

TAUNTON'S

August 2018 No. 269

Fine Woodworking

Tips for better layout • Engineering a wide chest of drawers
3 ways to hand-cut a rabbet • An oil finish that really shines



Dovetailed tea box with a clever clasp, p. 60

Lee Valley & FESTOOL®

We now stock a wide range of Festool power tools and accessories.

Festool's precision craftsmanship and attention to detail have helped make it one of the most highly regarded tool companies in the world. Festool's reputation has been built on a history of innovation, ergonomic tool design and solid guarantees.

View our Festool line at
leevalley.com

Find us on:



Plus: Always free shipping on Festool orders over \$40.*

*Shipping surcharges on oversize items still apply.



features

32 Shaker Noir

A straightforward way to build a stunning, classic Shaker settee

BY CHRISTIAN BECKSVOORT

42 Make Your Oil Finish Shine

Get a sheen from oil without sacrificing its pleasant feel

BY ADAM GODET

46 Building a Case for Strength and Stiffness

Strategies drawn from structural engineering solidify your furniture

BY MIKE KORSAK

52 Add Pop to Panels

One routing template is all you need to make this fielded panel with veneer and stringing

BY STEVE LATTA

60 Dovetailed Tea Box

COVER STORY

This project offers a variety of techniques in a small package

BY MICHAEL PEKOVICH

68 Learn Your Lines

Layout lines vary, and understanding when to use each type is fundamental to fine work

BY JEFF MILLER



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

- Pipe-clamp jig flattens rough slabs
- Remove dried glue from clamp bars

16 Tools & Materials

- A new twist on featherboards
- Jig for installing knobs and pulls

22 Handwork

Three ways to cut a rabbet

28 Designer's Notebook

A finer side of pine

76 Gallery

80 Master Class

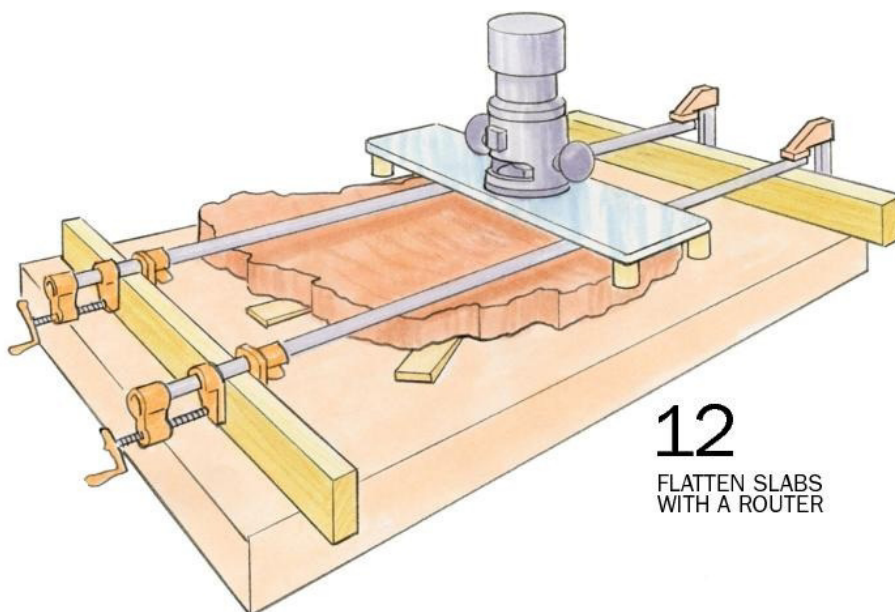
Create beautiful grain patterns with veneer

86 From the Bench

Our house of stories

Back Cover

Feathers



The Taunton Press
Inspiration for hands-on living®

NEW

RIKON

Jointers

For superior, smooth finished surfaces!

RIKON's jointers feature helical cutterheads with carbide 4-sided insert cutters. The cutting action of the helical design with multiple cutting edges is exceptionally smooth and efficient.



6" HELICAL JOINTER (20-106H)

- 1 HP Motor
- Motor Speed (No Load) 3,450 RPM
- 28 Carbide Insert Cutterhead with 5,500 RPM Cutterhead Speed
- 4 Cutterhead Insert Rows
- Adjustable 35" x 4-7/8" Fence
- Large 46-1/2" x 7-1/2" Table
- Carbide Insert Size 14 x 14 x 2 mm



8" HELICAL JOINTER (20-108H)

- 2 HP Motor
- Motor Speed (No Load) 3,450 RPM
- 40 Carbide Insert Cutterhead with 5,500 RPM Cutterhead Speed
- 4 Cutterhead Insert Rows
- Adjustable 35" x 4-7/8" Fence
- Large 73-1/2" x 9-3/8" Table
- Carbide Insert Size 14 x 14 x 2 mm

Features



Helical
Cutterheads



Large Tables &
Adjusting Fences



Spring Activated
Blade Guards



Easy to Read Depth
of Cut Scales



Call today for more information **877-884-5167**
or visit **www.rikontools.com** for a dealer near you!



on the web

THIS MONTH ON **FineWoodworking.com**

Visit FineWoodworking.com/269 for online extras, available June 4. And don't miss the collection of free content on our website, including tool reviews, an extensive project gallery, and must-read blogs.



VIDEO

Fully burnished

Creative director Michael Pekovich shows how he uses a favorite barbecue accessory to bring out the grain in his wenge tea box (p. 60).



VIDEO

Pencil vs. knife

What you use for marking your work matters (p. 68). Associate editor Barry NM Dima shows you the best layout tools and where to use them.

VIDEO

Shop tour

A peek inside Andrew Hunter's (p. 28) tiny shop shows that you really can do a lot with a little.

VIDEO

Mirror, mirror on the table

If you're going to spend hours inlaying a tabletop, you want to be certain that the design is right. Woodworking teacher Bob Van Dyke shows you how to envision the inlay on your tabletop before you commit.

Free eLetter

Get free plans, videos, and articles by signing up for our FREE eLetter at FineWoodworking.com/newsletter.

Members get special benefits

Subscribe to FineWoodworking.com to gain exclusive access to more than 1,000 project and technique videos. You'll also get more than 40 years of magazine archives at your fingertips, including 1,400-plus articles and project plans.

VIDEO WORKSHOP

Country charm, built by hand

Learn how to build a beautiful hutch that harkens back to the colonial American countryside. Best of all, you can do it without a single power tool. Andrew Hunter (p. 28) guides you through the entire process, with tips on how to:

- Mill rough lumber by hand
- Cut and fit traditional joinery accented with period-appropriate cut nails
- Craft beautiful hand-hewn spindles



Fine Woodworking®

Editorial Director	Thomas McKenna
Creative Director	Michael Pekovich
Deputy Editor	Jonathan Binzen
Deputy Art Director	John Tetreault
Special Projects Editor	Matthew Kenney
Associate Editor	Anissa Kapsales
Associate Editor/ Social Media	Barry NM Dima
Managing Editor/ Production	Elizabeth Healy
Administrative Assistant	Betsy Engel
Contributing Editors	Christian Becksvoort Garrett Hack Roland Johnson Steve Latta Michael Fortune Chris Gochnour
FineWoodworking.com	
Web Producer	Ben Strano fw-web@taunton.com
Manager, Video Studio	Jeff Roos
Video Director	Colin Russell
Executive Editor, Books	Peter Chapman

Fine Woodworking (ISSN: 0361-3453) is published bimonthly, with a special seventh issue in the winter, by The Taunton Press, Inc., Newtown, CT 06470-5506. Telephone 203-426-8171. Periodicals postage paid at Newtown, CT 06470 and at additional mailing offices. GST paid registration #123210981.

Subscription Rates: U.S., \$34.95 for one year, \$59.95 for two years, \$83.95 for three years. Canada, \$36.95 for one year, \$63.95 for two years, \$89.95 for three years (GST included, payable in U.S. funds). Outside the U.S./Canada: \$48 for one year, \$84 for two years, \$120 for three years (payable in U.S. funds). Single copy U.S., \$8.99. Single copy Canada, \$9.99.

Postmaster: Send all UAA to CFS. (See DMM 707.4.12.5); NON-POSTAL AND MILITARY FACILITIES: Send address corrections to *Fine Woodworking*, P.O. Box 37610, Boone, IA, 50037-0610.

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

Printed in the USA



3YR
GUARANTEE

For total peace of mind every Triton precision product ships with 3 years' support as standard

Coverage includes freight, labor and parts

triton
Precision Power Tools

10A BELT SANDER 4" X 24"

Triton's T41200BS Belt Sander is host to many significant features, from variable speed control for improved versatility, to belt tracking adjustment for accurate alignment of the sanding belt.



T4 1200BS

MSRP
\$179.00

2.5A RANDOM ORBIT SANDER 5"

A random orbit sander is only as good as the finish it can achieve. Triton's TROS125 is a powerful yet compact sander with a 5" hook-and-loop backing pad.



TROS 125

MSRP
\$79.00

2.6A OSCILLATING TILTING SPINDLE SANDER 15"

Offering outstanding performance, Triton's TSPS370 Oscillating Tilting Table Spindle Sander creates a precise, burn-free finish on woodworking projects every time.



TSPS370

MSRP
\$219.00

6.5A ORBITAL ACTION JIGSAW

The TJS001's powerful 6.5A motor and three-stage pendulum action deliver an incredibly fast cutting performance. Dual-axis grips allow the tool to be held with both vertical pressure and horizontal direction control.



TJS 001

MSRP
\$129.00

**THE BENCHMARK IN
PRECISION POWER
TOOLS FOR OVER
40 YEARS**

Precision has been at the very heart of Triton's philosophy since 1976 when the first Workcentre was produced. From design through to the completed product, Triton engineering is all about **precision** and **attention to detail** – this makes all the difference to the final finish of your project.

Offering an **excellent choice** of workshop tools, the Triton range includes Work Support tools, Bench Top tools and versatile Workcentre Systems, while a **comprehensive range** of accessories provides **maximum versatility**.

Engineered Precision

 tritontools.com    

SEE OUR FULL RANGE & FIND YOUR LOCAL RETAILER NOW!

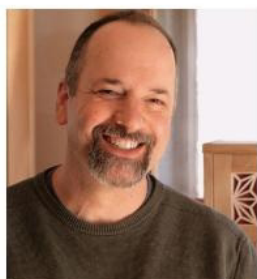
contributors

Adam Godet ("Make Your Oil Finish Shine") splits his working time between the office and his shop, which is nestled behind his house in the Capitol Hill neighborhood of Washington, D.C. City life has served him well, giving him ready access to customers looking for fine, handmade furniture. In his former shop, he'd work with the door open—allowing the siren song of woodwork to attract passers-by. His new shop draws less foot traffic but retains a city vibe.



Even though he has a new purpose-built shop with room for a few machines, **Vic Tesolin** (Handwork: "Three ways to cut a rabbet") still loves cutting joinery with hand tools. Tesolin studied furniture making and design at Rosewood Studio in Canada, where he developed his love for hand tools. He now divides his time among writing, teaching, building in his shop, and working for Lee Valley and Veritas Tools. He is the author of *The Minimalist Woodworker* (Spring House Press, 2015), aimed at those who have a passion for woodworking but don't have cavernous workspaces and bottomless tool budgets.

Steve Latta ("Add Pop to Panels") has been a staple at the magazine in his role as author and contributing editor for the past two decades. After 16 years working in furniture shops, he found his true vocation teaching cabinet and furniture making full-time at Thaddeus Stevens College of Technology in Lancaster, Pa. Now, with 20 years as an educator under his belt, he considers his greatest accomplishment watching older graduates, well into their own careers, returning to hire recent grads. When he is not focusing on his teaching or woodworking, there is a strong chance he is hiking in the woods of rural Pennsylvania with his wife, Elizabeth; and their lab, Neesa.



Michael Pekovich ("Dovetailed Tea Box") wears a lot of different hats in the course of a typical week. He puts his skills as a furniture maker, photographer, writer, teacher, and graphic artist to use every day as the creative director at *Fine Woodworking*, and more recently as the author of a new book, *The Why and How of Woodworking*, which goes on sale this August (The Taunton Press). When he's not making furniture, magazines, or books, he's passing along his 30-plus years of knowledge and experience as a hands-on woodworking teacher.

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

Fine Woodworking®

Publisher	Renee Jordan
Director, Advertising Sales & Marketing	Alex Robertson 203-304-3590 arobertson@taunton.com
Director of Digital Advertising Operations	John Maher
Sales & Marketing Assistant	Tricia Muzzio 203-304-3415 tmuzzio@taunton.com
Marketing Manager	Matthew Ulland

Member
BPA Worldwide



Single Copy Sales



The Taunton Press

Inspiration for hands-on living®

Independent publishers since 1975
Founders, Paul & Jan Roman

President & CEO	Dan McCarthy
CFO	Mark Fernberg
CTO	Brian Magnotta
SVP, Consumer Marketing	Paula Backer
VP, Controller	Robert Caldaroni
VP, Human Resources	Carol Marotti
SVP, Home & Construction	Renee Jordan
SVP, Fine Cooking	John Boland

Publishers of magazines, books, videos, and online
Fine Woodworking • Fine Homebuilding
Threads • Fine Gardening • Fine Cooking
taunton.com



FURNITURE MEDIC®

Interested in franchising?



Get the support you need, *starting today.*

Furniture Medic® won't just help you start a business — we'll help you build one. From the first time you call, we will work with you every step of the way. Whether it's financing, logistics or just general concerns, you won't ever have to work through it alone.

Interested? Because we think your attention to detail and your passion for woodworking make you an ideal candidate for owning a Furniture Medic franchise.

In short, it's the best of both worlds. Franchising with Furniture Medic gives you:

- Scalability across multiple revenue streams
- Ongoing operational and marketing support
- National accounts with potential for recurring revenue*

Finance up to 80% of the initial franchise fee through ServiceMaster Acceptance Company.**

START CREATING YOUR NETWORK OF SUPPORT NOW.

CALL 833.243.8557
or visit furnituremedicfranchise.com

*Not available in all areas. Referrals not guaranteed.

**Financing subject to credit approval through SMAC.

The franchise sales information in this communication does not constitute an offer to sell a franchise. The offer of a franchise can only be made through the delivery of a Franchise Disclosure Document. Certain states require that we register the franchise disclosure document in those states before offering and selling a franchise in that jurisdiction. NY NOTE: This Advertisement is not an offering. An offering can only be made by a prospectus filed first with the Department of Law of the State of New York. Such filing does not constitute approval by the Department of Law. Moreover, we will not offer or sell franchises in those states until we have registered the franchise (or obtained an applicable exemption from registration) and delivered the franchise disclosure document to the prospective franchisee in compliance with law. Furniture Medic L.P. Minnesota File No. F7440. Furniture Medic L.P., 150 Peabody Place, FM-7400, Memphis, Tennessee 38103-3720.

Financing is available through The ServiceMaster Acceptance Company L.P. ("SMAC"), a ServiceMaster company, to credit qualified individuals.

From the Editor



The future of woodworking is bright!

Last year, when we rebooted Fine Woodworking Live at the Southbridge Hotel and Conference Center in Massachusetts, the event was inspiring, spurred by a community spirit of charity and sharing. We had scholarships for teachers and military personnel; tool giveaways and donations; and sharing of ideas and expertise, from presenters and attendees alike.

That community feeling played forward when Live returned to Southbridge this year and more than 300 people gathered to talk about and experience the craft they love so much. The stories were rich, with Peter Follansbee paying homage to all the green woodworkers who preceded the current green woodworking movement. Peter Galbert's keynote flowed with tales of inspiration and ended with a message of courage: Have the strength to change your life and pursue what makes you whole. I heard dozens of stories about the impact that Fine Woodworking has had on people, and the continuing relationship they have with us.

I met men and women, fathers and sons, husbands and wives, all traveling from near and far to be part of something special. I met young students, risk-takers who came to exhibit their work and to mingle with and learn from their heroes. Woodworking tends to be a solitary pursuit, but we all love to talk about it, see where other woodworkers work, check out what they're building or their latest tool purchase, and tell war stories of projects gone awry and lessons learned. These are wonderful conversations, ones in which you are not met with the blank stare of Uncle Charley who, after 15 Christmases together, still thinks you are a "carpenter," and finishes any chat with a question about new decking material he read about.

It doesn't seem long ago that we were worried about the future of woodworking—of hands-on work and living. The Big Recession had forced schools to cut budgets, and industrial arts classes took big hits, with woodworking programs across the country being slashed.

Then YouTube and Instagram exploded, giving voice and views to thousands of passionate woodworkers. YouTube gave everyone the power to distribute video content freely and provided viewers the opportunity to filter videos based on their interests. Instagram picked up where Facebook left off, engaging people in a more friendly way, starting conversations, sharing experiences and ideas. Woodworkers flocked to these media outlets, building positive communities around their craft.

It's so satisfying to see so many people making things from wood, from spoons to bowls to furniture. The future of woodworking is now. It's digital and analog. It's Live. And it's all of us.

—TOM McKENNA, editorial director

A fan of German handplanes

In the June 2018 issue of *Fine Woodworking*, Christopher Brodersen wrote a very informative piece on the virtues of the ECE Primus German-style planes (From the Bench, *FWW* #268).

I have used the ECE planes for years and agree with all of his statements, but one thing he omitted is the ability to make very fine adjustments with the adjustment wheel. This is not so easy to accomplish on the traditional English-style planes, several of which I use regularly.

Another thing of note is the "feel" of the planes when working with them. They just have an ergonomic shape that fits the hands beautifully and comfortably. To some they may look strange, but in your hands, they feel good.

In addition, the quality of the steel in the ECE planes is outstanding in its hardness and toughness. The blades hold their edges longer than other blades I've tried.

—JAMES O. GUNDLACH, New Orleans

Beating a dead horse

Paging through my new issue (June 2018, *FWW* #268), "dead-straight" (p. 40), "dead-flat" (p. 41), and then again "dead-simple" (p. 54), gave me a sort of unpleasant echo, especially when I got to the "simple jig" (p. 66). The spline jig is even simpler than the "dead-simple" jig, so I guess the spline jig is deader-simple, sort of reminiscent of the 110% effort demanded by coaches and bosses. Face it, folks, your overuse of "dead" does not exactly "kill it."

I remember a writing teacher who told us we should think in terms of having to pay the other members of the class a nickel for every word they could find in our work that we could not justify. This was in the 1950s when 5 cents could buy you a pack of gum, but it is still a good approach.

—ROBERT PIRMANTGEN,
New Bloomfield, Mo.

Fine Woodworking®

To contact us:

Fine Woodworking
The Taunton Press
63 South Main St.
PO Box 5506
Newtown, CT 06470-5506

Send an email:

fw@taunton.com

Visit:

finewoodworking.com

To submit an article proposal:

Write to *Fine Woodworking*
at the address above or
Call: 800-309-8955
Fax: 203-270-6753
Email: fw@taunton.com

To subscribe or place an order:

Visit finewoodworking.com/fworder
or call: 866-452-5141
9am-9pm ET Mon-Fri; 9am-7pm ET Sat

To find out about *Fine Woodworking* products:

Visit finewoodworking.com/products

To get help with online member services:

Visit finewoodworking.com/customerservice

To find answers to frequently asked questions:

Visit finewoodworking.com/FAQs

To contact *Fine Woodworking* customer service:

Email us at customerservice@finewoodworking.com

To speak directly to a customer service professional:

Call 866-452-5141 9am-9pm ET Mon-Fri;
9am-7pm ET Sat

To sell *Fine Woodworking* in your store:

Call us toll-free at 866-452-5179, or
email us at tradecs@taunton.com

To advertise in *Fine Woodworking*:

Call 800-309-8954, or
email us at fwads@taunton.com

Mailing list:

We make a portion of our mailing list available
to reputable firms. If you would prefer that
we not include your name, please visit:
finewoodworking.com/privacy
or call: 866-452-5141 9am-9pm ET Mon-Fri;
9am-7pm ET Sat

For employment information:

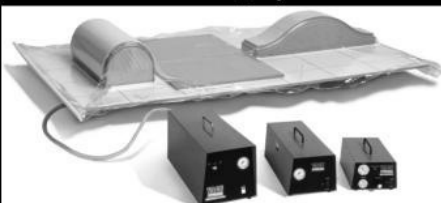
Visit careers.taunton.com

The Taunton guarantee:

If at any time you're not completely satisfied
with *Fine Woodworking*, you can cancel your
subscription and receive a full and immediate
refund of the entire subscription price. No
questions asked.

Copyright 2018 by The Taunton Press, Inc. No
reproduction without permission of The Taunton
Press, Inc.

Vacuum Pressing Systems, Inc.



vacupress.com

The leader in vacuum technology
for woodworking offers innovative
products for:

**VENEERING • LAMINATING
CLAMPING**

Vacuum Presses, FlipTop Tables,
Veneering Accessories and Videos

553 River Road, Brunswick, ME 04011 • 800-382-4109

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

Will Neptune
Steve Latta
Peter Follansbee
Darrell Peart
Mike Pekovich
and more!



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



»TWO CHERRIES«TOOLS
High Quality German Product



Every Woodworker needs quality
chisels in their shop. Since 1858,
Two Cherries has been forging chisels
in Remscheid, Germany, heat treating
the high carbon steel blades to 61°
Rockwell, and finishing with a perfectly
balanced hornbeam handle.

To see our full line of chisels, or find
a local dealer - please visit
www.twocherriesusa.com.

**MEASURE MOISTURE
IN THE WOOD
• NOT •
ON THE WOOD**



**MOISTURE METERS
DESIGNED FOR WOODWORKING
PROFESSIONALS**

www.wagnermeters.com
844-672-8200



workshop tips

Best Tip



Ralph Pasquelli has built dining room and bedroom sets, fireplace mantels, grandfather clocks, desks, armoires, outdoor furniture—almost all of the furniture in his home today. He has a master's degree in electrical engineering, and he worked for 38 years at Fermi National Accelerator Laboratory in Batavia, Ill.

Simple pipe-clamp jig flattens rough slabs

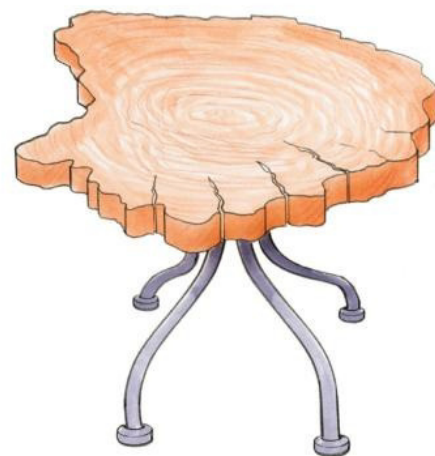
Here's a simple way to flatten uneven stock using standard shop tools. It's especially helpful for rough tree-trunk slabs that would otherwise be difficult to handle. It involves two $\frac{3}{4}$ -in. pipe clamps and a router with an extended base.

