

Fine Woodworking

Teach • Inspire • Connect

November 2026 No. 325

- Modern dresser
- All about walnut
- Geometry of curves
- Belt-sander tips
- Diary of a cabinet



Bring new life to an old chair, p. 56



Grizzly
Industrial®

Buy Direct & Save
Purveyors of Fine Machinery® Since 1983

FREE 644-PAGE CATALOG!

The Industry's Leading Sourcebook for Metalworking & Woodworking Machinery
Request yours at grizzly.com/free-catalog

10" 3 HP 220V Table Saw

Professional-grade machine

- 36" Rip capacity
- Blade height, blade angle, & fence-to-blade digital readouts
- Precision-ground cast-iron table
- Large cast-iron handwheels
- Smooth and quiet poly V-belt drive
- Footprint: 22" x 24"
- Shipping weight: ~ 607 lbs.



MADE IN AN ISO 9001 FACTORY



SB1110 // ONLY \$2995



20" 5 HP Variable-Speed Planer

Heavy-duty surfacing

- 92-Indexable-carbide insert helical cutterhead
- Digital table height scale
- 10–28 FPM variable-feed control
- Precision-ground cast-iron table
- Pedestal-mounted controls
- Footprint: 23½" x 29½"
- Shipping weight: ~ 820 lbs.



MADE IN AN ISO 9001 FACTORY



SB1109 // ONLY \$4895



8" x 83" 3 HP Parallelogram Jointer

Achieve flawless edges for amazing joinery

- 36-Indexable-carbide insert helical cutterhead
- Parallelogram tables
- Digital readout for infeed table height
- Heavy-duty center-mounted fence
- Fence stops at 45°, 90°, and 135°
- Footprint: 46" x 18"
- Shipping weight: ~ 730 lbs.



MADE IN AN ISO 9001 FACTORY



SB1091 // ONLY \$3500



18" 5 HP Wide-Belt Sander

High-performance sanding made compact

- 16, 23, 33 FPM conveyor speeds
- Sandpaper changes in less than 30 seconds
- Pneumatic belt tracking and tensioning
- Micro-adjustable graphite-felt platen
- Safety shut-off bar
- Footprint: 19½" x 16¾"
- Shipping weight: ~ 1008 lbs.



MADE IN AN ISO 9001 FACTORY

G0527 // ONLY \$7313



5 HP Sliding Table Shaper

Master end-grain with sliding precision

- ¾", 1", and 1¼" Spindles
- Precision-ground cast-iron sliding table
- Extruded aluminum miter fence
- 0–60° Left/right cast-iron miter gauge
- Four spindle speeds
- Footprint: 25½" x 26¾"
- Shipping weight: ~ 757 lbs.



G8621 // ONLY \$4895



21" 3 HP Bandsaw

High-efficiency production resawing

- 20" Left cut capacity
- 14¼" Resaw capacity
- Brake stops motor in under 3 seconds
- Blade tracking window
- Extruded aluminum resaw fence
- Footprint: 21½" x 33½"
- Shipping weight: ~ 680 lbs.



MADE IN AN ISO 9001 FACTORY



G0566B // ONLY \$3650



1 HP Oscillating Spindle Sander

Refined control and smooth results

- Spindle RPM digital readout
- 900–1800 RPM variable-speed spindle
- Ten spindle sizes, ¼"–4" diameter
- 72 OPM spindle oscillation
- Tilting precision-ground cast-iron table
- Footprint: 16" x 16"
- Shipping weight: ~ 350 lbs.



MADE IN AN ISO 9001 FACTORY

G1071Z // ONLY \$2695



20" x 43" 3 HP Wood Lathe

For the serious woodturner

- VFD for efficient, high-torque variable speed
- 100–3000 RPM 3-speed range spindle
- Digital spindle speed readout
- Outboard rest for bowl turning
- Precision-ground cast-iron bed
- Footprint: 16½" x 77"
- Shipping weight: ~ 814 lbs.



G0694 // ONLY \$4995



3 HP Double Canister Dust Collector

Unrivaled airflow for a clean shop

- Connect up to three machines
- 1-Micron canister filters
- Vacuum cleaning/replacement indicator
- Motorized filter paddle brushes for automatic cleaning
- Heavy-gauge clear plastic adapter for easy visibility
- Footprint: 49½" x 21½"
- Shipping weight: ~ 237 lbs.



MADE IN AN ISO 9001 FACTORY



SB1101 // ONLY \$1895



FINANCING AVAILABLE

Please visit grizzly.com for up-to-date pricing.

Due to rapidly changing market conditions, our advertised prices may be changed at any time without prior notice.

WARNING! ⚠: Cancer & Reproductive Harm

Some products we sell can expose you to chemicals known to the State of California to cause cancer and/or birth defects or other reproductive harm. For more information go to www.P65Warnings.ca.gov.

grizzly.com
800-523-4777



30 BELT SANDER TIPS



38 MODERN CHEST OF DRAWERS



50 A LOOK AT WALNUT

features

30 Reach for the Belt Sander

Unleash the potential of an often-overlooked tool with a few simple tricks

BY RAMON VALDEZ

38 Building the Hathaway Dresser

Stout structure and sleek design blend in this robust beauty

BY HEIDI EARNSHAW

50 Four Walnut Species

These stand-out trees are a cut above the rest

BY DAN BOLLOCK

56 Add New Life to an Old Chair

Replacing a cane seat is not as difficult as it looks

BY ROLAND JOHNSON

62 Creation Story of a Cabinet on Stand

A masterful maker opens his notebook to reveal the road he traveled from first thoughts to finished piece

BY TIMOTHY COLEMAN



Tablet editions free to subscribers

Magazine content, plus searchability and interactive extras. Download the app at FineWoodworking.com/apps. Access is free with your print subscription or FineWoodworking.com online membership.

in every issue

6 On the Web

8 Contributors

10 Letters

12 Workshop Tips

- Flip your honing guide to back-bevel your plane irons
- Trim box-liner material with a wheel-type cutter
- Create big, round objects without a big lathe

16 Tools & Materials

- Vacuum workholding made simple
- All-time favorite tool
- Roll out the bandages

20 Designer's Notebook

The allure of the wall cabinet

70 Gallery

74 Master Class

Unlocking hand-shaped curves:
The 5/7 rule

82 From the Bench

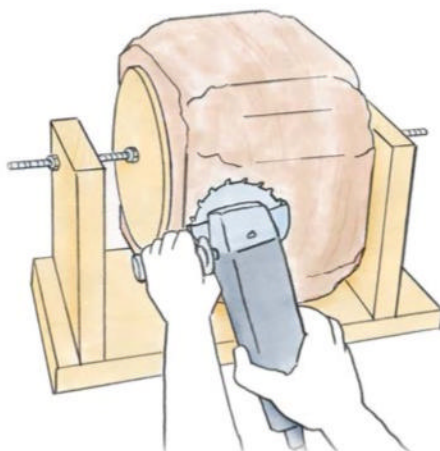
Sharing a table

Back Cover

Beauty in the Bogs



72 GALLERY:
TAMBOUR CABINET



14 BIG TURNINGS
WITHOUT A LATHE



20
DESIGNER'S
NOTEBOOK



NONSLIP
BENCH MAT **18**



TAMING CURVES
WITH GEOMETRY **74**

YOU LOVE THE IDEA OF A CNC BUT...

...hate the idea of programming one. Design should feel more like putting pencil to paper – not sitting in front of a computer for hours. You expect efficiency, without losing a human touch. You smile when things work just as you planned.

Clean. Accurate. Precise.

ORIGIN

The Handheld CNC for Woodworkers



Learn more
shapertools.com/origin



Fine Woodworking[®]

UNLIMITED

Our Unlimited membership provides exclusive access to a dynamic menu of woodworking talent, techniques, and projects—combining our print subscription with our online membership—all for \$99 a year. For details on all the benefits, go to FineWoodworking.com/members.

Online extras

Visit FineWoodworking.com/325

VIDEO WORKSHOP

Build a cabinet on stand with Tim Coleman

This intimate video series follows legendary woodworker Tim Coleman as he designs and builds a cabinet on stand—a timeless form made famous by his teacher James Krenov.

VIDEO

Valdez shop tour

Take a peek into the cleverly designed workspace of Ramon Valdez.

Wood science with Daniel Bollock

In this blog post, Purdue University wood researcher Daniel Bollock explains the science behind why wood behaves the way it does, even after it is cut and dried.



EASTERN
BLACK WALNUT



VIDEO

Belt-sanding jigs

In this video, Ramon Valdez shows off the belt-sanding jigs he's created for modifying and reshaping small components.

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:

- Carve the box fingers
- Prepare the stock for bending
- Create an oval bending form



Additional perks of Unlimited



FREE PLANS

As a member, you can search our entire digital plan library to find just the project you're looking for.

ONLINE ARCHIVES

Get on-demand access to the complete *Fine Woodworking* magazine archive. That's more than 2,000 in-depth articles!





NEW!

Get in the Groove with the T-Glide Advance

SawStop's most versatile fence features a dovetailed slot for mounting accessories and jigs.

See all the innovative features at SawStop.com/Advance



contributors

Heidi Earnshaw (“Building the Hathaway Dresser”) began working wood while studying fine arts at the University of Toronto, wielding a chainsaw and angle grinder to sculpt thick cedar blanks. Later she learned joinery by fixing discarded furniture and built cabinets in a millwork shop. After attending the furniture program at Sheridan College’s School of Art and Design, in 2000 she opened her own shop and has been building furniture ever since. She has taught at Sheridan and at the Center for Furniture Craftmanship, where she was artist in residence in 2025. She lives and works in rural Ontario, where she renovated an 1835 timber-frame house and an outbuilding for her shop.



Stevan Hartung (Designer’s Notebook and Back Cover) studied industrial design at the National College of Art and Design in Dublin, Ireland. Drawn to the possibilities of furniture design and making, he established his first workshop in Dublin in 1992. Now he works from a studio in Wicklow (stevanhartungfurniture.com), creating pieces that combine traditional woodworking with refined design for clients across Ireland, the UK, and Europe. Stevan approaches design as a fluid process, allowing space for change and unexpected discoveries. He believes that wood holds an inherent creative potential and that his role is to reveal that voice.



Ramon Valdez (“Reach for the Belt Sander”) attributes the development of many of his skills to the fast-paced production of the cabinet shops he learned in and eventually owned. There he invented ways to implement jigs and solutions for faster, safer, and more-efficient work. He traded cabinetry for high-caliber furniture with signature elements like marquetry and hidden compartments with magnetic keys. Ramon showed his work in galleries for two decades but now enjoys creating woodworking products and solutions. His newest product is the V1 Probe.

While working as an engineer in his twenties, **Dan Bollock** (“Four Walnut Species”) caught the woodworking bug after discovering a stack of *Fine Woodworking* magazines on a coworker’s desk. Since then his career has taken a winding path through engineering, custom furniture making, and university laboratories. Today he is operations manager for Purdue University’s makerspace, the Bechtel Innovation Design Center, where he oversees the woodshop and the welding, blacksmithing, and jewelry labs.



We are a reader-written magazine. To learn how to propose an article, go to [FineWoodworking.com/submissions](https://www.finewoodworking.com/submissions).

Fine Woodworking

EDITOR AND CREATIVE DIRECTOR	Michael Pekovich
DEPUTY EDITOR	Jonathan Binzen
ART DIRECTOR	John Tetreault
SENIOR EDITOR	Anissa Kapsales
ASSISTANT EDITOR	Owen Madden
COPY/PRODUCTION EDITOR	Don Burgard
ADMINISTRATIVE ASSISTANT	Betsy Engel
EDITOR, FINEWOODWORKING.COM	Ben Strano
ASSOCIATE EDITOR, FINEWOODWORKING.COM	Bridgid Gruber
VIDEO PRODUCER	Jeff Roos
DIGITAL PRODUCTION SPECIALIST	Zara Hanif
CONTRIBUTING EDITORS: Christian Becksvoort, Garrett Hack, Roland Johnson, Steve Latta, Michael Fortune, Chris Gochnour, Bob Van Dyke	
NATIONAL ACCOUNT DIRECTOR	Mark E. Hoag 203-304-3302 mhoag@aimmedia.com



SALES DIRECTOR AND PUBLISHER, HOME ARTS Alex Robertson
SENIOR MANAGER, EARNING Heather Lee



ACTIVE INTEREST MEDIA

CHAIRMAN & CEO Andrew W. Clurman
CHAIRMAN EMERITUS Efreim Zimbalist III
CFO/COO Adam Smith
SENIOR VICE PRESIDENT, MARKETING Erica Moynihan
SENIOR VICE PRESIDENT, SALES Mike Burns
SENIOR VICE PRESIDENT, BRAND DIRECTOR Rob Yagid
VICE PRESIDENT, SALES OPERATIONS Christine Nilsen
VICE PRESIDENT, DIGITAL PRODUCT DEVELOPMENT Ashley MacDonald
VICE PRESIDENT, STRATEGY & RESEARCH Kristina Swindell
DIRECTOR, HUMAN RESOURCES Scott Roeder
DIRECTOR, PRODUCTION Phil Graham
DIRECTOR, RETAIL SALES Susan A. Rose
DIRECTOR, CLIENT MARKETING & PAID CHANNELS Taylor D'Argonne
DIRECTOR, AUDIENCE, AUTOMATION & DATA Matt Boyles
DIRECTOR, CUSTOMER ACQUISITION Sara Decanali
DIRECTOR, DIGITAL ACQUISITION Matthew Ulland
SENIOR CIRCULATION FULFILLMENT MANAGER Suzanne Hejkal

At Active Interest Media, we celebrate and share human insight and expertise so you can hone your craft, fuel your passions, and connect with like-minded communities. That ethos grounds the products we make, and it remains unchanged in an era of rapid generative AI adoption. Our content will continue to be original, creative, and trusted expressions of the skill and lived experience of our talented staff and contributors.

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. 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.

PRIVACY STATEMENT: Active Interest Media HoldCo, Inc. is committed to protecting your privacy. For a full copy of your privacy statement, go to aimmedia.com/privacy-policy. COPYRIGHT: 2025 by Active Interest Media HoldCo, Inc., Des Moines, IA. This publication may not be reproduced, either in whole or part, in any form without written permission from the publisher.

MANAGE YOUR SUBSCRIPTION:

[www.FineWoodworking.com/CustomerService](https://www.finewoodworking.com/CustomerService)
finewoodworking@advensusmedia.com
844-201-5599



Buy Your Ticket Now!

WOODWORKING IN AMERICA

October 9 – 10, 2026

IOWA STATE FAIRGROUNDS

We're thrilled to announce that Woodworking in America returns this fall with an incredible lineup of expert presenters! Mark your calendars for **October 9 – 10, 2026**, as we bring together the best of woodworking education, inspiration, and community.



Sign Up Here

Scan the QR code or visit [Woodworkinginamerica.com](https://www.woodworkinginamerica.com)

Woodworking in America is an exclusive event where passionate woodworkers of every skill level come together, forging connections with like-minded enthusiasts, premier tool and product manufacturers, and experience immersive learning sessions led by some of the craft's foremost experts.



From the Editor

An embarrassment of riches

In selecting the articles to make up an issue, I tend to dive into the details. I focus on finding a balanced mix of projects, techniques, and design, aiming to offer something for all readers. I also keep an eye on skill level and furniture styles. While thinking about articles this way, it's easy to overlook the fact that each article encompasses far more than the topic described in the headline. Each article is an

encapsulation of a maker's skills and knowledge acquired over a lifetime of striving to master the craft.

I've followed Heidi Earnshaw's work for years and am thrilled to have her in the magazine. Her clean, modern designs paired with solid construction techniques befit a seasoned pro who has shipped many commissioned pieces out into the world.



Ramon Valdez is another deeply experienced maker I am happy to feature in the magazine. When we were considering authors for an article on tips for using a belt sander—that seemingly odd tool to include in a shop dedicated to making fine furniture—we went right to the source. Ramon is an accomplished and prolific

craftsman who frequently puts his belt sander to work in building his high-style pieces.



Aspen Golann, one of my favorite makers and designers, is no stranger to the pages of *Fine Woodworking*. In this issue she draws on a technique she learned at the North Bennet Street School and illuminates the geometry hidden in every curve we can think of, offering insight and advice on fine-tuning the curves in our work as well.

Last, we take a fresh approach to the making of a cabinet. Rather than giving step-by-step instructions, Tim Coleman's article is a personal narrative that takes you for the ride he went on as he built this stunning, uniquely personal piece incorporating 40 years of design and construction knowledge. If you're hungry for the how-to, though, you're in luck—we've paired the article with a video workshop that covers his progress from start to finish.

—Michael Pekovich



A splay too far

I very much enjoyed Jeff Miller's article "Shaker Round Table" (*FWW* #322). My question is about the splay of the legs. Is there a rule of thumb on how far beyond the tabletop, or seat of a chair, the legs can extend without being a hindrance to people walking by? I'm always concerned about this, especially when building Windsor or stick chairs.

On a side note, in the late 1990s I purchased Jeff's book *Chairmaking and Design*. It was, and still is, my go-to book for building chairs.

—JEFF STREBA, Salt Lake City, Utah



Jeff Miller replies: On the Shaker round table, the legs shouldn't project out above the top at all. The outer corners of the legs should be just about even with the top. You might still be able to trip on a leg, but the top does provide a pretty good cue.

With chairs, the rear legs are more likely to project a little behind the seat, but so does the upper structure of the chair, which again provides a cue. I hope that helps.

Some Jobs Are Monsters All On Their Own.

Dust collection doesn't have
to be one of them.



Dust Gorilla Pro *SMART Boost Dust Collectors* The Last Dust Collector You'll Ever Need

Reach up to double the CFM and suction power of traditional, fixed RPM collectors with the Dust Gorilla Pro. Its unique Smart Boost technology ensures the motor is always working at full capacity, with a constant amp draw, by increasing fan speed as needed. Truly revolutionary!

"It's a game changer!" - Scott Chapin

NEW

For more help with taming your beastly projects, don't forget the
iVAC Pro System

Fully automated dust collection ready to install with your Oneida Air Systems dust collector.



Learn More About Scott's
Dust Collection Setup



Contact us today for your **FREE**
dust collector consultation.

oneida-air.com
800.732.4065

MADE IN
USA

workshop tips

Flip your honing guide to back-bevel your plane irons

A razor-sharp edge is the junction of two polished surfaces. It's relatively easy to achieve a high polish on the bevel side of your hand-tool blades using a honing guide. Making sure the back of the blade has that same polish—all the way to the tip of the tool—is trickier.

This is why many woodworkers—on their plane blades anyway—hone a tiny, shallow bevel on the back side of the edge. This is generally done with the finest stone, at the end of the honing process. (A back bevel should not be used on chisels, which require a fully flat back to work properly.)

The usual way to back-bevel a plane blade is the “ruler trick,” in which a thin ruler is placed under the blade to raise it slightly on the stone. The problem here is that in order to hit the back bevel at the same angle, you have to maintain the same distance from the ruler to the edge of the blade each time you sharpen. Otherwise, the honing action might not reach to the very tip.

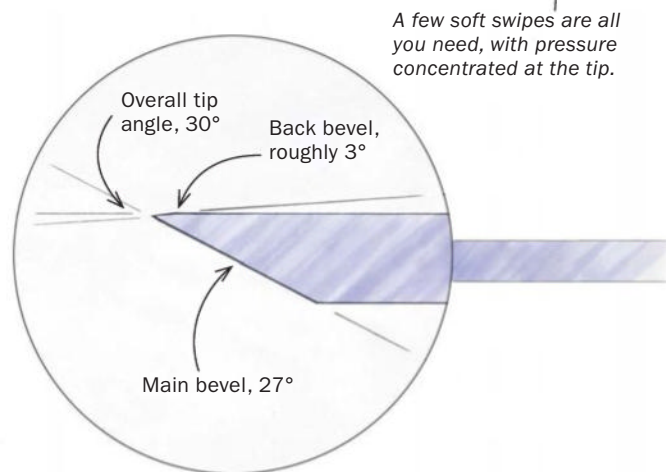
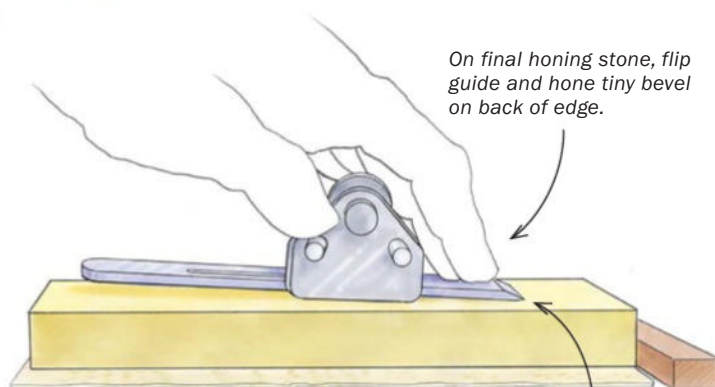
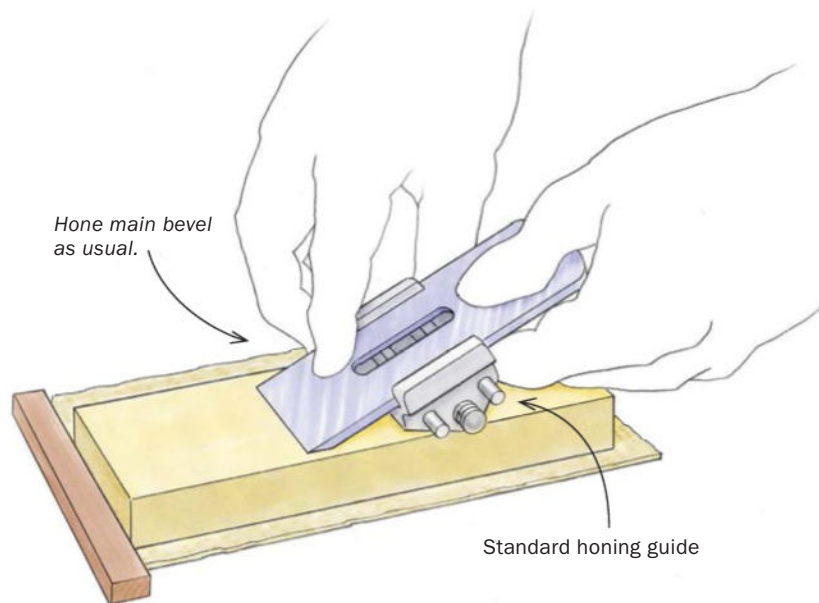
My discovery is that honing guides have a built-in solution. By simply flipping the guide and riding its top edges, you'll get a repeatable back bevel.

I set my honing guide for a 27° angle on the main bevel of the tool, so the blade always projects the same amount from the guide, and my back bevels are as consistent as my front ones. By the way, the back bevel adds roughly 3°, bringing my overall tip angle to 30°.

Because the back bevel only requires a few soft swipes on the finest honing grit, with pressure applied only at the tip of the blade, neither the stone nor the honing guide wears down very much.

The big win is speed, because you can hone as usual and then just flip the guide for the very last step. I sharpen my plane blades on diamond stones and then use a leather strop for final honing, so I touch the back bevel on both the finest stone and the strop. But the trick will work just as well on your finest waterstone.

—TIM KORBES, Wolfenbüttel, Germany



Best Tip



Tim Korbes was introduced to woodworking by his father, who had a small workshop in the attic; and by his godfather, who is a joiner by trade and still supplies Korbes with wood. During his own 20 years of working wood, Korbes has mostly built projects for his family. He has a small garage workshop at his home in Germany that is packed with everything he needs.

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 the choice of an online course from the *Fine Woodworking* Online Learning Library!



BUILT BETTER — TO — BUILT BETTER™

FESTOOL®

Professional tradespeople deserve tools built with the same eye for detail and uncompromising performance they bring to every job — it's time to demand better.



