheritor of a legacy.

Over the next few years, Martin and I traded dozens of emails. He gave me tips and encouragement as I embarked on a variety of wood projects. Once, when I thanked him again for his generous gifts, he wrote, "The truth is that it is hard for me to separate myself from these things, but it is also necessary. … It's been two years since I retired, and that bandsaw hasn't been turned on once. … Just remember you aren't taking anything from me—you are giving me something." To Martin, tools were meant to be used. Even though I was not able to meet him in person frequently, Martin became an important mentor for me. When he suddenly passed away in October from a stroke and lung cancer, I lost a friend five times my age.

Remarkably, Martin was not the only person who reached out to help fill my shop with tools. I met others in the woodworking trade, such as Lawrence Freifield, who introduced me to the world of antique tool collecting and invited me to tour his shop and to come to a tool meet. Upon learning I hadn't read *Antique and Collectible Stanley Tools* by John Walter (1990), Lawrence simply bought the $200 book and dropped it off at my house.

Woodworking is hard to get started in, given the tool requirements. Martin, Lawrence, and other kind people have given me such a boost through sharing their tools and wisdom. Tools may be inanimate objects, but they carry so much soul. We breathe life into our tools when we use them. When we pass, the tools of our crafts can live on, giving the next generation a chance to indulge in their own creative pursuits.

Find someone and teach them the story of your tools. Share your wisdom and experience, and perhaps gift them a few ordinary tools. Maybe something extraordinary will happen.

Mozi Weisenberg works wood in Philadelphia.

Photo: Mozi Weisenberg

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The Windsor Limbers Up

Aspen Golann's exuberant interlaced Windsor chairs are an expression of fidelity—to the centuries-old tools, techniques, and forms of the traditional continuous-arm chair and, equally, to an artist's appetite for innovation and pure beauty. When Golann visited Boston's North Bennet Street School in 2016 and saw the elevated level of period furniture making being taught there, "everything seemed completely and impossibly out of my league," she says. "But I like doing things that are too hard for me." A former art teacher, she had always loved making art, but art alone didn't suit her as a career. It was, she says, "when my sculptures became usable that I finally cared and saw a place for myself in the creative field." As a queer woman, and often the only woman in a woodshop, Golann sometimes felt like an outsider early on. "It could be lonely and hard to be authentic," she says. In a piece such as this, with its lariat-like crinoline stretchers and a whiplash arm in white oak that was partly steam-bent and partly bent-laminated, Golann continues to prove that she not only belongs in the field but helps lead it. "My goal," she says, "is to make furniture that is both personal and historical—celebrating and subverting the history of American decorative arts."

—Jonathan Binzen

Photos: Kate Benson