Lay the rough slab on a flat surface such as your benchtop, shim it as level as possible, and secure two identical spacer boards at the ends, tall enough to suspend the pipe clamps and router over the slab with clearance for the bit. Now choose $\frac{3}{4}$ -in. pipe clamps ($\frac{1}{2}$ -in. pipe is too flexible) with very straight pipes, long enough to reach across the slab from spacer to spacer. Place the pipe clamps so that your extended router base has room to slide from side to side and surface a wide band of the slab. When that area is flat, reposition the pipe clamps on the spacer blocks to bring the rest of the slab to the same level.

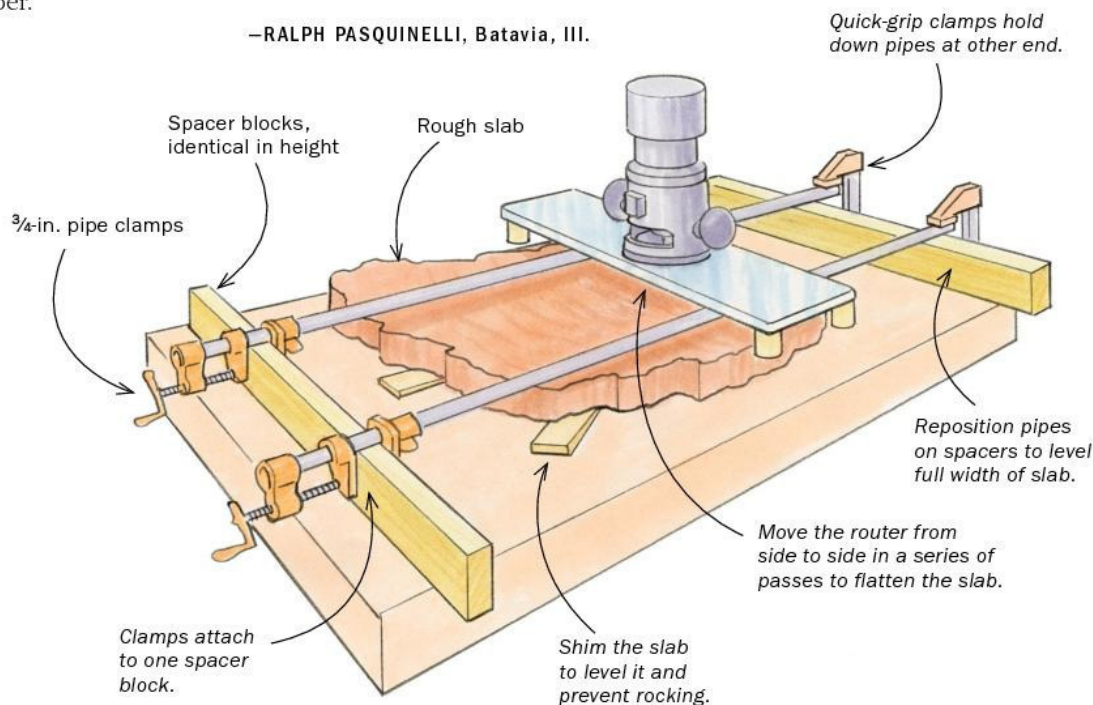
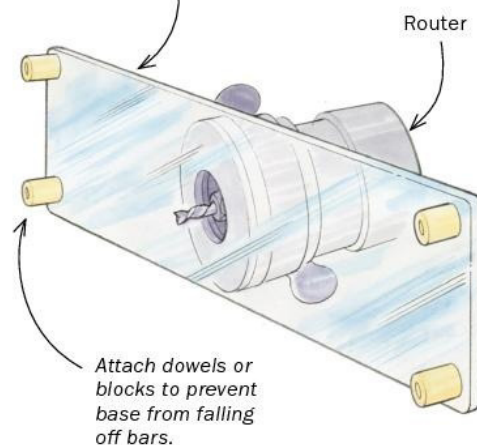
I recommend acrylic (Plexiglass) for the extended router base, so you can see where the router bit is cutting. It's also helpful to screw small blocks or dowels to the ends so that the base can't fall off the pipes. Use a straight router bit for the job. I've had the best results with a $\frac{1}{2}$ -in.-dia., solid-carbide, up-spiral bit. It allows me to remove significant amounts of material in a single pass without slowing down the router too much.

Once you've flattened the first side, you can flip the workpiece to flatten the other side, bringing the entire slab to uniform thickness. At that point, you can finish up with sandpaper.

—RALPH PASQUELLI, Batavia, Ill.



Acrylic base, $\frac{3}{8}$ in. thick by 7 in. wide by 21 in. long



A Reward for the Best Tip

Send your original tips to fwtips@taunton.com. We pay \$100 for a published tip with illustration; \$50 for one without. The prize for this issue's best tip was a Hitachi 18-volt brushless hammer drill.





20 YEARS Hammer®

**20th Anniversary Hammer
Deals – Call now
866-792-5288**

THE COMEBACK OF THE SUCCESSFUL COMBINATION!

Planing width: 16" Cutting height: 4"
Surface planer table length: 70 7/8"
Cutting lengths: 34" | 51 1/8" | 81" | 98 3/4"
Spindle fence for tool Ø max.: 9"
MF spindle system (optional)
Mortising unit attachment (optional)



C3 41 comfort



C3 41

**NEW
2018**

PRODUCT RANGE 2018

Circular saws
and panel saws



K4 perform



K3 winner 79x48



K3 winner 48x48



K3 winner 31x31

C3 41 perform
Combination Machine

Jointer &
Planer



A3 41A



A3 41D



A3 41



A3 31



A3 26

Combination
machines



C3 31 perform



C3 31 comfort

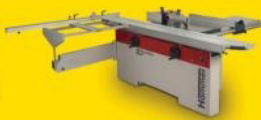


C3 31

Shaper &
Saw/Shaper



F3



B3 perform



B3 winner comfort



B3 winner



B3 basic

Band-
saw



N4400



N3800



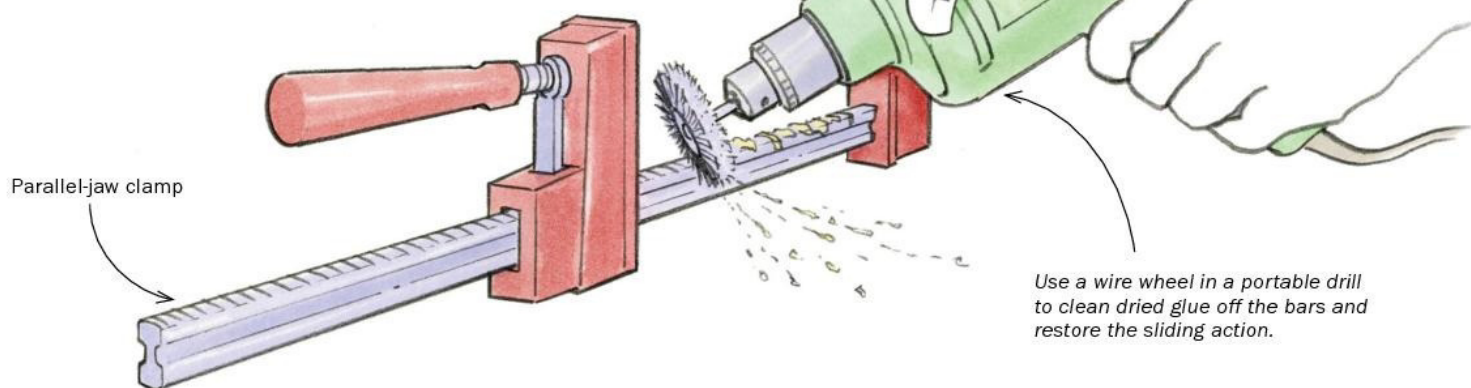
Hammer
For the highest requirements
of price and performance

FELDER GROUP USA
CALL TODAY FOR MORE INFO Toll free 866-792-5288
sales-us@felder-group.com | www.feldergroupusa.com

Wire wheel cleans dried glue off parallel-jaw clamp bars

I love my parallel-jaw clamps (I use the Bessey K Body model), but I don't love how dried glue gets on the notched bars and makes it difficult to move the jaws. To quickly remove the built-up glue, try a wire wheel held in a drill. Spin the wheel as fast as your drill will allow, and position it perpendicular to the bars so it whisks the glue out of the tiny notches. Be sure to do all sides of the bars. It takes only a minute or two. Afterward, wipe some paste wax on the bars to make it harder for glue to stick next time.

—WALTER BAZIUK, Ottawa, Ont., Canada



All New DR® CHIPPERS

**Larger Capacity,
Lower Prices!**

- Devours branches up to 5.75" thick.
- Self-feeding models available.
- Models that shred yard and garden waste as well as CHIP branches.

Now starting at
\$699⁹⁹

FREE SHIPPING 6 MONTH TRIAL

SOME LIMITATIONS APPLY

Call for **FREE DVD and Catalog!**

TOLL FREE **800-708-5896**

DRchipper.com



18EA04 © 2018

NEW and IMPROVED DR® Field and Brush Mowers

Faster, Easier...Lower-Priced!

Mow fields, brush, even saplings
with never-before ease!

Plus Tow-Behind
Models starting at
\$1,399⁹⁹

FREE SHIPPING 6 MONTH TRIAL

SOME LIMITATIONS APPLY

Call for **FREE DVD and Catalog!**

TOLL FREE **800-708-5896**

DRfieldbrush.com



18EA05 © 2018

CELEBRATING
30
YEARS
EPILOG LASER

EPILOG LASER

888.437.4564
sales@epiloglaser.com
www.epiloglaser.com/fw

FUSION M2 40

- Large 40" x 28" engraving area
- Flame-polished edge cuts
- Laser tube wattages up to 120 watts
- Large viewing door with LED lighting
- Our highest CO₂ engraving and cutting speeds
- Engrave items up to 13.25" in height
- Dual source options (fiber and CO₂)
- eView™ camera options
- Maximum substrate compatibility

Woodpeckers®

Precision Woodworking Squares

You'll Never Question the Reliability of Our Woodworking Squares.

Woodpeckers Squares deliver the precision woodworkers demand and offer features not found on other squares. For years and generations to come, these are tools you will trust every time you reach for them.

Unbeatable Precision & Quality.

Our Squares start as one piece of extremely stable cast aluminum tool plate. Each blank is individually machined on our state-of-the-art CNC equipment producing a single piece square blade and handle that's truly square. Our manufacturing process and rigorous quality control ensures each Square is accurate to within one thousandth of an inch or less along its full length.

To complete the Square handle we add two precision-machined aluminum cheeks. Stainless steel pins fasten the

cheeks and ensure bulletproof rigidity and perfect alignment. The result is strength and precision that cannot be matched by squares using separate blade and handle parts.

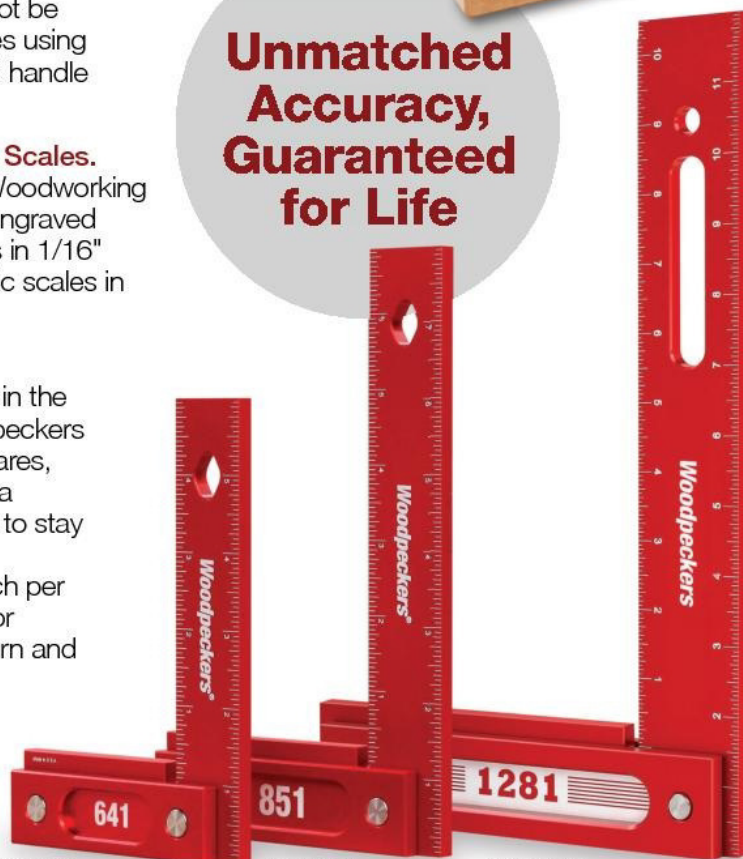
Imperial or Metric Scales.

All Woodpeckers Woodworking Squares are laser engraved with Imperial scales in 1/16" increments or metric scales in 1mm graduations.

Our Guarantee.

We're so confident in the accuracy of Woodpeckers Woodworking Squares, we offer them with a Lifetime Guarantee to stay square to within one-thousandth inch per foot or we'll repair or replace it upon return and inspection by us.

Unmatched Accuracy, Guaranteed for Life



641 Square
with 6" Blade, 4" Handle

851 Square
with 8" Blade, 6" Handle

1281 Square
with 12" Blade, 8" Handle



All our Woodworking Squares feature a notch on the inside corner of the handle so you can mark your pencil line all the way to the edge of your stock.



The 641 Square also sports a 3/4"-thick handle allowing it to stand on edge. You can check machine setups with both hands free to make adjustments. This handy little square is small enough to tuck into your shop apron pocket.



Our Squares' handle design includes a lip so they can rest on the work unaided. The cheeks register against the stock for precisely square layout work.



The 3/4"-thick handle easily stands on edge so you can check and adjust assemblies hands-free. The 1281 Square features handy finger holes for a firm grip when checking stock.



tools & materials

■ POWER TOOLS

Trusty trim router cuts the cord

THE SMALL SIZE OF TRIM ROUTERS makes them perfect for all sorts of furniture work, like making a light roundover or chamfer along an edge, mortising hinges, and excavating surfaces for delicate inlays. Ridgid's new cordless trim router has all the good features of the corded version: an incredibly precise depth adjustment, a built-in LED headlight, and an open base—I was even able to interchange bases. It makes getting accurate cuts a breeze, all without the plug to trip over.

The cordless version's power and run time were more than adequate. I trimmed a ¾-in.-thick by 6-in.-wide by 32-in.-long piece of cherry flush to a straightedge over and over, cutting ⅛ in. at a time. It took an hour and 10 minutes before the battery gave out.

While the added weight of the battery is considerable, after 20 minutes I got used to it and ultimately found it well-balanced. The model I tested had the heavier 5-amp/hr (Ah) battery; the 2-Ah model, Ridgid tells me, is much lighter. A battery and charger are not included. You'll need to spend \$99 for the 2-Ah battery and charger or \$119 for the 5-Ah battery and charger.

I did find it a little harder than usual to dial in an exact fence setting with this router. To set a fence I typically spin the bit until it just touches my layout line, but this router's brushless motor doesn't let you rotate the bit freely with the power off. Also, as with all trim routers, the included base is far too small, which risks tipping. This is easily overcome with a larger shopmade Lexan or Plexiglass subbase.

—Bob Van Dyke runs the Connecticut Valley School of Woodworking.



Cordless trim router by Ridgid
Model: R86044B
\$119 (not including battery)

■ ACCESSORIES

A new twist on featherboards

I OFTEN WORK WITH NARROW PIECES, which requires me to hold the workpiece against the fence of a machine while keeping my hands away from the cutter. This is where a featherboard comes in handy. But traditional models require multiple adjustments to get the pressure right, especially when you have pieces that differ in width. The Hedgehog is different. Its spiral shape and single knob made it easy to set up and fast to adjust without sacrificing safety or consistency. For boards of various widths, you just spin the featherboard. And while I typically don't like items with only one locking mechanism because a single lock can act like a pivot point, I didn't notice any movement when using the Hedgehog. It allowed me to run stock safely and get a consistent cut. I really liked the easy-to-grasp knob, too. The Hedgehog is reversible, so it can be used from either side of the cutter. Plus, with the stacking accessory (\$7.50), you can secure one on top of another tool-free.

—Ellen Kasporn is a woodworker near Boston.



Featherboard by Hedgehog
\$32

DUKE OF PEARL

EXOTIC INLAY MATERIALS

CHUCK ERIKSON



BLANKS

SHEETS

DOTS

STRIPS

Mother of Pearl • Paua • Green Abalone • Awabi • And More



DUKE OF PEARL

dukeofpearl.com

410.231.2641

dukeofpearlllc@gmail.com



Bringing **Warmth**
and Savings to your
Home and Workshop



envi[™]
WALL-MOUNTED ROOM HEATER

WWW.EHEAT.COM

1-800-807-0107



ENERGY SAVING & SILENT
4 cents per hour!* & has no fan!

ULTRA-SAFE & HEALTHY
cool to the touch & doesn't blow dust

EASY TO INSTALL & SLEEK
installs in minutes & only 2 inches thin!

10% off 2+ Envi Heaters coupon code: **FW1810**
Free Shipping to the USA + Canada*

Tools That Make a Difference

www.jessem.com

JessEm Dowelling Jig
Item No. 08350MK



1 800 436 6799

Orillia, Ontario, Canada

JessEm
Tool Company

■ ACCESSORIES

Jig for installing knobs and pulls

THE KREG CABINET HARDWARE JIG is a simple, well-designed, adjustable jig for drilling standard $\frac{3}{16}$ -in.-dia. mounting holes for single-stem knobs or two-stem pulls. The jig is a rigid plastic platform with a sliding fence that provides adjustable offset from a door or drawer edge.

The minimum offset is 1 in. and the maximum is 5 in. There are imperial and metric gauges for setting the fence. The two drill guides are plastic with steel bushings. They slide in grooves that have foolproof indents, which position the guides for six standard pull lengths: $2\frac{1}{2}$ in. through 5 in., in $\frac{1}{2}$ -in. increments. The opposite side of each groove has indents for 64mm, 96mm, and 128mm. And there is a center hole for positioning one of the guides for drilling knob holes. For both single-hole and two-hole drilling, the jig is aligned with a centerline on the workpiece.

The sliding fence has excessive play, so you must set it very carefully to avoid locking the fence askew. Still, this jig is well designed overall and should help me discard the plywood versions I've made over the years.

—Tony O'Malley is a professional woodworker in Emmaus, Pa.



Line 'em up. To align the jig, match up its marked centerline with one you have drawn on the workpiece.

Cabinet
Hardware Jig
by Kreg
\$25



■ CLAMPS

Beefy I-beam clamps

I TEND TOWARD USING LIGHTER-WEIGHT CLAMPS these days, but there are occasions when a heavy-duty clamp comes in handy. It's nice, for instance, to be able to lock down the pressure on a panel or cutting board glue-up. But there aren't a lot of options for new heavy-duty clamps. That's why I was happy to give Bessey's I-beam clamps a try.

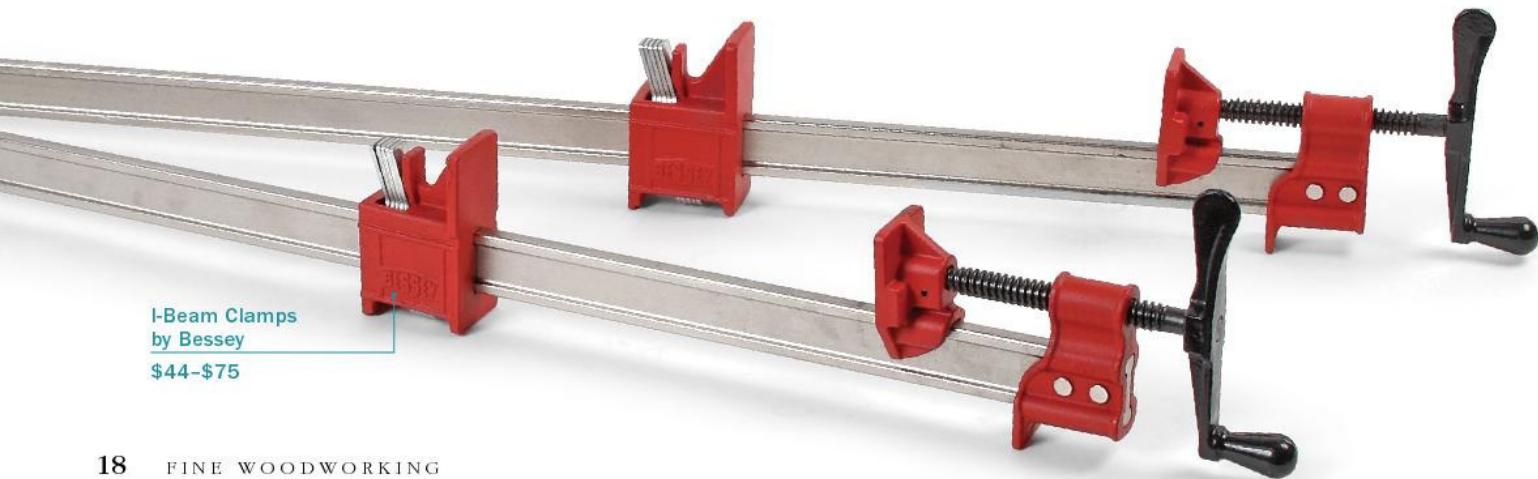
With a nickel-plated I-beam at their heart, the clamps have 2-in.-wide jaws. They're available in lengths ranging from 2 ft. to 8 ft., and all are rated for 7,000 lb. of clamping pressure. I put them to use on a recent cutting board glue-up, and they handled the job with ease. The large handles made it easy to

apply as much pressure as I wanted, though I'm pretty sure I didn't come close to maxing out the clamps. Glue drips on the bars popped off fairly easily when dry.

The only concern I had was that the steel clutch plates left slight ridges along the bar. Whether they were digging into the cast iron or just the nickel plating wasn't clear, but it didn't seem to hinder the sliding action of the jaw. The clamps are priced from \$44 to \$75, with the 48-in. version costing \$52. For what they offer in a beefy clamp, I'd consider them to be a pretty good value.

—Michael Pekovich is Fine Woodworking's creative director.