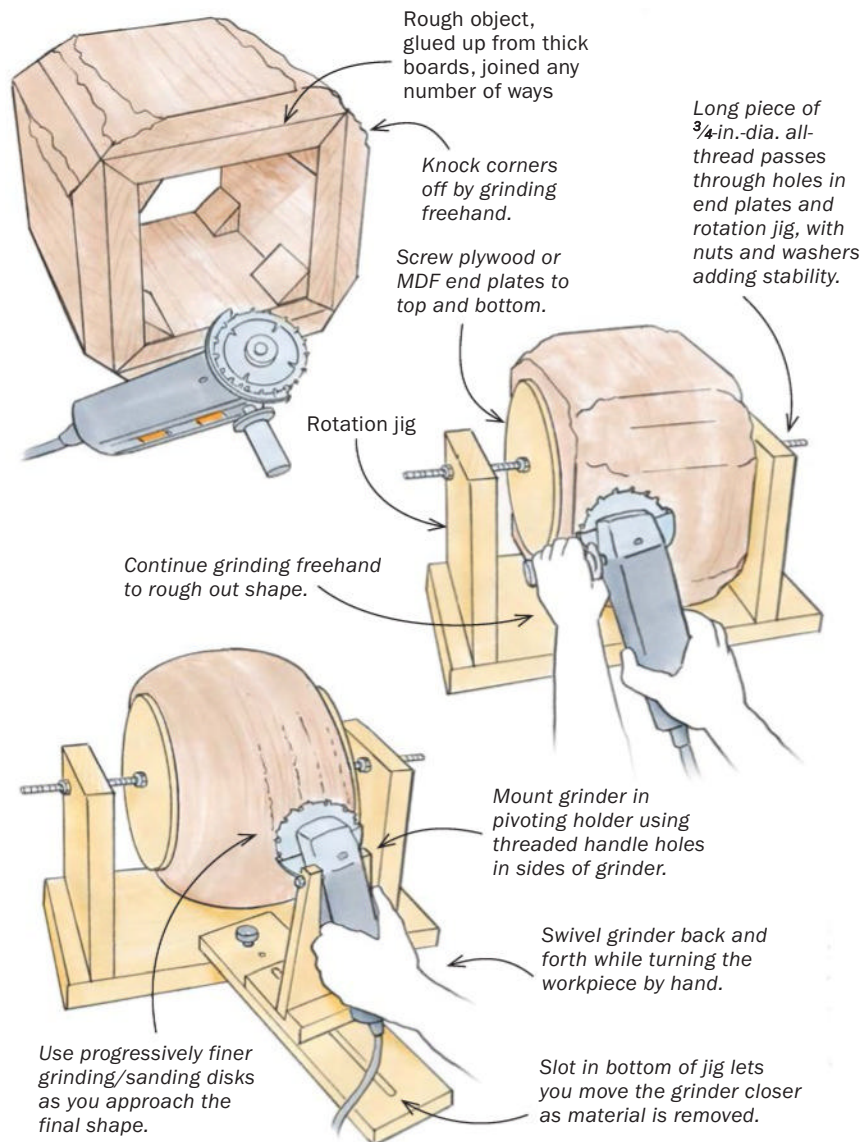
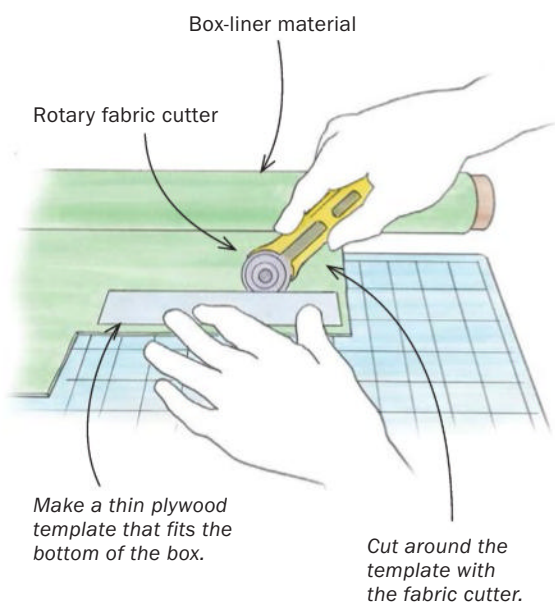
SCAN FOR
MORE INFO



Trim box-liner material with a wheel-type cutter

It's nice to line the bottom of a box with fabric, but it can be tricky to cut the pieces to perfect size. My tool of choice is a rotary, wheel-type fabric cutter. Olfa, Fiskars, and others make these cutters. Cut a template to fit the interior of the box, press it down on the fabric, and follow its edges with the fabric cutter. Stick to materials that won't unravel at the edges, like ultra-suede, flocked fabrics, handmade papers, and craft foam. Use a small plastic spreader to apply a very thin layer of glue to the bottom of the box, press the fabric into place, and you're done.

—DOUG STOWE, Eureka Springs, Ark.



Create big, round objects without a big lathe

I recently had a commission for a round coffee table with a large round base. Making the base required some ingenuity. I started by making a thick, square, hollow object, and then knocked off its corners freehand with my angle grinder, armed with carving disks. Next, I screwed on a temporary plywood top and bottom, with center holes in them. I then passed a length of threaded rod ("all-thread") through those holes, added nuts on both sides, and mounted the whole thing between uprights I made from scraps. Once the workpiece was mounted, I used the angle grinder freehand to rough out the shape. Then I mounted the grinder in the pivoting holder shown here to smooth the final shape. The grinder has threaded holes for right and left handle positions, which I used for mounting it in the holder. A slot in the base of the holder allows the grinder to move closer to the work as material is removed. By swiveling the grinder back and forth and spinning the blank by hand, I created a consistently round, symmetrical shape. I used curved templates to check the profile as I went, and progressively less-aggressive disks as I approached the final dimensions. A random-orbit sander fitted with a soft backer pad took care of the final sanding.

—PETER SZUTU, Castro Valley, Calif.

Reveal

by KOHLER.

BATH AND SHOWER REMODELING

THIS MONTH ONLY

NO PAYMENTS OR INTEREST FOR 12 MONTHS

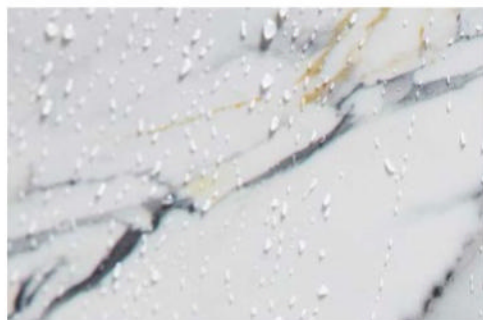
+ GET A FREE SHOWER DOOR†

With the Purchase of a Shower Remodel



Designed to Impress. **Built to Endure.**

KOHLER® LuxStone® shower walls offer lasting beauty and easy maintenance with panels custom-fit to your space.



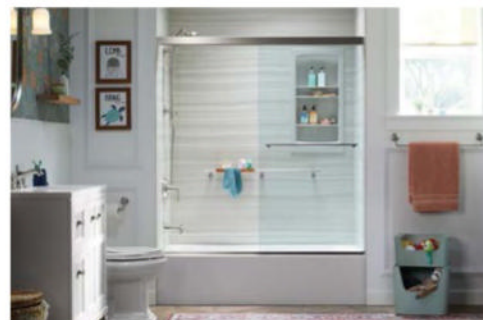
DURABLE CRUSHED STONE

Crafted from premium crushed stone for lasting durability and everyday performance.



GROUT-FREE SURFACE

The smooth, grout-free surface is easy to clean and helps maintain its beautiful finish.



DESIGN SELECTION

Explore a curated selection of elegant colors and patterns designed to complement your space.

Call today for your **FREE** in-home quote!

(800) 890-8199

†For as long as the original purchaser consumer owns his or her home. For complete warranty details, visit [KOHLER.com/Warranty](https://www.kohler.com/Warranty).

*Offer ends September 30, 2026. Participating dealers only. Not available in AK; HI; Nassau Cty, Suffolk Cty, Westchester Cty, or City of Buffalo, NY. \$1,000 off average price of KOHLER walk-in bath. Reveal by KOHLER Authorized Dealers set all prices and are responsible for full amount of discount. Cannot be combined with any other advertised offer. Contact Reveal by KOHLER Authorized Dealer for financing details.

tools & materials

■ ACCESSORIES

Vacuum workholding made simple

I'VE ALWAYS BEEN INTRIGUED BY THE IDEA OF USING VACUUM PRESSURE FOR WORKHOLDING in my shop. The appeal is obvious: no clamps sticking up above the work, nothing obstructing an edge, and no elaborate jiggling every time you want to secure a board. The challenge has been finding a simple way to incorporate it into my everyday workflow. The VacuDog does exactly that.

The VacuDog is a compact vacuum adapter that installs in a standard round benchdog hole. Once it's in place, you simply arrange the supplied gasket on the benchtop around the VacuDog, position the workpiece over it, and turn on your vacuum pump. Setting it up was quick and straightforward, and the O-rings created an excellent seal inside the dog hole. The push-to-connect tubing made hooking it up equally painless. Within a few minutes I was ready to put it to work.

I used a vacuum pump that I already own for veneering. It has a continuous-duty mode, which made it a good match for this application. The pump runs continuously while the workpiece is being held, but that wasn't a concern for me. My pump is designed to handle it, and it's quiet enough that the sound disappears as soon as I start a sander or router. You'll want to make sure your own pump is rated for continuous operation before using it this way.

I've been working on a multifunction workbench for some time, and the VacuDog adds another useful layer of versatility. I found it particularly effective for routing edge profiles with bearing-guided bits. With no mechanical clamps projecting above the surface or interfering with the router, I could work around the edge of a part without repeatedly stopping to reposition anything.

It was equally useful for sanding. I had previously used one of those nonslip mats that was never quite as nonslip as advertised. By contrast, the VacuDog held the work securely without requiring me to lean against it or chase it across the bench. That alone makes it a worthwhile addition to my workholding options.

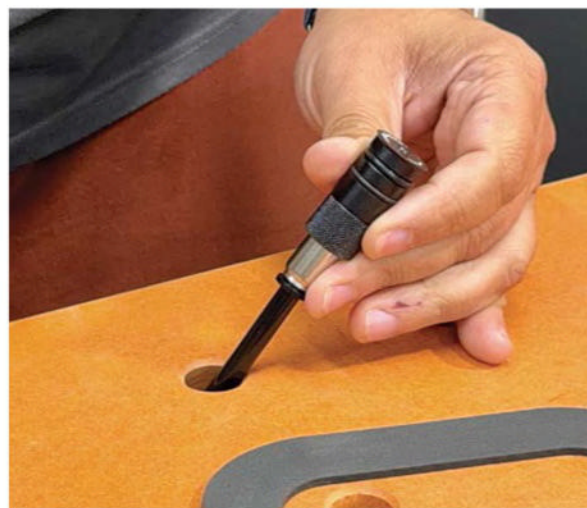
I was also curious about how it would perform with hand tools. I used it while planing, chopping with chisels, and doing layout work. The work stayed put through all of it. I expected it to handle the lighter tasks, but I was impressed by how secure it remained during more forceful operations.

The VacuDog won't replace every vise, clamp, or benchdog in my shop, but I can see it becoming part of my regular workholding kit. My only planned addition is a foot switch for the vacuum pump, which would make turning the system on and off faster while keeping both hands free. If you already have a suitable vacuum pump, the VacuDog offers a remarkably easy way to bring vacuum workholding to your bench.

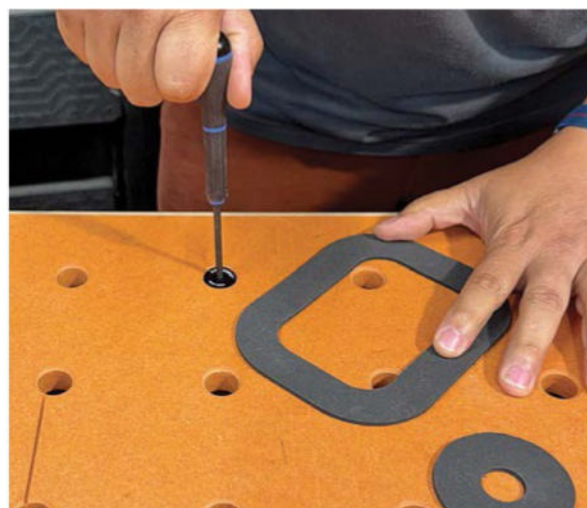
—Vic Tesolin hosts Shop Talk Live and teaches woodworking in Hamilton, Ont., Canada.



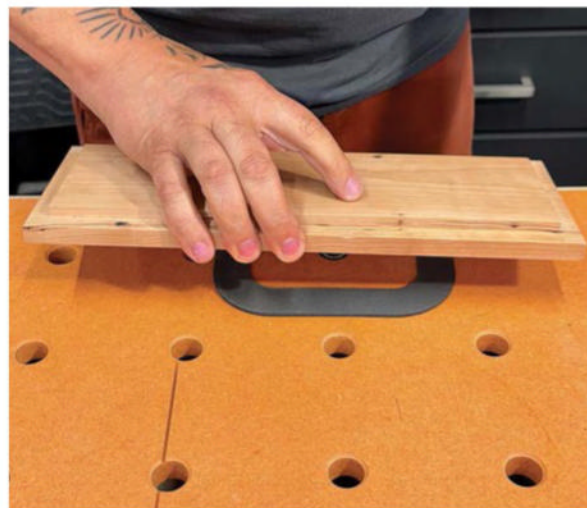
VacuDog
\$60 for 3/4-in. and 20mm aluminum
\$80 for 20mm stainless steel
tracktubes.com



Quick connection. The VacuDog features an 8mm push-to-connect fitting that works with 8mm or 5/16-in. O.D. tubing for easy, secure hook-ups. The kit comes with 8 ft. of tubing.



Easy installation. Place the VacuDog in a dog hole, tighten it down with the included hex driver, and you're ready to work. The included gasket is placed between the benchtop and the workpiece and can be removed when not in use.



Dogged grip. Tesolin found that the VacuDog gripped workpieces securely enough for him to hand-plane them.

BE A BETTER CRAFTSMAN WITH GREX®

CORDLESS or **AIR-powered**; be a better craftsman with proven precision built GREX tools. When you choose a GREX, you're investing in a better built, longer lasting, more powerful tool with the best considered set of features and ergonomics. It's the same award-winning robust build quality users have trusted in GREX tools for over 30 years. Every new GREX adds innovations that enable you to do more, easier and faster. The difference is in the details. Learn how GREX precision crafted tools just work better and longer for you.



FIND YOUR DEALER



888-447-3926



866-633-7788

www.grextools.com



**2026
HOLIDAY
SALE**
SAVE 10%
ON ALL TOOLS

**FINE WOODWORKING TOOLS THAT BLEND JAPANESE & WESTERN
CRAFTSMANSHIP, TRADITION, AND INNOVATION.**



**TEMPLE
TOOL CO.**

日本の職人技 | **MADE IN JAPAN**

~ Use code **FWW10** For 10% discount at templetoolco.com ~

*Good Through 12/2026



Shop Fox W1322 Black
Anti-Vibration Pad
\$22
grizzly.com

■ ACCESSORIES

All-time favorite tool

MOST OF MY WORK AT THE BENCH IS WITH HAND TOOLS, and my single biggest annoyance is a workpiece that walks every time you push a plane or lean on a chisel. I've tried several bench mats over the years, and this neoprene one from Shop Fox grips better than any. I find I can rest one hand lightly on the piece and work the gouge or plane with the other, without the mat creeping across the bench.

Fresh out of the package it smells like a tire, but that fades within a day or two. After a few years of use, the neoprene will get brittle and the edges will start to crack. Because the sheet is oversize to start (24 in. by 36 in.), you can just trim the cracked edge off and keep using the mat. I seem to get around five years out of mine this way. And when it finally gets too small, I just buy another one.

—Michael Doran makes
beautiful instruments
in Seattle.



■ SHOP SAFETY

Roll out the bandages

AS SOMEONE WHO HAS BEEN KNOWN TO CUT HIMSELF SOMEWHAT OFTEN IN THE SHOP, I was intrigued when I saw an ad for Mwraps finger bandages. I'm not normally one to buy something after seeing a social media ad, but they seemed like a genuinely clever upgrade to the standard bandage. Instead of being individually wrapped, Mwraps come on a roll—reminiscent of a roll of plumber's Teflon tape—so there's no fumbling to open a wrapper mid-injury.

As you unwrap a bandage, you'll find a short adhesive section, then a cotton pad, followed by 3½ in. of adhesive that lets you actually secure it around the finger properly. The roll is perforated between each bandage, making it easy to tear one off. The unusual design—pad plus wrap in one continuous strip—is the kind of “Why didn't this exist before?” idea that makes total sense once you see it.

Upon receiving the roll, I put two Mwraps bandages on, followed by one of my favorite bandages. I left them on for the day (which included hand-washing the dinner dishes), and while all three performed well, the Mwraps were noticeably more secure than my old standby.

A single roll costs \$25 for 48 bandages—roughly 50 cents a cut—which is about double the cost of a regular box of nice bandages. That's not cheap, but for me the better adhesion and easier application make it worth the premium price.

—Ben Strano is editor of
FineWoodworking.com.



Mwraps
\$25 per roll
mwraps.com

Learning by Doing

Connecticut Valley School of Woodworking

Bob Van Dyke – Director

Featuring hands-on
classes for all skill levels
taught by nationally
known craftsmen including

Michael Cullen
Steve Latta
Frank Strazza
Mary May
Mike Pekovich
and more!

249 Spencer St., Manchester, CT 06040 • 860.647.0303
www.schoolofwoodworking.com

Introducing

FineWoodworking UNLIMITED

Here to Inspire, Guide, and Support Your Woodworking Journey

- Complete site access • 500+ video workshop episodes • Online magazine archive •
- 1-year print subscription • And so much more!

FineWoodworking.com/Unlimited

CENTER for FURNITURE CRAFTSMANSHIP

Teaching Creative Excellence



Rockport, Maine
www.woodschoool.org

COMING SOON:
The new digital fence stop for
the Felder 700 & 900 series.
Pre-order yours today!

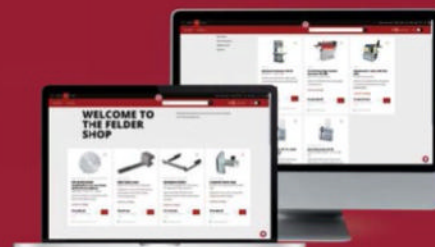


VISIT OUR E-SHOP

Scan QR to enter the world of Felder and discover over 2,500 tools,
woodworking machines and accessories directly from the manufacturer!



us.feldershop.com



Why Buy a Lignomat Pin Meter?

- Reliable, accurate, best prices.
- Low enough for woodwork, cabinets
- High enough for lumber drying
- Versatile to fit all jobs.
- Accurate enough to trust.
- Built to last for a life-time

We offer a Series of
Pin and Pinless Moisture Meters

Call for a recommendation
800-227-2105 Lignomat.com

LIMITED AVAILABILITY:

GRAB TOP MACHINE DEALS IN OUR CLEARANCE SECTION.

Save now and secure your dream machine at a special factory price:

www.felder.group/deals-us

FELDER GROUP USA

CALL TODAY FOR MORE INFO Toll free 866-792-5288, sales-us@felder-group.com

www.feldergroupusa.com

The allure of the wall cabinet

BY STEVAN HARTUNG



QUARTERSAWN IRISH ELM CABINET

The design is intentionally understated, with clean, simple lines across the front. This restraint allows the remarkable character of the timber to take center stage, inviting the viewer to appreciate the natural complexity and beauty of the wood. The dramatic figure possesses an almost three-dimensional quality. Its depth and movement continually reveal new details as the light changes. Comprised of three doors and one drawer, this cabinet appears as one seamless piece, but it is four separate carcasses carefully joined to form a single cabinet.

5½D X 16½W X 23¾H

For me, design is about more than the physical object; it's about the experience. Shadows, lines, edge profiles, and textures all contribute to a piece's depth and character. How a user interacts with the piece, how a drawer opens, or how a door reveals its interior adds another layer to the design. My goal is to create pieces that invite exploration, blending function with artistry to create objects that feel alive and timeless.

My journey as a designer began with formal training in industrial design, but I eventually moved away from that field. While industrial design equipped me with valuable technical skills, I found it unfulfilling due to the ethical dilemmas associated with mass production and a disposable consumer culture. These concerns drove me toward a more sustainable approach to design—one that is deeply connected to materials and craftsmanship.

Loosen your grip, embrace the possibilities

Initially my education focused on learning the stages of the design process: generating multiple initial concepts, followed by research, analysis, technical drawing, and rendering techniques—all before the advent of CAD software. I was trained to create precise, detailed plans and to use workshops to craft physical mock-ups of my designs. However, my personal approach has evolved significantly since then. Today I rely very little on detailed drawings. Instead, I make small, quick sketches—simple visual reminders of a concept or idea—leaving much of the design open to exploration and adaptation.

A defining feature of my design process is its fluidity. I intentionally avoid committing to rigid ideas too early, creating space for changes and unexpected developments. This flexibility fosters creativity, letting the materials themselves guide the process. The arrangement of patterns, the selection of complementary materials, and the interplay of textures and colors are all central elements in my work. I believe that the materials hold inherent creative

RECLAIMED MAHOGANY CABINET

This cabinet is made entirely from reclaimed wood salvaged from an Edwardian chest of drawers. After rescuing the original piece, the clients used it for a number of years before asking Hartung to rework the materials into something new. As a reference to the original piece, he used design motifs from the Edwardian and Georgian periods, such as the cross-banded veneers on the front edges, while utilizing the crotch figure on the two pivot-hinged doors. A strong feature of this piece is the use of chatoyancy—the way light playing across a surface from different angles can change wood's color depending on the direction of the grain. The drawer sides are Spanish chestnut, also salvaged from the original piece.

7D X 16¼ W X 23¼H



RIPPLED FRENCH WALNUT PARQUETRY CABINET

The driving inspiration behind the parquetry arrangement on the front of this cabinet was the gradation from light to dark walnut and all the shades in between. Because the positioning of handles can make a huge visual difference, Hartung went through various options in placing the handles. After a few experiments, it also became clear that any finish at all—oil, wax, or shellac—would change the color to the detriment of the piece, so Hartung opted not to apply any finish to the front.

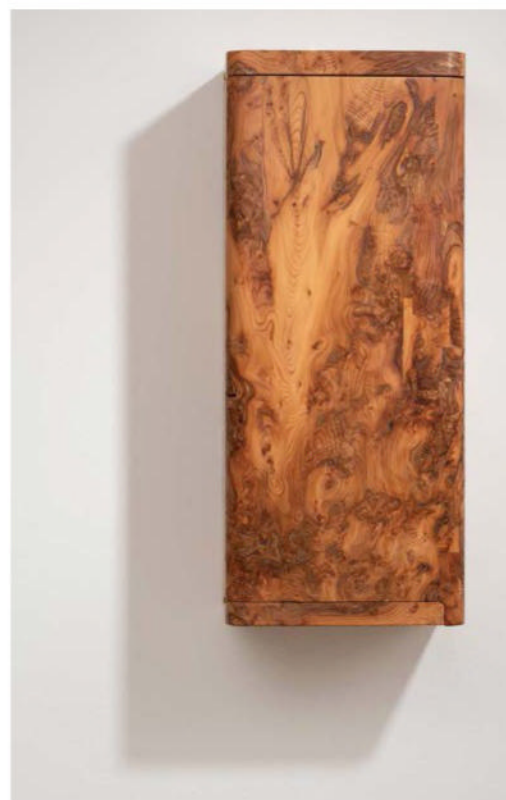
6D X 17W X 20¾H



YEW BURR CABINET

Inspired by the Japanese tradition of kintsugi—repairing and honoring breaks—this piece embraces the natural character of the yew. It's a beautiful but delicate timber, often marked by inclusions. The cabinet embraces 23 patches that have become an integral part of its evolution and design.

6 $\frac{3}{4}$ D X 9 $\frac{3}{4}$ W X 23H



potential, and by letting them inspire me, I am able to create designs that feel like a tribute to the material itself.

Wall cabinets captivate

Wall cabinets are the form I return to most often because they exist somewhere between furniture and painting. Hung on the wall, they invite a quiet, contemplative encounter before they are ever opened. I begin with the language of the wood itself—the movement of grain, shifts in color, the meeting of shadows and lines—composing these elements much as a painter might arrange forms on a canvas. Yet, unlike a painting, the cabinet conceals another dimension. The opening of a door, the discovery of space within, creates a gentle dialogue between the two-dimensional surface and the hidden depth behind it.

Working on a smaller scale also allows me to use rare and unusual selections of timber. Through including a combination of saw-cut veneer and solid wood, even



Check Out the Latest E-Learning Courses

FROM

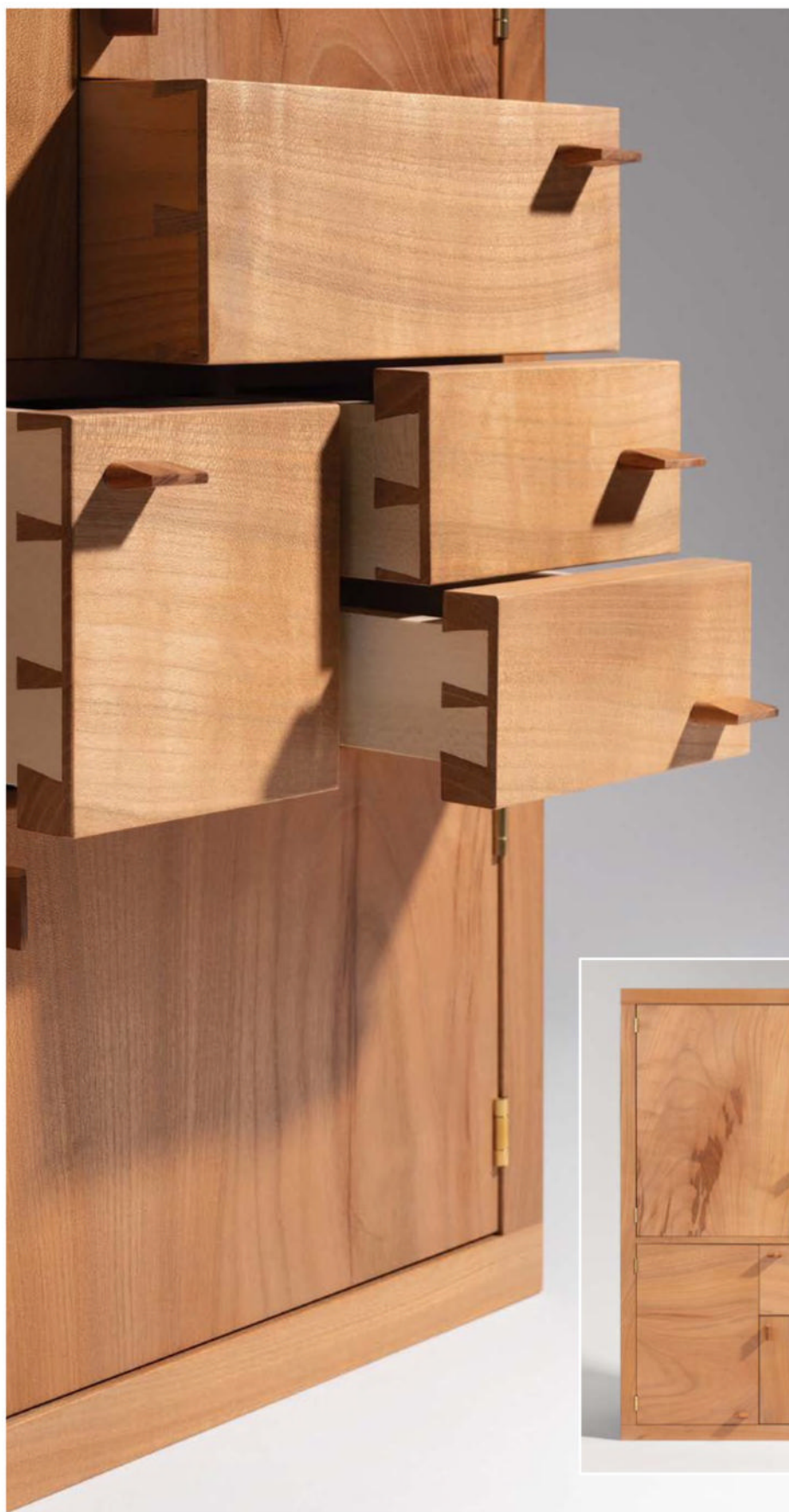
FineWoodworking

Unlock your woodworking potential today
with Fine Woodworking Online Courses.
Updated frequently throughout the year with
new courses, plus a library of On-Demand
Courses available now. Each course offers
a full year of on-demand access.
Get inspired and improve your skills today!



