

TAUNTON'S

Fine

Woodworking

Build a bookcase in a day

October 2002

No. 158

**Gel stain
user's guide**

**Router jig
for floating-
tenon joinery**

**Installing
a bench vise**

**Compound-
angle joinery
without math**

**New midi-lathes
make turning
affordable**

**Top 10 rules
of woodworking**



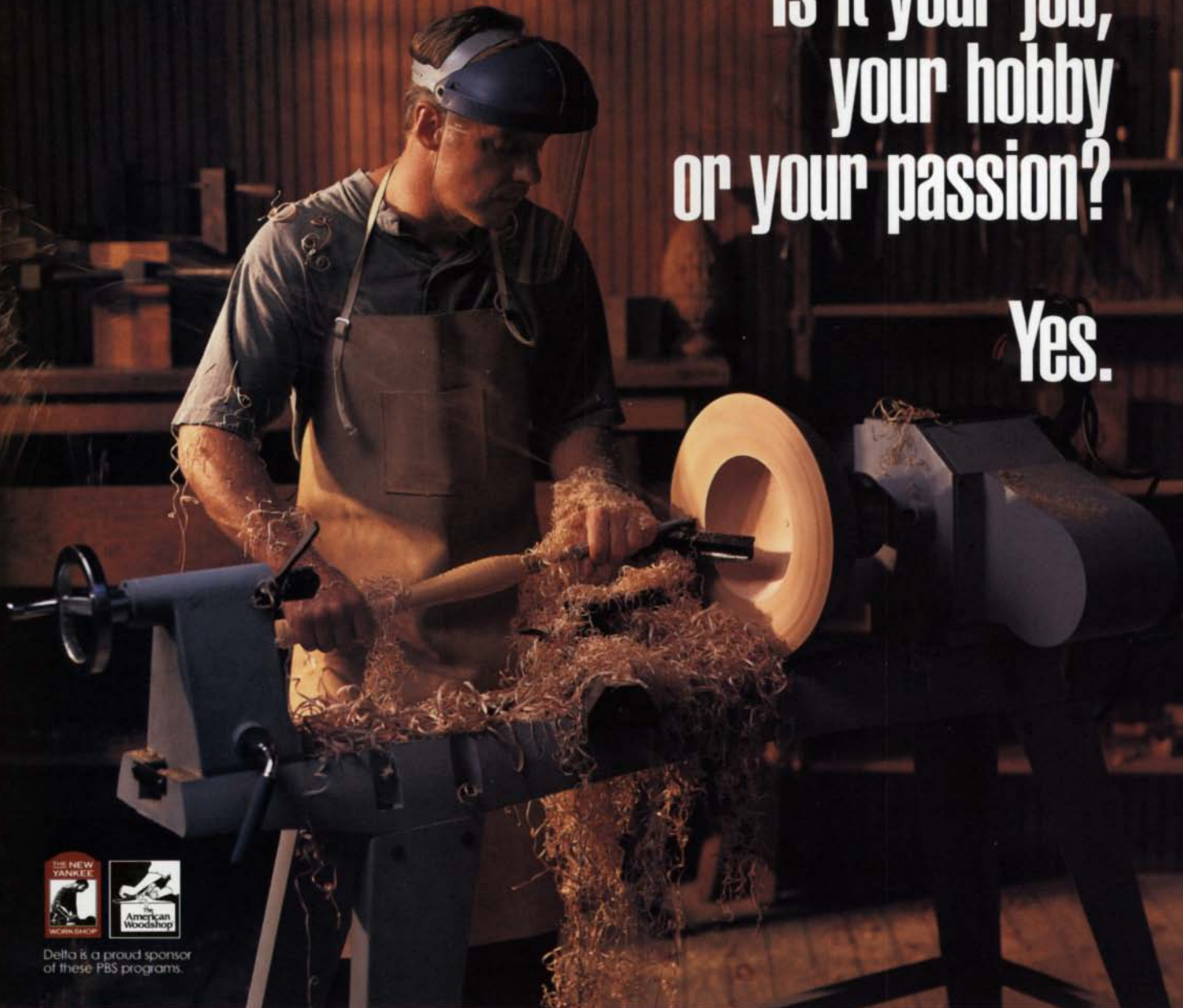
Shaping and joining curved drawers

\$7.99/Canada \$8.99



Is it your job, your hobby or your passion?

Yes.