I-Beam Clamps
by Bessey
\$44-\$75

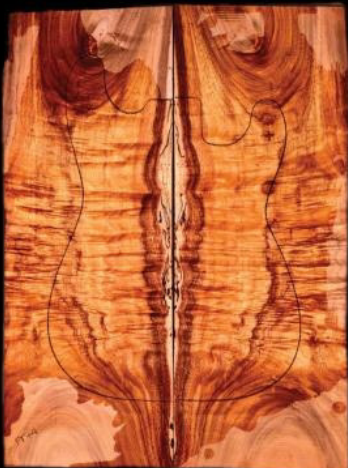


HEARNE HARDWOODS INC.



200 WHITESIDE DRIVE
OXFORD, PA 19363

1.888.814.0007 / 1.610.932.7400



FLITCH CUT TABLE TOP SLABS,
EXOTIC & DOMESTIC LUMBER,
FIGURED WOODS, BURLS,
BOOKMATCHED MATERIAL,
GUITAR SETS &
INSTRUMENT GRADE WOODS,
CUSTOM MADE HARDWOOD FLOORING

OVER 140 SPECIES &
1 MILLION FEET OF
HARDWOODS IN STOCK



CENTER for FURNITURE CRAFTSMANSHIP

Teaching Creative Excellence

WORKSHOPS
FURNITURE INTENSIVES
TURNING INTENSIVE
NINE-MONTH COMPREHENSIVE
STUDIO FELLOWSHIPS



COME LEARN WITH US

Rockport, Maine

207-594-5611

www.woodschoool.org

Wood River®

Harness Hand Tool Power Where You Need It

WoodRiver® Hand Tools are made from the best modern materials and are designed for easy use, consistently great results, and long life. The V3 Bench Plane Series, Adjustable Mouth Block Planes, specialty planes, screwdrivers, chisels and other WoodRiver® Hand Tools are sure to become favorites in your shop.

WOODCRAFT® HELPING YOU MAKE WOOD WORK®

For A Free Catalog Or To Find Your Local Woodcraft Store, Visit woodcraft.com Or Call 800-225-1153.
For Information On Woodcraft Retail Franchise Opportunities, visit woodcraftfranchise.com Follow Us: [f](#) [t](#) [p](#) [i](#) [n](#)

■ SHARPENING

Groovy lapping plate

WHETHER I'M WORKING ON straight or curved edge tools, effective sharpening requires a flat whetstone. A worn or dished stone can shape a blade in ways you don't expect or want.

The new Maffalo Maxi-smart lapping plate makes flattening a whetstone fast and efficient. It offers several advantages. Its diamond abrasive surface is suction-breaking, lightweight, and rustproof. I also like the plate's large size, 0.4 in. thick by 4.2 in. wide by 9.6 in. long, which helps on bigger stones.

The 180-grit diamond abrasive on the Maffalo is electroplated to the aluminum base and works with both oilstones and waterstones. The diamond abrasive cuts fast. Maffalo suggests the lapping plate works well with 400-grit to 10,000-grit stones, but I used it even on my 13,000-grit stone with positive results.

Within the plate is a series of grooves, which prevent suction by allowing air to escape. The grooves also provide a trap for excess slurry, ensuring that the plate itself stays in contact with the stone. The aluminum plate stays free from rust, and its light weight makes it easy to handle.

I highly recommend you give the Maffalo a try. I've been using another diamond lapping plate for years, but the Maffalo surpasses it.

—Chris Gochmour is a furniture maker and hand-tool expert in Salt Lake City.



Maxi-Smart Lapping Plate by Maffalo
\$140



Escape routes. The arcing channels keep the plate free of air pockets and excess slurry, allowing the plate to maintain contact with the stone.



insidepassage.ca
1.877.943.9663

"If I were starting my life today as a craftsman, and needed to learn what matters the most, my choice would be Inside Passage School."
— James Krenov

Organize your Workshop

Product# FWW10011050
Order online at **Tauntonstore.com**



Enter to Win a **TORMEK T-8** Sharpening System

Makes sharpening your edge tools fast and easy!

Enter as often as you like
Entry deadline July 31, 2018



Put a SawStop in YOUR Shop



WOOD SLICER Legendary Resaw Blade

- Cuts smoother
- Works faster
- Sounds quieter
- Stays sharp longer
- Makes veneers



FWW
rated
best

**HIGHLAND
Woodworking**

800-241-6748
highlandwoodworking.com

The Woodworker's Choice

Lignomat Moisture Meters

Pin and Pinless Meters

With every meter from Lignomat you buy Accuracy, Reliability, Quality, a 2-year Warranty and Expert Customer Service.

For Moisture Problems www.wood-moisture.com
For Moisture Meters www.lignomat.com
800-227-2105

Custom Branding Irons

Distinctive marking for your craft

P: 586.484.7713 www.branding-irons.biz

Keep Your Shop Vacuum Filter Clean!

Pays for itself in replacement filter costs alone!

Dust Deputy® Deluxe

Clean Air to Vac

Dust In

- Patented design keeps 99% of the dust from reaching your vacuum filter.
- Vacuum doesn't lose suction.
- Retrofits to any shop vacuum.
- Easy to empty dust bucket.
- Wet or dry.

99% of Dust Here!

"Every once in a while you come across a product that seems too good to be true, but in the case of the Dust Deputy, you exceeded my expectations! Thanks for producing such an awesome product!"

- J. Denison

Dust Deputy® now available at these fine retailers.



U.S. Pat. #7,202,074 B1
7,202,074 C1
Dust Deputy™
U.S. Trademark Reg. #4,588,910

Code: FWW0718



Proudly Made in the USA

Call Today for Information!

1.833.438.4422

www.oneida-air.com



BE A BETTER CRAFTSMAN WITH GREX® 23 GAUGE HEADLESS PINNERS



Be a better craftsman with proven precision built GREX tools. It's the same award-winning robust build quality that users have trusted in GREX tools for over 20 years. And GREX continues to lead the industry's innovation of 23 Gauge Headless Pinner. Don't be fooled by look-alikes. The difference really is in the details.



ALSO COMING SOON
GREX. CORDLESS 2" 23 GAUGE HEADLESS PINNER



FIND YOUR DEALER

888-447-3926 866-633-7788

www.grextools.com/pinners

Three ways to cut a rabbet

PICK YOUR APPROACH
TO THIS FUNDAMENTAL JOINT

BY VIC TESOLIN



Although not as glamorous as the dovetail nor as robust as the mortise-and-tenon, the rabbet joint is just as useful. It shows up in casework as a place to put a frame-and-panel back, and is a popular way to fit a drawer bottom into its grooves. So it's a good joint to learn. In my shop, where I depend on hand tools to cut all joinery, I've employed three approaches to cut rabbets. For through-

rabbets, I go with my rabbet plane; before I had it, I used a shoulder plane. For a stopped rabbet you can't use either plane, but a chisel and router plane get the job done. I'll show you all these methods.

*Vic Tesolin, author of *The Minimalist Woodworker* (Spring House Press, 2015), makes furniture in his home shop when he's not helping Veritas design hand tools.*

2018 NEW BLUE DISCOUNT

Call (770) 622-6637 or Email FineWoodworking@scmgroup.com



NOVA F 520
CLASSICAL JOINTER



***NOVA SI 400**
CLASSICAL SLIDING TABLE SAW



***ME 40**
MINIMAX EDGEBANDER



S 600P
FORMULA BANDSAW



DOUBLE TILTING BLADE
NOVA Si X
CLASSICAL SLIDING TABLE SAW



L'INVINCIBILE TI 7
PROGRAMMABLE SHAPER



woodworking technology

4.99% *APR FINANCING

ON APPROVED CREDIT FOR SELECT MACHINES

CALL SCM FINANCE (800) 292-1837 OR EMAIL FINANCING@SCMGROUP.COM

The Country's Largest Selection of Unique Slabs and Burls



**BERKSHIRE
PRODUCTS**

Sheffield, Mass
413-229-7919

BerkshireProducts.com

Dust Collection Portable • Powerful • Perfect



U.S. Pat.
Pend.

Code: FWW 0718

TAUNTON'S **Fine Wood Working**
Picked as a **BEST TOOL IN 2017**
"I have tested a lot of dust collectors and I really like this one. With all of its features, it leaves nothing to be desired." - Bill Peck, Fine Woodworking Shop Manager
July / August 2016



Made in
the USA

- HEPA filtration with easy to clean dust port. No filter removal.
- Small footprint. Approximately 5' 4"
- Perfect for the small shop and woodturning applications.

Even a little Gorilla is still a Gorilla!

Call Today for Information!
1.833.438.4422
www.oneida-air.com



Rabbet plane

The rabbet plane originally looked a lot like a shoulder plane, but has evolved into a tool even better suited for cutting a rabbet. Rabbet planes now have fences to control the rabbet's width, and some have depth stops. Most rabbet planes also have a nicker in front of the blade that's used to sever fibers when cutting a rabbet across the grain. This allows the shavings to break away freely from the workpiece.

There are two things to keep in mind when setting up a rabbet plane. Make sure that the blade's cutting edge is parallel to the mouth; otherwise, the bottom of the rabbet (the cheek) won't be square to its side (the shoulder). Also, the blade should stick out just a whisper beyond the body on the side that cuts the shoulder. If not, you'll end

Lay out the joint.

Strike a line for both the width and depth, severing the fibers to create clean edges along the rabbet.



Set up the plane.

You can work directly from the workpiece, or use a small rule. Regardless, set the fence, measuring from the blade's edge and not the plane's body (right), and then set the depth stop (bottom).



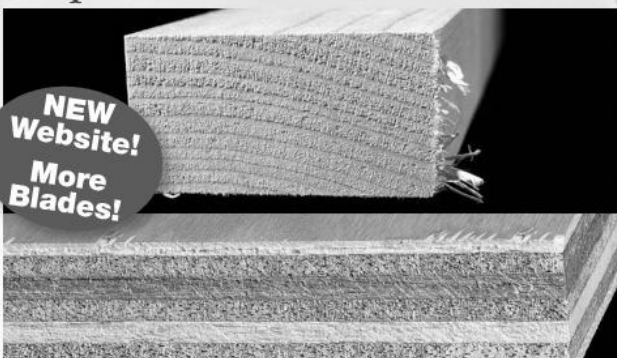
up with a stepped shoulder. One last note: Even though the fence and depth stop control the rabbet's dimensions, I still begin by laying out the joint with a marking gauge. This is helpful when I set the fence and stop, and ensures clean edges along the rabbet.



Start at the end. Take short strokes at first, starting near the exit end of the workpiece, and taking longer and longer strokes until you are taking full-length shavings. Continue until the depth stop contacts the surface.

Forrest Sharpening

Helps Prevent Bad Cuts Like These



NEW Website!
More Blades!

Abrasion, pitch buildup, micro chipping and poor sharpening jeopardize the life and performance of even the finest carbide-tipped blades and dado sets. Our *expert factory sharpening* will help protect your investment. We handle *all types and makes of blades*. Typical turnaround is just 4 to 5 days.

We've been the leader for over 60 years, so contact us today.

FORREST

The First Choice of Serious Woodworkers Since 1946

www.ForrestBlades.com

1-800-733-7111

(In NJ, call 973-473-5236)

© 2018 Forrest Manufacturing Code FW

DOWELMAX

PRECISION ENGINEERED JOINING SYSTEM

INTRODUCE SOUND ENGINEERING INTO YOUR NEXT WOODWORKING PROJECT



NEW Armoire Project Article
Designed and Built by Dowelmax
Inventor - 100% Dowel Construction



Guaranteed STRONGER and More ACCURATE Than a Comparable Mortise or Domino Joint

NEW RTL Router Lift

- Revolutionary Access for Bit Changes, Height Adjustments and Cleaning!
- Save Hundreds vs Crank Lifts
- Read Our 100 PLUS 5 Star Reviews on Amazon and Rockler!



Call 1.877.986.9400 or visit dowelmax.com

Revolutionary Dust Collection!



NEW!

Dust Gorilla PRO

with **SMART BOOST**



Code FWW0718

■ **24" Static Pressure!**
Twice the Vacuum of Standard Dust Collectors.

■ True HEPA Filtration

■ Wireless RF Remote

■ Industrial Quality

■ Heavy-Duty Stand w/ 35 Gal. Steel Drum (Larger Dust Containers Available.)



Made in the USA

How Does SMART Boost™ Help You?

Choosing the best dust collector for your shop can be difficult, especially when you start combining mixed/undersized dust ports and long runs of ducting or hoses. Oneida Air Systems' patented SMART Boost™ technology offers the only solution that can adapt to nearly any shop layout! Our patented SMART Boost™ monitors your system for any suction loss and automatically adjusts the fan motor's speed to compensate - delivering maximum air volume for a wide range of tools and delivering higher suction at the places you need it most.

Complete Line of Ductwork.

FREE Shipping on Snap Lock Ductwork
Orders of \$300+ / 48 States / Restrictions Apply / Use Code FWW0718

Ductwork Design Service Available.



Call Today for Information!

1.833.438.4422

www.oneida-air.com



Shoulder plane

Early rabbet planes look a lot like what are known as shoulder planes today. Those early rabbet planes had a different bedding angle and often had a skewed blade, but their bodies were almost indistinct from those of modern shoulder planes. It's no surprise, then, that you can cut a through-rabbet with a shoulder plane. Set up the shoulder plane as you would a rabbet plane: blade parallel to the mouth, and sticking out just a bit beyond the body. Because shoulder planes do not have fences or depth stops, you must lay out the joint with a marking gauge. The line marking the rabbet's



depth tells you when to stop, and the one marking the width helps you to get the joint started. You'll also need to check that the rabbet's cheek is square to its shoulder, and tweak it if it's not.

Cut a shoulder.

After laying out the rabbet's width with a marking gauge, use a chisel to cut down toward the line at an angle. This creates a shoulder to guide the plane.



Angle the plane to start. Tilted inward and held tight to the shoulder you just cut, the plane will cut a narrow shaving, deepening the shoulder.



Finish up square.

As you work down through the rabbet, level out the plane with each stroke until it's cutting a surface square to the shoulder (left). When you've reached full depth, check that the shoulder and cheek are square to one another (below).



Chisel and router plane

There are times when you need a stopped rabbet—on the back of a dovetailed cabinet, for example—and you can't cut one with a rabbet plane or shoulder plane. You don't need to plug in a router or some other power tool to cut one. You could do it with nothing but a chisel.

I've done it, and it's a tedious and time-consuming job. It's more efficient to pair that chisel with a router plane. Use the chisel to remove the bulk of the waste, and then put the router plane into service to level the rabbet's cheek. You can get by with a single chisel, but I use two chisels—a narrow one to break up the waste, and a wide one to

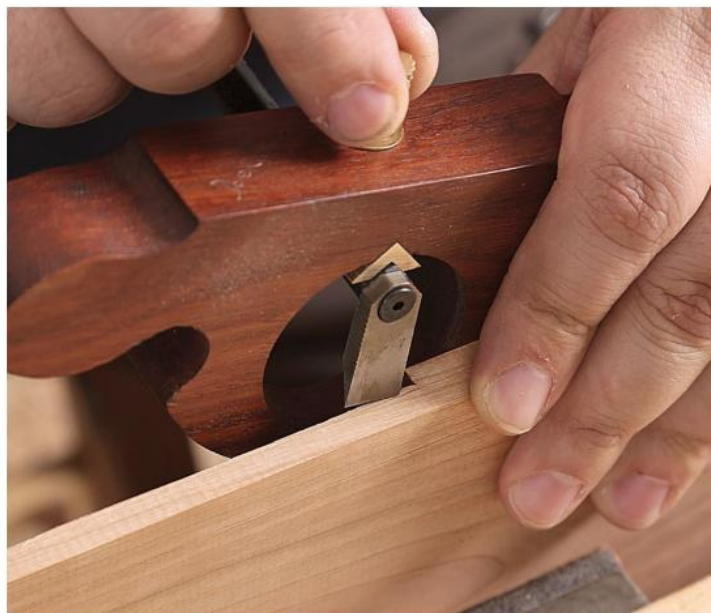
define the rabbet's shoulder. As for the router plane, it doesn't need to be fancy. You just need to be able to lock its blade to a depth that matches the rabbet.



Break up the waste. After laying out the rabbet with a marking gauge, work your way along its length with a chisel, cutting across the grain.

Sever fibers at the back. Place a wide chisel (1 in. or wider) in the line cut by the marking gauge and give it a good whack.

Pop the chips. A 1/2-in. chisel offers more control here, and doesn't take much more time than a wide chisel would.



Online Extra

To learn how to sharpen a router plane, watch the video at FineWoodworking.com/269.

Clean up with a cordless router. Set the blade's depth by placing it into the marking-gauge line that marks the rabbet's depth, and lock it in place (top). Cut in from the open side, working along the rabbet's length to level the cheek (above).

A finer side of pine

BY ANDREW HUNTER



If I'm going to be frank, making custom furniture on commission is a hard gig. Every customer has different needs and it is my job to assess them and then design, shape, and deliver a piece to address them—without losing my shirt. In my commission work I build in many styles, but typically in a refined realm, with sophisticated designs and intricate joinery. That's a lot to juggle.

I enjoy pushing my skills on these more complicated pieces, but in my heart I'm a simple person who prefers a more vernacular style. So lately I have been putting together my fine pine line—pieces ranging from blanket chests to tables to case pieces. Admittedly, one of the first things I have to work on is the name, but a “fine pine line” is exactly what it is. It's a well-built series of pieces in my favorite wood: eastern white pine.

Eastern white pine is an amazing wood. I can source it locally in really wide boards for a fraction of the cost of other woods. It dries quickly with little distortion and when quartersawn, it ranks among the most stable woods in the world. Working with it is fun! With sharp tools, it cuts and planes like butter. Even the knots aren't too cranky. And that's good, because the heart of the pine line is its handplaned finish.

The line is much more affordable than my commission work. It's more rustic in style, but it's not built with any less skill or attention; the designs are fine-tuned and simplified. The joinery is sound but straightforward, and it's never concealed if that would require more work. There are still dovetails, but there are also nails—old-fashioned cut nails of course. The ornamentation is plain, with plenty of tool marks left behind to remind the user that the piece had a maker. Although simple in design and modest in material, these pieces still emanate a well-built quality. This is the furniture I build for my own house, a self-portrait in wood.

Andrew Hunter builds furniture in Accord, N.Y.

Online Extra

Take a tour of Andrew Hunter's shop at FineWoodworking.com/269.

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 • 1-717-284-0001 • sales@groffslumber.com

www.groffslumber.com

PantoRouter

TRADITIONAL JOINERY IS JUST THE BEGINNING

- Mortise & Tenons
- Box Joints
- Dovetails
- Custom Shapes

www.PantoRouterUSA.com — 877.333.7150

Now in store

Our 100% washed chino
Fine Woodworking hat
 is soft and strong, with
 an adjustable strap.

Made in the USA

Shop TauntonStore.com/gear

GRNGATE.com

LET YOUR TOOLS
 CONTROL THE DUST COLLECTION

**FLORIDA SCHOOL
 OF WOODWORK**

BEGINNING - ADVANCED
 FURNITURE MAKING, TURNING & CARVING

STUDY WITH MICHAEL FORTUNE, MICHAEL
 CULLEN, ALEX GRABOVETSKIY

www.SCHOOLOFWOODWORK.com

813 223 3490

It All Starts With The Lumber...

Retail & Wholesale Hardwoods



*"Offering a complete inventory of premium
 quality Northern & Appalachian Hardwoods,
 Mahogany, Exotics, Hardwood Plywoods...
 and much more!"*



407 Route 125 • Brentwood, NH

Call
603-679-1230

www.highlandhardwoods.com

A WOOD THAT LOOKS GOOD IN MANY STYLES



These are just a few examples from my line. The designs are influenced by classical forms, but also by more minimalist, modern ones, and the pieces are sweetened up with a handplane finish.

The hutch design (p. 28) has its origins in American pieces from the 17th century. It is white pine, with red oak details. They are both humble woods, and the colors of the knots in the pine go well with the red of the oak. The back boards are finished with milk paint, with a coat of darker blue underneath the finish coat. The finished surface is lightly sanded, exposing patches of the darker blue below.

The blanket chest (left) is Shaker influenced, and its form showcases nice, wide boards. I realized after making this prototype I would rather have red oak knobs. That is another nice thing about producing a line—I have many more chances to get it just right.

The credenza design draws from Japanese influence. The case is white pine joined with exposed dovetails. The interior dividers are attached to the case with sliding dovetails, which lock the whole case together. Door panels are a place to add individuality to a piece, and here the sliding doors have pine frames and old hemlock barn board panels, with blackened nail holes flowing across all the doors.



K Body REVO **REVOLUTION**



The best parallel clamp in the world just got better!

How? By listening to you and building in features that provide the solutions you asked for! The newest generation K Body REVO (KRE) adds a handle with built-in hex head socket for applying clamping force when desired and, a new operating jaw that stays where you put it for easy set up; position it where you like and apply clamping force.

besseytools.com facebook.com/BesseyToolsNorthAmerica instagram.com/BesseyTools_na

ULTRA QUIET

Oil-Free | 4.0 Hp 20 gallon

CALIFORNIA
AIR TOOLS
Ultra Quiet Air Compressor

www.CaliforniaAirTools.com



Benches have a long history in Shaker meeting-houses. The Shakers made Windsor-style, spindle-back benches, but they left off the arms and the medial stretchers, producing, in my opinion, a more elegant design. Their benches were usually between 4 ft. and 6 ft. in length, but longer versions were sometimes used instead

of fixed pews. I based this 6-ft. settee on one in *The Book of Shaker Furniture* (University of Massachusetts Press, 1980) by John Kassay, although I made some modifications.

Kassay mentions that in the original bench the leg-to-seat joint was a weak point, because

Shaker Noir

A straightforward way to build a stunning, classic Shaker settee

BY CHRISTIAN BECKSVOORT



the hard maple of the legs compressed the soft pine of the seat. To avoid that, I made both seat and legs from maple. To beef up the connection further, I redesigned the leg and the joint. Rather than copying the original leg's bamboo swell—thick in the middle and thin at the top and bottom—I decided on a straight taper, thickest at the

top. With a full 1½ in. dia. at the top of the leg, I had room for a 1-in.-dia. tenon with a ¼-in.-wide shoulder.

In place of the simple mortises in the original bench, I drilled stepped mortises. Each one has a deep hole at the center to accept the tenon and a shallower recess around it where the tenon's shoulder lands. This joint eliminates the

breakage point at the shoulder, and I use it on all my chairs.