Scan To Learn More!

To learn more, go to
courses.finewoodworking.com



a very small piece of extraordinary timber can become central to an entire cabinet. The intimate scale also permits a greater intensity of workmanship, a level of refinement and detail that becomes far more difficult to sustain across the expanse of larger furniture. I find these restrictions creatively liberating; the boundaries of the wall cabinet become an invitation to creativity, playfulness, and the quiet enjoyment of interacting with an object.

In the beginning

Every project begins with one or two foundational ideas, often very subjective and specific to each piece—an initial spark or point of inspiration that acts as an anchor for the design—and the rest of the ideas evolve around it. While other details may shift and evolve, these core principles remain constant. For example, I may decide to use pronounced shadow lines and a textured surface, forming two of the driving ideas behind the piece.

I work very directly with the materials, letting their inherent qualities influence the shaping, finishes, and overall design. The nature of the wood—whether it has



IRISH WILD CHERRY CABINET

The wood for this piece came from a storm-felled tree in County Carlow. It has an unusual feature known as a pigment figure, which is characterized by streaks of color independent of the growth rings. A figure like this can be overpowering in a design, so Hartung spent many hours finding the right combination of color and pattern to maintain a subtlety that complements the overall geometry of the piece.

7½D X 17W X 24H

Your Best Work Doesn't Need a Workbench.

A serious workshop deserves a work surface that adapts to the way you build.

TRACKTUBES™ transform ordinary sawhorses into a rigid, precision workstation for cutting, routing, assembly, and finishing. When the work is done, it stores away in minutes. For permanent setups, the same TRACKTUBES™ system becomes the foundation for custom workbenches, assembly tables, mobile carts and is an affordable solution for exactly the way you work.



TRACKTUBES™ ALUMINUM EXTRUSIONS AND TRACKTOP™ MFT PROUDLY MADE IN AMERICAN.



Looking for the ultimate modular setup?

Complement your TRACKTUBES™ with our TRACKTOP™ MFT and the patented VACUDOG™ to create a clean, versatile workstation without clamps or permanently mounted fixtures getting in the way.

Discover what's possible beyond the traditional workbench.

TrackTubes.com/FineWoodworking

- Exclusive subscriber offers
- Shop ideas and product updates
- Woodworking tips and videos



INFINITY
CUTTING TOOLS

Shop 1000's of Innovative Tools!

NEW Taps Made Exclusively For Wood!
For Strong, Fast, & Easy Joinery!

Better Than Threaded Inserts!

More Options Online!

CHROME ARMOR



9-Pc. Master Wood Tap Set w/ Case # 101-192



Watch Video Online

INFINITYTOOLS.COM • 877-USA-BITS

I USE A WAGNER MOISTURE METER BECAUSE:

These are family heirlooms



80% of all problems in wood projects are caused by moisture content issues. A quick and simple, non-damaging moisture meter reading can save you from angry customer calls, unnecessary repair time, and a bad reputation. Call today and learn why Wagner's industry-leading Orion meters may just be the most important tool for your shop.

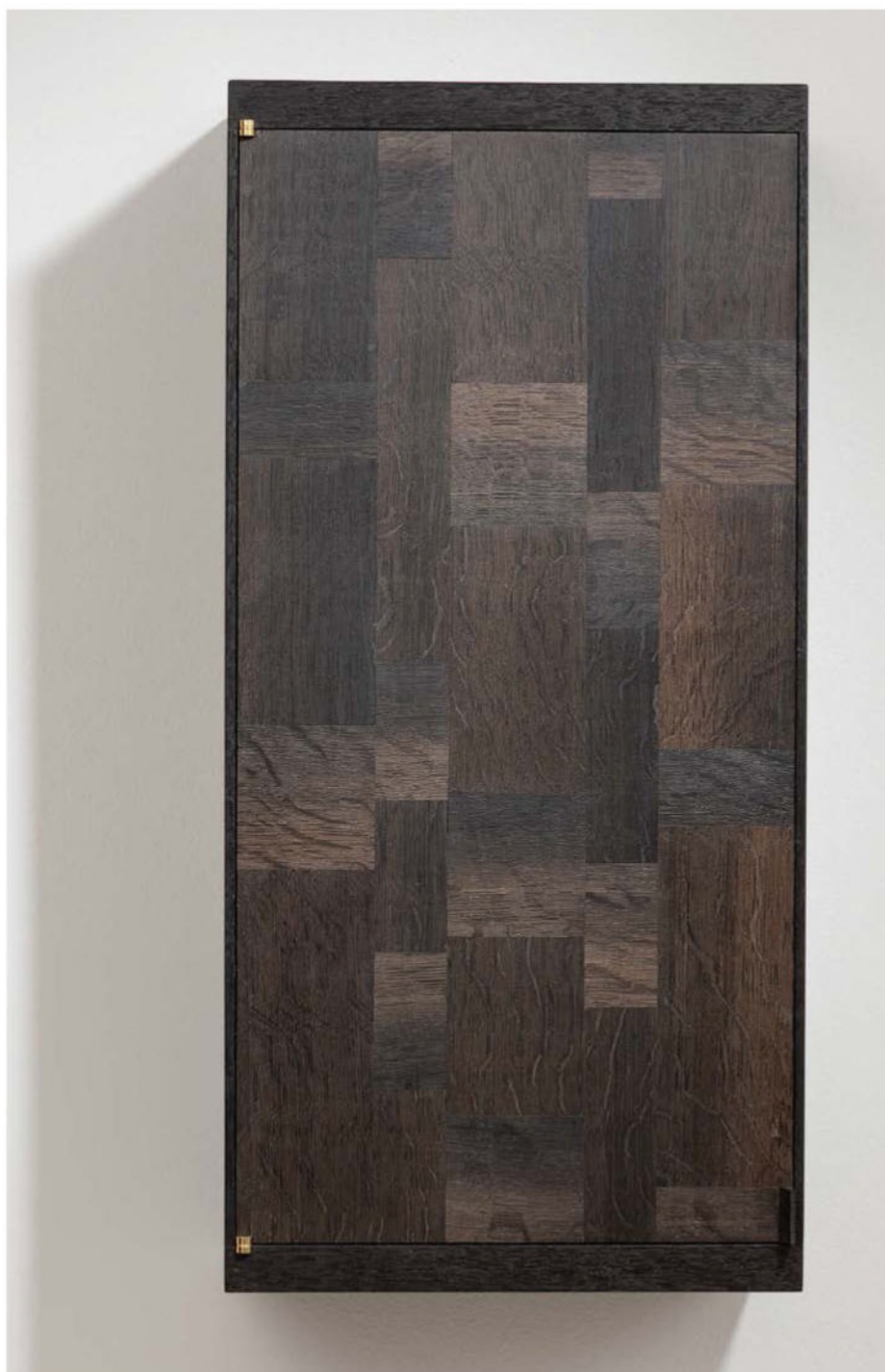


Shop Orion:



WagnerMeters.com





BOG OAK PARQUETRY CABINET

Made from 5,000-year-old quartersawn bog oak, this cabinet highlights striking medullary rays and a subtle palette of tones: deep blacks, warm browns, and hints of silver. The parquetry involves a slow, intuitive process of carefully arranging saw-cut veneers while avoiding symmetry and obvious patterns. The approach allows motifs to emerge naturally, adding depth and intrigue to the piece. The cabinet is hand-planed, scraped, buffed to a soft sheen, and left without finish.

6 $\frac{3}{4}$ D X 11W X 22 $\frac{3}{4}$ H



BOG OAK CABINET

This cabinet marks Hartung's first use of bog oak, after which he fell in love with the material. He realized that applying any finish would destroy the subtlety of the extraordinary silvers and grays in the wood, and he discovered that hand-planing followed by burnishing the wood with a cotton cloth gave it an exceptional sheen without the need to apply any finish.

6 $\frac{1}{4}$ D X 16 $\frac{1}{2}$ W X 23 $\frac{5}{8}$ H

a fine or open grain, a distinctive figure, or unique colors—determines how it is used. For me, design and making are inseparable, with decisions about form, function, and aesthetics unfolding throughout the creative process.

A significant amount of my design work happens through observation—standing and looking at the wood or components, imagining their potential. If I create a mock-up, I prefer to use the actual components of the piece, cut oversize, rather than using a different material. Working with the intended materials ensures that the conclusions I draw are accurate and applicable. Occasionally I will draw a design at full scale on a drawing board, but this is rare.

Groff & Groff Lumber, Inc.
Exceptionally Fine Hard Woods
A specialty lumber company with a large supply of kiln-dried & exotic hardwoods.
 A large variety of LIVE EDGE SLABS and Matching Flitches, Walnut, Cherry, Curly Cherry, Maple, Oaks, Butternut, Purpleheart, Tiger Maple, Birds Eye Maple, Sycamore, Ash, Paulownia, Sassafras, Quarter Sawn Red and White Oak, Burls, Turning Blocks, & More!
 Custom sawing available.
 858 Scotland Road, Quarryville, PA 17566
 1-800-342-0001 • 717-284-0001 • sales@groffslumber.com
 www.groffslumber.com

BlumToolCo.
 UNIQUE DESIGNS FOR QUALITY TOOLS
 22" Cherry Jointer and 19" Walnut Jointer
 ALL NEW DESIGNS!
 www.blumtool.com
 (712) 784-3678
 • Adjustable Blade Cambering
 • Includes Sharpening Jig
 • 3 - A-2 Steel Blades

Get Our Best Deal!
 SAVE UP TO
69%
 OFF THE COVER PRICE
 Subscribe Now at
 Subscribe.FineWoodworking.com

Wendell Castle
WORKSHOP
 Scottsville, NY
 wendellcastle.org
 BECOME A MEMBER FOR \$75 AND EARN \$150 IN CLASS CREDITS
 Classes in woodworking, metalworking, bladesmithing, and furniture design in Wendell Castle's former studio

Free plans, tips, and more

Sign up for *Fine Woodworking's* FREE eLetter filled with skill-building advice, projects, and more.

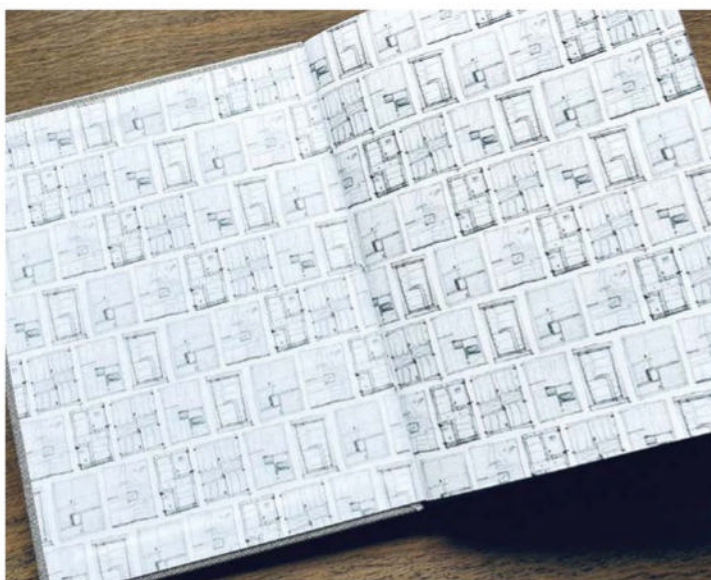
FineWoodworking.com/newsletter **Sign up:**



© Active Interest Media

designer's notebook continued

Sketched. These are the end papers of Hartung's book *Hedge Cabinets*, which documents the creation of five wall cabinets crafted from Irish hedge timbers for the National Museum of Ireland. In Ireland, hedgerows are often the remnants of ancient native woodlands.



Design carries into the building process

Design doesn't stop when the making begins; it continues throughout the building process. Decisions about finishes, edge profiles, and even the mechanisms for opening a door or drawer are all integral to the design. These choices affect not only the visual and tactile qualities of the piece but also its interaction with the user. I strive to create an element of intrigue, encouraging curiosity and exploration in those who engage with my work.

Stevan Hartung works wood in Wicklow, Ireland.



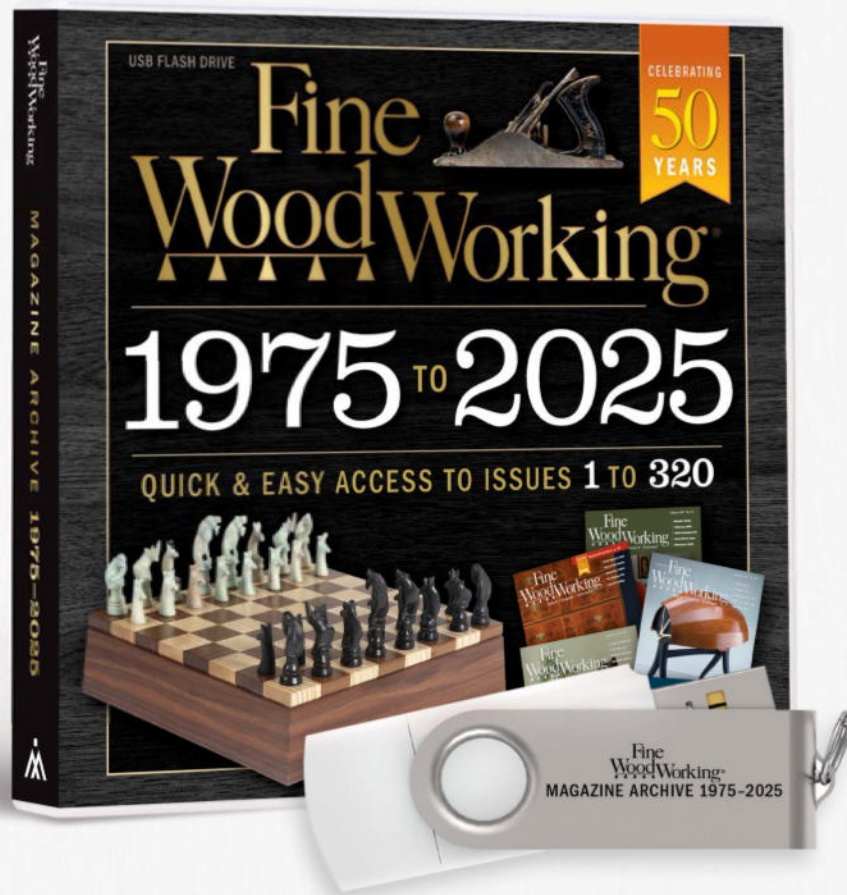
HOLLY CABINET WITH CRAB-APPLE DRAWER SIDES

This was the first in the series of hedge-wood cabinets Hartung made for the National Museum of Ireland's permanent collection of craft and design. One of the notable qualities of holly is its very white color and its nearly complete lack of figured grain. Instead, it is dense and hard, with a bonelike quality or the feel of unglazed porcelain. Hartung wanted to preserve that distinct trait in this piece, focusing on texture and shadow lines instead of relying on patterns in color or grain.

7D X 16½W X 24½H

50 Years

of projects, tips, & techniques to
make you a better woodworker



Get the 2025 *Fine Woodworking* Magazine
Archive on USB or digital download.

Enjoy 320 fully searchable issues of
Fine Woodworking magazine in one place.

Available at **Store.Woodsmith.com**

Reach for the Belt Sander

Unleash the potential of an often-overlooked tool with a few simple tricks

BY RAMON VALDEZ



The belt sander is an incredibly useful and extremely versatile machine. It's a tool that many are all too familiar with, particularly for its uncanny ability to wreak havoc with impressive speed. If you've ever witnessed a novice woodworker battling a belt sander, you'll know exactly what I mean: sawdust flying everywhere, and perhaps even a near masterpiece that's

been quickly transformed into firewood. Don't let its chaotic reputation dissuade you—this underutilized tool has a wealth of potential. Taming a belt sander comes down to a few simple modifications and proper operating techniques. This is the tool I reach for to transform rough edges and uneven surfaces into beautifully flat and smooth work that would make any artisan proud.

Soup up your sander

No matter the make or model, the heart of a belt sander is its platen, a roughly 4-in. by 6-in. piece of cork-backed sheet metal that's attached to the bottom of the sander between the two wheels. This area is responsible for quickly making uneven areas flat and flush. The key to great results is a clean and flat platen, but I have found that the stock platens are inferior and can

Flat equals smooth

Whether you're dusting off an old sander or purchasing one off the shelf, a flat base is integral to a smooth, scratch-free finish.



Remove the platen. This may vary from sander to sander, but on the Makita 9401 it only takes loosening the four mounting screws to remove the sheet-metal platen.



Peel and stick. Valdez uses an adhesive-backed roll of graphite that he cuts to fit. You can source the graphite from industrial suppliers such as Woodworker Express or Klingspor's Woodworking Shop.

cause problems. The cork is too soft, and the sheet metal dents easily. Once that happens, the distorted metal can transfer lines and swirl marks onto the surface of your work.

To remedy this, I remove the sheet metal and cork and replace them with a graphite pad intended for industrial sanding. The graphite wears evenly and does not dent or chip, so no marks telegraph through the sanding. The graphite also works to reduce friction between the sanding belt and the sander. This prevents overheating, which can cause burn marks and quicker dulling of sanding belts. I prefer the self-adhesive type of graphite pads, but they're getting harder to find. Other graphite pads work well but require an applied adhesive for attachment. One piece of graphite can last a long time with heavy use before needing to be replaced.



Set the adhesive. Rub the graphite sheet to make sure there are no air bubbles or creases. Valdez uses the paper backing to keep the graphite from staining his hands.

Sanding flat panels

Flattening even the most delicate panel is easy once you dial in the tool and use proper sanding technique.



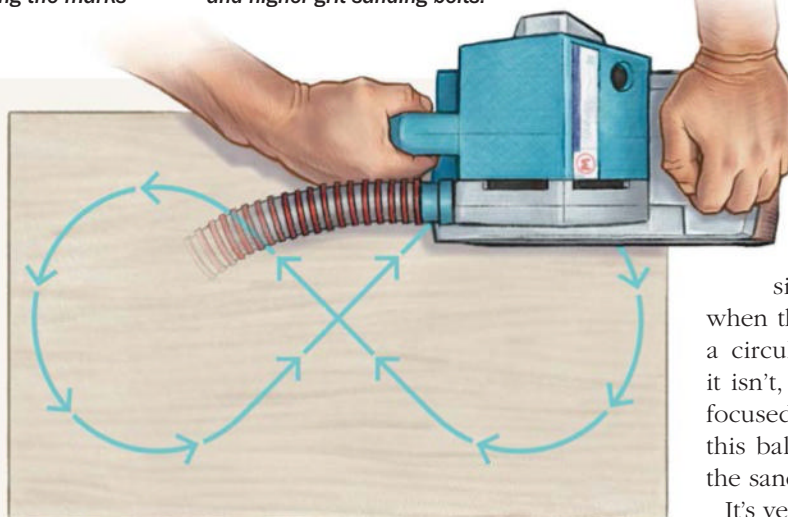
Track your depth. Cover the entire panel with light pencil marks. This will act as a topographical map. Marks on the high points will be sanded away first, leaving the marks at the lowest spots.



Use the right grit. Defying the belt sander's aggressive reputation, Valdez sands the marquetry with a light grip, constant motion, and higher-grit sanding belts.

FIGURE EIGHT

Sanding in a figure-eight motion keeps the sander moving in multiple directions at once. This works remarkably well for sanding marquetry where the grain direction is constantly changing.



Raking light. A flashlight held in plane with the panel casts light across the veneer, showing any low spots as shadows.



Proper panel sanding

Often in my marquetry work I use thin, commercial veneers. And I routinely use a belt sander to make them flat and flush to one another. At $\frac{1}{42}$ in. thick, these veneers require a light touch and constant motion. The sanding direction should be with the grain as much as possible. I use a front-to-back motion when the grain is easily determined, and a circular pattern or figure eight when it isn't, all the while keeping the weight focused over the platen. Being aware of this balance decreases chances of tilting the sander and gouging a workpiece.

It's very easy to remove too much material with the belt sander, so I keep track using some simple hashed pencil marks. I draw light lines with a pencil across the workpiece, then sand those lines away. The pencil on the high spots will disappear quickly, and the pencil in the low spots will linger while the rest of the veneer is brought down to match. After the pencil marks are all gone, I use a low raking light to seek out any low spots the pencil may have missed. Another round of sanding may be required, but with well-set marquetry and the belt sander's effectiveness, it's a rare occurrence.

When it comes to sanding around the perimeter of a panel, I might surprise people with how far I run the sander off the edge. This isn't to show off; it's to keep the flattest part of the sander focused over what I intend to sand. For instance, when I bring solid-wood edging flush to a panel, the belt sander should be off the edge,

focusing the platen over the solid wood. This keeps the rear wheel from oversanding through the veneer.

Seamless joints

The belt sander is quick at flushing an applied solid edge to a panel, but proper technique is necessary to avoid ruining the veneer.

Sand edges with ease

Sanding edges with a belt sander seems like a preposterous thing to do until you find that you are getting smooth, dead-square parts off your bench and into the finishing room in record time. As with other belt sander techniques, letting the tool balance correctly on the piece takes practice. When I have more than one part that's the same dimension—drawer sides, for example—I clamp the parts together and “gang-sand” them. This not only saves time, but it also creates a wider base to keep the sander flat for consistent results.

Softening, pillowing, or rounding edges also works incredibly well with a belt sander. Using steady concentric motions, I can take off material accurately by sanding close to my line with a coarse grit, then sanding directly to my layout lines with a finer paper.



Skew the sander. Because the solid-wood edge is proud, most of the sanding is needed there. A slight skew angle will focus more surface area of the sanding belt over the desired area.



Balance the weight. When sanding the solid-wood banding flush, it's important to keep the weight even over the edge of the workpiece or else the weight will favor the back wheel and you will sand through the veneer.



The tipping point. Focusing the weight at the center of the sander, or the “tipping point,” keeps the pressure evenly distributed on the flat platen and yields consistent results.

Edge-sanding

Speed and accuracy converge when putting production cabinet-shop techniques into smaller projects.

Flatten face frames

No matter how carefully you set up machines to cut face-frame joinery, small mistakes can lead to misalignment. An overtightened clamp or dust against a fence can create slight errors in the joint. When that happens, I feather out the high spots with the belt sander.

I draw pencil lines across the joint. While sanding I lift the sander often to check the disappearing lines. As I get close, I start to feather the high point away from the joint to ensure a smooth look and finish. Once the pencil marks are gone, I touch the frame with a random-orbit sander to remove any cross-grain sanding marks I see.

Sanding concave curves

The addition of a curved platen allows me to sand interior curves precisely. The

TIP

FAIR ENOUGH

Skiping the router and template, Valdez cuts off the corners with a saw and then fairs the curve with the belt sander using a syncopated rocking from edge to edge until he meets his line.

Living on the edge. Using a light grip on the sander while working on the edge lets the weight of the tool balance itself. With some practice, this freehand edge-sanding will become a favorite technique for quick flat edges.



Gang-sanding. By clamping parts of the same width and similar length together, Valdez takes any instability out of the equation and yields consistent results at impressive speed.



minimum radius for my belt sander is about 18 in.; any smaller and the back edge of the sander would interfere with the platen. On the large end, I have platens with a very subtle radius of 204 in. The platen thickness must remain under 18mm to allow a stock 4 in. by 24 in. belt to fit.

To make a custom platen, I trace the desired radius along one long edge of a Baltic-birch blank. With two screws deeply countersunk into the blank, I attach a 90° support block. It holds the platen blank upright, square to the bandsaw table, and also serves as a handle as I cut along my line, keeping my fingers well away from the blade. With the support block still attached, I sand to the line on my edge sander, creating a smooth, consistent surface.