I made the tapered back spindles straight, not steam-bent to a curve like those on the original. Steam-bending so many spindles adds quite a bit to the workload but doesn't add enough to the comfort to make it worth it, in my opinion.

Most notably, perhaps, I changed the original's clear

finish. The original craftsman might have approved, since ebony is a finish the Shakers offered on chairs and benches they made for sale. The black finish creates a taut, clean, refined silhouette, and I decided to try it on my settee.

It starts with the seat

I began the bench by sawing the kidney-shaped ends of the

Classic Shaker bench

Dyed with India ink, this bench is a straightforward build. Most of the work is done on the drill press, tablesaw, and with a router, with some hand shaping.

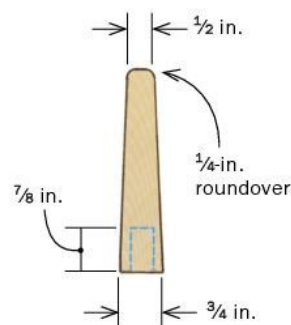
Spindles $13\frac{3}{4}$ in. long
by $\frac{5}{8}$ in. dia. at bottom,
 $\frac{3}{8}$ in. dia. at top

Back rail, $\frac{3}{4}$ in. thick by 4 in.
wide by 72 in. long

Becksvoort
finished the
bench with
India ink,
polished with
steel wool,
followed by a
satin lacquer.



BACK RAIL FRONT VIEW



BACK RAIL SIDE VIEW

Seat, $1\frac{5}{8}$ in. thick
by 14 in. wide by
71 in. long

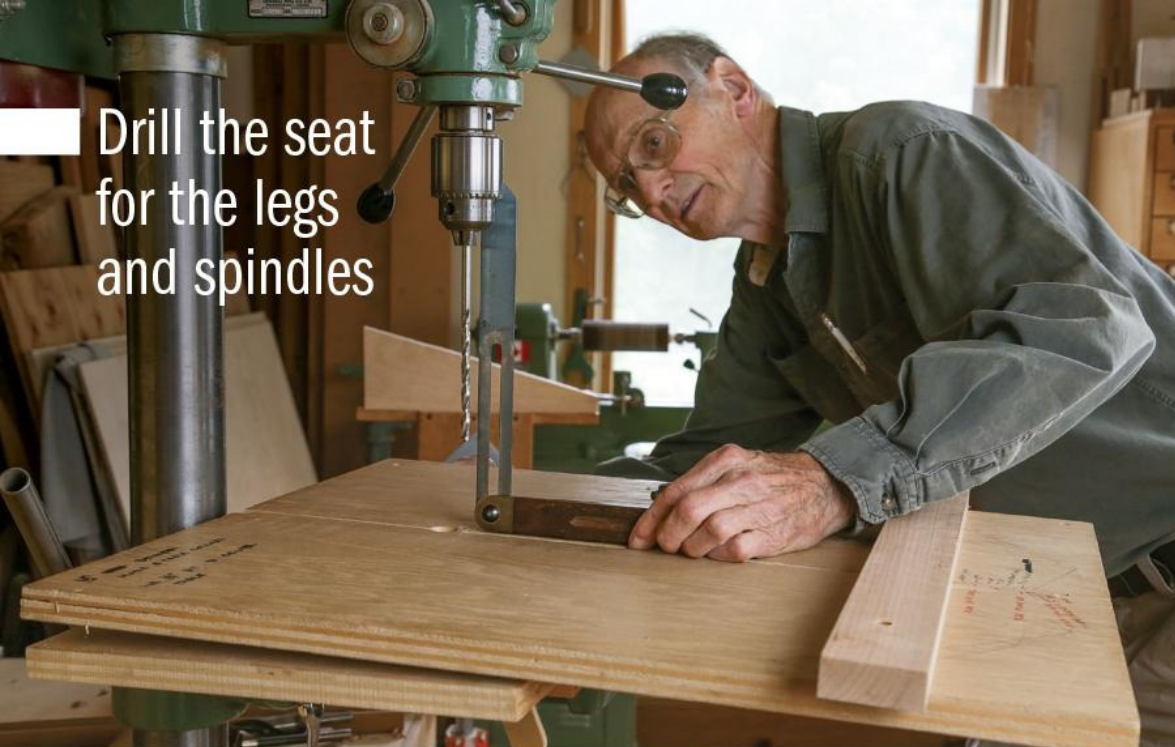
Stretcher, $\frac{13}{16}$ in. dia.
by $13\frac{3}{4}$ in. long

Leg, $1\frac{1}{2}$ in. dia.
by $18\frac{3}{4}$ in. long

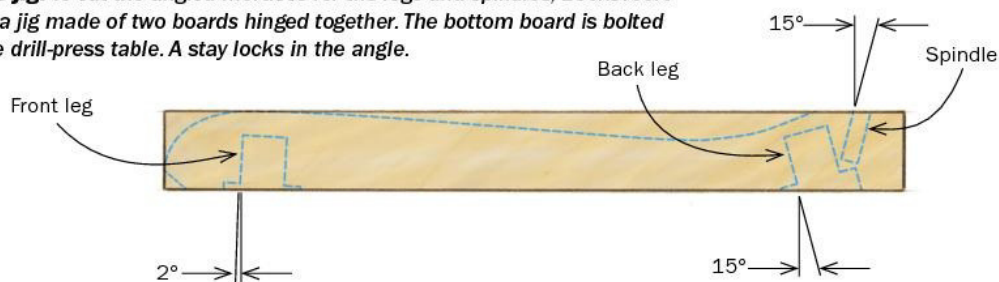


FRONT

Drill the seat for the legs and spindles



Angle jig. To cut the angled mortises for the legs and spindles, Becksvoort uses a jig made of two boards hinged together. The bottom board is bolted to the drill-press table. A stay locks in the angle.



plane. I used a shopmade dowel sizer to make sure the tops were consistent in shape and size.

Instead of making your spindles from dowels, you could rive the stock from a log or saw it from a plank. Just be sure the grain runs straight from top to bottom for strength.

Shape the seat

Next it's time to shape the seat. I started at the tablesaw, cutting a 3-in.-wide by $\frac{3}{8}$ -in.-deep cove the length of the seat. I clamped a pair of diagonal fences to the saw table and fed the seat between them, making a series of progressively deeper cuts until I reached $\frac{3}{8}$ in.

Then I clamped the seat to my workbench and used a router on a sled to cut the sloping plane of the seat. With a 2-in.-wide flat bit in the router I took passes the length of the bench, deeper each time until I reached full depth.



Stepped mortise is more secure. Becksvoort beefs up the leg-to-seat joint by providing a place for the tenon's shoulder to seat. First, he drills a shallow 1½-in.-dia. mortise with a Forstner bit, then he adds a deeper 1-in.-dia. hole at the center using a brad-point bit.



Angled holes for spindles, too. Becksvoort drills the 22 spindle holes in the seat with the same jig he used for the legs. An adjustable stand supports the far end of the seat.

The back rail is a focal point



Use the seat as a template. With the back rail centered on the length of the seat, transfer the placement of the spindle holes from the seat to the rail.



Drill the spindle holes in the back rail. Drilling an upright board is tricky. Becksvoort uses his 90° resaw jig from the bandsaw.

To round the top front edge of the seat I used a 1½-in.-dia. roundover bit in the router table. I followed that with hand tools to carry the roundover onto the ends of the bench.

Last, I turned the seat over and used a handheld router to create the chamfer on the underside of the bench along the front and on both ends.

Initial assembly

At this point you can glue the spindles to the seat and back rail. First, glue and drive the spindles into the seat holes. There's no rush; just go one at a time. But then comes the trickier part—gluing all 22 spindles into the back rail in one go. I put a piece of tape on the two end spindles ¾ in. from the top end; they act as depth gauges during the glue-up. You might need bar clamps to bring the back rail home.

Legs and stretchers

I turned the legs from 1½-in.-square stock. You can turn the tenons, too, but I prefer to make them at the drill press with a plug-cutter for more

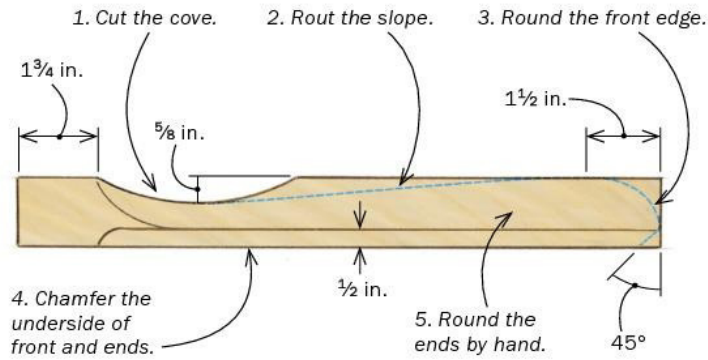


Taper the rail in the planer. Becksvoort made a planer fixture from two pieces of plywood. A strip of solid wood at the right acts as a fence. For the first pass (left) he tacked down a ⅝-in.-thick strip for the rail to ride on. For the second pass (right), he switched to a ¼-in. strip.



Round over the top. The top edge of the rail is routed to a half-round using a ¼-in. roundover bit.

Shape the seat



Set up to cut the cove.

To yield a cove 3 in. wide and 5/8 in. deep, set the blade 5/8 in. high and set parallel rules 3 in. apart. Rotate the rules until they both contact the blade, and mark their locations with tape. Measure over 1 3/4 in. and clamp one fence there. Clamp the other fence 14 in. away. Lower the blade and make incremental cuts until you have the full cove.



Five steps to shape the seat. After cutting the cove (1), Becksvoort used a router and sled (2) to create a sloping plane from near the front of the seat to the bottom of the cove. On the sled, the router slides the length of the seat. To shape the seat's front edge (3), he used a 1 1/2-in. roundover bit in three passes. Then he chamfered the underside of the seat (4). He carried the large routed roundover onto the ends of the seat with a drawknife (5), and finished shaping with rasp, a file, and sandpaper.



Spindle time



Taper the spindles. Becksvoort starts with a $\frac{5}{8}$ -in. dowel and tapers four sides on the jointer (above). At the start of each cut, he drops the thick end of the spindle onto the outfeed table, guided by blue tape. He fairs them round with a block plane (top right) reaching $\frac{3}{8}$ in. dia. at the thin end. For accuracy, he uses a shopmade dowel sizer (right).

accuracy. With the turning blank still square, I tilted the table on my drill press so it was vertical and clamped the leg to the table. After drilling the plug, I bandsawed off the outer ring.

On the lathe I used a chuck to hold the tenon and centered the other end of the leg. I gave each leg a straight taper and a square shoulder at the tenon end.

I drilled the holes for the stretchers using a V-shaped cradle to hold the leg. I angled the drill-press table 15° off horizontal for the mortises in the back legs and 2° for the front legs.

To make the stretchers, I started with stock $\frac{7}{8}$ in. square and tenoned both ends on the drill press with a $\frac{5}{8}$ -in. plug-cutter. Then I turned the stretchers to a double taper.

Next, with the bench upside down on the workbench, glue in the legs and stretchers. Work-



Glue in the 22 spindles. First glue the spindles into the seat, knocking them home with a mallet. Then wrap tape $\frac{3}{4}$ in. from the top on the first and last spindles (to act as depth gauges) and add glue to the rail holes. Inserting the spindles into the back rail can be tricky, and may require an extra set of hands. Start at one end and slowly lower the rail, aligning one spindle at a time. When all the spindles are in their holes, use a mallet to drive the rail down to the tape on both ends. Bar clamps at either end come in handy.

Legs and stretchers are next



Turn the legs and stretchers. The legs (left) taper from $1\frac{1}{2}$ in. dia. at the top to 1 in. dia. at the bottom. Be sure to get a nice square shoulder at the tenon end. The stretchers (right) are double tapered, turned to about $\frac{13}{16}$ in. dia. in the middle and to $\frac{5}{8}$ in. dia. where they meet the tenons at both ends.



Drill the legs for the stretchers. Use a jig to cradle the legs while drilling the stretcher holes. Angle the drill-press table to match the leg's rake angle.



Compress the tenons. If the tenons are too tight to go in easily, use a metal vise to compress the grain all around the tenon.

ing one pair of legs at a time, insert glue into the seat and stretcher holes, and fit the legs and stretcher together. As the legs are pounded into the seat, the stretcher tenons should slide deeper into their holes. Give the legs a quick clamping to make sure. After the glue cures, cut the legs to length and stand the settee on the workbench to see that all six legs contact without wobble. Adjust as needed.

A bold finish

When the bench is completely assembled, it is ready for stain. You could use oil-based or water-based ebony stain, but I used India ink. It is permanent, easy to apply, and does a great job. Paint the entire bench. When it's dry, polish the surface with steel wool or white Scotch-Brite pads. Any light spots can be re-inked. Since my shop is not dust-free, I farm out the spray finish. A satin lacquer is ideal. It really makes the bench into a thing of beauty. □

Contributing editor Christian Becksvoort is a furniture maker in New Gloucester, Maine.

The final assembly



Add the legs and stretchers to the seat. Assemble one pair of legs and a stretcher and glue that to the seat (top). Repeat with the last two pairs of legs. Once the glue is dry, Becksvoort uses a plywood template (above) as a guide to trim the legs to final length and angle.



Blackened bench.

Because maple doesn't contain tannins, the old standby ebonizing method, steel wool and vinegar, doesn't work very well on it. Instead, Becksvoort blackens his bench with India ink. He follows that up with a sprayed satin lacquer. India ink is widely available online and at art-supply stores.

Make Your Oil Finish



Shine

Get a sheen from oil without sacrificing its pleasant feel

BY ADAM GODET

The first time I used an oil finish, I was disappointed that it lacked the attractive sheen of a film finish. The pieces generally had little to no luster and looked amateurish. Buffing improved things, but only temporarily. With some experimentation, however, I discovered that getting a beautiful sheen with an oil finish is a snap with some extra sanding steps. I typically use Tried & True Danish Oil, an all-natural linseed oil with no solvents or metallic dryers. It's a straightforward, easy finish that maintains the feel of wood and won't harm your health. But my sanding process can be used with any oil finish.

Why an oil finish?

The main reason I prefer oil finishes to film ones is simply that they are more pleasant to touch. When your hand feels the object, you feel the wood. Because of this, I especially like this finish for pieces that people touch often.

The other reasons are more practical. The first is ease of application. Film finishes require a dust-free environment, so if you don't have a separate finishing area, you have to carefully vacuum surfaces and keep dust down in your shop as the finish is drying and curing. Because Danish oil is a penetrating finish rather than a film, any dust that lands on your project during finishing can be wiped away.

The absence (or low volume, depending on the oil) of volatile organic compounds (VOCs) and solvents is another benefit. Plus, low/no-VOC Danish oils without solvents have very little odor.

A GOOD FINISH STARTS WITH GOOD PREP

To make an oil finish shine, first make the wood shine.



Use your favorite method to start. Whether you handplane the surface or sand it by hand or machine, you will want to get it as flat as possible.



Finish by hand. After multiple intermediate steps, Godet always ends by hand-sanding with 2,000-grit wet-or-dry sandpaper (left). He gets a mirror-polished surface that, when held in raking light, shows detailed, full-color reflections (below).



FOOLPROOF APPLICATION

Two to four coats are all that stand between you and a gorgeous luster.

Small doses.

Godet uses a new cup for each coat. The cups are easy to handle, prevent waste, and keep him from contaminating the oil in the can.



Thin coats with a clean cotton rag. What does a thin coat look like? As you apply the first coat, you should see the oil penetrating the piece. If there are standing pools even after a few minutes, you've probably used too much. Just wipe these off.



Wipe and buff. After the first coat, wait about 30 to 60 minutes before rubbing out the piece with a larger rag. Then, let the piece sit for about 12 to 24 hours, rub it out again with a fresh rag, and apply the next coat. Godet normally applies two to four coats.

Finally, there's repairability. Film finishes can become chipped, scratched, or otherwise damaged, and can be a pain to fix. Oil finishes are less durable—one of their weaknesses—but a scratch or chip on a piece of furniture with an oil finish is on the wood itself, meaning you can more easily sand, scrape, or otherwise address the area and then reapply the oil. Also, small water spots can be buffed and sanded out.

If the piece will see a lot of use, consider adding dewaxed shellac over the oil. I did this on my dining table a couple of years ago, and the top still looks great. Shellac is a film finish, but it shares the environmentally friendly aspects of Danish oil. Similarly, a light coat of beeswax provides a thin layer of protection, and it can make cleaning the piece a little easier.

Prep carefully for finest results

To make your oil finish shine, you want a surface that is as flat as possible, free of any dips, tearout, or other small imperfections. How you get there—handplaning, sanding, scraping—is up to you.

I prefer to start with a smoothing plane on flat surfaces and sandpaper on contoured edges. To prepare for film finishes, most people sand up to 180- or 220-grit or use their smoothing plane. This is because a film finish, which rests on the wood, self-levels, so with enough layers, any surface irregularities get filled and smoothed over. To get a good sheen with an oil finish, which penetrates, you have to go beyond 220-grit—essentially using the

TIP SAFETY FIRST



Oily rags present a fire hazard. You should always read and follow the product's safety warnings and instructions for disposal. Generally, Godet soaks the used rags in a bucket of water, which he keeps handy so he can drop in the rag as each coat is done. When he's finished, the used rags go in a plastic bag that he then fills with water, ties up, and puts in the garbage can outside. A sealable jar or other container filled with water also works.

AN OIL FINISH IS EASILY REPAIRED

Unlike other finishes, which need to be stripped, oil finishes are simple to repair or rejuvenate.

Water spots get rubbed out. To work out white spots caused by moisture, Godet starts with fine steel wool (right) and ends with 2,000-grit sandpaper (far right), again looking to rejuvenate the piece's mirror shine.



sandpaper to burnish the surface. In other words, to get a sheen with an oil finish, first make the wood shine.

My preferred method is to sand up to 2,000-grit with wet-or-dry sandpaper. If you've already gone over the piece with your smoother, you can usually start with 320- or 400-grit to remove any plane tracks. But if you'd rather forgo handplaning, begin with 80- or 120-grit depending on the severity of the machine marks.

However you begin, work up to 400-grit. Then jump to 1,000—I haven't found an intervening grit necessary—and finish with 2,000. I get best results when I hand-sand with a sanding block for these last three grits, but on larger pieces, I have also had success going up to 1,000-grit on a random-orbit sander and then hand-sanding with 2,000. This may sound time-consuming and painful, but these higher grits don't take long to work through and the extra sanding really pays off. What you're looking for after all this sanding is a surface so smooth it shows detailed reflections in raking light.

If your piece has profiled edges, work through all of the grits on those edges before sanding the flat surfaces. Also, spend extra time on the end grain to make sure it has a similar tone and color to the edge grain when you apply the finish.

I don't use 0000 steel wool as the final step before applying oil. I find the surface is slightly smoother when I use sandpaper, and I've had issues with steel-wool dust sticking in more porous woods, which can be hard to remove.

Application is nearly foolproof

Once you've established the surface, you're ready to apply the oil. At this point, it's hard to mess up. Just be sure the work surface is clean and apply thin coats with a rag, rubbing out the piece 30 to 60 minutes after a coat and then again 12 to 24 hours later, when it's ready for another oiling. Two to four coats usually work best. Two gives me the minimum protection I want and a nice sheen, but three is often the sweet spot thanks to the extra buffing. Four coats are often necessary with open-pore woods. After the last coat, wait a few days before using the piece. □

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



Deep scratches, gouges, and dents require scraping. More severe damage requires more work, but it's always simply a matter of returning to the prior luster.



Re-oil. With the underlying wood repaired and re-smoothed, apply thin coats of oil to the affected area.

Building a Case for Strength

Strategies drawn from structural engineering solidify your furniture



I am not an engineer, but I developed a good sense of loads and structure when I spent several years as a designer of timber-frame structures. Buildings framed with huge timbers may seem like distant cousins to furniture, but they aren't far removed. Understanding the forces acting on a piece of furniture is much like understanding the forces acting on a building.

When I received a commission to build a chest of drawers slightly over 6 ft. in length, my first thought—after roughing out a design with 10 drawers and no supports between the legs at each end—was how to deal with the loads created by all those

heavy drawers. My primary concern was deflection, or sagging, which could change the shape of the drawer openings, leading to drawers that don't fit their pockets. Not acceptable! I'll outline here the approaches I used to construct a case that could withstand that load across a long, unsupported span. You can adapt the ideas to casework of any size or style.

Structural strategies

I stiffened the structure in a variety of ways: adding diagonal braces, L-section aprons, and a rigid back that turns solid back panels

and Stiffness

BY MIKE KORSAK



into beams while still permitting them to move with the seasons. The diagonal braces were the biggest game-changer—they greatly stiffened the case but also altered the load path, leading me to strengthen the back to compensate.

Aprons add stiffness—The front and rear aprons are main load-carrying members, so I designed them to be very stiff. The curving bottom edge of the apron, flowing and asymmetrical, might add a whimsical note to the chest, but engineering influenced its design. I located the tallest part of the apron at mid-span, where the potential for deflection would be greatest; and I let the apron narrow

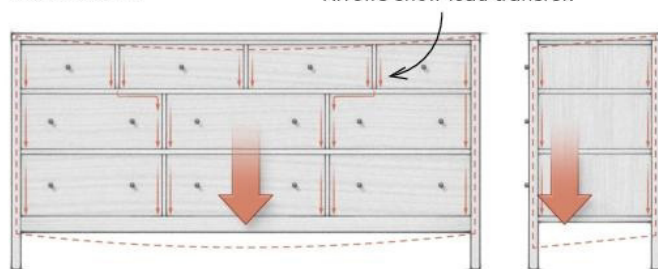
How to withstand deflection

When I designed the structural components of the chest of drawers, I didn't rely on complex equations. Instead, I simply identified the locations of each load (I considered each drawer side to be a source of load) and traced the paths those loads would take. The small arrows in the drawings below show those paths. And the large arrows indicate what the cumulative force could do to the chest. By tracing the paths for each drawer, I saw where the loads would be concentrated, and where reinforcement would be needed. Because of the chest's wide span, and because the front is an open structure of thin members that is required to carry a lot of weight, I had to think creatively to reduce potential deflection. I made both structural and joinery improvements, grasping every opportunity to strengthen and rigidify the case. I like to think of structure as a team sport. Some parts do multiple jobs, some do only one, but they all work together.

—M.K.

THE FORCES

Arrows show load transfer.



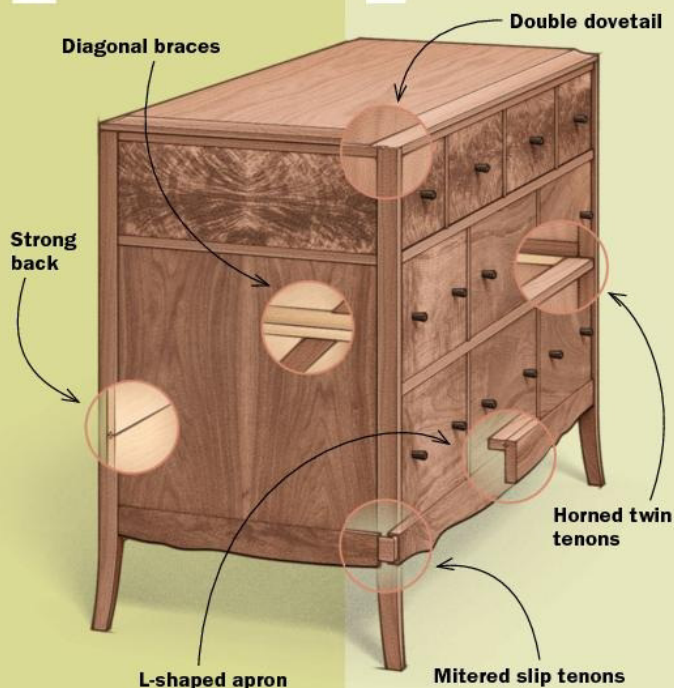
If the bottom rail deflects under the cumulative load, the case will sag.

Without a brace, front rail deflects.

THE FIXES

1 BEEF UP THE STRUCTURE

2 PUNCH UP THE JOINERY



1 Beef up the structure

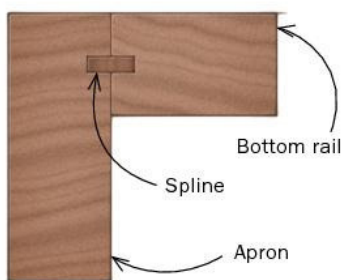
To keep precisely fitted drawers operating properly in a long case without central support, Korsak had to find ingenious ways to keep the framework rigid.



CREATE A COMPOSITE BEAM

L-SHAPED APRON

The apron is splined and glued to the bottom rail, creating a rigid composite beam that resists both vertical and horizontal stresses.



down where it meets the legs. This might seem counterintuitive, but the internal stresses that cause deflection in a beam are generally highest at the center of a span. By contrast, at the ends of a beam the primary stresses are shear—downward forces—which don't require as much material to resist. So it's smart to add height where the bending stresses are greatest, at the center of a span. It is worth noting that for any beam subject to vertical loads, the height of the beam contributes much more to the beam's stiffness than does the thickness.

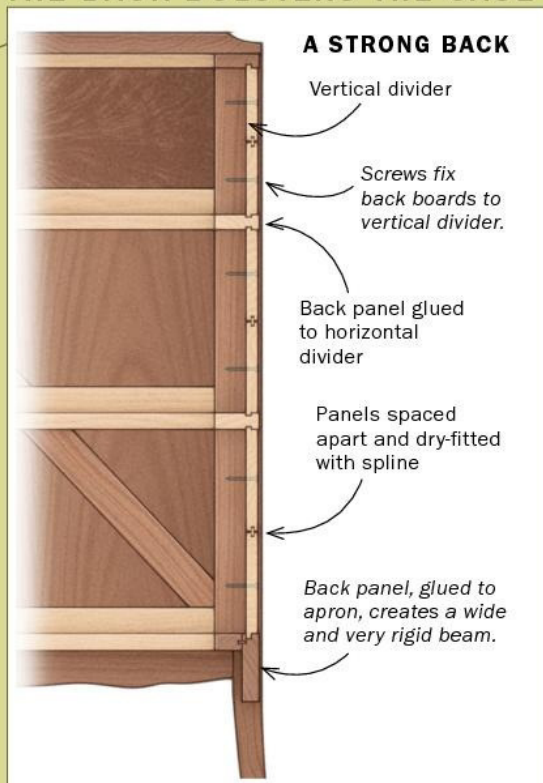
I further stiffened the front and rear aprons by attaching them to the bottom rails. This created beams with L-shaped cross sections, which are strong in resisting both vertical and horizontal loads.

Braces prevent sagging—When designing timber structures, I used braces wherever possible to improve rigidity. Diagonal braces create rigid



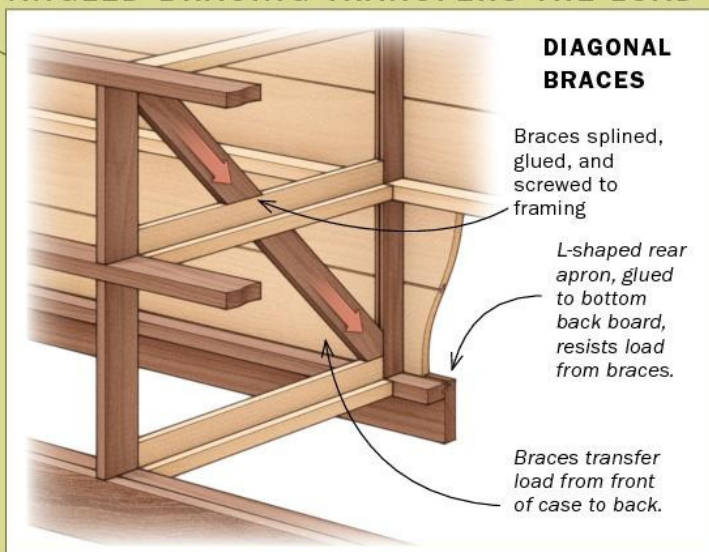
To stiffen the front apron, Korsak glues it to the bottom rail, making an L-shaped beam. He does this with the back apron as well. He shaped the aprons so they are tallest at mid-span, where the load is greatest.

THE BACK BOLSTERS THE CASE



To create a wide, rigid beam, Korsak grooves the L-shaped apron (top left) and mills a mating tongue on the back board (left), then glues them together (right). The back board gets grooved along the top edge to accept an unglued spline.

ANGLED BRACING TRANSFERS THE LOAD



Korsak installs diagonal braces to triangulate the structure and to shift load from the weaker front of the case to the back. He grooves the ends of the braces for splines, then glues and screws them in place.



triangles, one of the foundational tools for achieving structural stability. While braces are not typically seen in furniture making, there is absolutely no reason why they shouldn't be. The braces in this piece added tremendous rigidity. They also absorbed vertical load from the open front of the case and transferred it to the back.

A normal rear apron might have bowed outward from the force. But since I had made the rear apron L-shaped in cross-section, it was stiff enough to resist the horizontal load from the braces.

The braces I installed were interrupted by the drawer runners and guides, so each brace was actually two pieces.

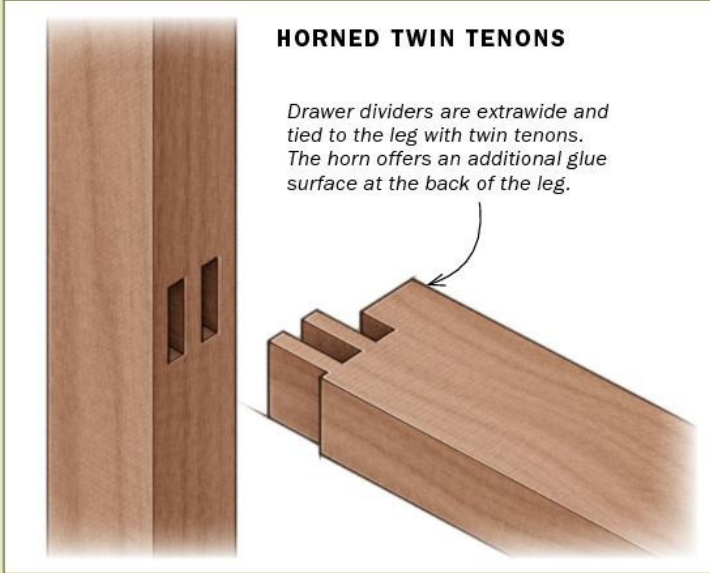
2 Punch up the joinery

At key spots, Korsak augments the traditional joinery in his chest of drawers with even stronger versions.

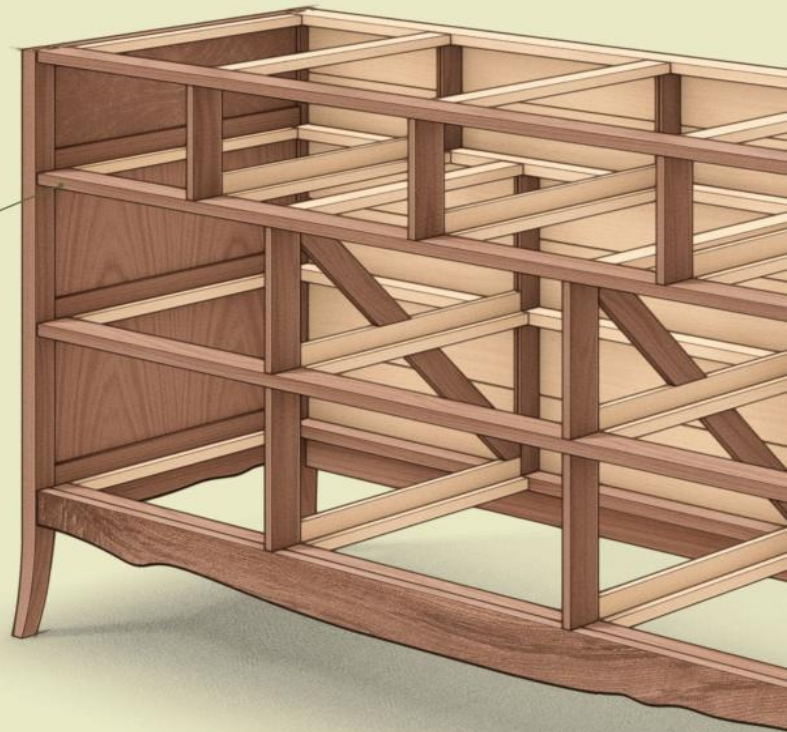
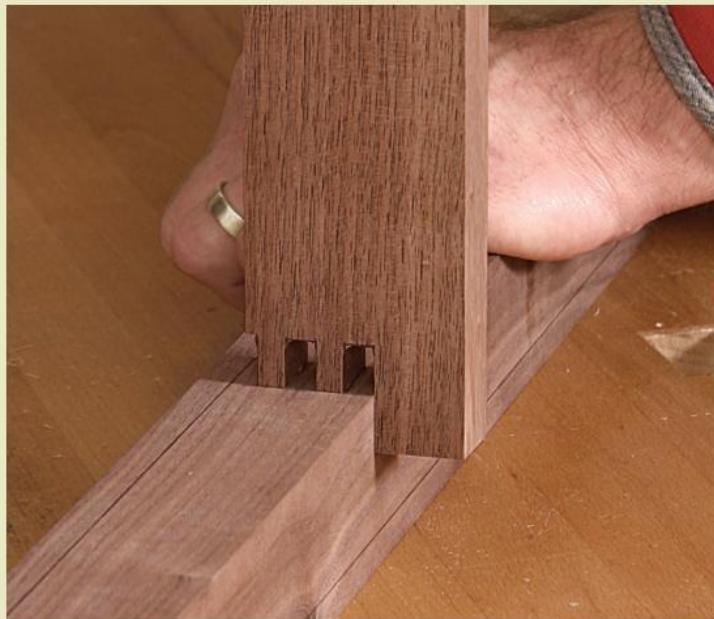
SPECIAL JOINERY CINCHES THE STRUCTURE

HORNED TWIN TENONS

Drawer dividers are extrawide and tied to the leg with twin tenons. The horn offers an additional glue surface at the back of the leg.



Korsak's horned twin tenon delivers increased strength where the drawer divider meets the leg. He roughed out the joint at the bandsaw, trimmed it to size with a router and template (right), and cleaned up the corners with a chisel.



I made them a bit thinner than the drawer guides so they wouldn't interfere with the operation of the drawers.

A stiff back—Bearing in mind that the braces would transfer vertical loads from the front of the case to the back, I designed the back itself to provide a huge amount of rigidity. Rather than letting the wide back boards float in a frame-and-panel arrangement, I glued one long edge of each board to a horizontal member, creating a series of very deep composite beams. Along their other long edge, adjacent boards met in an unglued spline that permitted movement. At their ends, the back boards were also glued to the legs, though I left part unglued to allow for movement.

Finally, I screwed the back boards to the rear vertical dividers, helping all parts of the back act as one in resisting loads.

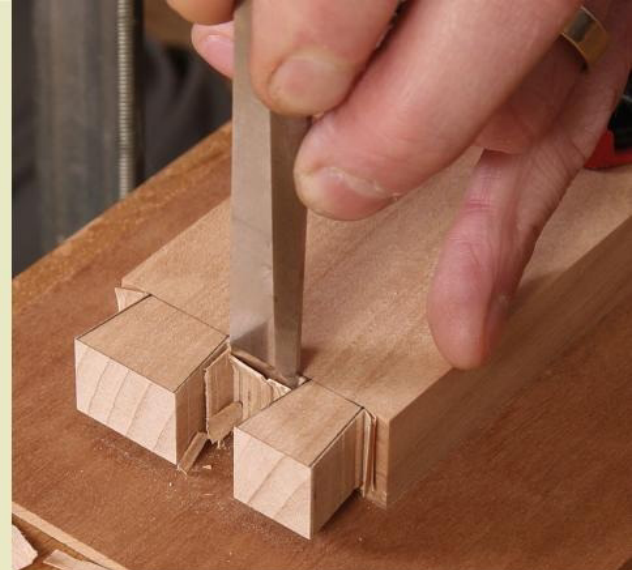
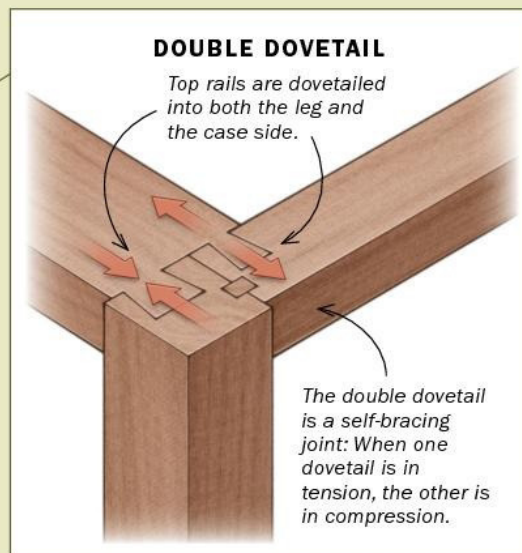
Sides that won't budge—For the sides of the case, rather

than using a traditional frame-and-panel structure, I opted for veneered panels. That allowed me to glue the panels on all four sides, creating a completely rigid end structure. I glued the plain and burl walnut veneers to the same plywood substrate, and let in a solid divider between them.

A well-secured top—The top of the chest also contributes to overall stiffness, acting as a horizontal beam. I used it to stiffen the top front rail, heavily fastening the two with screws. Except at the front, I used slotted clearance holes to allow for seasonal movement.

Robust joinery

Strong joinery is a vital step in resisting loads, and I was extremely attentive to it in this piece. To join the horizontal drawer dividers to the legs, I used double tenons, which provide a lot of glue surface and also prevent the dividers



The paired dovetails, cut with a bandsaw and cleaned up with a chisel, lock the top rail to the leg and side for the long haul.

from twisting. To make the joint even stronger, I made the dividers wider than normal and added a horn that wraps the leg on the inside, providing additional glue surface.

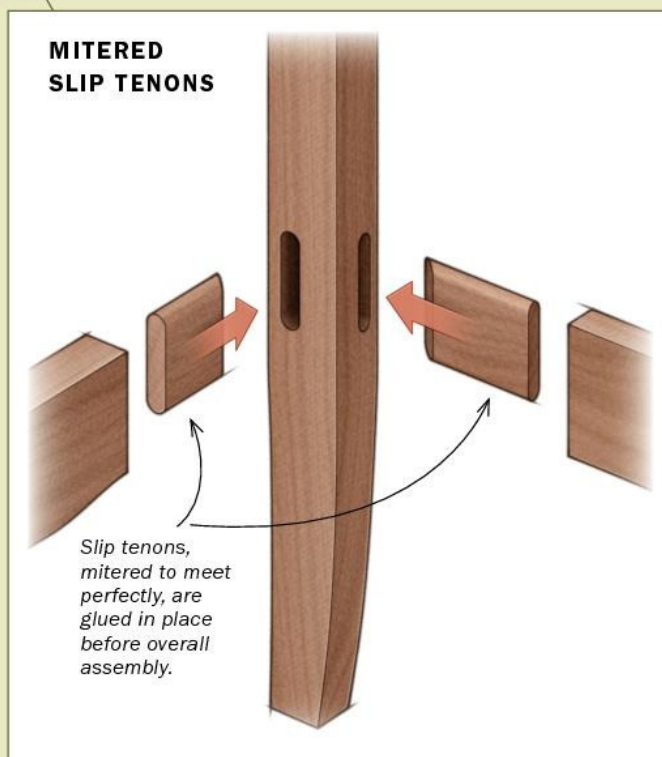
On the ends of the top rails I used double dovetails, one dovetail into the leg and the other into the case side. In engineering terms, the double dovetail is a “moment connection,” basically a self-bracing

joint: When one dovetail is in tension, the other is in compression, adding welcome resistance to lateral loads.

At the ends of the vertical dividers I used sliding dovetails reinforced with screws. And where the horizontal drawer dividers crossed the vertical ones, I used a lap joint so both members could run through the intersection, maintaining their structural integrity.

Where the aprons joined the legs I used slip tenons. I cut intersecting mortises and precisely mitered the tenons. I glued the tenons in—and to each other at the miters—as the first step of assembly. □

Mike Korsak builds strong, light furniture in Pittsburgh, Pa. Special thanks to Michael Maines for offering up his engineering expertise.



To maximize the length and strength of the slip tenons, Korsak glues them into intersecting mortises, being sure the miters meet. Once the glue cures, he proceeds with the full assembly.



Add Pop to Panels

One routing template is all you need to make this fielded panel with veneer and stringing

BY STEVE LATTA

A notable characteristic of Federal furniture is large flat or serpentine surfaces that, left unadorned, can look more than a little boring. Period makers often turned these barren surfaces into fielded panels made with veneer, evoking their frame-and-panel predecessors and bringing vitality and depth to a piece. But while this centuries-old technique is steeped in history, my approach has a modern twist: Instead of cutting the veneers with a fretsaw, I use micro end mills chucked in a Dremel tool to cleanly and precisely rout around an MDF template.

Create the template

The design of this fielded panel combines cyma curves, straight shots, and circular corners. Whether you copy mine or make your own, start with a quarter version printed out and spray-mounted to a piece of ½-in. MDF. I cut the circular corners with a Forstner bit, cut close to my line with a scrollsaw, and then refine the curves.

If you want, you can make the quarter template and stop there, repositioning it as you rout around the perimeter. Instead, I used the quarter template to make a full template, simplifying routing. To make the full version, trace the quarter template around another piece of ½-in. MDF and cut out the interior at the scrollsaw. Then



MAKE THE ROUTING TEMPLATE

Start with a quarter template and then use it to create the full template. This not only speeds the process, but it also ensures a symmetrical design. Take the time to get the quarter template right because it will save work when making the full template. Latta glues the printed-out pattern to a piece of MDF and cuts it out with a scrollsaw. He then refines the profile with a spindle sander, files, and a chisel.

Each leg of the template is overlong to make routing easier.



Trace the template and remove most of the waste. Move the quarter template from corner to corner to transfer the full pattern onto a sheet of MDF. Then scrollsaw near the lines. Latta first drills out the corners with a Forstner bit slightly smaller than the diameter of the corners, which can be easier than scrollsawing around a small radius.

From quarter to full. Latta nails the smaller template to the full version, and uses a pattern bit to transfer the profile. At the start and end of the cut, ride the flat on the quarter template for a clean transition.



Clean up the corners. The round bit won't leave angled inside corners, so clean up the full-size template with a chisel.

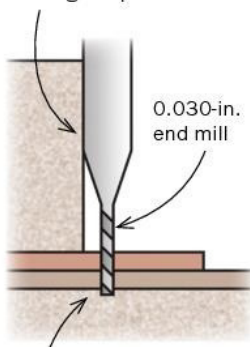
TAPE AND ROUT THE VENEERS

Assemble the veneers. Use veneer tape to join the sections of the border. Then use low-tack purple tape to fix the border to the field so that nothing moves while you're routing.



First rout. Clamp the template to the veneers with a sacrificial board underneath. Ride the bit's shank along the template and cut just through the veneers.

Shank rides along template.



Set depth to rout through both layers of veneer.



Finish the corners by hand. To avoid rounded corners, don't rout around a point. Instead, stop, lift the bit out, and then plunge on the other side (right). Otherwise, you will get a radius and not a point. Remove the pattern and, with a narrow chisel or gouge, slice free these corners (far right). Make sure to keep them intact to help with alignment.



SOURCES OF SUPPLY

Latta uses a Dremel tool outfitted with an after-market plunge base and a foot switch. He uses a pair of bits to rout the seam between the veneers and a channel for the inlay.

DRILLTECHNOLOGY.COM

Dremel end mills for inlay, 0.030-in. and 1/16-in. cutting diameter

LIE-NIELSEN.COM

Latta Thicknessing Gauge

STEWMAC.COM

Plunge Router Base #5806

MOUNT, THEN ROUT FOR THE STRINGING



Glue the veneer to a substrate. Align the field inside the border and temporarily secure it with purple low-tack tape before covering the whole seam with veneer tape. To glue the assembled panel to its substrate, in this case $\frac{3}{4}$ -in. MDF, Latta uses a cold-press veneer glue and a vacuum bag.

cut flush to the line using a router table and the quarter template. To toughen up the MDF, I follow the advice of longtime teacher Will Neptune and squirt cyanoacrylate glue along the edge. It soaks in and hardens, extending the life of the template.

Make the panel

The veneer design consists of two components, the border and the field. Start with the border. For the border on this panel, I crosscut strips of mahogany veneer using a slicing gauge and created a frame that is mitered at the corners. Next, I taped the field and border together.