To secure the platen to the belt sander, I use thin strips of metal banding. It's soft enough to bend and easy to drill holes through for the mounting screws. I mark the locations of two of the machine screws that held the old cork and sheet-metal platen in place. I attach one end of the mounting straps to the platen with wood screws and the other end to the sander with machine screws. I slip the belt over the wheels and platen and set the tensioning bar. I start on a test piece to make sure everything is working well before I sand the final parts.

Rock the cradle

I have a large standalone edge sander, but I wanted something smaller to use on my benchtop for finer work. In the past I had simply clamped the belt sander on its side to my bench, but that had its limits, so I set out to make something better.

I ended up designing a dock for my Makita 9401 that holds the belt square to



Flushing frames

Even with all the preparation in the world, a joint may come together slightly out of plane. The belt sander feathers the imperfections so the parts are coplanar, easily erasing the evidence of a mishap.

Body mechanics. For consistency, Valdez keeps his body oriented in the same direction while using the sander, even if that means clamping work creatively.



Light as a feather. Mark the misaligned joint with a pencil, and with very light pressure work from the center of the protruding part feathering outward, checking the pencil lines to gauge when to stop sanding.

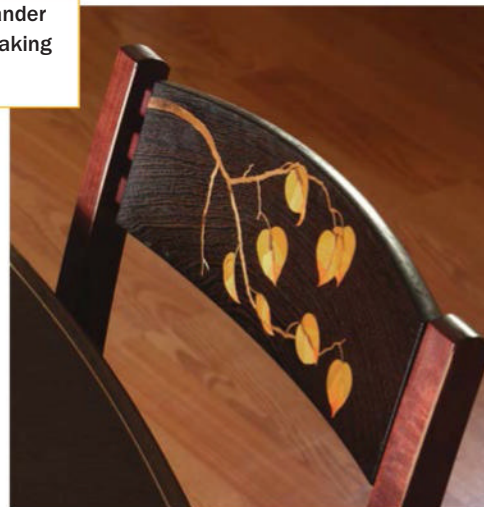


Cross-grain sanding. Because the belt sander is directional, it does not excel at cross-grain sanding. Sand almost flush with the belt sander and finish up with the random-orbit sander to disguise any unwanted scratch pattern.

Sanding a radius

With the addition of a curved platen, the belt sander can tackle concave parts in a variety of radii, making quick work of a formerly tedious task.

Match the curve. To help flatten the veneer marquetry on a set of curved chair backs, Valdez made and attached a platen with the same radius and easily sanded the backs flush.



Mark the radius. On a piece of Baltic-birch plywood, mark the edge with the desired radius, making sure to work from the center for an even curve.



Taking shape. First with the bandsaw and then with the edge sander, refine the curve to the pencil line. To avoid any dangerous cuts, add a temporary handle to your workpiece with some deeply countersunk screws.

a reference table, making the tool a sort of miniature edge sander. Now I simply grab the belt-sander dock, secure it with my bench-tail vise (or a couple of clamps), and drop in the belt sander. With that, I'm ready to sand.

A huge advantage to using the dock is that I have 4-in. by 24-in. belts in grits ranging from 40 all the way up to 320; with my large edge sander, I only have a handful of different grits. Also, I added a groove in the table so that it can accommodate a fixture for sanding 45° angles, which I use often to chamfer parts quickly and repeatedly.

In the dock or not, I keep the belt sander within arm's reach because of its usefulness. It's a shame to let such a good tool waste away forgotten on a shelf. □

Ramon Valdez is a maker of tools and fine furniture in Bloomfield N.M.



Add mounting straps. Cut and drill some metal strapping to attach the platen to the sander. Two straps are more than enough to hold the platen in place when you add in the tension of the belt.



Attach the platen. Using the holes from the factory metal platen, attach the curved plywood version. If your sander does not have these mounting holes, double-stick tape will hold it in place.

Benchtop adaptation

Valdez designed a dock to hold the belt sander perpendicular to a work surface, creating a pint-size benchtop edge sander that takes up minimal shop space.



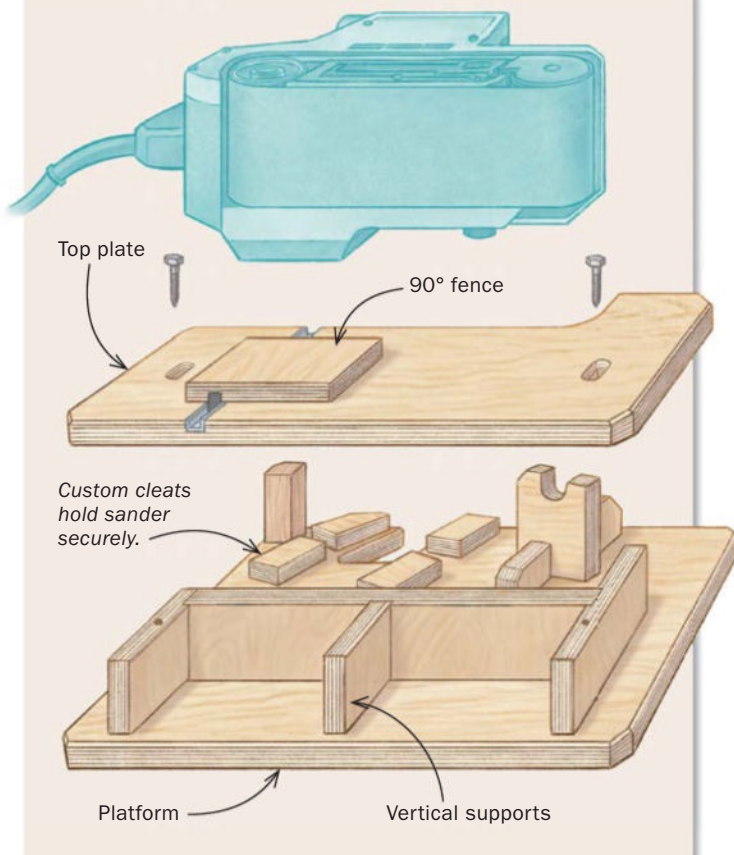
Simple but smart construction. Crafted from plywood and screws, the dock is made precisely to support the parts of this sander so it sits at a perfect 90° to the bed.



Easy edges. Using the belt sander in its dock lets Valdez make quick work of small parts and easily work through many grits of sanding belts without the fuss of larger machines.

CREATE A CUSTOM DOCK

A complete set of plans for the dock Valdez designed for the Makita 9401 can be found on his website, ramonvaldezfinefurniture.com.



Perfect chamfers. With the addition of a 45° jig, Valdez can sand repeatable and square chamfers onto all sizes of parts at an impressive speed.



Stationary radius sanding. Combining the dock and a curved platen creates a hybrid belt/spindle sander that will hone your edge to the exact desired radius.

Building the Hathaway Dresser

Stout structure and sleek design blend in this robust beauty

BY HEIDI EARNSHAW

The Hathaway dresser, named for a beloved aunt, is a staple in our shop, and we build it in three formats—the long, lateral, original version with 12 drawers; a five- or six-drawer highboy; and the six-drawer Half Hathaway that we’re building in this article. The original piece was commissioned by a client needing storage in a generous entryway. The high, beveled, and tapered legs that define the case were the starting point, designed to

allow tall rain boots and other footwear to be tucked below. The spare, flat surface of the piece and the graphic appeal of drawers punctuated only by knobs was inspired by Shaker furniture, while the overall form takes its cues from Georgian and Edwardian sideboards.

The simple appearance of the Hathaway hides a complex arrangement of intricate parts, making it a challenging but rewarding project. Sliding dovetails,





Legs: Tapered and beveled

Stop the bevels. With the leg blank still square and the table-saw blade 30° off vertical, use a V-cradle and the miter gauge to make a crosscut establishing the end of the bevel on each corner of the leg.

Start the taper. Using a taper jig, cut two faces of each leg.



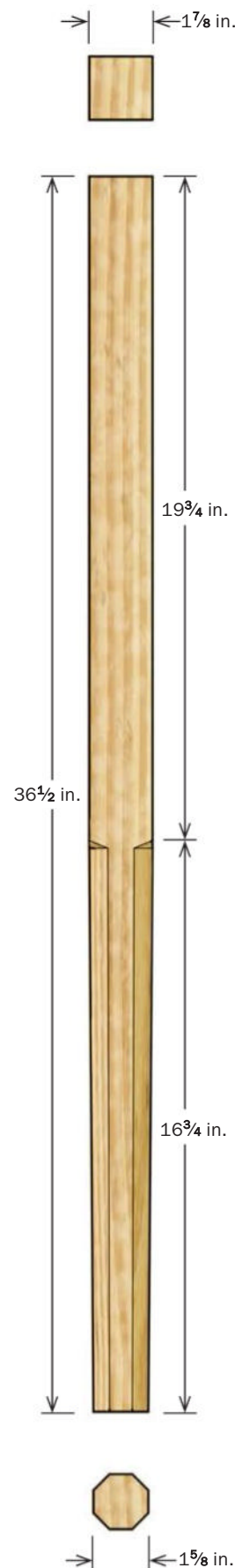
Finish the taper. To taper the third and fourth faces of the leg, add a $\frac{1}{8}$ -in.-thick spacer to the jig.



Saw four bevels. To cut the stopped bevels, use the same taper jig but with a $\frac{15}{16}$ -in.-thick auxiliary fence screwed to the main fence. Set the blade to 45° and clamp a board across the outfeed table to limit the cut.



Fine-tune the stopped bevels. Use a chisel to clean up the corner where the bevels meet the stop cuts, then a scraper to smooth the bevels' sawn surface.



LEG



Undermount drawer runners

Half a dovetail socket. The dresser's wide lower drawers run on shopmade slides. The runner housing, which is glued to the underside of the drawer box, has one dovetailed side and one square side.



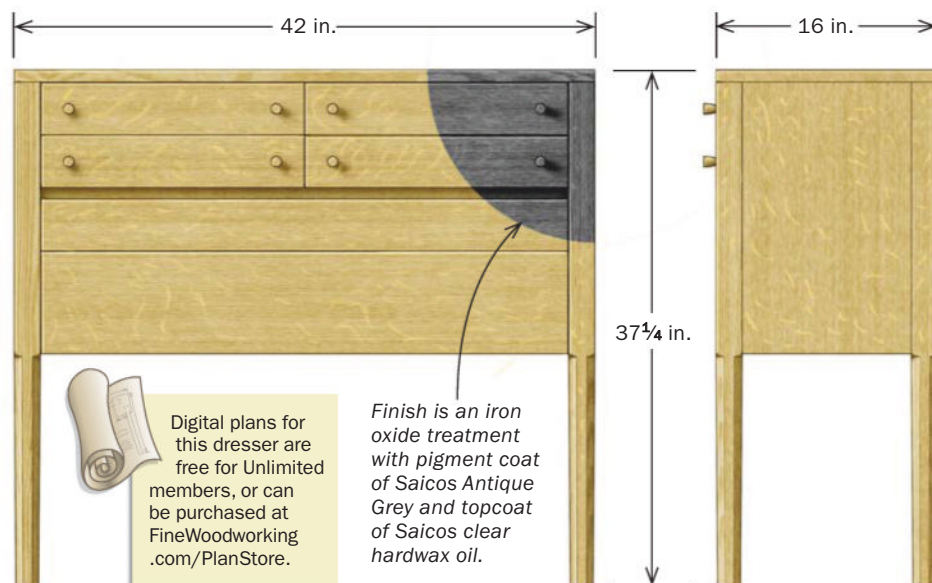
Routing the runner. The runner, which will be screwed to the web frame, gets a 14° dovetail angle routed on one edge and a rabbet on the other.



Running together. The half-dovetail shape of the runner and housing make for a smooth, secure sliding action. They're easy to adjust and resist sticking.

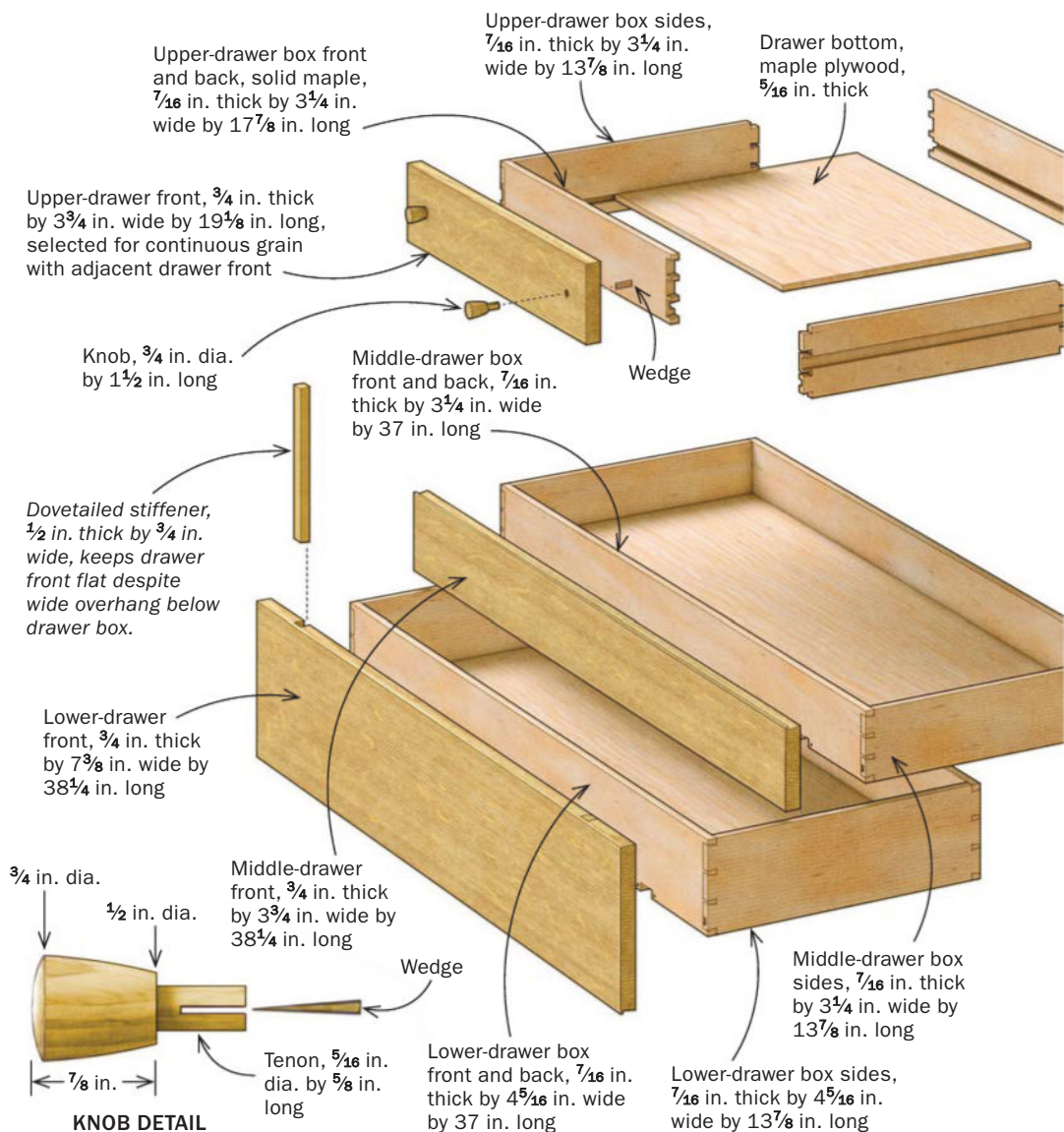
SIX-DRAWER DRESSER

All parts are solid white oak, except where noted.



FRONT VIEW

SIDE VIEW



Upper drawer runner, maple, $\frac{9}{16}$ in. thick by $\frac{11}{16}$ in. wide by $13\frac{3}{4}$ in. long

Runner for upper drawer is dovetailed into vertical divider.

Front vertical divider, $\frac{3}{4}$ in. thick by $3\frac{9}{16}$ in. wide by $8\frac{5}{16}$ in. long

Rear vertical divider, $\frac{3}{4}$ in. thick by $3\frac{9}{16}$ in. wide by $8\frac{5}{16}$ in. long

Sawkerf, $\frac{1}{8}$ in. deep, creates a "finish stop."

Upper web-frame rail cap, $\frac{1}{16}$ in. thick by $1\frac{1}{16}$ in. wide by $38\frac{3}{4}$ in. long, is installed flush to bottom face of front web rail.

Middle web-frame rail cap, $\frac{3}{4}$ in. thick by $1\frac{1}{16}$ in. wide by $38\frac{3}{4}$ in. long

Domino, 6mm

Front stretcher, $1\frac{1}{16}$ in. thick by 2 in. wide by $38\frac{3}{4}$ in. long

Web-frame front rail, $\frac{3}{4}$ in. thick by $2\frac{1}{2}$ in. wide by 41 in. long

Runner housing, $\frac{9}{16}$ in. thick by $1\frac{7}{8}$ in. wide by 13 in. long, is glued to underside of drawer.

$\frac{1}{8}$ in. Slope, 8°

MIDDLE DRAWER FRONT DETAIL

LOWER DRAWER FRONT DETAIL

Inside edge, 90°

Outside edge, 14°

Runner housing

Runner

Web-frame rail

LOWER DRAWER SLIDE DETAIL

At assembly, top dovetail of vertical divider is inserted in dado, then slid forward or backward into dovetail socket.

Center section dado, $\frac{5}{16}$ in. deep by $\frac{7}{8}$ in. wide, is routed first.

Front edge
 $\frac{3}{4}$ in.
 $2\frac{1}{4}$ in.
9 in.
 $3\frac{3}{4}$ in.
 $\frac{3}{4}$ in.

Back, white oak plywood, $\frac{5}{16}$ in. thick

UNDERSIDE OF TOP DETAIL

Back stretcher, $1\frac{1}{16}$ in. thick by 2 in. wide by $38\frac{3}{4}$ in. long

Dovetail sockets, $\frac{1}{4}$ in. deep by $1\frac{1}{16}$ in. wide, are cut with 8° bit.

Top, $\frac{3}{4}$ in. thick by 16 in. wide by 42 in. long

Vertical dividers at sides of case are notched to fit around leg.

Mullions, $\frac{1}{2}$ in. thick by $\frac{3}{4}$ in. wide, secure the back.

Domino, 6mm

Web-frame back rail, $\frac{3}{4}$ in. thick by $3\frac{5}{16}$ in. wide by 41 in. long, is notched to fit around leg.

Web frame short rail is glued tight to front rail but gapped $\frac{3}{16}$ in. from back rail.

Domino, 8mm

Domino, 6mm

Leg, $1\frac{7}{8}$ in. square by $36\frac{1}{2}$ in. long

Side panel, $\frac{3}{4}$ in. thick by $12\frac{1}{4}$ in. wide by $19\frac{3}{4}$ in. long



Case joinery

One jig handles a raft of sockets. Two parallel fences guide the router in cutting hybrid dado-dovetail sockets on the underside of the dresser's top. A straight bit cuts the central dado that enables installation of the vertical dividers after the top is in place, and then a dovetail bit cuts sockets at both ends. A roll of tape (top photo, right) makes a handy router stand.



Side-panel sockets. The same jig is used to rout the dovetail sockets on the case's side panels. The jig will also be used to cut the sockets in the top web-frame rails that will accept the vertical dividers.



Measure for tails. Use a wheel marking gauge set to the depth of the dovetail socket to scribe shoulder lines on the parts receiving tails. The lines are not for layout but are to ensure a cleanly cut dovetail shoulder.

slip tenons, and long-grain laminations provide a rigid structure housing drawers that slide smoothly on wood runners. We use exactly the same structure and joinery—and even many of the same jigs shown here—when we're building other versions of the dresser, which makes an exacting process more efficient. And these same approaches, which produce a strong, durable, and functional chest of drawers, can be applied to case pieces in general.

Legs at the outset

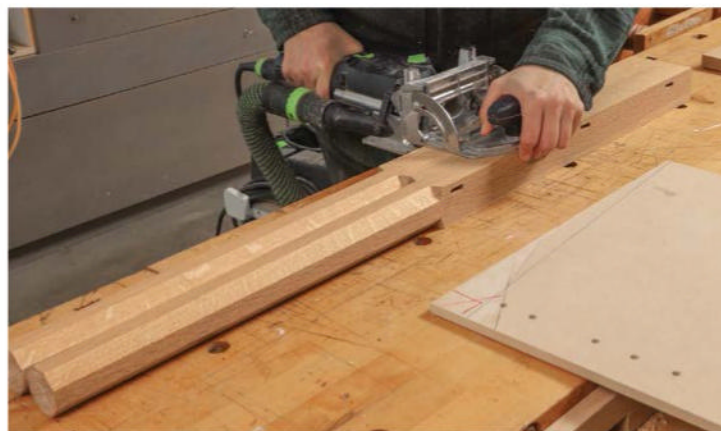
The dresser's tall legs frame the drawer faces and form one smooth, flush surface with the side panels. Using 8/4 or 9/4 material, we choose straight-grained, rift-sawn boards to ensure that the legs blend seamlessly with the side panels and have minimal grain runoff on the front face.

To shape the leg's tapered and beveled profile, we use two shopmade table-saw sleds. The first sled, a V-shaped cradle pushed by the miter gauge, produces an angled stop cut on each of the leg's four corners that defines the top end of the bevel. To make this shallow crosscut, the sawblade is set to 30° and the kerf is cut 16¾ in. from the bottom of the leg.

The second sled, with a runner in the miter slot, serves both for tapering and beveling. Using a rip blade, we taper the leg in four passes, turning the leg after



Tails up. All the sliding tails are cut on the router table. The workpiece is run vertically and supported by a square following block. The bit is the same one used in the handheld router to cut the sockets.



Slip tenons link legs to sides. Using a Domino joiner, cut mortises in a side panel; a scrap clamped to the bench prevents the workpiece from sliding. Then cut mating mortises in the legs. A biscuit joiner could be used in place of the Domino for these long-grain joints.



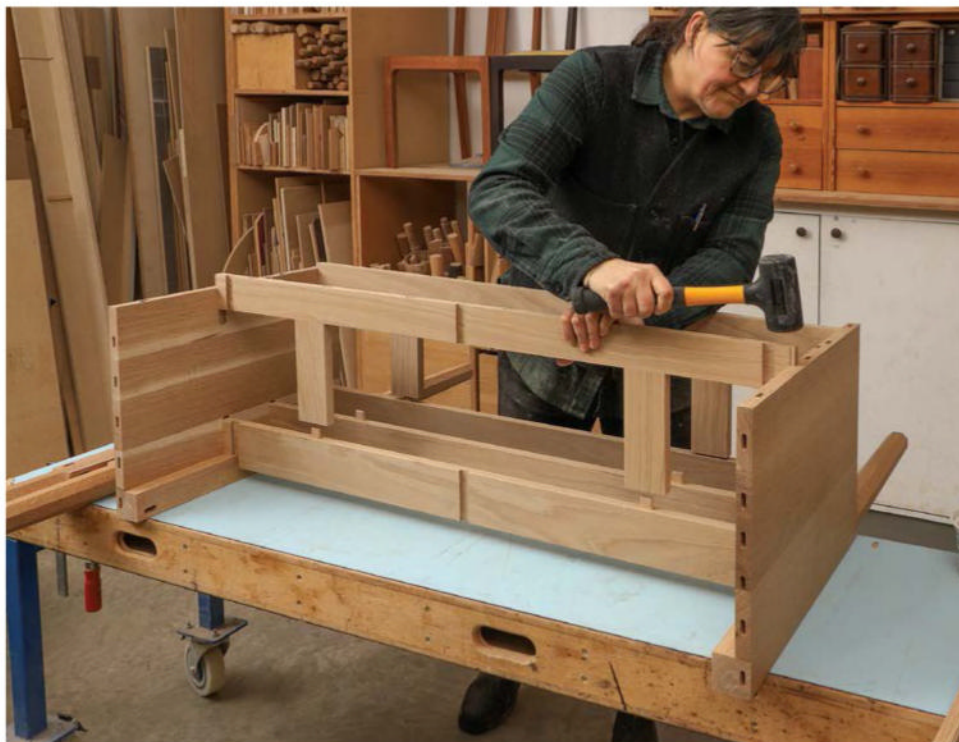
Test the fit. After cutting the slip-tenon mortises (carefully avoiding the dovetail sockets in the side panel), dry-fit the leg and side panel.

each pass and placing a $\frac{1}{8}$ -in. spacer between the fence and the leg for the third and fourth passes.

Once the legs are tapered, we use the same jig to cut the stopped bevels. To do this, we screw an auxiliary fence, $\frac{15}{16}$ in. thick, to the jig's fence and set the rip blade to 45° . A scrap clamped to the outfeed table limits the travel of the jig, so the bevels end just shy of the stop cut. Each bevel cut leaves a barely attached waste piece that is easily pulled off. We remove the remaining material with a sharp chisel, and then we clean up the faceted surfaces with a cabinet scraper and a sanding block, taking care to keep the edges crisp.

On to the major case parts

The case joinery is a combination of sliding dovetails and slip tenons. We begin it by machining sliding dovetail sockets: in the underside of the top, in the top web



Dry-assembly time. The legs, side panels, and web frames all get dry-assembled in order to assess the joinery and custom-fit the vertical dividers.

frame, and in the side panels. To cut all those sockets we use one jig, which has a pair of fences that control the path of a router. We mark centerlines on the jig and the workpieces to align the cuts.