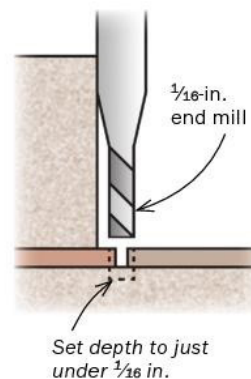
Now to the first round of routing. Clamp the template to the veneer with a backer board underneath, and make sure the clamps won't be in your way. Use a 0.030-in. end mill to cut through both layers of veneer. To make it easy to start these cuts, I use a Stewart-Mac plunge base for Dremels, but if your Dremel base is fixed, tipping into the cut also works well. When routing a corner, you must stop, lift, and re-enter on the other side.

For optimum control, a deadman-style foot switch is essential. When routing, always keep the tool moving to avoid burning divots into the template. Even when my foot leaves the switch, I keep the tool moving along the template's edge until the router bit comes to a stop.

With the routing concluded, remove the template and use a narrow chisel to slice free the corners left where you lifted the bit. Then untape the two layers of veneer, remove the waste, and reassemble them



Second rout. For the stringing groove you'll use a wider bit, which will trim both the border and the field at the same time. Once again, don't run the tool around sharp corners.



Corner cleanup. A narrow chisel or gouge makes quick work of removing the material left behind in the corners.

MAKE THE STRINGING



Thickness to fit. If the treble stringing doesn't fit in the grooves, pull it through a thickness gauge one piece at a time. Check and rethickness until the three strips slide in with some pressure.

into a single layer. I find the sliced points help position the veneers. Run a layer of veneer tape around the seam to tie the field to the border.

I glue the assembled panel to its substrate, in this case $\frac{3}{4}$ -in. MDF, using a cold-press veneer glue in a vacuum bag. After about an hour in the press, I remove it and use a damp—not dripping—sponge to moisten the veneer tape. When the adhesive lets go, I just pull the tape by hand. A card scraper or chisel on edge works well for removing any residue.

To cut the grooves for the stringing, reposition the template on top of the glued-up assembly and use a $\frac{1}{16}$ -in. end mill to rerout it, trimming the border and the field simultaneously. Your depth of cut should be a shy $\frac{1}{16}$ in. Finish the corners with a chisel or gouges as needed. In this pattern, narrow #2 and #3 gouges are beneficial.

Treble stringing

I chose a treble (three-piece) stringing for this panel because I knew it would look

STRAIGHTS



Glue the strips. Latta uses a syringe for better precision and control when applying the glue (above). Sandwich the three strips between the edges of two combination square blades (right). Tape stretched between the blades makes a great clamp.



CIRCLES



Wrap and tape. After adding glue to the strips, Latta wraps them around a cylinder. He again turns to clear tape to keep the thin stringing secure while the glue sets.

CYMAS



Prebend and glue just the end. Latta rolls the ends of the strips around a burn-in knife to start the radius for the cyma curve. Apply glue to one end of the pieces and clamp them using a paper clip. This will make the end stout enough to miter but leave the rest of the stringing, which is unglued, free to bend into the curves.



great. There are some rules to follow, however, regarding whether a single, double, or treble stringing is appropriate. In this case, because both the border and field are dark, the holly stands out nicely. A single piece of holly would simplify the technique and work aesthetically as well. If I had a dark border and a light field, say satinwood, curly or bird's-eye maple, or birch crotch, I would shift to a double string of white and black, with the black next to the lighter veneer.

For this piece, the treble stringing consists of white/black/white using holly and dyed pearwood. I slice these from veneers of standard thickness, and three layers combined fit nicely in the groove. If they need to be thinned, I pull them through a thicknessing gauge.

For the straight runs, I glued three strips together, sandwiching them between the edges of two combination square blades. For a clamp, I used household tape. To laminate the circular corner bandings, I

wrapped them around a cylinder the same diameter as the corner groove. (You may have to turn your own cylinder.) I covered mine with clear tape to prevent glue from sticking. I applied adhesive between the strips before wrapping them on top of each other around the cylinder. Again, I held them in place with Scotch tape.

For the gentler curves, the cyma curves and the turns on either side of the straight runs, I bent the stringing's ends using a thin metal strap and the shaft of

INLAY THE STRINGING

While you can start the inlay process anywhere, don't jump around. Instead, glue in the stringing in adjacent sections. Start with a short straight section, add a cyma curve, and then a corner. Level the pieces as you go.

2. Glue in the cyma curve next.

1. Start with a short, straight section.

3. Tackle the circular corner before moving on to the next straight piece.

an electric burn-in knife. After bending, I stacked the pieces and glued about $\frac{3}{8}$ in. at one end. I used a small paper clip as a clamp. The rigid end makes mitering easier. I did not glue the entire length because that would make it difficult if not impossible to bend it to the undulating curves. You can run glue between the strips when they're ready to be inlaid.

Set the stringing

Begin by laying out the intersections. Where runs of stringing will meet and be mitered, lay a ruler along the angle of the miter and, with a sharp pencil, mark a light line. This line will help you cut the strips. Cutting any of the joints typically involves a rough cut followed by a nice clean slice. Both are done with a chisel. It is important to use a slicing action rather than a straight chop (imagine that it's bread).

Regardless of where you start, work in sections. I began by dry-fitting a circular corner to help guide my first miter and set

a straight piece. From there, I mitered and glued in the cyma curves before returning to the circular corner. Throughout, I used yellow glue applied with a syringe. After inserting each section of stringing, give it a few minutes to set before leveling it to the panel's surface using a small block plane, card scraper, or sanding block.

In this article I've made a flat panel, but if your case has curved panels, the procedure isn't much different. Rather than glue the assembled veneers to a piece of $\frac{3}{4}$ -in. MDF, I would glue them to a piece of specialty two-ply veneer called NBL, which is about 0.040 in. thick. I would then continue the process as mentioned above, making certain I never routed all the way through the NBL. This results in a flexible panel that could be glued to a curved surface. □

Contributing editor Steve Latta teaches woodworking at Thaddeus Stevens College in Lancaster, Pa.

1. STRAIGHTS



Slice the miters. The curved corner is dry-fitted, allowing Latta to reference off it without locking it in place. Pencil lines guide the cuts.

2. CYMAS



Glue in the groove. After mitering the cyma's glued end, which meets with the straight piece, Latta carefully adds glue to the channel.

3. CIRCLES



Back to the corner. Double-check your first miter before trimming the other end.



Ready for glue. Latta leaves the circle dry-fitted, again for reference. With grooves this narrow, a syringe helps minimize the mess. Once the straight piece is in, he removes the corner so it doesn't get glued in place.



Flush it down. Latta most often uses a small low-angle block plane to level the stringing, but he also uses a card scraper or sanding block as necessary.



Wind in the stringing. Glue only an end beforehand. Add glue between the strips right before inlaying them.



Trim the end. After cutting off the bulk with his first cut, Latta uses a second slice as a finishing cut.



Push into place. After adding glue, a straightedge helps fit the thin strips securely into the channel.



Keep flushing. Level the pieces to the panel as you go as opposed to trying to do them all at once.

Dovetailed Tea Box

This project offers a variety of techniques in a small package

BY MICHAEL PEKOVICH

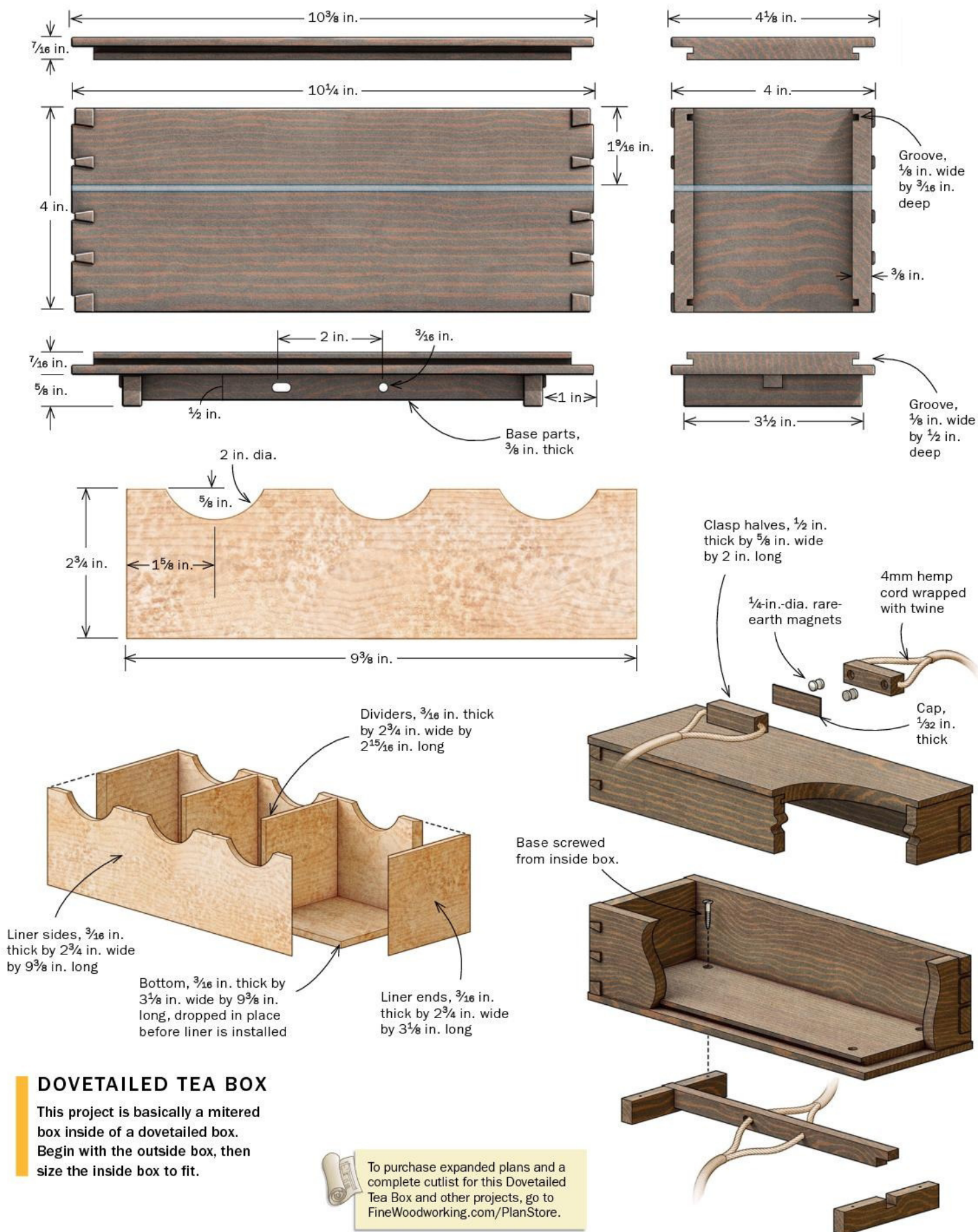


For some reason, tea tastes better coming out of a dovetailed box rather than the cardboard box from the grocery store. For me, tea is about taking a break. The time it takes to steep is just as important as the drinking of it. So anything that adds to that experience, whether it's a teapot or cup or box, can make a difference. For this particular box, I had imagined something like an oyster: a wenge exterior acting as a rough, rocklike shell and a bird's-eye maple liner providing an iridescent interior.

The box turned out to be a study in texture. The proud dovetails, the wire-brushed wenge, the hemp cord, and the bandsawn surface of the clasp all combine to create a box that is as interesting to touch as it is to look at. For an object that sees as much handling as a box, that's an important thing.

Work from the outside in

The box is fairly straightforward to build. I glue up the dovetailed sides, capturing the tongue-and-groove top and bottom, and then make a sawcut right through the box,



A dovetailed box



A little help with the dovetails. A simple shoulder guide positioned along the baseline (above) and held in place with a spring clamp helps ensure proper alignment of the parts for scribing (right). Adding tape to the end grain and peeling away the waste after scribing offers a clear road map for sawing (below).



Online Extra

To see how to bring out the texture in wenge, go to FineWoodworking.com/269.



separating the lid from the base. I then build a liner and add it to the inside.

Dovetailing the box is the place to start. To create the proud dovetails, set a marking gauge a little wider than the stock thickness. When laying out the tails, make the tail that will be sawn through to remove the lid a little wider than the others to account for the sawkerf.

Once the tails are cut, I use a couple of tricks to make cutting the pins a little easier. First, I apply painter's tape to the end grain. This will help to highlight the otherwise invisible knife lines on the hard, dark end grain. Before layout I trim the tape to the exact size of the end of the board instead of folding it over the corners, which could throw off alignment when scribing the pins. Second, I use a jig to help position the parts accurately for scribing. The jig is a rectangle of $\frac{1}{4}$ -in. MDF with a pine fence glued along one edge. A groove in the pine helps to secure it to the MDF and allows for slight adjustments when gluing. Use a combination square to check the fence for square while the glue is still wet and adjust as necessary.

To use the jig, position its fence along one edge of the tail board, and then slide the jig toward the end until the MDF is aligned with the baseline of the tails. Use a spring clamp to secure the jig. Place the tail board on top of the pin board with the edge of the MDF contacting the inside face. Slide the tail board over until the jig's fence contacts the side of the pin board. The tail board should now be in position for scribing the pins with a knife. Once you are done, peel away the tape from the waste areas between the pins to reveal a clear road map for sawing. To finish the joint, cope out the waste and chisel to the baseline of the pins.

Grooves for the top and bottom.

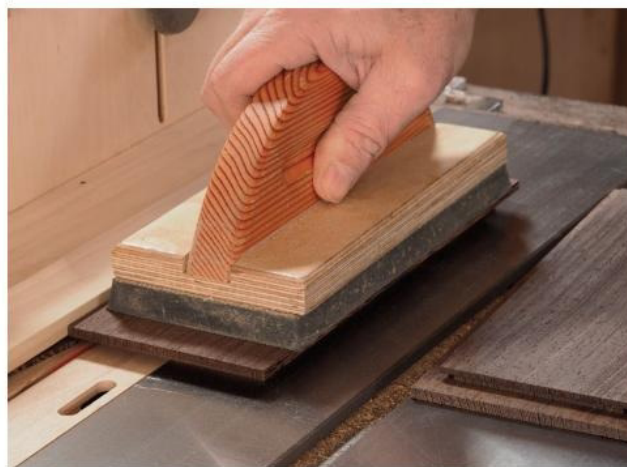
Adjust the rip fence to take a cut a kerf-width away from the edge. Groove the box sides, and then raise the blade and groove the edges of the top and bottom (right). Aim for a fit that's rattle-free, but not overly snug (far right).



Join the top and bottom

Boxes can look clunky if you're not careful, so I made the top and bottom appear thinner by leaving just a portion of their thickness visible above and below the sides. The result is a delicate-looking top and bottom that are in scale with the overall size of the box.

I start by cutting grooves at the top and bottom of the long sides and then around the edges of the top and bottom boards. I use a tablesaw blade with a $\frac{1}{8}$ -in. kerf and set the rip fence one kerf's width away from the sawblade. Leave the rip fence here while grooving the case parts and the top and bottom. Start with the long sides. Set the blade to cut roughly halfway through their thickness, and cut grooves along the



Trim the top and bottom. Rip along the edges of the top and bottom to create a short tongue and allow the lip to overhang the sides. The ends of the box are not grooved, so turn the grooves at the ends of the top and bottom into rabbets.



Live up the wenge. To add a little texture to the surface of the wenge, scrub along the grain with a wire brush. Follow with fine steel wool to smooth any fuzzy areas.



Slice off the lid. After gluing up the box, cut it in two at the bandsaw. Center the kerf in the middle of the wider dovetail. Chamfer the edges of the cut, but leave the bandsaw marks and burnish them with steel wool.

Start with square ends. Size the liner sides and ends for a snug fit in the box. Start by cutting them slightly oversize and sneak up on the fit with a handplane. The dividers will fit in V-grooves halfway into each long side, so their starting length needs to be the width of the box minus the thickness of one liner side.



V-grooves, then miters. The liner joinery can be handled at the router table. Start by cutting the V-grooves while the ends of the stock are still square (right). Then set a chamfer bit to cut a miter almost the full thickness of the stock (far right). Leave a small flat at the top to ensure that the liner is not shortened during mitering.



Dividers get beveled ends. Set the chamfer bit to cut a bevel half the thickness of the stock. Flip the divider to cut the second bevel.

top and bottom edges. Then raise the blade to cut a deeper groove into all four edges of the top and bottom. The blade height should equal the thickness of the stock plus the amount you want the top and bottom to overhang the sides. Then kick it up a bit higher to allow for seasonal movement of the top and bottom.

The result should be a snug fit that's not overly tight. Next, make a trim cut to create a short tongue along the long edges of the top and bottom. This will allow the joint to fully seat. You won't need this tongue on the ends, since the ends of the box aren't grooved. Instead, trim away wood to turn the grooves at the ends of the top and bottom into rabbets.

Before glue-up, burnish the parts with a wire brush to define the grain and create a subtle texture. I apply a coat of thinned shellac to the parts to prevent any glue squeeze-out from sticking to the wood. Once the glue is dry, I saw the box in two at the bandsaw. Normally I would remove the bandsaw marks, but I like the added texture here, so I just chamfer the corners and burnish the edges with fine steel wool.

A mitered liner



Fine-tune the fit. Pekovich uses a dedicated shooting board designed to plane mitered ends (far left). Start with the liner sides and ends and install them in the box. Then size the dividers to fit in the V-grooves (left). Aim for a snug fit, but don't try to wedge too-tight parts into the box.

Divide and conquer

The mitered liner acts to register the lid to the box. It also offers a nice surprise when the box is opened. I try to use wood that will offer a contrast to the dark wenge and a little pop as well. Curly, bird's-eye, and spalted maple all work well.

Start by cutting the parts to finished length but with their ends square. I'll get close at the tablesaw and then use a shooting board to dial in the fit. The sides and ends should just fit inside the box, but the dividers need to be cut shorter. Set one long side of the liner in place, and size the divider to fit between that and the opposite side of the box.

Turning the square ends of these parts into miters and cutting the V-grooves can be handled at the router table. Begin with the V-grooves; it's easier to cut them while the ends are square. Install a V-groove bit and raise it to half the thickness of the stock. Use a push pad to keep the stock on the table and tight against the fence. One fence setting will handle all four V-grooves.

To cut the miters, install a chamfer bit (the V-groove bit would also work), and position the fence to expose just a portion of the bit. You want a bevel that's almost the full height of the workpiece, with just a thin line of unrouted stock above it. Don't raise the bit too far or you will shorten the piece as you rout the miter.

For the dividers, slide the fence over until you are cutting a bevel half the thickness of the stock. Flip the stock over and take a second pass to create a mitered point to register in the V-groove. Again, leave a thin flat at the center of the stock where the bevels meet.

The mitered parts probably won't fit at this point. I use a shooting board designed to handle 45° miters to bring the stock to length (see *Handwork, FWW* #261, to make a similar shooting board). Start with the corner miters. Then plane the dividers to fit, taking equal passes on each side to keep the point centered.



Wrap it up. After cutting the scallops in the sides, lay the liner parts facedown on the bench and apply tape across the joints. Flip them over and add glue to the miters and V-grooves, then roll up the assembly. The tape should be enough to keep the miters tight, but clamps may need to be added across the dividers to tighten gaps at the V-grooves.

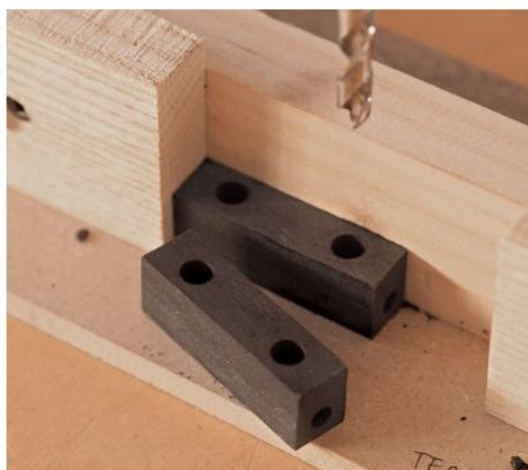


Add the liner. Drop the bottom in first, then slide the liner in on top of it. Gluing isn't necessary. The portion of the liner that extends above the box sides may need to be beveled slightly on the outside faces to allow the lid to lift off easily.

An ebony clasp

Drill the blanks.

Each half of the clasp receives a hole for the cord as well as a pair of holes for the magnets. A fence clamped to the drill-press table helps when aligning the holes. When drilling the through-hole, a stop keeps the blank vertical (top). A pair of stops are used to drill the magnet holes (bottom).



Add magnets and cap it with veneer. For extra strength, drop a pair of magnets into each hole. Double-check their orientation to make sure the halves attract instead of repel each other. Then cap the magnets with a thin strip of ebony. If the cap is too thick it will reduce the attraction of the magnets.

Once the liner is fitted, remove the parts and glue them up. After smoothing the surfaces, I apply a thin coat of shellac to keep glue squeeze-out from sticking to the inside faces. To assemble the liner, clamp a straightedge to the benchtop and arrange the parts along it with the inside faces down. Apply tape across the seams and flip the parts over. Add glue to the miters and V-grooves and roll up the assembly, adding tape to the last corner. If necessary, apply light clamping pressure across the dividers to close any gaps. When the glue is dry, sand the top edges flush, then plane or sand a long, shallow bevel on the outside of the assembly where it extends above the box sides. This will make it easier to remove and replace the lid.

Tie it all together

The final task is to add the base and the ebony clasp. The first step is to make the clasp itself. In the past I've used a sliding dovetail to join the clasp halves, but I have since discovered that hidden magnets handle the job well and make construction easier.

Each half of the clasp gets three holes—a hole through its length for the cord and a pair of stopped holes for the magnets. Then it's a matter of dropping a pair of 1/4-in.-dia. magnets into each stopped hole and covering the face with a thin strip of ebony.

In order to attach the clasp, the base must be in place. It consists of two short bars that act as feet and a longer bar between them.

The center bar is notched to fit the feet, which are screwed to the box from the inside. The longer bar is also drilled so the cord can pass through—one hole being round, the other oval.

Thread the cord through the round hole in the base and then through the clasp halves. The ends of the cord should pass each other through the oval hole in the base. Use twist ties at the top and bottom of the sides to hold the paired cords together. The fit of the clasp should be snug, but not so tight as to prevent the halves of the clasp from joining. Once the tension is right, fix it by driving a wedge into the oval hole. I use a chisel to bevel the end of a dowel, add glue, and drive it into the oval hole, locking the cord ends tight. Then I saw the dowel flush and trim off the cord ends, making sure not to cut into the cord itself by accident.

The last step is to wrap the sections of the cord between the twist ties with thinner twine. Removing the base temporarily and clamping it in a vise makes the process easier. It's common for the cord to take on a curve as it is wrapped. Straightening it as you go can help, but you may still need to play with it a little more once the wrap is finished. Screw the base back in place and you're ready to fill the box with your favorite tea. □

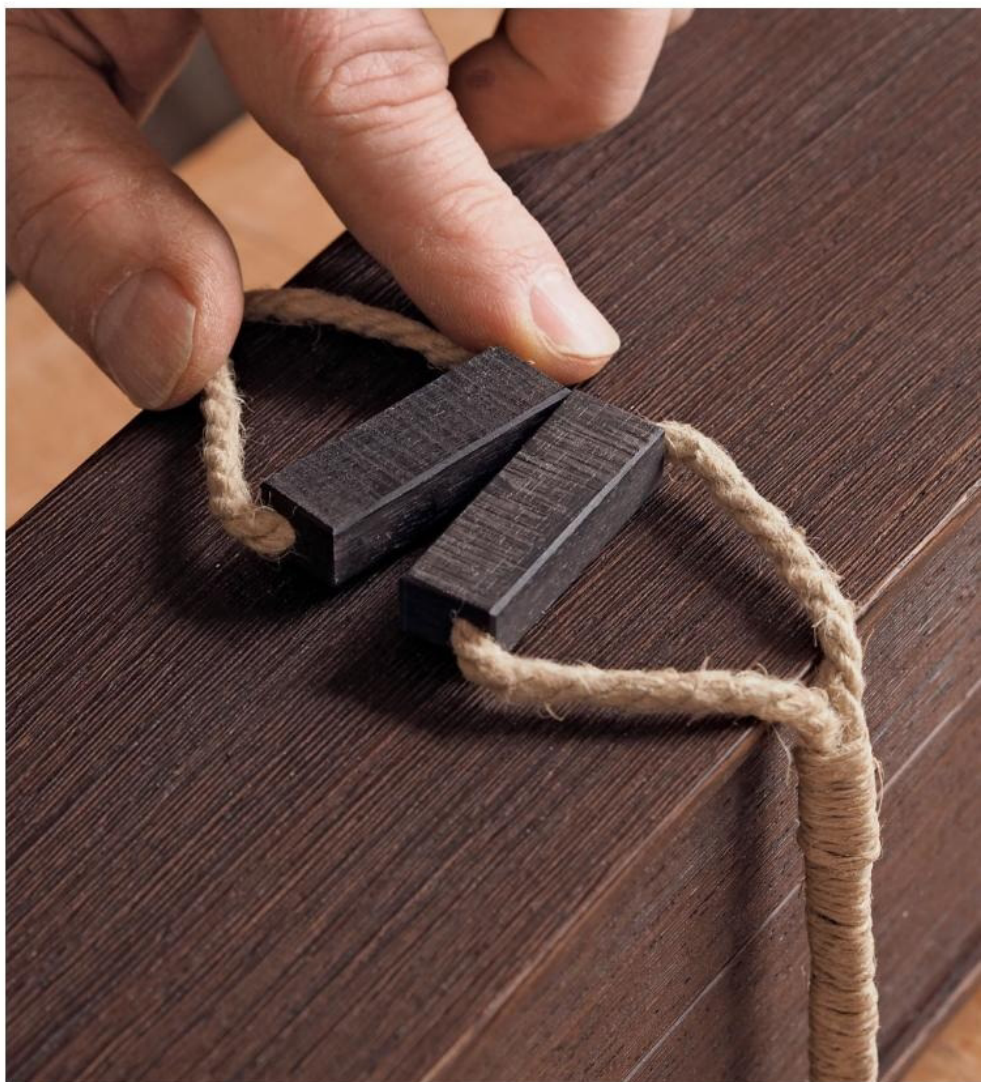
Creative Director Michael Pekovich is author of The Why and How of Woodworking, available this August from The Taunton Press.



String it up. Loop the cord through the holes in the base and clasp. Add a twist tie at the top and bottom edge of each side. Adjust as necessary until the clasp is centered on the lid (above), then drive and glue a wedged dowel into the oval hole in the base that the cord ends are threaded through (right).



Add a wrap to the cord. Use thinner twine to wrap the cords between the twist ties. Start with a few wraps over the end of the twine to secure the starting end of the wrap. Before reaching the opposite tie, insert a loop of twine under the wrap (top). When you reach the end, thread the twine through the loop and pull it to draw the end under the wrap (above).



FAT LINES

A lumber crayon and fat pencil show up well on rough lumber.

FINE LINES

A sharp No. 2 wood pencil and a 0.5mm mechanical pencil each has its advantages, while a ballpoint pen can be the best choice on dark woods.

INCISED LINES

For precise layout, a knifed line is often best. The X-Acto is beveled on both faces; the marking knife is beveled on one face, and the scratch awl comes to a point.



Learn Your Lines

Layout lines vary, and understanding when to use each type is fundamental to fine work

BY JEFF MILLER

GUIDED LINES

A cutting gauge or disk-type marking gauge (top) cuts like a single-bevel knife, while a traditional marking gauge (bottom) cuts like an awl.

Cutting to the line is a simple concept. Hidden within that simple idea is a complex set of skills that are a gateway to accurate work.

The way you lay out lines and the way you cut to them are different in different contexts. Take cutting out curved parts vs. sawing dovetails: You'll almost always smooth out a curved part after cutting, which gives you a chance to refine the shape afterward. With dovetails, on the other hand, the goal is to get the joint to fit with as little adjustment as possible. This requires added precision in the layout as well as the execution.

These two tasks are just the beginning. Here, I'll take a close look at the various layout lines in the life of a project. Some are penciled, rough or fine; others are scribed with a knife or marking gauge. Each has its purpose. Master the subtleties, and your work will rise to a new level.

Three levels of layout

Layout tasks can be grouped into three categories: rough layout, mid-level layout,

and fine layout. Each calls for a different approach. Rough layout, done with pencil, chalk, or crayon, includes working out how you'll break down a board into manageable sizes, marking out the grain orientation, and marking reference faces for milling or joinery. Mid-level layout is usually for machine work, where the machine setup will control the precise location of the cuts. And fine layout lines are for precise sizing of parts or joinery, and are actually cut into the

Rough layout

When rough-cutting or milling lumber, visibility is more important than precision.



Bold lines of attack. Mark out parts on the rough boards with a lumber crayon or fat pencil, factoring in extra length and width. Use a long ruler to align parts with the grain.



Cutting it close enough. Follow the rough lines on the bandsaw. These cuts don't have to be perfect. Make crosscuts with a miter saw or circular saw.



Milling marks. When you mill parts, use a fat pencil or a crayon to mark reference faces.

Mid-level layout

These lines must be accurate and easily visible, designed to get the machine setup as close as possible. Make test cuts to creep up on a perfect fit.

BANDSAWN CURVES

These don't often mate with any other surface, so the exact curve isn't critical. Use a template to ensure consistency, and mark a very visible line for bandsawing.

Trace and cut. A pen shows up well on walnut, marking a line that's offset from the template (right). Now you can bandsaw right along the edge of the line (below), leaving a thin, consistent amount of waste to remove.



 **Online Extra**

To watch a video on cutting to a line, go to FineWoodworking.com/269.

MARKING PARTS IN PLACE

Once a project is partly assembled, it's often easier to size some parts by fitting rather than measuring.



Mark in place. Miller fits one end of a backboard into its rabbet and uses the opposite rabbet to mark the far end of the board.



Cut and test. Use a tablesaw or miter saw to crosscut the board close to the mark, and then try the fit. When it's perfect, crosscut other backboards with the same machine setting.

wood as opposed to being simply marked on it, using a knife or point-shaped tool.

Coarse vs. fine marked lines

For rough layout—when breaking down rough lumber and labeling parts, for example—a lumber crayon, chalk, carpenter's pencil, and a fat 6mm artist's pencil are ideal.

Go with the crayon or fat pencil if you need the marks to remain visible for a while. Save the chalk for marks that you want to easily brush or rub off.

For mid-level layout such as marking curves to be cut on the bandsaw, pens and sharp pencils are best. Keep in mind that tracing a pattern means your layout will be slightly bigger

TABLESAWN TENONS

Use a sharp pencil to transfer key dimensions from the mortised piece and lay out the tenon. The final fit is dialed in with test cuts on the tablesaw.

Mechanical layout. For machine-cut joinery, Miller does layout with a mechanical pencil for its uniform line. He transfers the mortise dimensions, then uses them to lay out the entire tenon (below).



Fine-tune the machine setup. At the tablesaw use the pencil lines as a guide (left), but dial in the fit by testing the tenon in the mortise (below). Now you can cut other tenons with the same settings.



than the original pattern. This is usually a good thing, since there will be some smoothing to do after bandsawing out the part.

With machine-cut joinery, accuracy comes from the machine setup not the layout, so while it's important to have accurate lines it's even more important to check the results and refine the setup with test cuts. Fitting

a tenon to a mortise is a good example. When sneaking up on a fit, the fine pencil line gives you a starting point before you make the minute adjustments needed for a perfect fit. In most cases, you want to leave the line intact with your first cut. Align the cut with the waste edge of the line. (None of this works if you don't keep track of which

is the waste side—I often use an X to mark it.)

Choose your weapon—When drawing fine lines on wood, each type of pencil has its advantages and disadvantages. A regular wooden pencil can be sharpened to a very fine point, but it will dull quickly, especially on coarse-grained wood. A mechanical pencil

gives you a more consistent line thickness, most commonly 0.7mm and 0.5mm. But the leads tend to break. Although there are many hardnesses of pencil available in wooden or mechanical versions, I find No. 2 and HB to be the most useful.

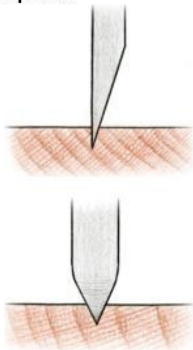
Don't neglect the heretical possibility of using a pen for mid-level layout. Pen lines are

Fine layout

Incised lines are the secret to accurate handwork. They guide chisel cuts and sawcuts, and often end up as the finished edge.

KNIFE VS. POINT

A single-bevel knife and a disk- or knife-style marking gauge cut a narrow line with one square side and one beveled, while an awl or traditional marking gauge plows a wider, V-shaped groove. All have their place.



TRACE A HINGE

It's easy to strike a knife line perfectly flush with a ruler or reference edge, such as when installing a hinge.

Get the angle right. When using a double-bevel knife like an X-Acto to scribe a hinge mortise, make sure to angle the blade so the bevel on one side rides flat against the reference surface.

consistent in thickness and much easier to see, especially on dark woods. And in most cases you'll remove the ink with a handplane, scraper, or sandpaper.

Scribed lines for fine layout

A scribed line gives you a more precise target to work toward than a pencil line. These incised lines are indispensable for accurate handwork, providing a place to put the edge of a chisel so you can pare or chop a joint for a perfect fit. They also let you pare a little notch for starting an accurate sawcut.

There are a variety of tools for incising lines into wood, and these tools cut two different lines: point-scribed—those created with a sharp-pointed “scratch” awl or a pin-style marking gauge—and knife-scribed. Each has its proponents. I use both, with specific tasks assigned to each.

Point-scribed lines—These lines work well along the grain

but not across it, where the points tend to tear the wood fibers and leave a ragged line. Angling the tool forward in the direction of the cut so the pin is trailing slightly reduces tearout, improving the quality of the line.

Another important factor is how you hold a pointed marking tool against a straightedge or reference piece. The angle of the tool will change the location of the line slightly, so keep the point of the tool tight to the guide surface.

Point-scribing tools—

Some marking gauges use a pin sharpened to a point for scribing. I usually avoid them, because knife-style gauges are superior. But there's an exception. Marking gauges with two pins are very useful for mortise-and-tenon work. With one setting you can mark out both parts of the joint. Cutting inside the lines for the mortise and outside the lines for the tenon leads to accurate results.



The other useful point-scribing tool is a scratch awl. I use mine to transfer a dovetail layout from one part to another. I find this task easier with an awl than a knife, since there is no tendency to cut into the part you're marking from. To transfer dovetail marks around the workpiece, however, I use a flat-sided marking knife.

Knife-scribing—Knives leave sharper, finer lines than points and pins, both with and across the grain, but the fine lines can be hard to see, especially when they are in line with the grain. On the plus side, they cut just as cleanly across the grain as with it.

But the main advantage for knives and knife-based gauges is that they cut a line with a straight side and a tapered side. The straight-cut side is usually the part of the mark that you keep. These lines work exceptionally well for joinery, as they can provide the perfect beginning for a final cut. Get a dovetail baseline or tenon shoulder knife-scribed perfectly, and the scribed line will become the final visible edge. A knife line is also easier to strike perfectly flush with the edge of a ruler or reference edge. However, knives also have a tendency to cut into the reference part they are riding against. To prevent this, hold the knife as vertical as possible and start with a light cut.

Options for marking knives—There are many types of knives available. A cheap, effective option is the X-Acto knife, but because of its double-beveled blade it must be held at an angle so the bevel on one side rides against the reference edge.

Single-bevel marking knives (with one flat face and a small



DOVETAILS

Miller employs three marking tools to cut the various lines he needs.

Disk cuts the baselines. Use a disk- or knife-style marking gauge here, with its bevel facing the waste area and its square edge starting the square shoulder cut.



Transfer with an awl. Miller favors the awl for transferring the pin layout to the tail board (left), as it won't cut into the pins the way a knife can. Then he uses a knife to carry the lines around the corners of the tail board.

TIP



TUNE UP YOUR AWL

Watch out for awls with a steeper secondary taper near the point, which makes them useless for precise marking. Regrind the tip to a single gentle taper by spinning the tool as you hold it up to a grinding wheel.

Fine layout continued

MORTISE-AND-TENON BY HAND

To lay out both parts of this joint, Miller relies on the unique capabilities of a few different marking tools.

Mark the mortise first. A pin-style mortising gauge works well along the grain, marking both walls at once.



TIP



CHISEL WIDENS THE LAYOUT LINES

Use a wide chisel to pare a shallow ramp inside each line. That will leave a more pronounced shoulder to guide the mortise chisel.

Mark the tenon shoulders and cheeks. The pin-style gauge works well to mark the tenon cheeks (right) in end grain. But Miller marks the shoulders with a disk- or knife-type marking gauge, which works better cutting across the grain. The tiny bevel faces the waste wood, leaving a square cut at the shoulder.



TIP



HIGHLIGHT THE LINE

Use a pencil to go over the V-shaped groove left by the pin-style gauge. That will leave a tiny line on each side of the groove. Saw away the waste-side pencil line, leaving the other one, and your joints will be close to perfect.

bevel ground on the other face) are the easiest to hold flat against a reference edge. They come in left- and right-hand versions, or with a spear-point that lets them cut in both directions.

Options for knife-edged marking gauges—Marking gauges with knife edges can make clean scribes both across

and along the grain, as well as on end grain. They can have two types of knives: cutting disks and actual tiny knives. Both work well.

Knife-based marking gauges can typically be set to cut a slightly deeper line, helpful when you are using the vertical side of the groove as a final edge. A tenon shoulder

is one example. A disk-type cutter leaves the same square edge on one side of the line, but the bevel angle is steeper and the cut is not as deep. This shallower cut can be an advantage when you want to plane or sand it away later. Before making sawcuts to a scribed line, it helps to draw over the fine groove with a pencil. The

pencil will actually draw two lines, one on each rim of the canyon. Cut away the waste-side line and leave the other behind, and you will be very close to perfection. □

Jeff Miller builds furniture and teaches woodworking in Chicago, and is a longtime contributor to Fine Woodworking.

IWFA
ATLANTA

2018

EVERYTHING IN FURNITURE AND CABINETRY



REGISTER TO ATTEND

EXPERIENCE IT ALL:

- **WITH OVER 900 EXHIBITORS**
- **THOUSANDS OF PRODUCTS**
- **NEW INNOVATIONS**

www.iwfatlanta.com

PHONE: 404.693.8333 • FAX: 404.693.8350

Wednesday - Saturday August 22 - 25, 2018

Georgia World Congress Center - Atlanta, Georgia, USA



International Woodworking Fair, LLC®
is owned and sponsored by:



JEFFREY A. VAMOS

Lawrenceville, N.J.

Vamos, a woodworker for more than 40 years, shaped the top of his communion table in the form of a Reuleaux triangle. "The shape is formed by the intersection of three circles, which has much theological, and even mystical significance," said Vamos, a Presbyterian pastor. The tabletop is a torsion box and the legs are bent-laminated from maple plies.

MAPLE AND PINE, WITH CHERRY, ANIGRE, AND SHEDUA VENEERS; 45W X 35H

Photo: Hoa Tu



SCOTT STEVENS

Nelson, B.C., Canada

Curves are the focal point of this writing desk—the drawer fronts, the tabletop, the gallery, and even the drawer pulls are curved. Stevens made it while studying in the Fine Woodworking program at Selkirk College in Nelson, B.C. "I took inspiration from a range of styles including Art Nouveau, Mid-Century Modern, and Victorian era design."

WALNUT, ANIGRE, MAPLE,
24D X 43W X 30H



KELLY PARKER

Parkville, Mo.

This chair was inspired by the back of an evening gown, a bathing suit top with crisscrossed back straps, and a study of chairs in the Biedermeier style. "This was a ridiculously ambitious first chair, although I didn't know that when I designed it. The back legs and seat frame are steam-bent ash. The back slats are double-bent, woven, and placed over a form in a vacuum bag. There is not a right-angle to be found anywhere in the chair."

EBONIZED ASH, 19D X 20W X 34H



JEFF VÉR

Chapel Hill, N.C.

The dogwood blooms on the front panel of this hall table were Vér's first foray into marquetry. "I used double-bevel marquetry and sand shading to complete the panel, which is set in a bird's-eye maple background." The marquetry panel can slide to one side or the other, revealing a bank of three dovetailed drawers behind it.

MAHOGANY WITH MAPLE PANEL,
11D X 47½W X 30H

PETE MICHELINIE

South Pomfret, Vt.

Many long nights of reading inspired this pie-crust table. "Last year I was given a few milk crates of *Fine Woodworking* magazines. I spent the next four months reading the entire set each night before bed. I had always been intimidated by the pie-crust top, but after reading Eugene Landon's 1987 article on them, I decided to go for one."

MAHOGANY, 22½ DIA. X 27H



GEOFF MCKONLY

Northampton, Mass.

When designing this table, McKonly wanted only two of the legs to pierce the top and decided to try staking the additional legs through the two main legs. He also added a stretcher between the legs to strengthen the structure. "What I love about the finished design is the table seems to have a sense of motion and appears a bit like a spring under tension. I also really like how the table changes as you move around it."

ASH, 24 DIA. X 24H

MAINE WOOD 2018

Every other year, this juried show at the Center for Furniture Craftsmanship attracts entries from a wide range of Maine woodworkers. This was the sixth biennial show. Here are a few of our favorites from the many offerings. For more, go to woodschoool.org.

WILLIAM FRANCIS BROWN

Camden, Maine

Brown's roots in Chester County, Pa., and his love of the design features prevalent in period work made there—"line-and-berry inlay, paneled chests, and wonderful regional William and Mary period detail"—inspired this spice box on frame. In addition to the ebonized legs, cock-beaded drawer and apron moldings, inlay, and maple burl drawer fronts, this piece has three secret compartments.

WALNUT, WITH HOLLY, RED CEDAR INLAY, AND MAPLE BURL VENEER, 10¼D X 18W X 36H



MALCOLM RAY

Damariscotta, Maine

After a trip to Santa Fe, Ray's thoughts kept returning to the pottery forms he had seen in the galleries there. Many of the historic pottery pieces were damaged, with voids that made them "nearly a skeleton of their former selves." His turned vessels seek to replicate the feeling sparked by those pieces without copying them exactly. "I've been doing variations on them for a long time now."

CHERRY BURL, 5 DIA. X 3½H



DAVID BOYLE

Bath, Maine

If you've ever seen those tapered, rustic ladders used for apple-picking in New England orchards, you'll recognize what inspired the legs on this table. Maple saplings painted apple green reinforce the orchard theme. The top is a live-edge movingui board that Boyle calls an "impulsive purchase."

MOVINGUI, YELLOW BIRCH, BASSWOOD, MAPLE SAPLINGS, AND WALNUT, 23D X 65W X 30H

Photo: Dennis Griggs





ALED LEWIS

Machynlleth, Powys, Wales

The Dyfi Bench is named after the river Dyfi in Lewis's home county in Wales. His goal in making it was "to design a bench while avoiding horizontal surfaces and conventional turned or square-edged components." The valley seat is formed by twin curved and tapered planes, from which project the splayed legs and the curved back rest.

WALNUT, 15D X 47½W X 29H

Photo: Mark Juliana



LIBBY SCHRUM

Camden, Maine

The brightly colored detail on this stool is inlaid felt. It's an idea Schrum came up with when working on a different project and "squirreled away" until she found the perfect place to use it. She named it a "felt sandwich." The overall lines of the stool are inspired by a Mid-Century Modern aesthetic. "I don't use a whole lot of color in my work, but find that when I do, it makes me smile. I certainly see more felt sandwiches in my future!"

WENGE, 21D X 17¼W X 24½H



SAER HUSTON

Kennebunkport, Maine

This dining table came about after Huston and his company designed a couple of smaller tables with single-arch steam-bent bases. "We had discussed creating a similar form in a dining table size, but debated the shape of the curves. Then we found a way to incorporate the curves of the two smaller tables, inverting one of the bases to create an intersecting design."

CHERRY, 42W X 84L X 30H

Photo: C.A. Smith Photography





Turn the page. The simplest grain match is like reading a book. Open two consecutive leaves along the long-grain edge. The grain patterns on the open pages are a mirror image of one another.

Create beautiful grain patterns with veneer

BY TIMOTHY COLEMAN

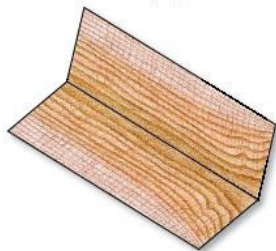
Online Extra

For an interview with Tim Coleman, go to FineWoodworking.com/269.

FOUR WAYS TO MATCH GRAIN

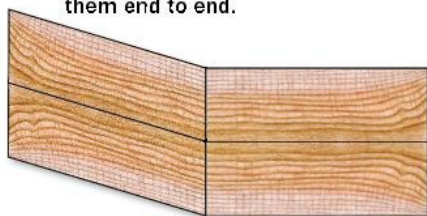
1. BOOK IT

Open the leaves like pages.



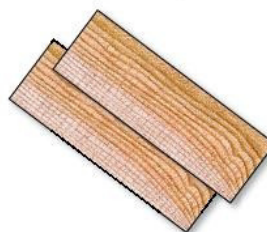
2. BOOK IT TWICE

Open two pairs of leaves down the middle, then book-match them end to end.