The dovetail sockets in the underside of the top, which accept the vertical dividers, stop short of the top's front and back edges, so the dividers need to be slid into place from the center. To make this possible, the center section of the joint is a dado wider than the sockets. To create this hybrid dado-dovetail, we start by using a $\frac{7}{8}$ -in. straight bit to cut a dado $\frac{5}{16}$ in. deep

and stopped 3 in. from the top's front edge and 4 in. from the back edge.

With the dados completed, we use the router and jig again but switch out the straight bit for an 8° , $\frac{11}{16}$ -in. dovetail bit. Using the dado as an entry point, we cut $\frac{1}{4}$ -in.-deep dovetail sockets front and back. They both should stop $\frac{3}{4}$ in. from the edge of the top.

The next set of sockets is cut in the top web-frame rails to accept the six vertical drawer dividers. To make these cuts, we clamp the two web rails together along with a backer board of the same thick-



Vertical divider fitting

Vital marks for crosscutting and notching. Sliding a vertical divider into its dovetail socket in the web frame, Earnshaw holds a $\frac{1}{4}$ -in.-thick spacer on top of the leg to scribe a crosscut line. She will also knife a line on the front edge of the divider to lay out the notch where the divider wraps the leg.



Dovetail the dividers. After crosscutting the divider on the scribe line, cut the top end dovetail at the router table.



Cut the corner. Two passes on the table saw create the notch that lets the divider fit around the leg. A clean cut and good fit are important, as the notch will be a glue surface at assembly.



ness. Finally, again using the same router jig and bit, we cut dovetail sockets in the case side panels to accept the ends of the web-frame rails. To eliminate the need to square the end of these sockets, we cut them $\frac{1}{4}$ in. overlong.

To cut the tails on the ends of the web rails and vertical dividers that fit into all those dovetail sockets, we use the same $1\frac{1}{16}$ -in. dovetail bit, but in a router table. The parts are held vertically for the cuts, and a high fence and backer board are used in combination for a stable, clean cut. The vertical dividers get tails only on the bottom end for now; the top end is left long to be cut to length and dovetailed after the case is dry-assembled.

Doing the Dominos

Slip tenons make easy, strong connections between parts; they also keep adjacent planes aligned and create a very sturdy case in combination with the dovetail joinery. We cut them with a Domino joiner, but a plunge router can also do the job.

We begin by mortising the legs and side panels. Then we turn to the web-frame members, which are connected to each other with Dominos. Only the front web rails will get glued, however; the mortises in the rear web rails are left dry to accommodate wood movement in the case.

Stretchers and rail caps are next. To cut them to length precisely, we dry-fit the legs, side panels, and web frames; fit the stretchers and rail caps; and mark for Dominos.



Don't forget the drawers. With the dividers fully fitted, cut the dovetail sockets across them that will receive the runners for the upper drawers. Here use an 8° , $\frac{1}{2}$ -in. dovetail bit.



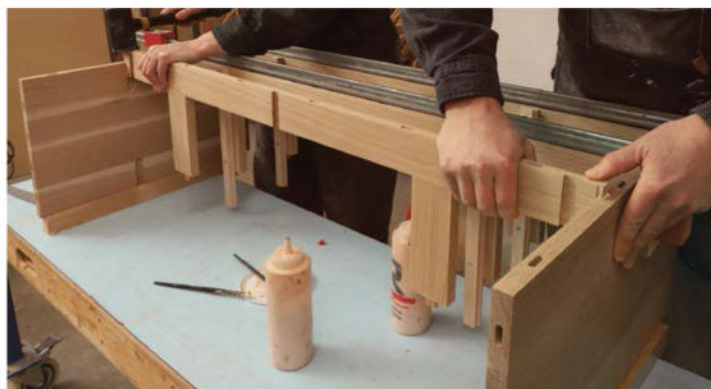
Case glue-up



Assembly starts with the webs. Join the web-frame parts with Dominos. Glue the tenons into the front rail and into both ends of the short rails. To allow for seasonal movement of the case, however, leave the rear rail's mortises dry, and wax the back half of the tenon.



Undermount runners. Screw runners for the full-width drawers to the two bottom web frames. An MDF template guides the placement of the runners. To allow for expansion, drive screws only in the front rail and short rails, not the rear one.



Webs meet the sides. At assembly, glue the web frames into their sockets in the front edge of the side panels. Leave off the rear web rail for the moment.

Fit the vertical dividers and the top

At this point, the vertical dividers are still overlong; to measure their height accurately, we place a 1/4-in. spacer block on top of one of the legs, knife a line on the adjacent divider, and crosscut to the line. Once all six dividers are cut to that length, their top tails can be cut on the router table.

The front and rear vertical dividers at both ends of the case get notched around the legs. To lay out the notch, we push the divider into place until it contacts the leg, then mark with a knife. At the table saw we cut the notch in two passes, taking care to fit each corner independently. A good fit will add significant structure when these pieces are glued to the legs.

With the tails and notches complete on the vertical dividers, the top can now be



The case is flipped. With all three web frames glued into the front sockets, turn the case over and glue in the rear web rails.



Legs join the case

Glue the legs and stretchers. When the glue from the initial assembly is cured, you can use the case as a temporary reference as you glue the legs to the stretchers. Glue the Dominos that connect the legs and stretchers, but leave the ones on the front of the case dry.



Re-glue the legs. Wait 15 minutes or so for the glue to set up, then remove the legs-and-stretcher subassemblies from the case, apply glue to the Dominos, and clamp the subassemblies back in place.



Web and stretcher. Once the legs are clamped, invert the piece and apply clamps to the joint between the bottom web frame's front rail and the stretcher it adjoins.

fit. First, we remove the vertical dividers. Then we lay the top on the dry-fit case and clamp it down so that it doesn't move as we slide the vertical dividers back into place. We mark the exact length of the top (which has been left $\frac{1}{2}$ in. overlong until now) and map locations for Dominos to connect the top with the top rear stretcher. We then remove the top, cut it to length, and mortise for Dominos.

Drawer works

With the case nearly ready for assembly, we turn our attention to the drawers. The fronts are milled to thickness but left slightly oversize in height and width so there is room to adjust the reveals once the drawers are hanging.

All the drawers glide on wood runners. We prefer their look and feel over commercial metal slides and can rest assured that with a little wax they will continue to run true for decades without sagging or needing adjustment. The upper drawer runners are dovetailed into the vertical dividers and run in grooves milled in the sides of the drawer boxes. The lower drawer runners are fastened with screws to the web frames and run in housings that are glued to the underside of the drawer boxes.

To cut the dovetail sockets in the vertical dividers, we use the router table with an 8° , $\frac{1}{2}$ -in. dovetail bit and make the sockets $\frac{1}{4}$ in. deep. The corresponding tails on the runners can be cut using the same bit buried in a fence on the router table and set to the same height.



On the top and interior

Pop on the top. Once the other major members of the carcass are assembled, glue on the top. Wanting the ends of the top perfectly flush with the sides and legs, Earnshaw left the top long until dry assembly, then marked it and cut it to length.

The lower drawer runners are a half-dovetail in section—angled on one side and square on the other. To make the housings for them, we start by removing most of the material with a dado set on the table saw. Then we cut the angled side at the router table, using a 14°, 3/4-in. dovetail bit.

We make the half-dovetail runners at the router table. They need to be sized so that they can pass freely through the housings without much play. Once the fit is tested, the housings can be attached to the underside of the drawers and the runners to the web frames. To guarantee correct placement of the housings and runners, we use a square spacer panel registered to a centerline.

Glue-up

With most parts machined and ready, we can begin gluing up the case. We take our time and do this in several stages to ensure a clean, square outcome. This is best done on a flat, level bench or torsion box.

The process begins with the two side panels and the three web frames—with the lower drawer runners already attached. We start by dry-assembling, then removing and gluing each part consecutively, clamping as we go and checking for square reg-



Slide in the dividers. Lift the top dovetail of the drawer divider into the central dado on the underside of the top, then slide it forward into its dovetail socket.



Cap off the rail. A cap piece, cut to fit snugly between the legs, is joined to the front web rail. The shallow vertical kerf behind the vertical divider (photo at right) serves as a finish stop.



Insert the side runners. The top drawers slide on runners that are dovetailed into the drawer dividers. Glue them only to the front divider to accommodate seasonal movement of the case.



Drawer details



Groove the drawer box. Before assembling the upper drawers, plow a groove for the runner down the length of the side piece. After assembling the drawer boxes, tweak the fit as needed before attaching the drawer front.



Nice new housing. The lower drawers receive half-dovetail housings to fit the runners already installed in the case. The housings are glued to the plywood drawer bottoms, their placement controlled by a template.



Doubly skewered. Once the runner housings are glued to the drawer bottom, secure them further with a pair of pins glued in at both ends.

Leave the back for later. The back of the case is left for last, making it far easier to install the dividers, runners, and drawers. A plywood panel, the back will be secured by four mullions nailed and glued around its perimeter.



ularly. The front section of the web frame is put in first, with the corresponding back web rail added next.

Once the three web frames are in place, we glue the legs to the stretchers. To avoid an arrangement with overlapping clamps, we begin by gluing the legs to the stretchers while using the case as a reference, but we leave the Dominos unglued. When the leg and stretcher assemblies have set for about 15 minutes, we remove the long clamps, apply glue to the Dominos, and then clamp the legs and the stretchers to the case.

Next, we glue the top to the side panels and the back stretcher. Then we glue in the vertical dividers, taking care that the front ones sit flush with the front edge of the web frame. Once the vertical dividers are in place, the rail caps can be added.



Drawer fronts

Stiff enough? The bottom drawer front overhangs its drawer box by several inches, so add a dovetailed stiffener to keep it from warping. Apply glue to the top half of the socket and wax to the bottom half.



Mark the screw holes. With the drawer box fitted to its runners and the drawer front overlong, hold the front in place and pull the box forward until the screw points just emerging from the box mark the drawer front.

Installing the drawers

To install the upper drawers, we fit the runners into their dovetail sockets, wax the grooves in the drawer sides, and test the fit. The drawers should run smoothly, with only slight play side to side. If they are tight, a plane shaving or two can be taken off one runner. The runners will be glued only in the front divider. At the back end, the runners should be waxed where they engage the rear sockets so that when the case moves with the seasons the runners will slide in their sockets. The lower drawers, with their runners and housings already installed, should run smoothly.

Fitting the drawer fronts comes next. To start, we clamp the bottom drawer front to the bottom stretcher. With screws projecting slightly through pilot holes in the drawer box, we mark the drawer front by carefully pushing the drawer into it. Then we remove the drawer front, drill at the marks, and mount the drawer front with screws. After placing spacers on the top edge of the drawer front and setting the next drawer front on top of them, we repeat the process. At this stage, it is likely that the reveals will need to be opened up and aligned. With the faces still attached to the drawer boxes, we can make micro-adjustments to the reveals either on the table saw or with a laminate trimmer bearing against a fence. □

Heidi Earnshaw and her assistant Tim Steadman build custom furniture in Lanark, Ont., Canada.



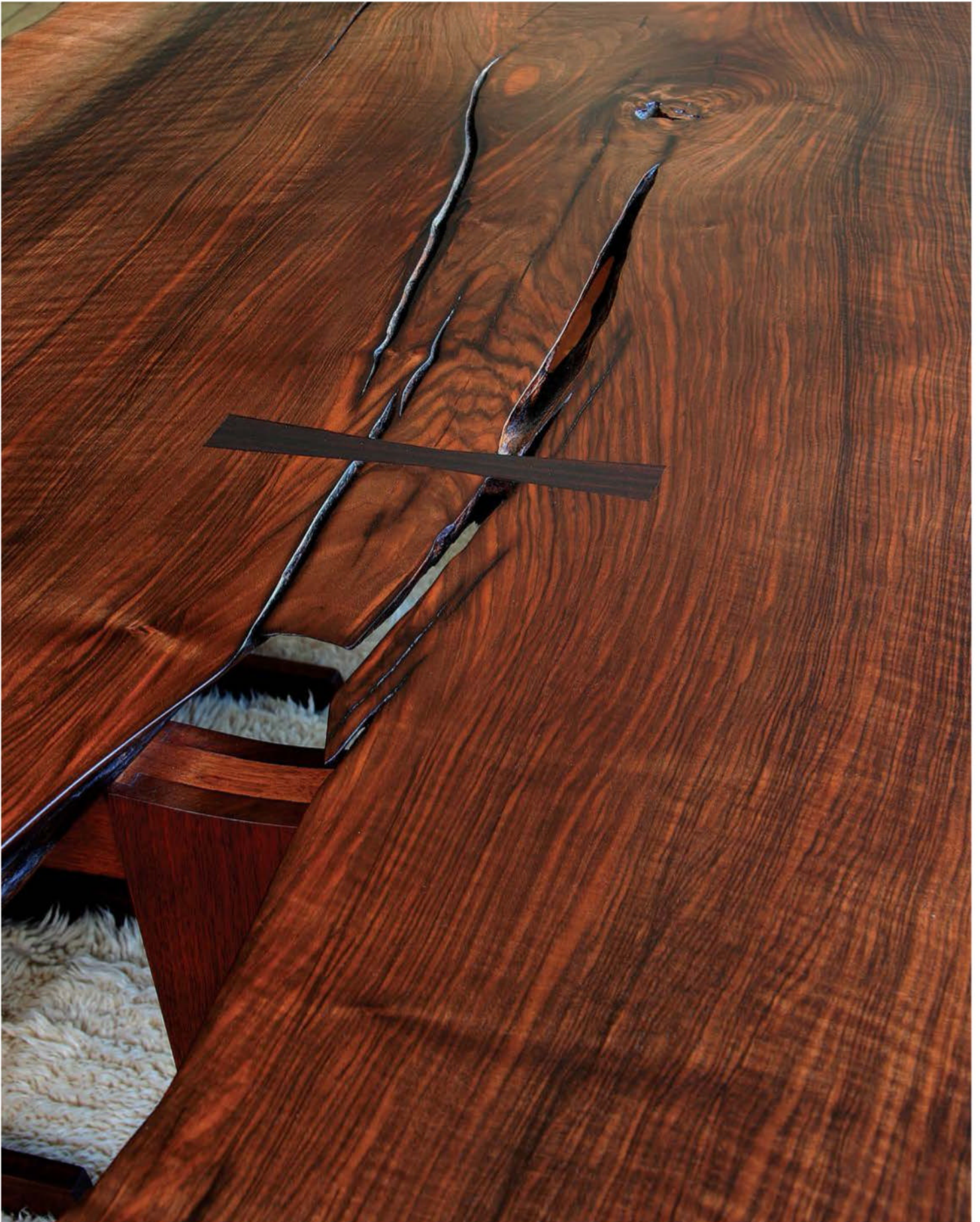
Screwed down oversize. Drill on the marks you've just made, and screw the front to the drawer box.



Post-fit trimming. Once the front is attached, put the drawer back in the case and mark it for trimming as needed at the table saw.



Move on up. Once the bottom drawer front is attached and fitted, place spacers on it to govern the reveal of the drawer above.



Four Walnut Species

These stand-out trees are
a cut above the rest

BY DAN BOLLOCK

There are 21 varieties of walnut trees worldwide, some more desired for their fruit, others for their wood. I'll focus here on four. Eastern black walnut and claro walnut (or northern California walnut) are the most well known of all the walnuts, and furniture makers have been creating iconic pieces with their rich chocolate brown wood for centuries; these days their deep color and crotch figure have made them favorites for slab and river tables. Peruvian walnut is an imported cousin that thrives in a more tropical climate, growing atop mountains in South America. Its wood is unmatched in the depth and richness of its color. Butternut, perhaps surprisingly, is also in the walnut family; its pale tan heartwood differs from the other walnuts, but it finds its place in many makers' hands for its own beauty and workability.

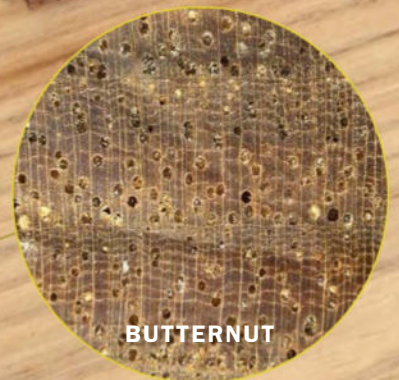
All of them except butternut are sensitizers, meaning that over time some people can develop skin or lung irritations to the fine dust or wood. Hardwood prices have inflated considerably since the pandemic, none more so than those for eastern black and claro walnut. And the decline of butternut trees due to a rapidly spreading fungus has led to a sharp jump in cost as these trees shift from abundant to endangered.

But working any of these four walnuts with hand or power tools remains a joy. They may be in the same family, but they are very different, from coloration to weight and hardness, and each one makes a statement in its own way.

Dan Bollock is operations manager for Purdue University's Bechtel Innovation Design Center in West Lafayette, Ind.

Timber's thumbprints

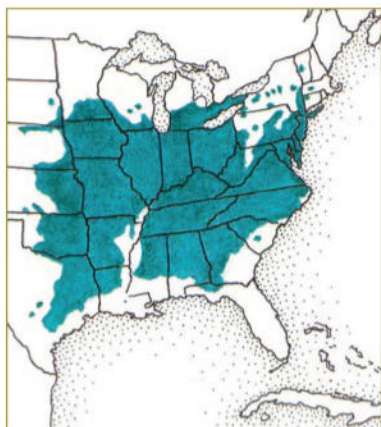
Vessel elements, more commonly referred to as pores, are strawlike tubes that transfer sap throughout a tree. Checking the end grain of a piece of wood to ascertain its pore structure helps identify tree types. **Ring-porous** woods have a defined line of large pores that form during the growing season. **Semi-ring-porous** woods, such as eastern black walnut, claro walnut, and butternut, have no defined line of pores but rather a gradually decreasing pore size from earlywood to latewood. **Diffuse-porous** woods, such as Peruvian walnut, have a consistent pore size and lack any differentiation from earlywood to latewood.



Eastern black walnut:

A famous familiar

The Conoid Bench. It's nearly impossible to see a black walnut slab and not have an image of a furniture piece by George Nakashima flash in your head. Nakashima's use of the entire slab displays the wood's true character and beauty by bringing attention to perceived imperfections such as checks and sapwood.



Growing region: Southeast, Midwest, Appalachia

Size: 130 ft. tall, 6 ft. dia.

Identifying features: Semi-ring porous

Price: \$6 to \$15 per bd. ft.

Density (Janka scale): 1,010 lbf

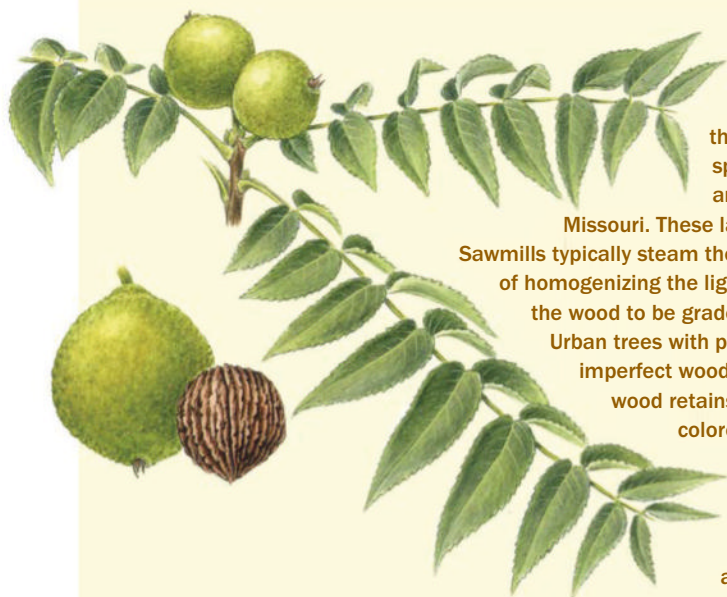
Specific gravity: 0.55 at 12% moisture content

Movement: 5.5% radial and 7.8% tangential

Forestry standards: Least concern IUCN Red List; not FSC-certified

Janka scale

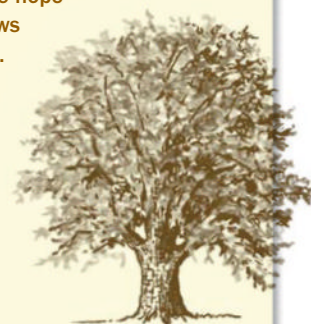
This measurement, used to determine the hardness of a wood, measures the pounds-force (lbf) required to embed a 0.444-in. steel ball halfway into wood that is dried to exactly 12% moisture content. Higher numbers correlate with harder wood, which is more resistant to wear, while softer woods register lower on the scale. For reference, basswood, one of the easiest-to-work woods, ranks at 410 lbf on the Janka scale, while white oak, a denser wood, ranks at 1,350 lbf.



EASTERN BLACK WALNUT (JUGLANS NIGRA)

Found across the Midwest, Southeast, and Appalachian regions of the United States, eastern black walnut is the most abundant walnut species. The most commercially sought-after trees with clear grain and beautiful color are grown in the woods of Indiana, Iowa, and

Missouri. These large trees are coveted by veneer manufacturers for their straight grain. Sawmills typically steam the walnut slabs before they go into the kiln in the hope of homogenizing the light sapwood with the dark heartwood. This allows the wood to be graded higher, resulting in more profits for sawmills. Urban trees with poor shapes and lower limbs produce perfectly imperfect wood for slab furniture makers. Often air-dried, this wood retains a stark contrast between the light cream-colored sapwood and rich brown, almost purple, heartwood. Because of the price of walnut lumber, some landowners have converted fields into walnut groves in the Midwest, hoping for a windfall when the trees mature and are harvested.



Claro walnut: California's treasured gem



Arts and Crafts bed. Like the claro walnut trees he works with, Michael Cullen grew up in California. Sourcing his trees straight from the local sawyers, Cullen admires the beautiful movement in the wood, which he has dubbed "quasar grain."

A nightstand of dreams. Cullen's nightstands, mates of the bed above, were made from a single plank of claro. Their straight grain counters the figure and movement of the claro boards he used for the bed.



CLARO WALNUT (JUGLANS HINDSII)

Growing only in northern California, claro walnut differs just slightly from its more abundant cousin, eastern black walnut, although price can often be a clear indicator, with claro walnut being double the cost nationwide. Its heartwood is a dark chocolate brown with streaks of varying shades, creating a beautiful array of color throughout. Claro walnut is used as rootstock for English walnut trees grown in California for their fruit. The hearty root system is ideal for growing in the tougher soils of northern California so the grafted English walnut can flourish. When grafted onto a claro tree, these Californian English walnut trees often produce burls and stunning figure, which are used for veneer and bowls. Luminary furniture maker Sam Maloof, a native Californian, used claro walnut for many of his famous chairs. Although the differences are subtle, claro walnut stands on its own as the premium walnut grown in the United States.



Specific gravity

Another way to determine density, specific gravity measures with water instead of a steel ball. The scale uses 1.00 gram per cubic centimeter (the weight of water) as a baseline. Any wood measuring less than 1.00 will float on water; any wood measuring more will sink. For example, lignum vite, one of the densest woods, has a specific gravity of 1.26 and sinks like a rock. On the other end, balsa wood measures at 0.15 and floats almost completely on top of the water.

Growing region: Northern California

Size: 100 ft. tall, 6 ft. dia.

Identifying features: Semi-ring porous

Price: \$6 to \$15 per bd. ft.

Density (Janka scale): 1,130 lbf

Specific gravity: 0.64 at 12% moisture content

Movement: 4.3% radial and 6.4% tangential

Forestry standards: Least concern IUCN Red List; not FSC-certified

Peruvian walnut: South America's mountaintop beauty



A case for contrast. Dan Bollock's chest of drawers puts Peruvian walnut on display. The case, constructed of the South American cousin, creates a perimeter of rich chocolate brown around the pastel-painted drawers.



Growing region: South America
Size: 60 ft. tall, 3 ft. dia.
Identifying features: Diffuse porous
Price: \$12 to \$20 per bd. ft.
Density (Janka scale): 960 lbf
Specific gravity: 0.6 at 12% moisture content
Movement: 3.6% radial and 7.5% tangential
Forestry standards: Endangered IUCN Red List; some FSC-certified

Forestry standards

As woodworkers we can choose whether or not to use endangered wood in our projects. The Forest Stewardship Council (FSC) certifies wood that has been cut from sustainable forests or plots in an environmentally responsible way. The International Union for Conservation of Nature (IUCN) has created a Red List of species that are extinct, in danger of becoming extinct within three generations, or of little concern of becoming extinct. This helps governments form policies and restrictions to keep species alive.

PERUVIAN WALNUT (*JUGLANS NEOTROPICA*)

Although the name suggests that it's grown only in Peru, this walnut grows throughout Latin America, including Ecuador, Colombia, Venezuela, and even parts of Mexico. In contrast to their northern cousins, Peruvian walnut trees thrive in a high-humidity, high-altitude environment. The heartwood is a rich chocolate brown, darker than that of domestic walnut, with occasional white streaks. The sapwood is smaller than that of domestic walnut trees. Peruvian walnut is listed as endangered on the IUCN Red

List. As with other South American trees of value, a lack of regulations on harvesting has led to the quick decline in old-growth Peruvian walnut trees. The wood's large pores are distributed equally across its growth rings, making it diffuse porous, unlike the other walnuts, which are semi-ring porous. It is because the trees grow in an environment with mild seasonal dormancy that there isn't as clear a delineation between the earlywood and the latewood as in other walnut species. Peruvian walnut's diffuse pores give its wood the depth and richness that make it stand out.



Butternut: The softer side of walnut



Subtle beauty. This low dresser by Michael Pekovich is a master class in using butternut. Less audacious than the other walnuts, butternut blends with more neutral materials instead of contrasting with them. Pekovich's use of oak in the structural parts and butternut for the panels and drawer fronts speaks to his knowledge of the softer, subtler wood.



Practically perfect. Pekovich's choice of butternut for this tool chest was a practical one: A box full of heavy things should be as light as possible. In addition to being remarkably lightweight, butternut boasts beautiful figure.

Movement

Measuring the percentage of movement of a piece of wood transitioning from its green-wood state to its driest form is a great way to determine its stability in changing climates. This is more commonly noted as wood movement and is something to take into account with design. To give a baseline, cherry shrinks 3.7% radially and 7.1% tangentially, and eastern white pine shrinks 2.1% radially and 6.1% tangentially.



BUTTERNUT (JUGLANS CINEREA)

I consider butternut to be the crazy uncle in the walnut family. It is tan with a slight reddish-orange cast and occasional darker streaks. Because of its lighter heartwood, it is sometimes called white walnut. Butternut is less dense than all the other walnuts, making it unsuitable for high-wear projects like tabletops or gunstocks. But less dense isn't necessarily a bad thing. Butternut is incredibly workable and is an absolute pleasure to hand plane. Butternut grows in a similar range to that of eastern black walnut, just shifted a little north and east. Since the butternut canker entered U.S. forests in the 1970s, the population of butternut trees has decreased by approximately 90%. This fungus enters through cracks in the bark and attacks the cambium layer of the tree, which is why butternut is listed as endangered on the IUCN Red List.

Growing region: Midwest, Northeast, northern Appalachia

Size: 70 ft. tall, 2 ft. dia.

Identifying features: Semi-ring porous

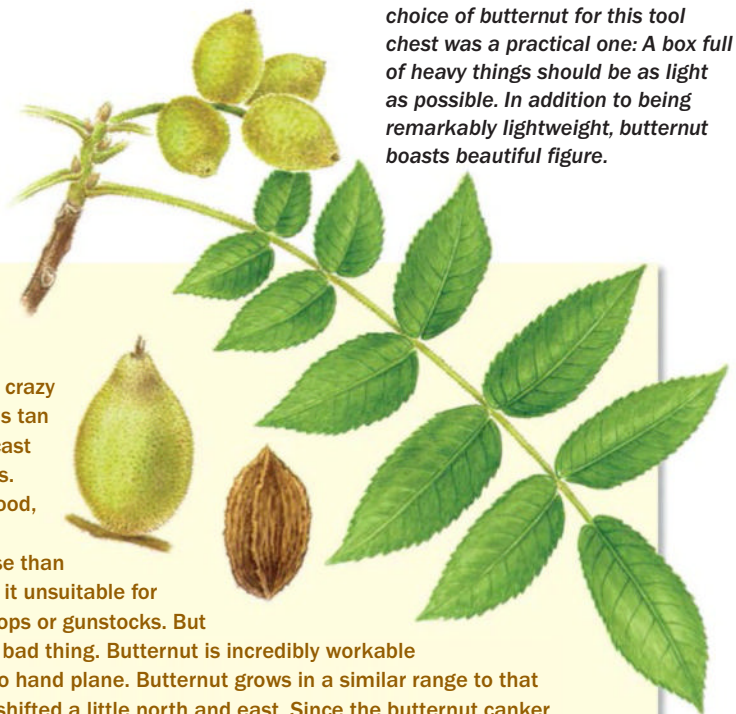
Price: \$5 to \$30 per bd. ft.

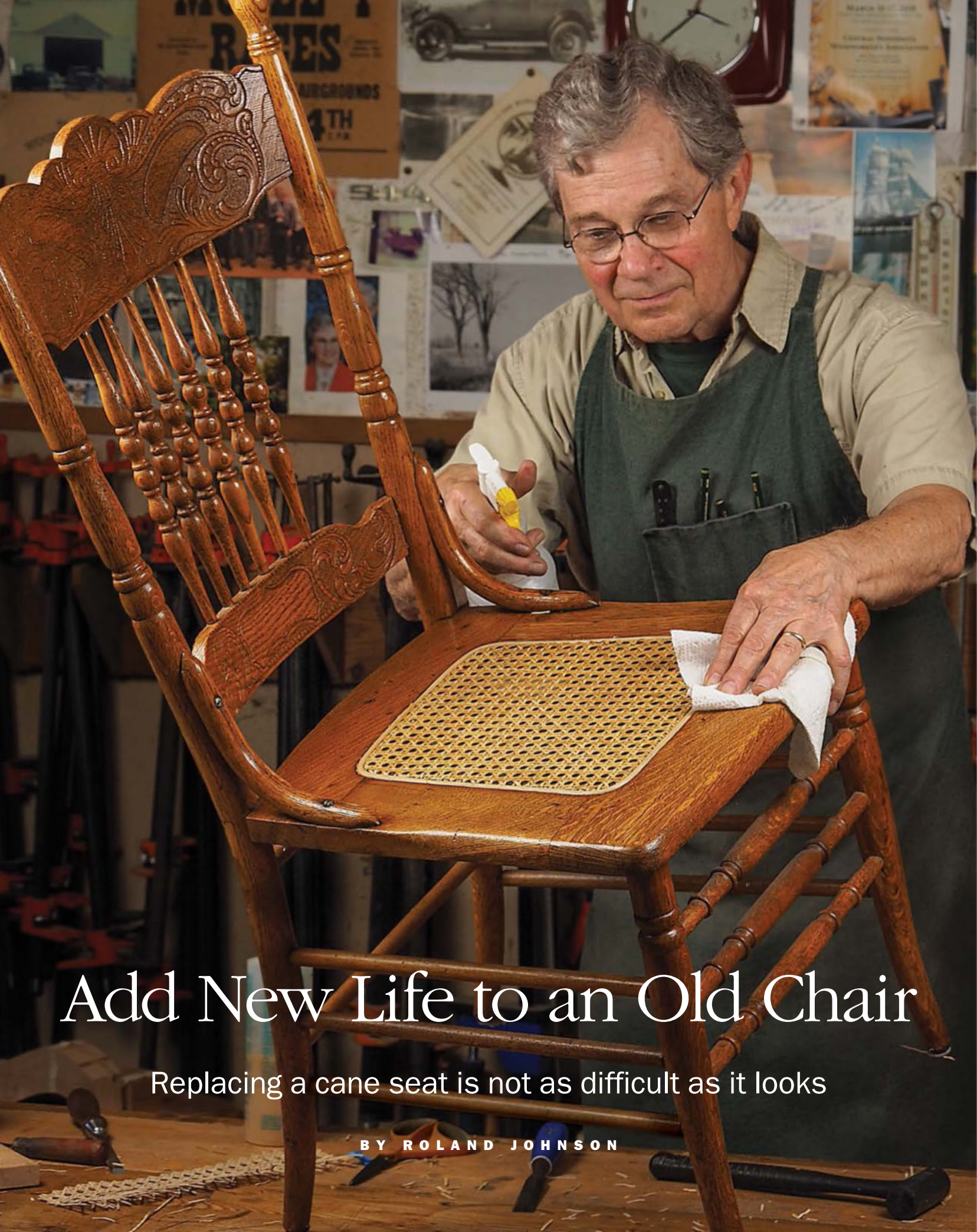
Density (Janka scale): 490 lbf

Specific gravity: 0.43 at 12% moisture content

Movement: 3.4% radial and 6.4% tangential

Forestry standards: Endangered IUCN Red List; not FSC-certified

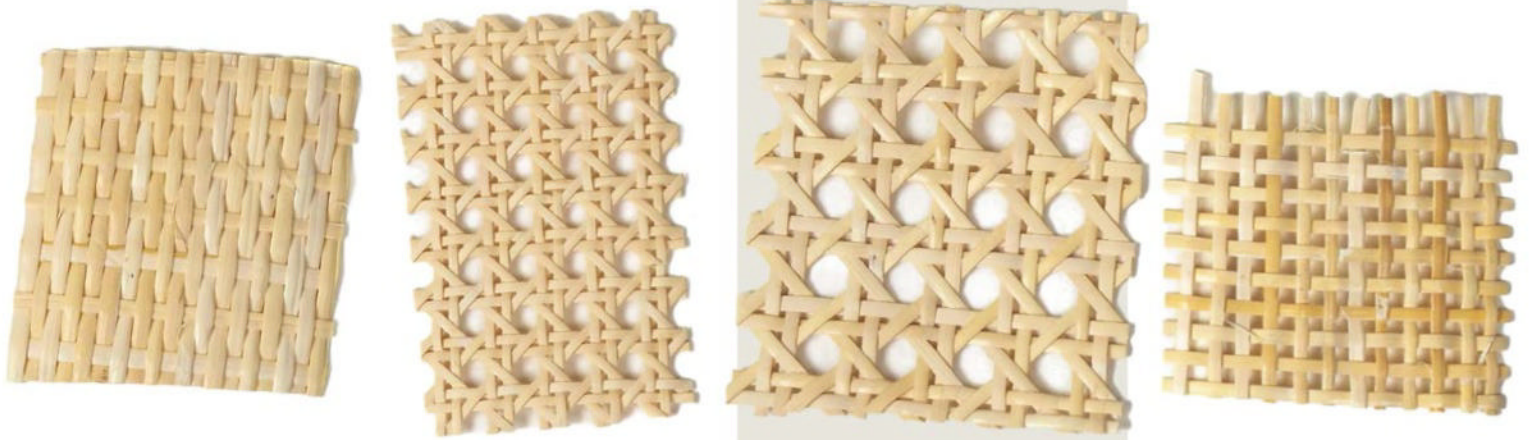




Add New Life to an Old Chair

Replacing a cane seat is not as difficult as it looks

BY ROLAND JOHNSON



A VARIETY OF PATTERNS TO CHOOSE FROM

Prewoven cane is available from a number of suppliers online and is shipped in rolls ranging from 18 in. to 24 in. wide. It is sold by the linear inch or foot, with prices varying based on the design. Replacing a typical chair seat with the pattern shown in this article would cost less than \$40. In addition to the cane, you need a length of spline to hold it in place. Spline stock (which is made from the core of the rattan vine) comes in a number of sizes to fit the groove in the chair seat you are working with. At roughly 50 cents per linear foot, it doesn't add a significant amount to the cost of repairing a seat.



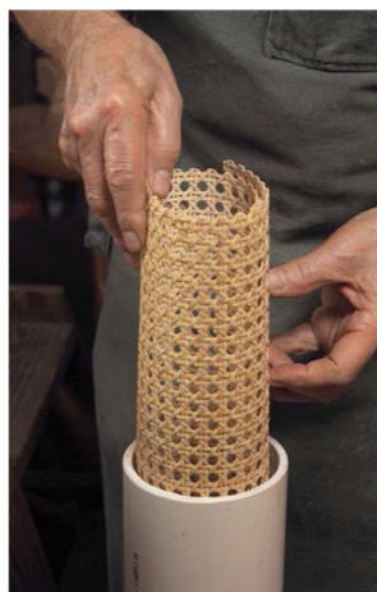
Woven rattan, or cane, has been serving as a comfortable seating surface for centuries. Hand-weaving cane—which involves threading individual strands of cane through the holes in a chair frame—is time-consuming and expensive. But in the 1870s, the advent of loom-woven cane, also known as sheet cane or webbing cane, revolutionized chair-seat construction. Installing a cane seat suddenly became a fast, simple, inexpensive process in which a sheet of prewoven cane is pressed into a groove around a chair's seat and held in place with a reed spline.

The cane used for weaving chair seats is sliced from the hard outer skin of the rattan palm, a climbing vine from Southeast Asia. Strips of cane are available in bulk for hand weaving, usually in a hank that contains roughly 1,000 lin. ft. Prewoven cane comes in a variety of patterns and sizes and is sold by the square foot. I will focus on prewoven cane for this article.

The chair I'm caning is the last one remaining from a set my grandparents purchased for their South Dakota dining room in the early 20th century. It has endured a farm lost to the Great Depression, weathered the uncertainties of World War II, survived changes in design tastes for over a century, and still provides a comfortable place to enjoy dinner.



Soaking solution. To condition the cane for installation, mix up a solution of 8 parts purified water to 1.5 parts alcohol to 0.5 parts glycerin.



Soften the cane before installation. Dry cane is brittle and can crack during installation. Soaking softens it, allowing it to lie flat and resist fracturing. A length of PVC pipe makes a convenient soaking station. Fill the pipe with the glycerine solution, trim the panel to size, and drop it in place, making sure that it is fully submerged. Allow it to soak for half an hour or until it stays flat when unrolled.

REMOVE THE OLD SEAT PANEL

Soften the spline.

Wet the spline with purified water and let it sit for just a little bit to help soften the glue. Take a razor knife and lightly cut between the seat and the spline all the way around. Before moving on, cut out most of the old cane panel to simplify removing the spline.



Weave-it-yourself vs. prewoven cane

I used to hand-weave cane chairs as part of my early woodworking and restoration business, and I will testify that a well-done hand-woven panel is a work of art. It takes practice to get a satisfactory result with hand-weaving. While a certain amount of “sag” at the start is a necessity, too much will result in a loose weave. It is a balancing act that requires experience to master. And weaving a panel the size of the average chair seat can take most of a day, with breaks to soothe sore hands and muscles. Prewoven cane has all the drama removed. It comes ready to be installed quickly and with predetermined results for sag and pattern uniformity. These factors make prewoven cane a very appealing alternative.

Prewoven cane is available in several different patterns, with the octagonal-hole, eight-strand being the most recognizable. You can get the octagonal weave in various sizes. Bleached cane with a very uniform light tan color is common, but cane is also available unbleached for a more rustic look. The prewoven cane sheet is held in place by a spline that is driven into the groove. Splines are sold in sizes ranging from 6.5 to 12, each for a specific groove width; 9.5 is most popular, as it fits a 1/4-in.-wide groove.

Tools and prep

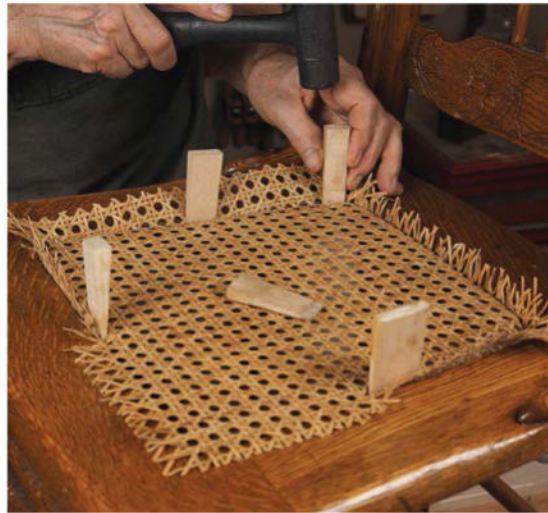
Just a few tools are needed for installing a prewoven cane seat: some wooden wedges, a small dead-blow hammer, and a razor



Remove the cane and spline. Start by chopping straight down through the spline as though you're cutting a mortise. Once you've done that, you can get the chisel underneath the spline and start levering it up. Fill the spline channel with water while you're removing the cane to further soften the glue. Finally, clean the last of the cane remnants out of the spline groove with the chisel.



Center the panel and wedge it in place. Starting in the middle of the front and using a wedge, lightly tap the cane partway down into the groove. Do the same thing in the back, making sure that your alignment remains accurate, and then proceed to the sides.



Seat the cane. Trim any excess cane around the perimeter to get it out of the way. Then use a wider wedge to push the cane down into the groove, but don't fully seat it yet. Work your way from the center out to the corners, using a narrower wedge to finish the corners. Repeat this until the cane on all four sides has been seated.

knife with a fresh blade. If you're replacing cane, make sure the groove is well cleaned. I use a $\frac{1}{8}$ -in. mortise chisel (handed down from the same grandfather who owned the chair) to clean the bottom of the groove, removing any old cane, glue, or other detritus. Be careful not to enlarge the groove during the process, since the spline needs to fit accurately to hold the cane securely. Cut the prewoven cane to the approximate size of the project. I like to leave a couple of inches all around the perimeter. That makes it easier to align the cane to the spline groove. Also, it's easier to trim a longer cane strand than a short one.

Soften the cane and spline

Prewoven cane comes rolled, and if you lay it flat it will roll back up when released. To soften it, soak the cane in a solution of warm water and glycerine until it feels somewhat flexible; usually half an hour is enough. Once the soaked panel is able to lie relatively flat, you know it has been sufficiently hydrated. The glycerine in the solution helps the cane retain moisture during installation and helps keep it from breaking. As the cane dries it shrinks a bit, tightening the weave and providing a firm but somewhat flexible surface.



POSITION THE SPLINE



Start the spline in the groove. Add glue to the groove, square one end of the spline, and bend it at the corners. Starting at the center back, use a wedge to tap the spline into the groove, seating it to roughly half the depth of the groove.

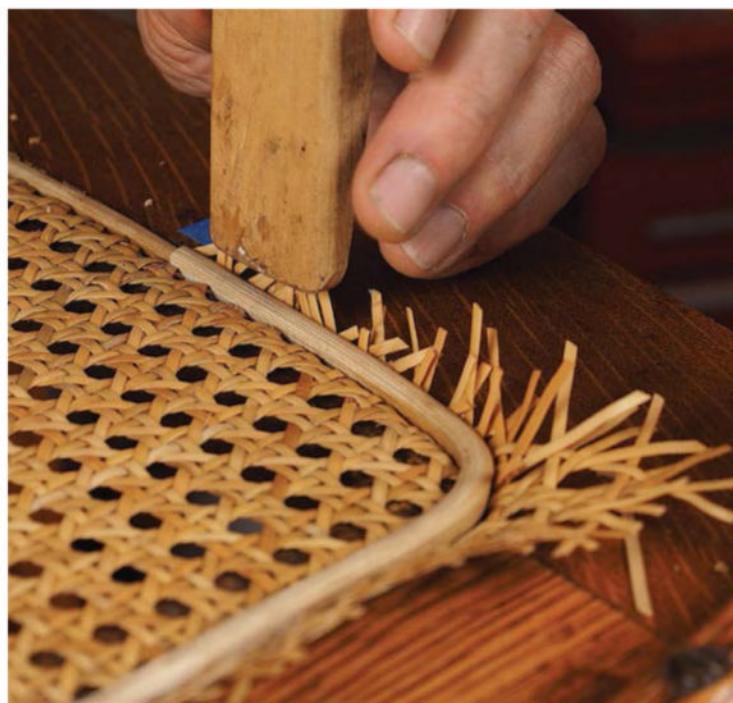


I also soak the spline in the glycerine solution just long enough for it to get thoroughly wet—about 5 to 10 minutes—the day before I'm going to install the cane. This can help alleviate splitting, especially if there are sharp curves at the corners of the panel. I let it dry overnight because I don't want the spline to be too soft or it will dent easily during installation. It can be bent while it's wet if desired. Some folks put it into the groove while it's wet and let it dry in position, then remove it and install the cane. I haven't found this to be necessary, but it is an option.

Wedge the cane in place

Position the panel of softened cane, making sure that the pattern is oriented correctly and evenly. If the panel is square, it's easy to

Finish the border. Work your way around the panel, tapping the spline into the seat groove. Mark the end of the spline where it overlaps the start. Slip a scrap under the spline and use a sharp chisel to cut it to length. Finally, tap it into place to complete the perimeter.



SEAT THE SPLINE



Drive the spline home. With the spline partially seated, use a sharp utility knife to trim the edges of the cane. Use the spline as a backstop for the knife, and avoid slicing into the seat frame. Then drive the spline fully into the groove. This will draw the cane fibers into the groove for a flawless finish.

align the perpendicular strands to the edges of the opening and to make sure the cane is balanced side to side and top to bottom. Place a wedge in the groove midway on each side to hold the cane in place. Then use narrower wedges to push the cane into the groove, working from the centering wedge to the corners. In some applications it may be necessary to use a light hammer with the wedge to seat the cane in the groove. Be careful not to break the strands or damage the spline groove. Take your time and be gentle.

Secure the cane with a spline

I use hide glue when installing the spline because of its long open time and ease of cleaning up squeeze-out. It is also easy to remove when the time comes to replace the seat. Install the spline by starting in the middle of a straight run (in a chair seat it's usually the middle of the back edge), and push the spline firmly into the groove, carefully bending it around tight radius corners.

Before fully seating the spline, use a sharp bench chisel to square the ends of the spline where they overlap. Some installers use a miter cut, but I prefer a butt joint.

Use a wide, blunt wedge and a small dead-blow hammer to push the spline into place. As you're installing the spline, remove any parallel cane strands that will land in the groove. Before the spline is seated to its finished depth, take a utility knife with a brand-new blade and carefully trim the strands on the outside of the spline, using the spline as a backer for the knife point. Take your time and be careful not to cut into the edge of the seat frame. I have used a sharp chisel to do this, but I prefer a knife. When the spline is pushed down flush to the frame surface, the cutoff strands will be pulled below the surface for a clean seam between the spline and the surrounding frame.

More than just a comfy seat

Prewoven cane can also be used as ventilation panels, decorative panels, tabletop inserts, and in many other interesting applications. Panels can be cut square, oval, round, or in a combination of shapes. □



Roland Johnson is a contributing editor.

My love affair with cabinets began when I was a student of James Krenov at the College of the Redwoods in the 1980s. At the time, Jim had a bench in the corner of the classroom and did all his making there. Officially he taught twice a week, but he was at his bench most days working on his latest piece. As students, we worked at our own benches on our fledgling cabinets, while having a front-row seat to witness the master at work.



James Krenov, 1982

Two years ago when *Fine Woodworking* proposed shooting a video series of me building a cabinet on stand, I thought of Jim at his corner bench and the window we had into his process. There is a bit of theater to building a cabinet in front of a room full of people, and Jim seemed to know this. Was this video my own chance to offer a window as Jim did? Is there a performer in me? There was only one way to find out—I signed up.

In addition, I agreed to write an article exploring the inspirations, choices, thought processes, and missteps behind the build—the internal stories that shadow the customary how-to. This is it.

Creation Story of a



Online Extra

For a 16-episode video workshop on the making of this cabinet, go to FineWoodworking.com/325.

Photos, except where noted: Tim Coleman. Photos this page: David Welter (left); Jonathan Binzen (right); photos facing page: Jonathan Binzen (top); Dean Powell (center).

Cabinet on Stand

A masterful maker opens his notebook to reveal the road he traveled from first thoughts to finished piece

BY TIMOTHY COLEMAN

An elusive idea

Each cabinet I create is a unique sculpture, and like James Krenov, as I build I observe and respond to what's happening in the process. This working method—"composing," as Jim called it—puts the wood in the picture early in the process. As the wood reveals itself, it influences decisions. It has not always been easy for me to build in this uncertain way, and it has taken me many cabinets to learn to trust my intuition. But without an idea, and without the wood to carry it out, there is no composition.

The search for an idea begins in my portfolio. I have copious photos and drawings of pieces from my past, and this collection has become a sourcebook for ideas, a catalog of my preferences—woods I like, joinery choices,

shapes, proportions, and style influences. We all have preferences, and the more pieces we create the clearer this becomes. So I search in my portfolio, hoping that somewhere in there the design for this next cabinet is hiding.

Take two

As I search, two cabinets captivate me. One is a fall-front cabinet on stand with fretsawn borders. The overall scale of the piece seems right for the new cabinet, and I like the proportions of the cabinet to the stand. It is an adaptable design, a case on a tall curvaceous stand, and the case offers a canvas for me to paint with veneer patterns.

Then there's a chest of drawers, with a scroll-like crown suspended by posts above the main body of the chest. For years I've wanted to incorporate this kind of crown into a cabinet but never landed on the right design. I make a doodle of the crown atop the fall-front cabinet, and I see potential. I'm ready to begin.

I realize that it can sound like the design came to me as if I had been hit by a bolt of lightning. Far from it! This uneasy process took weeks of tumbling ideas in my head and going on many long bike rides as I tried to pedal my way to

and was always inspired by his innovative designs and his humble and generous way.

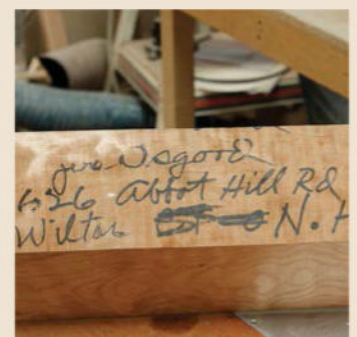
A close friend of Jere's, Ted Blachly, organized a sale of Jere's vast collection of wood accumulated in more than 60 years of making. I bought as much as I could afford, and a little more: large slabs of claro walnut, curly maple, dousie, yew, partridge, wenge, mahogany, and two massive pieces of quartersawn figured cherry. All of the wood was beautiful, almost sacred because it came from Jere.

I hold the image of the new cabinet in my head and sort through Jere's wood for possibilities. The thick cherry boards are enticing, but their wide quartersawn faces have a uniformity that keeps me from seeing their potential for decorative veneer work. I search some more, but the curly cherry keeps making its way to the top of the pile.

a vision of this elusive cabinet. Designing happens in my head more than on paper, and eventually something emerges.