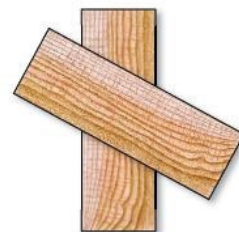
3. SLIP IT

Slide a leaf to the side, with the same face up.



4. SPIN IT

Open them like a book and spin one leaf end for end.



I love experimenting with grain patterns. And when I bandsaw my own veneer, I can slice 12 or more pieces from a 2-in.-thick board. With so many consecutive leaves of veneer to play with, I can array them in patterns that range from pleasingly rhythmic to bold and stunning. You can do the same with commercial veneers, as long as they are flichsawn.

I'll show you the four techniques for arranging veneer that I use most often. In all of them the leaves are edge-glued, with the grain on all the pieces running parallel. So, the veneer can

be glued either to a solid-wood substrate (as long as the grain on the veneer and the solid wood runs in the same direction) or to sheet stock.

Finding the best way to arrange a set of veneer leaves can require you to handle the leaves quite a bit—flipping, rotating, and sliding them around. Don't hesitate to work the leaves into as many arrangements as you can imagine. Shopsawn veneer, which should be about $\frac{1}{16}$ in. thick, is tough enough to handle it.

Timothy Coleman is a professional furniture maker in Shelburne, Mass.

BOOK-MATCH

The first match most woodworkers use is the book-match, which is a natural and beautiful choice in many situations. Two consecutively cut leaves of veneer are opened along their long edges like the pages of a book, and the grain on one mirrors the grain on the other. The pattern created across both leaves can be mesmerizing. The impact of a two-leaf book-match across the front of a cabinet can range from subdued to wild, depending on the grain of the veneer. The look will be affected by which edge of the leaves is used as the spine.



Shift for a better match. Because resawing removes a bit of wood, the grain on consecutive leaves might not match perfectly. Slide them back and forth along the adjoining edges until the grain aligns without interruption.



Soothing symmetry. Book-matched along the edge where the two doors meet, the quiet grain of these Argentine cedar veneers creates a balanced and harmonious front facade on this case piece by Coleman.



Dynamic symmetry. Four leaves of veneer book-matched both vertically and horizontally create a geometric grain pattern that travels around the panels, circling the point where the four leaves meet.

FOUR-CORNER MATCH

The secret to this technique for matching grain is a double book-match. One takes place along the long grain, but for the other, the end grain is used as the spine for the book's pages. The patterns created by the grain as it runs around the four leaves of veneer are always dynamic and dramatic.



Double book-match. Start with four consecutive slices of veneer, make two book-matches, and place one on top of the other. Then use the end grain as the "spine" and open the two leaves on top.

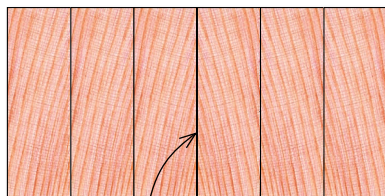
SLIP-MATCH

Take a stack of veneer. Slide off the top one, and then the second one, laying them down side by side. Repeat with as many leaves as you'd like. This is a slip-match. It works very well with narrow pieces of veneer and quarter- and riftsawn veneers. However, it can be a bit repetitive. To liven things up, start with a book-match in the center and then use slip-matches on either side.

Slide it over. Creating a slip-match is like dealing from a deck of cards. Take the top leaf and lay it down. The next leaf is laid down next to the first, and third next to the second. Keep the same face up on all of them.



SPICE UP A SLIP-MATCH



Begin with a book-match at the center and continue with slip matches.



Quiet and uniform. Matt Kenney used narrow, slip-matched leaves of riftsawn cherry veneer to create a cabinet back that doesn't distract the eye from the dramatic end-grain drawer fronts.

SPIN-MATCH

This is my go-to matching technique for large surfaces like tabletops. It's a two-step process. Start with a book-match and then spin one leaf 180°. Instead of having grain that creates cathedrals, you'll get grain that spills across the surface fluidly and without interruption. The joints between leaves often disappear as a result. The spin match is great for figured woods, because light will reflect off adjacent leaves in the same way. The chatoyance across the surface is consistent, rather than alternating from dark to light.

BOOK-MATCH

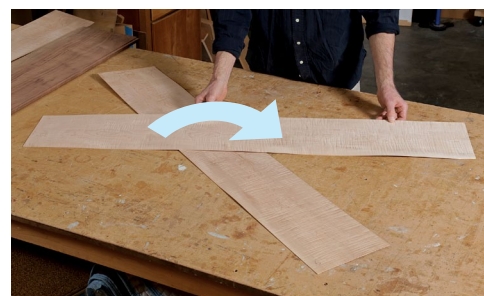


SPIN-MATCH



Cathedrals created by book-matching emphasize that two leaves are joined in the middle. Spinning one 180° creates a grain flow that helps the leaves look more like a single board.

Calm wavy grain. The wild undulations of the bubinga veneers in this table by Coleman would create unattractive chevrons if they were only book-matched. When you spin a leaf in each pair, the undulations "straighten" out and flow more gently across the tabletop.

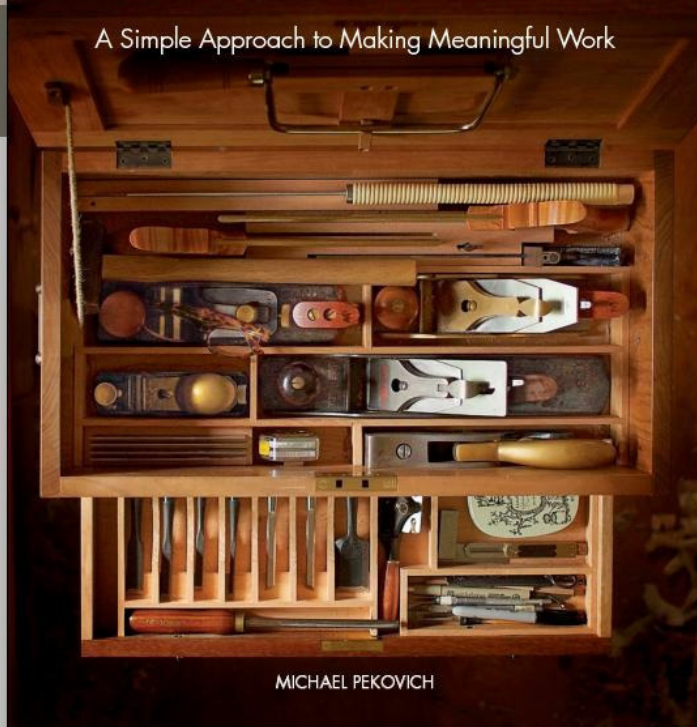


Spin it right around. When book-matched, figured woods can reflect light differently on the two leaves. To get the same effect on both, first open the two leaves for a book-match (top), and then rotate one of the leaves 180° (bottom). The two leaves will look more like a single wide board.



THE WHY & HOW OF WOODWORKING

A Simple Approach to Making Meaningful Work



MICHAEL PEKOVICH

NEW FROM *FINE WOODWORKING*

With a generous mix of instruction, design advice, and inspiration, *Fine Woodworking's* creative director Michael Pekovich explains how to create furniture and other pieces that are meaningful, purposeful, and beautiful.

Order your copy of *The Why & How of Woodworking* today.

Available August 2018 at TauntonStore.com
or wherever books are sold

 Taunton

INDEX TO ADVERTISERS

ADVERTISER	WEB ADDRESS	PAGE	ADVERTISER	WEB ADDRESS	PAGE
Berkshire Products	berkshireproducts.com	p. 23	Highland Woodworking	highlandwoodworking.com	p. 20
Bessey Clamps	besseytools.com	p. 31	<i>The How and Why of Woodworking</i>	www.tauntonstore.com	p. 83
California Air Tools	www.californiaairtools.com	p. 31	Inside Passage School	insidepassage.ca	p. 20
Center for Furniture Craftsmanship	www.woodschoool.org	p. 19	International Woodworking Fair	www.iwfatlanta.com	p. 75
Connecticut Valley School of Woodworking	www.schoolofwoodworking.com	p. 11	Jessem Tool Company	www.jessem.com	p. 17
Cook Woods	www.cookwoods.com	p. 85	Keller Dovetail Jigs	bestdovetails.com	p. 85
Custom Branding Irons	www.branding-irons.biz	p. 21	Knew Concepts	www.knewconcepts.com	p. 85
DR Power	www.drpower.com	p. 14	Lee Valley Tools	leevalley.com	p. 2
David Warren Direct	www.ecemmerich.com	p. 85	Lignomat	www.lignomat.com	p. 21
Dowelmax	dowelmax.com	p. 25	Oneida Air Systems	www.oneida-air.com	p. 19
Duke of Pearl	dukeofpearl.com	p. 17	Oneida Air Systems	www.oneida-air.com	p. 23
Envi by Eheat	www.eheat.com	p. 17	Oneida Air Systems	www.oneida-air.com	p. 25
Epilog Laser	www.epiloglaser.com/fww	p. 14	PantoRouter USA	www.pantorouterusa.com	p. 29
Felder Group USA	www.feldergroupusa.com	p. 13	Quality Vakuu Products	www.qualityvak.com	p. 85
Florida School of Woodwork	www.schoolofwoodwork.com	p. 29	Quickscrews	www.quickscrews.com	p. 87
Forrest Blades	www.forrestblades.com	p. 25	Rikon Power Tools	www.rikontools.com	p. 5
The Furniture Institute of Massachusetts	www.furnituremakingclasses.com	p. 85	Robert Larson	www.twocherriesusa.com	p. 11
Furniture Medic	furnituremedicfranchise.com	p. 9	SCM Group	www.scmgroupna.com	p. 23
GreX Tools	www.grextools.com/pinners	p. 21	Triton Tools	tritontools.com	p. 7
GrnGate Dust Collection	grngate.com	p. 29	Vacuum Pressing Systems, Inc.	vacupress.com	p. 11
Groff & Groff Lumber, Inc.	www.groffslumber.com	p. 29	Wagner Meters	www.wagnermeters.com	p. 11
Hearne Hardwoods	www.hearnehardwoods.com	p. 19	Wood Dust Australia	wooddustaustralia.com	p. 84
Highland Hardwoods	www.highlandhardwoods.com	p. 29	Woodcraft	woodcraft.com	p. 19
			Woodpeckers	woodpeck.com	p. 15
			Woodworkers Source	www.101woods.com	p. 85



Wood Dust Australia is an authentically new woodworking festival offering a rich program of talks and masterclasses by leading international craftspeople, an exhibition of fine woodwork at the Bungendore Woodworks Gallery, and a timber and tool marketplace that you won't want to miss featuring tool makers from around the world.

Come and experience woodworking in Australia, visit the website to learn more. For travel assistance and other enquires contact us at hello@wooddustaustralia.com

Wood Dust — The Australian International Timber and Woodworking Festival

Wood Dust Sponsor

FineWoodworking

Our Local Partners



Bungendore and Queanbeyan NSW Australia October 17th–21st 2018

www.wooddustaustralia.com [f](#) [t](#) [i](#) [y](#)

Max Strength = Maximum Control



Get Control with the Strongest,
Stiffest Fret Saws on Earth
Available in Titanium or Aluminum

www.knewconcepts.com

*Fine
Woodworking*

**Shop Our
Online Store**

FineWoodworking.com/ShopNow

Your destination for
trusted woodworking resources

**THE BEST
HARDWOOD LUMBER**
Walnut • Cherry • Exotics & More

100% Satisfaction Guarantee EVERY ORDER

FRIENDLY Service
EASY Ordering

www.101Woods.com

VISA 800-423-2450

**BEST
DOVETAILS**

It's the truth.
Order your Keller Dovetail System now!
(800) 995-2456

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

www.bestdovetails.com

We make the world plane

We also make it fancy

For prices of 75 E.C.E. planes and other cabinet-maker's tools, write: David Warren Direct, Unit 7509, 225 N. Columbus Dr., Chicago, IL 60601 call 800-724-7758. Dealers invited. View tools online at www.ecemmerich.com

**THE FURNITURE INSTITUTE
of MASSACHUSETTS**

Study with *Fine Woodworking* author
Philip C. Lowe • Classes range from 1 day
to 1 week to 2 and 3 year mastery programs.
• See new class schedule on:
(978) 922-0615 www.furnituremakingclasses.com

VACuum Pressing

Veneering ~ Laminating

Vacuum Pumps
Air-Powered & Electric

Vacuum Bags
Poly & Vinyl

Frame Presses

Veneering Accessories

800 547-5484 - www.qualityvak.com

The World's Finest Selection
Slabs • Turning Wood • Lumber

**COOK
WOODS**

**WEEKLY SPECIALS
ONLINE!**

1-877-672-5275 • www.cookwoods.com

CLASSIFIED

The Classified rate is \$9.50 per word, 15 word min. Orders must be accompanied by payment, ads are non-commissionable. The WOOD & TOOL EXCHANGE is for private use by individuals only; the rate is \$15/line, min. 3 lines. Send to: *Fine Woodworking Classified Ad Dept.*, PO Box 5506, Newtown, CT 06470-5506. FAX 203-426-3434, Ph. (866) 505-4687. Deadline for the September/October 2018 issue is June 8, 2018.

Business Opportunities

LIVE/WORK IN SOUTHERN VERMONT! 34x64 two plus story building surrounded by National Forest but close to amenities. Currently custom furniture maker. Livethedream@vermontel.com

Hand Tools

USED AND ANTIQUE HAND TOOLS wholesale, retail, authentic parts also (415) 924-8403, priederber@aol.com always buying.

E.C. EMMERICH'S full line of cabinetmaker's hand tools and parts. www.ecemmerich.com 800-724-7758.

DIEFENBACHER TOOLS - Fine imported and domestic hand tools for woodworkers. www.diefenbacher.com (720) 502-6687 or ron@diefenbacher.com

Help Wanted

FINE FURNITURE/CABINET MAKER/CRAFTSMAN Apprentice wanted for developing and fabrication of new designs. Must have experience with solid wood working, joiner techniques, and veneers. Must be responsible, motivated, and detail oriented. Salary is based on abilities. Location: Fort Lauderdale, FL. E-mail: ISM@woodgod.biz

Instruction

PENLAND SCHOOL OF CRAFTS, in the spectacular North Carolina mountains, offers one-, two-, and eight-week workshops in woodworking and other media. (828) 765-2359. www.penland.org

Wood

NORTH/CENTRAL VIRGINIA: Complete line of premium, kiln-dried hardwoods. Culpeper/Warrenton area. (540) 825-1006. cpjohnsonlumber.com

EISENBRAND EXOTIC Hardwoods. Over 100 species. Highest quality. Volume discounts. Brochure. 800-258-2587. eisenbrandhardwoods.com

RARE WOODS. Ebony, boxwood, rosewood, satinwood, ivory wood, tulipwood + 120 others. (207) 364-1073. www.rarewoodsusa.com

QUALITY NORTHERN APPALACHIAN hardwood. Custom milling. Free delivery. Bundled, surfaced. Satisfaction guarantee. Niagara Lumber. 800-274-0397. www.niagaralumber.com

WOOD AND TOOL EXCHANGE

Limited to use by individuals only.

For Sale

Fine Woodworking 1-269 plus Indexes. Fine condition. \$450 plus shipping. (310) 326-3395 (CA)

Our house of stories

BY MEGAN CLARKE

My name is Megan, and I am 11 years old. People love our house and say it is unique, warm, and inviting. It definitely isn't your run-of-the-mill house. Dad has made most of the interesting things in it.

He made the dining room table with beams from a warehouse that was being demolished. He finished it on Christmas Eve one year, hours before we were hosting 27 people for dinner. It took five men to carry in just the top. Mom says she wasn't sure we were going to have a table for dinner. I don't think Dad really was sure either.

There is a bit of a "wood and wrought iron" theme to a lot of Dad's furniture. And he likes to highlight the imperfections in the wood, not hide them. So although the top of the dining table is 5 in. thick, there is actually a spot where my brother used to be able to push his peas right through and get them to drop on the floor. Dad's reputation is that anything he builds will last forever, and weigh more than you care to lift.

Dad loves your magazine. That is where I got the idea to contact you about some of the things that my dad has built. I think a good title for my email would be Our House of Stories. Because that is why people find our house so warm and inviting—just about every item has a story behind it. Maybe that is what spending hours in the workshop designing the next piece of furniture does—allows Dad the time and space to work out special symbolism for each item, and make it "fit." That is the beauty of having a shop in the backyard.

The chandelier in the dining room is another one of people's favorites. Dad got the inspiration for it from the skyscrapers in Toronto, when his plane was landing on a rainy night. The boxes are built of wood, with rice paper as a lining. He then added glass rods shaped like water drops, which reflect the

light and add color (and represent the rain).

The picture frames in the hallway were made from old windows from Mom's farm in Southern

Alberta (last time anyone lived on the land was in 1960, and the buildings were abandoned or used for storage after that, until each one was, in turn, "decommissioned" because it was in danger of falling over). On a family vacation to see the farm, Dad ripped the windows out of the dilapidated buildings. He spent hours stripping them down (much more time than it would have taken to buy new wood) and making frames for my Mom and her two sisters, so they could have mirrors and picture frames from the family farm.

Dad framed a picture of Mom's Mom (Gramma) from when she lived on the farm, smiling and holding a cat. And he framed a picture of Grampa learning to harvest, when he first took over the farm in the 1950s. Dad searched the photo archives from

Southern Alberta and got two pictures of when Foremost, Alberta, was just being settled. Only the hotel and train station existed. He framed these pictures with wood from the rest of the windows and

'Anything Dad builds will last forever, and weigh more than you care to lift.'

hung them down the hall from the ones of Grampa and Gramma on the farm.

There are also curio cabinets, a mantel on the fireplace, shelves for the TV, the sideboard in the dining room, a shelf made from wood and steel that runs the

length of the dining room, and a playhouse outside that was built to code (the only structure on our property that Dad says is actually built to code, as the house is almost 100 years old). Plus more than I can really write about here. All of it is made by my dad, who spends his time in antique shops when he is not designing and making furniture or doing his job as an environmental engineer.

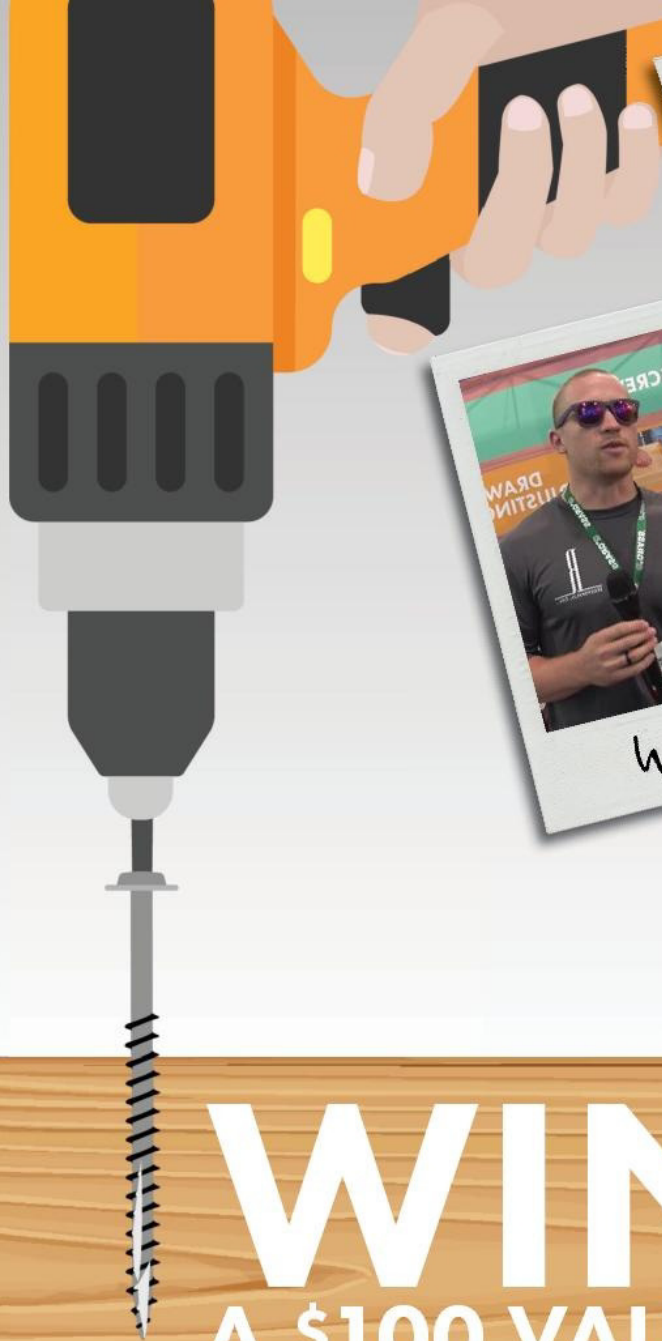
The tree that Dad made his office desk from was from ... I can't remember where it was from. He could tell you. But it was the perfect shape to form around him as he works. I sent a picture for you to see. □

Megan Clarke lives in Port Moody, B.C., Canada, and often works wood with her dad and brother Keigan in the shop behind their house.



Online Extra

To hear Megan read her story and see more of her dad's work, go to FineWoodworking.com/269.



WIN
A \$100 VALUE
PRIZE

EVERY HOUR

IWF ATLANTA

AUGUST 22ND - 25TH



BOOTH #2540

www.quickscrews.com

800.743.6916

Feathers



In 2011, Miriam Carpenter began teaching herself to carve. She made a wood block print and then, for her first piece in the round, decided to carve a feather. As she worked, she says, “I fell in love with the simplicity of the form. But also I began thinking about the feather as a symbol—representing the soul and things that are ethereal, and the resilience of nature.” Thirty feathers later, she is still captivated by the process. Using a variety of power and hand tools, she carves the feathers vanishingly thin—about $\frac{1}{32}$ in.—so they practically tremble. The final work, hours and hours of it, is done with tiny curved scrapers while she sits outdoors, feather in one hand, scraper in the other. “I’m not really looking at it,” she says, “I’m just feeling. Because sometimes your eyes play tricks on you; but your hands don’t, ever.” Periodically she holds the feather up to the light to gauge its thickness and evenness, and when she’s finished scraping she uses a scalpel to articulate the edges. Making the feathers, she loses track of time. “Staying that focused and that present shuts everything else out,” she says. “It’s like an active meditation.”

—Jonathan Binzen