Osgood's wood: A good idea meets great material

Some years ago, the brilliant furniture designer and maker Jere Osgood felt he could no longer manage the intense work necessary to create his iconic furniture pieces. I knew Jere (who died at 87 in 2023) as a member of the New Hampshire Furniture Masters



The chatoyant panel

Enraptured by chatoyancy—the way wood's appearance shifts with changes in viewing angle and grain direction—and searching for a fresh marquetry approach for his new cabinet, Coleman created a small tabletop with circles in curly maple (left), which led to his final design.

An idea bubbles up

From my earliest years in furniture making I have explored ways to use wood's natural chatoyancy to create veneer patterns. Chatoyancy is the optical effect caused by the way that wood reflects light differently depending on its grain orientation. If two pieces of the same veneer are placed side by side with opposing grain direction, one will appear lighter than the other.

As I ponder the cabinet and the veneer patterns I might give to it, I explore chatoyancy

in a small, figured-maple tabletop. I cut marquetry circles into the background veneer and use the same figured maple for the inlays. The grain direction of each circle

There is an energy that propels me during a project such as this. I am a little power plant, fueled by optimism and curiosity and skill.... It is a thrilling place to be—one I long for when I'm not there.

varies relative to the other circles and to the background, and the effect I am going for is how bubbles reflect and distort their surroundings.

The tabletop is a success, simultaneously subtle and dramatic, and I go back to Jere's curly cherry with a new vision

and create a sample panel. I scatter large and small circles of quartersawn and flatsawn cherry over a quartersawn background. Some circles overlap, and some are partial circles near the edge.

I find the finished panel mesmerizing. As I shift my viewpoint, circles go from light to dark and emerge from and

recede into the background. There is movement, depth, and delight, and my vision of the cabinet sharpens. Now I have a great idea to work with, this meaningful wood, and only possibility in front of me. In the words of my Italian mother, "Andiamo!" ("Let's go!")

May the force be with you

There is an energy that propels me during a project such as this. I am a little power plant, fueled by optimism and curiosity and skill. Give me a project, flip the switch, and there is a focus that I can maintain for weeks and weeks, a flow state where my skills are tested to the brink and my mind remains agile and quick. It is a time of risk and discovery, and a nervous energy pervades. It is a thrilling place to be, and one that I long for when I'm not there.

I know that not everything in a project will go according to plan. Wood is a dynamic material, after all, and it is known to misbehave. Regardless of my intent, the wood will exert itself and I will need to adapt



Working in circles. Using veneer he sawed from Jere Osgood's curly cherry planks, Coleman created a marquetry pattern with a quartersawn background inlaid with quartersawn and flatsawn circles. He shifted the orientation of the circles' grain direction to increase the chatoyant effect.



and shift course. I will make mistakes too—mistakes of the hand and mistakes in planning. That's part of the process.

I begin to cut up cherry for the stand, and I see that defects on the surface go much deeper than expected. Sections of the boards are suddenly unusable. At first I was flush with material and at ease, but now I need to adapt and be more strategic. This is how the project starts, the material exerting its will.

Steps within steps within steps

If you try to count the number of steps needed to build a piece like this, you might run out of numbers. There is the broad sequence—milling, joining, veneering, shaping, adding hardware, and finishing. But each one of those steps is made up of many substeps, and it can be overwhelming to think about where to start. To keep the process from clogging my brain, I break the piece into three primary components: the stand, the marquetry, and the scrolling top. Each component has its own set of steps, and each can be brought to a finished state before they are all brought together.

The stand: A supporting role

The leg is a variation on a cabriole, and it's hard to be original with a shape that has been around for thousands of years. The longevity of the cabriole design comes from its versatility. Adding thickness at a certain point, adjusting a curve by a few degrees, or changing where the curve breaks from convex to concave can alter the shape dramatically. It's a malleable form that can stretch from a sumo wrestler to a dancer en pointe. I want my cabinet's legs to go toward the latter—springy and light.

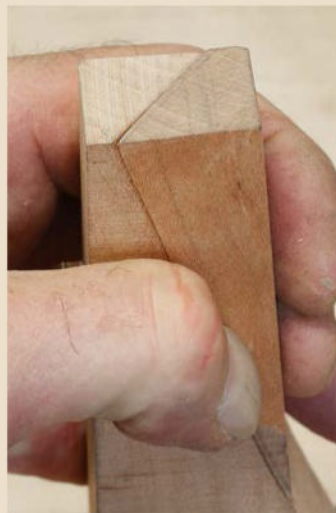
The legs are a priority when I map out the material. If I

can't get four good legs, then the wood won't work. It's that simple. The legs need to be riftsawn for the face grain to follow the curve of the leg. With my quarter-sawn cherry planks, the only way to yield riftsawn faces on all four sides is to rip the thick material at an angle on my bandsaw.

On the end of a plank, I draw diagonal lines to show where I'll cut and red lines to indicate the end-grain orientation. I would like to get one extra leg and one post, but there is barely enough material to yield four of each.

I cut up the leg blanks, and dark voids appear at the end of one leg that were not visible in the blank. I insert a feeler gauge into one void, and it goes in at an angle away from the cut line. This is good information, since I will be removing some material from the bottom of each leg to create the taper, and if I'm lucky, I may cut away the defect.

Luck does not go my way, however, and voids remain on the bottom 2 in. of the leg. The right way to fix this is to cut away the defect and splice in a clean piece. I dig through



A cabriole variant



Employed in a range of designs by furniture makers from Ming to rococo to modern, the cabriole ("goat's leap") leg found subtle expression in the stand of Coleman's cabinet.

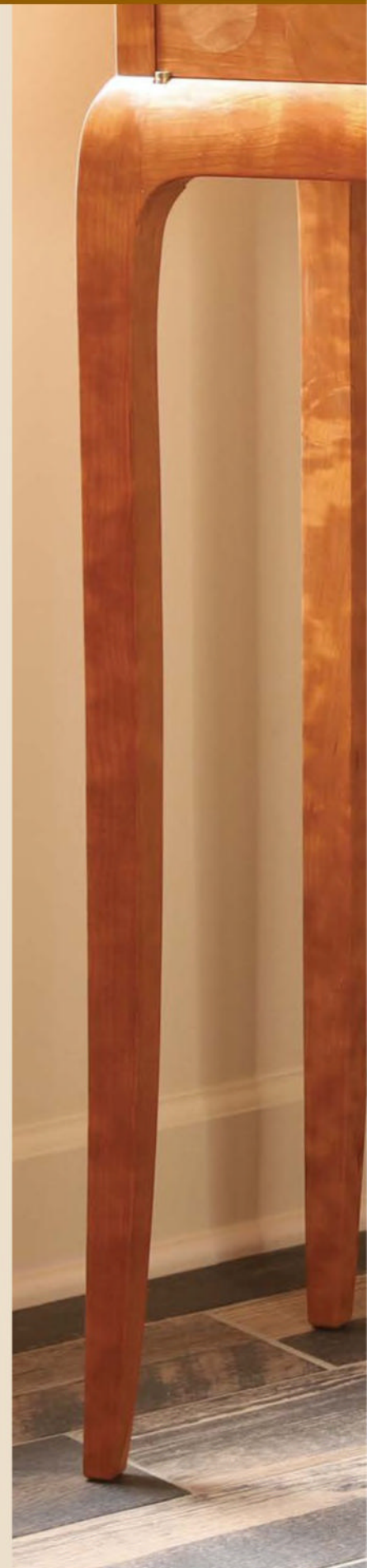
the cutoffs, find a piece from the same leg, and make a long, angled slice to remove the defect. I then graft on an unblemished piece. The repair is time-consuming but necessary, and now I could not tell you which of the four legs had the defect.

More than one way to shape a leg

The cabriole leg shape has been on my bench many times before, but each wood variety and each specific shape has its own way to be worked. I lay out an arsenal of hand tools to try. Whatever it takes to achieve fair curves with no lumps or flat spots and end up with a surface that needs minimal sanding off the tool—that is what I'm after.

I work the shapes by eye and by feel, constantly running my fingers over the surfaces to detect a high spot, holding the leg to the light to sight an edge. Eyes and hands are incredible tools that can detect the tiniest bump in a curve.

After glue-up, I will smooth the transition from leg to apron. The curve on the underside of the apron is an important tactile and visual detail that gets extra attention. This curve must flow smoothly without interruption to the leg. I want no flat spots for the hand to notice, no roughness or mis-



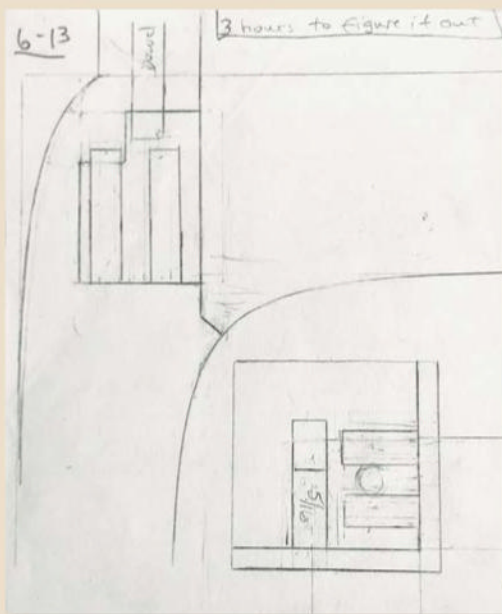


Leg work

In making the legs, Coleman combined exacting machine joinery with much hand shaping to achieve a stout stand with impeccable cabriole curves.

Traffic engineer.

The stand's slender cabriole legs bristle inside with tightly packed joinery. One apron has twin tenons; the other has a tenon notched at the top to maximize glue surface while avoiding the curve of the leg; both join the leg with gunstock miters; and the post above sends a dowel down into the mix. As Coleman noted on this sketch, the solution did not come in a flash.



alignment of parts—only the satisfying sweep of an uninterrupted curve.

At the top of the leg there's a lot happening. In an area that's about 3 in. cubed, the aprons are joined to the legs with tenons from two directions; there's a mitered area at the bottom of the apron to minimize weak cross-grain; a dowel emerges where the post meets the top of the leg; and there is a recess for the knife hinge. Planning and executing everything accurately is a puzzle of the highest order. Unfortunately, the notebook is the only place you will see my brilliant solution!

I have been in this tight spot before. In fact, I wrote an article about it before my hair turned gray: "Strong Tenons in Skinny Legs" (FWW #236). In that article I pose this question: How much material can I whittle away from the leg and apron and still have room for strong joinery?

The post engages my fussy meter

The post must appear as if it is part of the leg, extending upward to frame the cabinet and support the top, much like it does in the chest of drawers. Like the legs, the posts are riftsawn, and I select them carefully for continuity with the legs. Once the marquetry on the side panels is complete, I glue the posts to the sides. They are now ready to dowel into the stand.

Locating the dowel jig on the stand is a critical operation. The posts must line up precisely with the top of the leg to achieve the uninterrupted leg-to-post effect. If the dowel jig is off, the posts will not line up perfectly with the inside of the leg, and it will forever annoy me. As it turns out, when I drill for the dowels I am off by a hair.

The dowelling process is an important one to capture on video, and if I have an excuse for the misalignment, it is that I was more worried my bald spot would show up on camera when I was bent over to drill the holes than I was about accuracy. I curse the mistake and consider a fix. I can fill the dowel holes in the stand, cut them off, and redrill them, being more careful with jig placement the second time.

I run the idea through my fussy meter to see if it's worth the effort. If the post is off by a hair, will anyone notice but me? Will I do any better the second time? Does it really matter in the grand scheme? The meter registers a 4 out of 10, not high enough for a fix, so I leave well enough alone and move on.



The top: It's complicated

Jere Osgood once quipped, "If you want to know the complicated way to do it, come to me." The top of my cabinet is a testament to complicated, so Jere and I share that view.

The chest of drawers that inspired the top for my new cabinet has a solid wood top. Shaping it required a lot of careful handwork, which I enjoyed. But on this cabinet, with its veneered side panels, a solid wood top that expands and contracts won't work. I consider making a hybrid case

Last things

A family heirloom from the start, the cabinet, named *Full Circle*, was a wedding gift for Coleman's daughter and her husband.

with the router, I'm sunk. This is a high-stakes game, and it requires a day of slow, focused work to complete.

A veneer edge-band covers the front and back edges of the top and is coped to match the projecting circles. When I glue on the edge-band, it comes to a sharp point and extends beyond the body of the top. This pointy end sits exposed and vulnerable for several days before final glue-up, and I am on pins and needles the entire time for fear of damaging it.

I dry-fit the ends to the top to test the joint. The edge-band and circle meet perfectly, just as I had hoped! This joint must be perfect, and I don't need to run it through my fussy meter. It is exactly at eye level, and an imperfect joint would be glaring, at least to me.

One more detail on the top delights me. The center point of the polished circle lines up precisely with the outside of the corner posts. There is the feeling that the circle sits teetering on the corner, as if with a little nudge it would roll over the edge. It is a simple and playful detail that emerges from a complicated process.



The cabinet is not all about marquetry—or is it?

The most striking part of the cabinet is the easiest part for me to make. It takes less than a week to cut the marquetry for the doors and two sides. The work is creative and spontaneous and relaxed, unlike the über-planned and meticulous rest of the cabinet.

I don't create a full-size drawing of the pattern, preferring to respond to it as it evolves. Not every furniture-making process lends itself to this way of working, so I relish it when it does.

I felt from the beginning that the background veneer should be horizontal to emphasize the feeling of circles floating across the surface. For the circles I use mostly quarter-sawn veneer but also flatsawn, as I did in the sample, and I place the larger circles first, starting with a partial one that emerges from the bottom of the panel. Once I have three or four circles placed, I fill in with smaller circles to balance the composition. Some circles overlap one or more others, and a few are entirely within another circle. They are clustered in some areas and farther apart in others.

There are 11 circles per panel, and the work goes quickly. There are only 38 circles in the entire cabinet. I've created some patterns that have five times as many elements in a square foot.

I wait until the cabinet is fully assembled and finished to cut the marquetry for the doors. I work on the front veneer for the two doors as one wide piece to keep the circles that cross the centerline intact. I will be cutting it down the middle later. It's a little unwieldy, but it's nice to see the whole pattern together.

There is a final decision to make with the doors: astral-

gal or no astragal. One of my favorite words in the furniture lexicon, *astragal* refers to a narrow divider, sometimes decorative, that is glued to one door. I tape a thin piece of wood in place, wondering if an astragal will interrupt the flow of the pattern. I decide it looks good either way and put off the decision.

An astragal has an upside and a downside. The downside is that it may interrupt the flow of the circles floating across the front. It is only $\frac{1}{4}$ in. wide and only projects a small amount from the face, but it is still a vertical line in a largely horizontal composition.

The upside is that the astragal will hide any small misalignment of the marquetry when the doors are closed. It is possible to fit and hang the doors and for everything to line up perfectly. But an uneven floor in a home will make one door higher or lower, and the edges of the circles will no longer line up. That may not bother some people, but it will drive me bananas.

I cut the full sheet down the middle before it is pressed, using a straightedge and a razor knife to make the cut. This is sawn veneer, and I can't knife it in one swipe, so I have to work at it. The result is less than perfect, and I need to trim off more than I hoped from each piece to straighten the edge. I keep removing material until it is too late, and the astragal decision is made for me. In the end, I like it. It looks intentional and does nothing to take away from the flow of the pattern.

The finished pattern exceeds my expectations. It reads as texture and shimmer from a distance, and the circles become more distinct up close. There is movement when the pattern is viewed from different angles, and the feeling of

circles floating across the background is striking.

Those who have seen the finished cabinet remark on how precise the circles are. The assumption is that they must be perfect, because any imperfections would be glaring. I can tell you that is not the case. This is marquetry cut by hand, not by laser or CNC, so it is imperfect by nature. Minor deviations from the line are to be expected, but they are all pretty darn close. There were a few that got away from me, and I will confess that I replaced them with circles that were a little larger. That's the beauty of this type of marquetry. No piece is final until the panel is pressed.

Not done until it goes out the door

The marquetry on the doors is complete and pressed, and the astragal is applied to the left-hand door. A little more polish with the finish and the cabinet is done—or so it would seem. The reality is that there are still several weeks of work before it is complete. There is a lock to mortise in place, along with an old key to refit and match to the lock, and an escutcheon for the key. The left-hand door also needs a bolt to hold it in place when the door is locked. There is a veneered back panel to glue in place too. This is precise, time-consuming work, and with all the care I have already put into this cabinet, the process slows to a crawl.

Before the cabinet goes out the door, there is one more thing for me

to do—add my signature. I have always carved my signature as opposed to using a custom stamp, and there are times when I have forgotten to do it. More than once a customer has asked me to come to their home to add it. I always choose an unobtrusive location. On this cabinet, inside the left-hand door in the lower right corner, I carve my initials, bracketed by the year.



All the cabinets I make are full of meaning for me, because each occupies a unique period of time while I am immersed in its creation. But this piece has an added layer of significance. It is a wedding gift for my oldest daughter, Tess, and her husband, Greg. To mark this, I do one more carving. In the lower right corner of the back panel, I inscribe their names in a stylized script, as you would find inside a wedding band, along with the date of their wedding. Now the cabinet is complete. □

Tim Coleman works wood in Shelburne, Mass.



gallery

Inspiration for our readers, from our readers

CHARLES DRAKE

Winchester, Va.

A desire to improve his marquetry skills inspired Charles to build this Kentucky sugar desk that he saw at the Art Museum of Colonial Williamsburg.

WALNUT, POPLAR, HOLLY, 19D X 36W X 42H



ZACH BURANDT

Dadeville, Ala.

Inspired by the works featured in *A Cabinetmaker's Notebook* by James Krenov, Zach decided to make his own wall cabinet. Zach attended the Krenov School during the COVID-19 pandemic year (2020–2021) and made the cabinet a few years after graduating.

WALNUT, 24½D X 11½W X 6½H



KYLE PROSSER

Hartland, Wis.

Kyle took inspiration from traditional cantilever-style sewing boxes. Most of them have a three-tiered arrangement with two sets of extending boxes; Kyle opted for a single extension to keep the opened box narrower, and he added drawers below.

SAPELE, MAPLE, OAK, POPLAR, 10D X 18W X 15H



STUART FOX

New Hope, Minn.

This table, a Philip Morley design, has a top with a lumber-core substrate and shop-sawn veneer top and bottom. The apron and legs are solid wood.

CHERRY, WALNUT, EBONY, POPLAR
14D X 36W X 31H

Photo: Ramon Moreno

TESSA KAY MADSEN PETRICH

Fort Bragg, Calif.

Tessa designed and built this chair for her mother based on classic chairs by Danish designers. She made small-scale models to fine-tune proportions and style before moving to a full-scale mock-up. Tessa says, "It has been deeply gratifying to build a piece of furniture to hold the one who held me as a child."

MADRONE, 11D X 16W X 41H

Photo: Todd Sorenson



JOE VON ARX

Sacramento, Calif.

Joe wanted to make an elliptical case because of the challenges it would present. Centered around an elliptical piece of agate, the design allowed him to try his hand at curved drawer boxes, radial veneering, and gilding. The agate, when backlit from inside the cabinet, is transformed into a nightlight window.

EUCALYPTUS, EBONY, BENDING PLY,
DOUGLAS FIR, BALTIC BIRCH
16D X 22W X 68H

Photo: Tony Natsoulas

WILLIAM ANDERSON

Wulguru, Townsville, Queensland, Australia

When a family member requested a cabinet, Bill turned to *Fine Woodworking* for guidance in designing and building this one with tamboured doors. Among other articles, he drew from “Tambours Take a Turn” (Back Cover, *FWW* #278) and “Float the Top” (*FWW* #229).

SILVER ASH, QUEENSLAND MAPLE, 17D X 47W X 38H

Photo: Amanda Galea, Umbrella Studio



RALPH PASQUINELLI

Batavia, Ill.

After Ralph's neighbor had a 3-ft.-dia. honey locust tree taken down, she was happy to oblige when he asked for some of the wood. He sliced up a burl into 1-in.-thick slabs and let them air-dry for three years. After arranging 33 pieces of burl within the top frame of this table, he covered them in epoxy.

HONEY LOCUST BURL, CHERRY, WALNUT, 26D X 48W X 19H



WILLIAM BUNDSCHUH

Two Harbors, Minn.

After seeing an online photo of a Chippendale dressing table by the mysterious Garvan Carver in 2008, William knew he wanted to build one like it. Nearly 15 years later, he built his version to closely replicate the original, though he modified the carving using a photo of a carved drawer from another piece of casework. William says the piece challenged him to learn relief and overlay carving.

MAHOGANY, POPLAR, 22 $\frac{3}{4}$ D X 40 $\frac{3}{8}$ W X 32 $\frac{7}{8}$ H



Fine
Woodworking

SHOP TALK LIVE®

Fine Woodworking editors
and guests discuss
woodworking topics.

Join the conversation at
ShopTalkLive.com



Unlocking hand-shaped curves: The 5/7 rule

A STRAIGHTFORWARD, IF MYSTERIOUS-SOUNDING, METHOD FOR MAKING INFINITE SHAPES WITH HAND TOOLS

BY ASPEN GOLANN

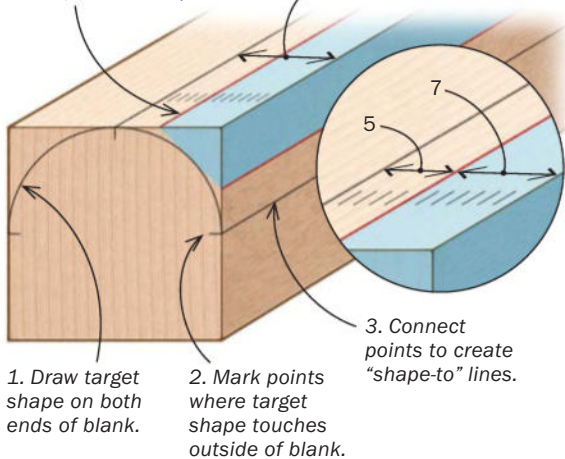
During my days at Boston's North Bennet Street School, I learned the go-to method for achieving precise curves with hand tools: the 5/7 shaping technique. It's a straightforward yet powerful system of layout lines that simplifies even the most complex shaping process into a clear sequence of achievable actions. By integrating this method into my workflow, I was suddenly able to sculpt complex forms accurately. Now I use the 5/7 method to design, explore, and execute forms any time a shaping challenge defies the capabilities of routers, whether due to complexity, danger, or the exorbitant cost of specialized bits.

Hand-tool half-round

PHASE 1

5. Make marks seven segments from waste corner, and draw 5/7 line.

4. Divide distance between shape-to line and waste corner into 12 even segments.



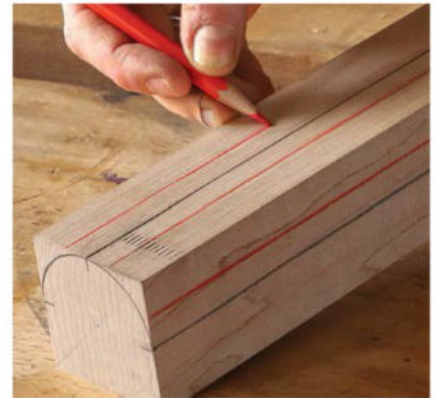
1. Draw target shape on both ends of blank.

2. Mark points where target shape touches outside of blank.

3. Connect points to create "shape-to" lines.



Draw the shape-to lines. After drawing your target shape on the ends of the workpiece, draw lines from end to end connecting the points where the target shape meets the face of the blank. These are the shape-to lines.

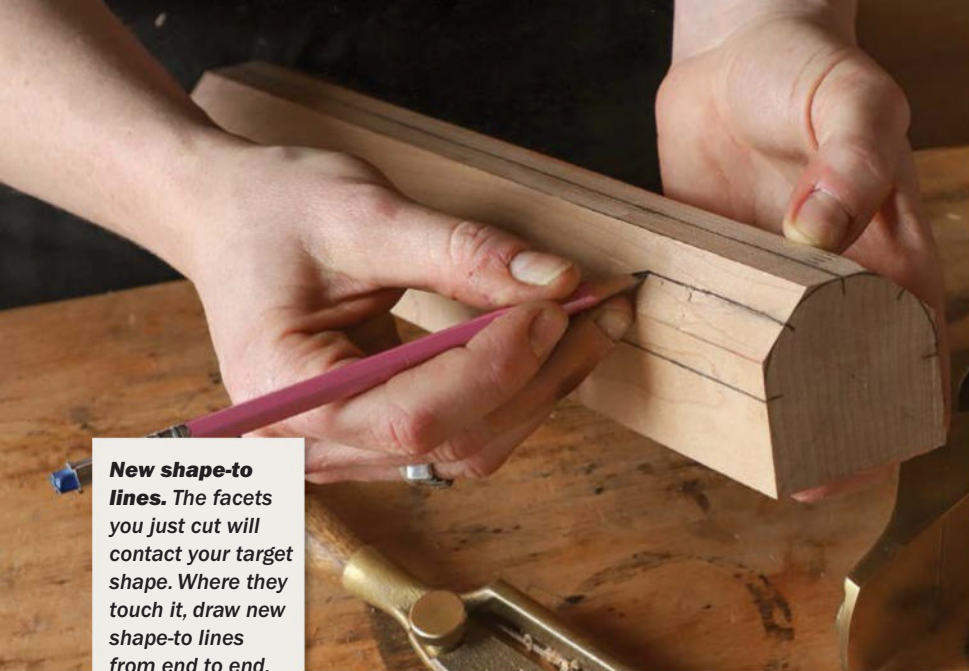


Draw 5/7 lines. Divide the space between the shape-to line and the corner of the workpiece into 12 segments. Draw a line from end to end that is just over halfway—seven twelfths—from the corner to the shape-to line.

Rough removal. With a handsaw for stop cuts and a chisel, quickly remove the wood between the shape-to line and the 5/7 line.



Finish the facet. Using a block plane or other appropriate tool, flatten your rough-cut facet.



New shape-to lines. The facets you just cut will contact your target shape. Where they touch it, draw new shape-to lines from end to end.

The magical nuts and bolts of the 5/7 method

If you have ever rounded a square piece of stock with a hand plane by first creating wide facets and then subdividing those a few times until the facets were tiny and you'd reached the curve you were after, you are familiar with the nucleus of the 5/7 method. The magic of the numbers 5 and 7 is in how they teach you to envision the right amount of stock to remove to achieve a given shape.

To get the gist of the 5/7 method, it's necessary to learn some specialized vocabulary. Whenever you use this technique, you begin by drawing your *target shape*—we'll start with a half round—on both ends of the stock. The points at which your target shape contacts the faces of the blank are *shape-to points*. You connect the mating points on the two ends of the blank to create *shape-to lines*. These lines will remain throughout the shaping process, disappearing only with the final smoothing.

The stock you remove is called a *waste corner*. And once it is shaved away, it leaves a new waste corner closer to the shape-to line.

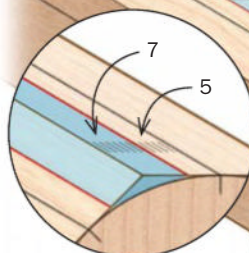
Finally, the mysterious 5/7 itself refers to the way you divide the space between your shape-to lines and your waste corners to locate the lines that will guide your shaping—the *5/7 lines*.

PHASE 2

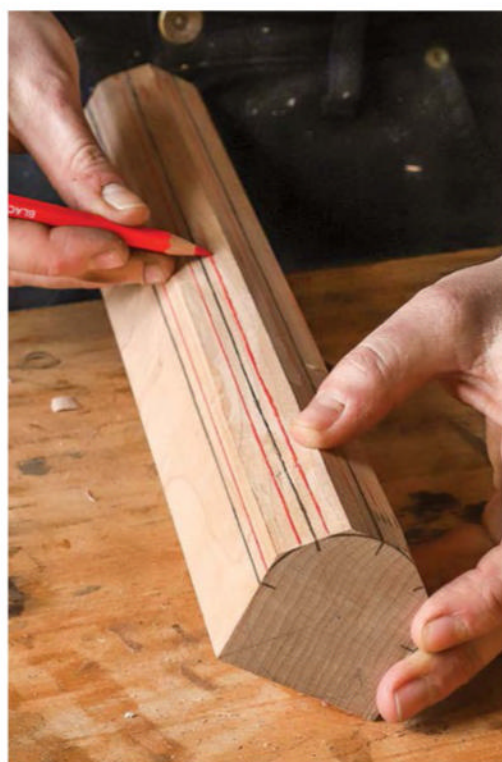
New waste corner

2. Draw 5/7 marks slightly more than halfway from new waste corners to shape-to lines.

New 5/7 line



1. Draw new shape-to line where facet touches target shape.



Find the fat half. After you've practiced the process, rather than measuring and dividing the space into 12 units and making a mark at 7, you can simply estimate and mark a little more than halfway. It becomes easy to eyeball.



Finessing the curve. When the facets get very small, you can do the rest of the shaping without 5/7 lines using rasps, files, and scrapers. The shape-to lines, which all touch the target shape, should be visible until the final passes with a scraper.

Rounded taper



Shaping a quarter-round taper. After drawing your target shapes on both ends of the tapered blank, find the 5/7 points between the waste corner and the corners where the curve ends.



Connect the marks. Draw lines to connect the marks for your 5/7 points.

If you divide the distance between a shape-to line and a waste corner into 12 equal sections, and then make a mark seven sections from the waste corner, you'll have your 5/7 line. In practice, you don't actually need to draw 12 tiny lines and count out seven of them. Instead, judging by eye, make a mark a little more than half of the distance from the waste corner to the shape-to line. Do that

on both ends of your stock, and connect those marks end to end. You've just created a 5/7 line. Now you can start removing some wood.



Rough-shape the taper. As with the half-round, use coarse-set tools to rough out the tapered facets.

Put 5/7 to work on a roundover

When you have drawn your first 5/7 lines, begin removing the waste corners, flattening all of the material between the adjacent 5/7 lines to create a set of facets. I often do this by sawing in some stop cuts and chiseling out the waste, but if your roundover is small you could skip the chisel entirely and make your first facet with the spokeshave. Once you've reached those lines and your facet is fair and smooth, take a look at your target shape and you'll see that the center of your facet has hit the shape you drew on the end grain. Success!

Now take out your pencil and start drawing new shape-to and 5/7 lines. Draw a new shape-to line at the point where the target shape hits your facet, and extend it the length of the workpiece. On each side of your new shape-to line is a waste corner. Draw a 5/7 line on each side of the waste corner, clearly indicating what needs to be removed, and use your spokeshave to remove it.

Now your newest facets are also touching your target shape, creating the opportunity for another series of shape-to lines. At this point I usually don't bother to draw a new set of lines;

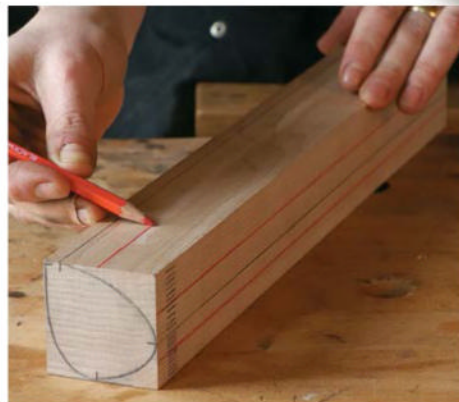
Closing in. With the first facets finished, draw new 5/7 lines and shape narrower facets, flattening them with a fine-set block plane.



The end of the taper. Once the facets and 5/7 lines have gotten very close to your target shape, do the final smoothing of the surface by eye. Again, the shape-to lines, which lie right on the target shape, disappear only with the last smoothing of the piece.

Asymmetrical curves

Lay out the egg. For this asymmetrical target shape, the shape-to lines again run end to end on the stock, connecting the points where the target shape touches the face of the workpiece.



Irregular 5/7 lines. Because the target shape is asymmetrical, the 5/7 lines, drawn here in red from end to end, are located differently on each surface of the workpiece.



Finish the first facets. Proceed with this unusual shape just as with the symmetrical ones, creating large facets first and continuing with new shape-to and 5/7 lines to make finer facets. Consider how much money you'd need to spend on router bits to achieve the same shape.

instead, I knock off the (now very manageable) waste corners with a rasp and work to the target shape by eye.

The final steps are more about surface treatment than shaping. A file, if used precisely—with the grain and on the push stroke only—will make quick work of the rough scratches made by the rasp. Once you've eliminated rasp marks and equalized the surface with the much finer marks of the file, move to the card scraper and scrape off the file marks. That should leave only 30 seconds or so of sanding with 220-grit paper before the piece is ready for finish.

You might be thinking, "Yes, but this could easily have been achieved with the right router bits." It's true! However, the real power of the 5/7 rule is the ease with which it can be applied to situations where using a router is dangerous, inadequate, or inconvenient—for example, large-scale or asymmetrical shaping, shaping on a delicate object, or, most critically, shaping an object that also tapers or curves in multiple directions.

Shaping something asymmetrical

Let's look now at asymmetrical shaping. The process is largely the same, and the sequence of tool use is identical. The main difference is that the shape-to lines shift to different places



Final smoothing. With the faceting finished, smooth to the target shape by eye with rasps, files, and scrapers.

Cabriole curves



Take 5/7 to the next level. Once you've mastered the 5/7 method for creating simpler shapes, you will have the ability to make its applications expand exponentially.

on the blank to match the asymmetrical target shape you are planning. Draw your target shape on both ends of a fresh piece of stock. It's critical that the target shape contact each face of the blank. You can achieve this by modifying the target shape to fit just within the outside faces of the stock, or by bandsawing or milling the stock to match the proportions of a given target shape.

Draw shape-to lines at the points where the target shape touches the outside of the stock, then assess the space between your shape-to lines and your waste corners. As you draw a pair of 5/7 lines, you'll notice that they are different distances from their waste corner—that's good! The magic of the 5/7 rule is that you can apply the same thinking to increasingly complicated scenarios and get perfect results. Just abide by the simple rule of removing seven sections and leaving five between the shape-to line and the waste corner.

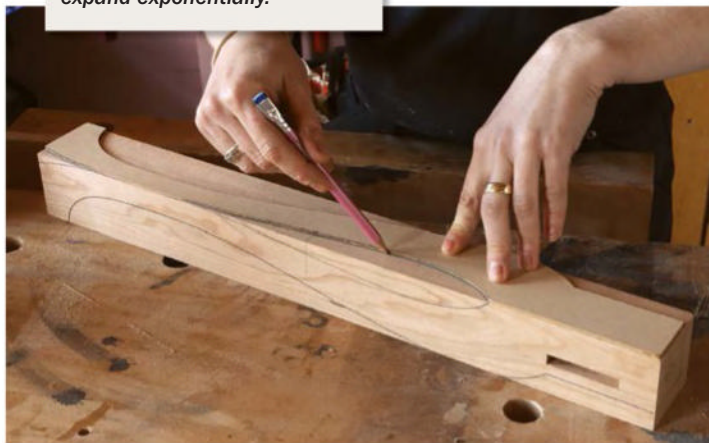
How the 5/7 method tackles compound curves

Once you are comfortable with asymmetry, you can move on to shaping a compound-curved object. This is where the 5/7 rule really shines. A classic application of the 5/7 method to compound-curved shaping is the cabriole leg.

In order to shape a cabriole leg, you must first bandsaw the curved form. Trace a pattern on two adjacent sides of your squared stock. Bandsaw out the first side, taping the offcuts back to the blank to make the second cut. Now apply the 5/7 rule. You'll notice right away that the cabriole leg is a combination of the round shaping we practiced first (right at the ankle) and the asymmetrical shaping we just completed



Sinuous 5/7. After laying out and bandsawing a cabriole leg to rough shape, Golann draws shape-to lines (in black) and 5/7 lines (in red) to prepare for hand-tool shaping. On curving surfaces, she starts the 5/7 with a series of dashes, which are easier to eyeball, and then connects the dots into a smooth line.



(everywhere else). What you'll have to learn in this nonlinear application is how to shift the layout of shape-to lines to accommodate flat sections, and how to operate without always having target shapes for guidance.

You'll need to fair the surface before doing any layout. This is essential in complicated applications because the fairing will subtly change the sizes of the sides and thus the location of your shape-to and 5/7 lines. My favorite way to fair the surface is with a spokeshave presented at a skewed angle.

Once all four sides of the leg are fair, you can draw your shape-to lines. At the ankle, or the smallest point on the leg, the shape-to lines are at the exact center of the blank because that cross section will be a perfect circle when it's completely shaped. However, as you move down toward the foot or up toward the knee, the goal cross section is no longer round; your shape-to lines must diverge from one another in order to leave sections of the blank flat and untouched (see bottom right photo, facing page). There are points that will remain sharp in the final form, and therefore the shape-to lines must extend all the way to those points—identifying them as part of the target shape rather than areas to be shaped away.

As you'll notice, the 5/7 line on the cabriole does not stay an equal distance from the waste corner; instead, it moves as the blank changes size. I find that the easiest way to get an accurate 5/7 line all the way down the form is to make a series of dashes—estimating the 5/7 distance every inch or so—and then connect them smoothly with a pencil.

Once you have smooth and clear 5/7 lines on all sides, you are ready to create facets. I begin with the spokeshave. Fair all four edges to the 5/7 lines. Then (you guessed it) draw new shape-to lines in the center of each flat and 5/7 lines between each of the shape-to lines and their waste corners (see center photo, right). Remove material using either a spokeshave or a rasp and file, creating a surface both fair and smooth.

If all has gone well up to this point, you're ready to remove your shape-to lines. You should be able to lightly rasp all remaining waste corners and bring all facets to an equalized surface. It's critical that you take light passes and remove as little wood as possible. If you rasp with abandon, you'll create new and unintentional flats rather than bringing your carefully proportioned flats into a fair round.

Taking the 5/7 wherever you want

Now for the most exciting part—designing your own pieces. The beauty of the 5/7 approach lies in its ability to bring even the most intricate designs to life, often surpassing what many would consider achievable with hand tools. To illustrate the versatility of the technique, I made a series of plant stands

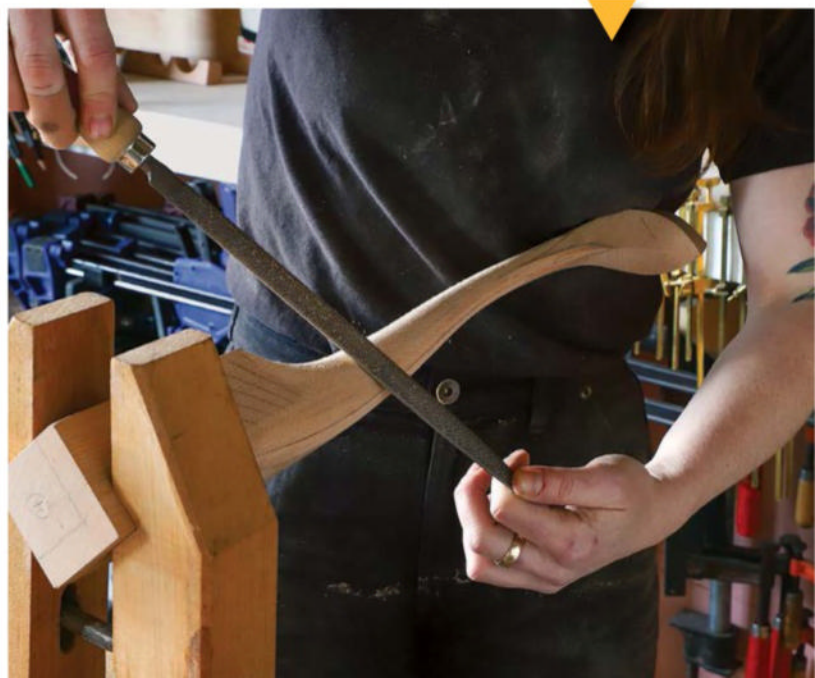


First facets. With less material to remove, Golann can begin the roughing process with a spokeshave before following the same hand-tool sequence as before.



Final lineup. Closing in on the leg's finished form, Golann draws another set of 5/7 lines to guide the last bit of faceting.

The eye takes over. With the leg very nearly finished, Golann does the last bit of shaping by eye, abrading away the remnants of the shape-to and 5/7 lines.



Contemporary curves

with leg shapes that differ. I made paper patterns for the legs, which I traced onto the face and edge profiles of the stock. Then I took the leg blanks to the bandsaw to cut out the shapes.

As I begin laying out my shape-to lines, one crucial consideration is that anything beyond the shape-to lines must remain flat, retaining the full thickness of the original blank. If there's an area I want to protect, I ensure that my shape-to lines veer away from it. Conversely,



5/7 freed up. To make legs for a plant stand, Golann traces a pattern, bandsaws, then lays out her target shape, shape-to lines (in black), and 5/7 lines (in red). The black diagonal hash lines designate an area near the joinery where there will be no shaping.

if I want to break from the rectilinear shape of the blank, I make sure my shape-to lines converge, leaving no flat between them. I often use a different-colored pencil or a series of diagonal hash lines to highlight the areas between shape-to lines, ensuring that I protect what I intend to keep flat while shaping as fully as possible.

After tracing the patterns and drawing the target shapes at the top and bottom of the leg, place your 5/7 lines. From there it's straightforward: Create a facet between the two 5/7 lines and mark a new shape-to line in the center of that facet. Draw another round of 5/7 lines between those shape-to lines and the waste corners, then remove the material.

And just like that, with minimal effort, you've unlocked versatility as well as replicability, allowing you to produce an infinity of shapes. Without a doubt, the 5/7 rule is the most powerful method of wood shaping I've encountered. It has given me the ability to create consistent and complex curves in solid wood, and I will be forever grateful to the generations of woodworkers who perfected it and to the instructors who taught it to me. I hope you enjoy the myriad applications of this simple technique and that it opens up the potential for new designs and processes in your practice.



Roughing out. The first facets on these small legs go quickly with a spokeshave.

Finishing up. With the 5/7 method guiding the way, you can make complex identical parts by eye with hand tools, incorporating any curve you can dream up.



Aspen Golann works wood in Rochester, N. H.

CLASSIFIED

The Classified rate is \$9.50 per word, 15 word min. Orders must be accompanied by payment. The WOOD & TOOL EXCHANGE is for non-commercial individuals only; the rate is \$15/line, min. 3 lines. Email to: *Fine Woodworking* Classified Ad Dept. MHoag@aimmedia.com. Deadline for the December Tools & Shops 2026 issue is September 3, 2026.

Wood

HEARNE HARDWOODS, a specialty lumber yard with over 100 species of domestic and exotic hardwoods. Oxford, PA 610-932-7400. www.hearnehardwoods.com

WOODWORKERS MART

SIMPLE DOVETAILS

No trial and error adjustments.
Order your Keller Dovetail System now!
(800) 995-2456

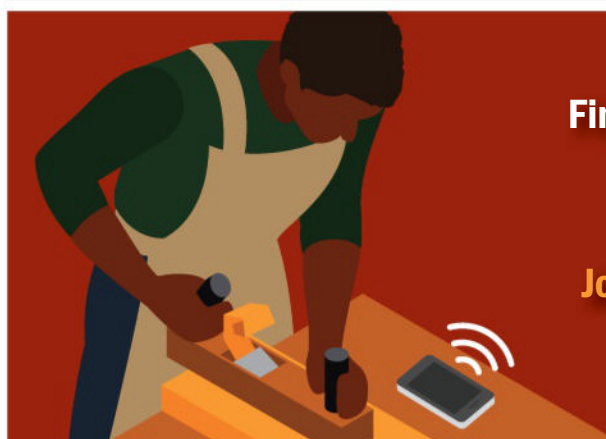
Made in the USA since 1976 • DVD/Video \$8.95 + \$2 p/h

www.simpledovetails.com

Check Out the Latest E-Learning Courses

FROM *FineWoodworking*

To learn more, go to
Courses.FineWoodworking.com



Fine Woodworking editors and guests discuss woodworking topics.

Join the conversation at ShopTalkLive.com

Fine Woodworking
SHOP TALK LIVE

INDEX TO ADVERTISERS

ADVERTISER	WEB ADDRESS	PAGE
Blum Tool Co.	blumtool.com	27
Center for Furniture Craftsmanship	woodschoool.org	19
Connecticut Valley School of Woodworking	schoolofwoodworking.com	19
Felder USA	felder-group.com	19
Festool USA	festool.com	13
Grex USA	grexusa.com	17
Grizzly Industrial, Inc	grizzly.com	2
Groff & Groff Lumber	groffslumber.com	27
Hearne Hardwoods, Inc.	hearnehardwoods.com	81
Infinity Cutting Tools	infinitytools.com	25
Keller & Company	bestdovetails.com	81
Kohler	kohler.com	15
Lignomat USA, Ltd.	lignomatusa.com	19
London Design and Engineering UTC	ldeutc.co.uk	9
Oneida Air Systems Inc	oneida-air.com	11
SawStop, LLC	sawstop.com	7
Shaper Origin	shapertools.com	5
Temple Tool Co.	templetoolco.com	17
Track Tubes	tracktubes.com	25
Wagner Meters	wagnermeters.com	25
Wendell Castle Workshop	wendellcastle.org	27
Woodpeckers, LLC	woodpeck.com	83

Sharing a table

BY RICK PRICE

I took on an unusual job recently. A former colleague, Kerry Krysiak, asked if I could help with a woodworking matter. Her husband, Chris, had been partway through a project for their home when he became ill and died. She asked if I would finish the project. I said yes. How could I not? I had never met Chris, but I knew he was a woodworker, and through Kerry we had traded photos of our work and even of tools a few times.

When I went to her home to pick up the project, I was immediately struck by Chris's skill. The house was filled with well-made Craftsman-style pieces. I realized then that I may be in for a challenge. What project had I agreed to take on?

Kerry handed me a copy of *Fine Woodworking* #280 (January/February 2020), along with the printed plan for Mike Pekovich's "Arched Entry Table." I had seen the issue when it came out and thought then (as I often do), "Maybe I'll make that someday." But of course none of us have as many "somedays" as we would like.

I stepped into Chris's shop and was surprised at how many similarities there were to my own. We had some of the same tools and had made a few of the same jigs. We seemed to be similar woodworkers, using machines a lot but supplemented by favorite hand tools, and we went to the same school—the pages of *Fine Woodworking*. His work was where he had put it down a year before on a day when he wasn't feeling well. A shockingly short time later, he had died.

I gathered up some milled parts and a few rough boards and took them home. I studied what I had. Chris looked to be less than a quarter of the way through, with a few parts complete and most of the mortises cut but nothing assembled. I looked closely and saw his marks: a small number 3 on a tenon, a small number 3 on the edge of a mortise. There it is. Talk to me, Chris. Light the way.

His small pencil marks told the story of where he was so far. Some chalk marks had mostly worn away, but I could see an X here, a triangle there. I saw the faint footprints we leave that go unnoticed and unseen by most but that tell us what we need to know as we build. We make the marks for our own use, and each of us speaks a different dialect of the same coded

language. Most of us work alone, and we don't intend for our marks to be used by another.

Chris's parts were milled straight, flat, and square. His measurements were perfect, except, of course, where they weren't. He had cut a mortise slightly off-center on one piece, and I could see that he had then cut it off-center on a sister piece. He did the first one by accident, I think, but the second one was on purpose to fix the problem.

In looking through the parts Chris had made, I did my best to identify which was left and which was right, which tenons went with which mortises, and which were the show faces. And I think I figured out the very last thing he did—chamfer the ends of some of the through-tenons. There were four on the upper rail. He had done three. That's where he put down his plane and never picked it up again. That's where the trail went cold and I had to press forward on my own.

I sometimes get frustrated with our craft. I am mainly a hobbyist, but I occasionally take on commissions, which can come with a weight and stress that I do not always relish. When a project is a job, it feels unlike a hobby and I cannot always find joy in it. The failures and obligations can make me wonder what I am doing with my precious free time. In taking up Chris's

project, however, I felt purpose.

When the piece was done, I felt my usual annoyance with imperfections: Why did that part fit during dry-assembly and not during glue-up? Why didn't I see that gap and clamp tighter? Why did that reveal look good yesterday but not today?

I was confident I had followed the path Chris would have taken, but had I hit the mark and lived up to what he would have done? It was hard to know. Still, I was proud of what we had accomplished. And I had a feeling of brotherhood. We are of a tribe, Chris and I—and you too. We choose to take up the saw and plane and try to make beautiful, functional things that will outlast us—things of quality. Chris would not live to see his last project built, but by my word and hands it came to be. We as individuals come and go, but this ancient tribe will go on making things out of wood.



Rick Price works wood in Guilford, Conn.

Woodpeckers®

MADE IN
USA
Woodpeck.com

**NEW
TOOL**

ELLIPSE JIG



**Ready for
Projects That
Aren't SQUARE?**

- ✓ Plated Steel Construction
- ✓ Fits Most Plunge Routers
- ✓ Ellipses up to 19" x 17"



Included Axis Pin turns Ellipse Jig into a circle jig...2 for 1!



Indexed arm insures perfectly parallel ellipses.



**Ellipse Jig
\$129.99**

Woodpeckers® ELLIPSE JIG

in-DEXABLE® MITER GAUGE

**TOP
20
BEST
SELLER**



**The RIGHT Angle.
The RIGHT Length.
The RIGHT Price!**

- ✓ Fence Extends to 31"
- ✓ Sacrificial End Blocks
- ✓ Fits All 3/8" x 3/4" Miter Slots



Micro-adjustable Flip Stop reads directly on the laser engraved scale.



Common polygon miter angles set with indexed stops.



**in-DEXABLE
Miter Gauge
\$189.99**

Visit **Woodpeck.com** for hundreds of other American Made Tools!

Woodpeckers, LLC • Strongsville, Ohio • 800-752-0725
Prices are subject to change without notice.





Beauty in the Bogs

The ancient, waterlogged peat bogs of Ireland, formed over thousands of years, create a unique ecosystem that has become a natural time capsule. The preservative nature of a peat bog comes from dozens of species of sphagnum moss, which form a living carpet over the surface, initiating a combination of high acidity, low oxygen, and cool temperatures. The dense covering traps moisture and blocks air movement. As the moss decays, it releases acid, creating an environment that stops decay-causing bacteria and microbes, preventing anything buried within it from rotting.

For this wall cabinet, Irish furniture maker Stevan Hartung used oak that was carbon-dated to over 5,000 years old. It came from a peat bog in County Kildare, on Ireland's east coast. Over time, tannins in the wood had reacted with iron and other minerals, gradually turning the timber a deep brown or black. Hartung chose to use the lighter heartwood from the center of a selection of bog oak boards. Feeling that the rift-cut figure of the timber brought a quiet sense of depth and movement to the surface, Hartung restrained the design, allowing the subtle beauty and character of the wood to become the focus. Comprised of six drawers and two doors, one sliding and one hinged, this cabinet explores the balance between positive and negative space. On the right-hand side, the positive and negative forms mirror one another, creating a sense of harmony and rhythm. —*Anissa Kapsales*