Delta is a proud sponsor of these PBS programs.

Whether you're a professional or a hobbyist, Delta has a lathe to meet your needs.

If you're new to the world of turning, turn to Delta's Midi-Lathe and start creating decorative projects like pens and small bowls. Looking to turn larger stuff? Turn to the 14" Work Shop Lathe. Need even greater capacity to turn heavy spindles and very large vessels? Then turn to Delta's 16" Steel Bed Lathe. All offer the features you want. Plus the versatility and stability you need. For the name of your nearest dealer, call Delta Machinery at 800-438-2486 (U.S.) or 519-836-2840 (Canada). Or visit deltamachinery.com.



 **DELTA**[®]
SERIOUS WOODWORKING TOOLS SINCE 1919.

PORTABLE SAWHELPER™ ULTRAFENCE™ The Cure for the Miter Saw Blues!

- Fits all miter saws up to 15", perfect for all slide compound saws.
- The only system that is truly accurate and sets up on any terrain in 60 seconds — guaranteed.
 - Steel self-squaring coupler aligns fences with saw to 1/100" accuracy — no other system has it!
 - Flipstop™ fence gage has hairline pointer for extreme accuracy, lever action, Lexan view plate, heavy steel construction.
 - Extensions are made of tempered aluminum to support heavy framing lumber.
 - Legs store flat under fences and adjust from 30° to 42° — great for uneven terrain.



- Center stand folds flat, includes a quick release mounting plate for saw.
- Supports 500 pounds per side.



Rated #1 by
Fine Homebuilding magazine
in a comparison test.



Ref. 6-15-02

Available 5" to 94" per
side measured from blade.

AMERICAN DESIGN & ENGINEERING, INC.

1-800-441-1388

St. Paul Park, MN
www.sawhelper.com

651-459-7400

READER SERVICE NO. 160

KV KNAPE & VOGT

Meets the drawer needs
of the most discriminating
woodworker...

...with the **NEW**
self closing full extension
precision drawer slide

- Exceptionally smooth and quiet
- Steel ball bearings
- Non handed
- 100# class



KV8417

Self-closing action

KV8417 Special Online Price (Thru Oct '02)
www.wwhardware.com



Woodworker's Hardware

800-383-0130 • FAX 888-811-9850

Home of the largest selection of
cabinet hardware in this industry.

PO Box 180 Sauk Rapids, MN 56379

READER SERVICE NO. 204



The Shepherd Tool Company, Inc.

Purveyors of Fine Woodworking Tools

Quality

Performance

Beauty



<http://www.shepherdtool.com>

Ben: knebel@rogers.com

1 (519) 624-7350



Spiers Style No 7 Parallel Sided
Dovetailed Steel Smoother
Cryogenically Treated A2 Iron

\$650

A full range of infill planes available in kit, finished, and custom designs.
Visit our website to see the entire line of products.

READER SERVICE NO. 36

www.woodfinishing.org

People travel from across the United States to take Dakota County Technical College's unique nine-month Wood Finishing and Restoration program. Find Out Why!

Hands-on training for:

- Furniture restoration
- Production finishing
- Furniture service technician



DAKOTA COUNTY
TECHNICAL COLLEGE

EOE

Rosemount, Minnesota

Phone: 1-877-YES-DCTC

Web: www.woodfinishing.org

READER SERVICE NO. 22

New! Save hours of sanding!

Cut-N-Sand discs help REDUCE NOISE, VIBRATION & BLADE WEAR
Sand while cutting wood, soft metals, plastics, foam and similar materials.

Fits Blade Sizes
7" 10" & 12"

1. Peel



2. Stick



3. Install



4. Cut n Sand



CUT-N-SAND®

To order, visit our website at
www.cutnsand.com

or call 1(800) 282-2210

Patent Pending

CUT-N-SAND... Save time and money, get better results.

READER SERVICE NO. 43

Departments

6 Contributors

8 Letters

14 Methods of Work

Adjustable overarm blade guard with dust collection; Spline slots with a biscuit joiner; Bench stop for planing

22 Notes & Comment

Awards from coast to coast; Turning trends; Learning from a master

28 Tools & Materials

Laguna 12-in. tablesaw; Low-angle smoothing plane from Veritas; Shop Test: Antivibration gloves

76 Current Work

A gallery of our readers' woodworking

84 Rules of Thumb

Top 10 unavoidable truths of woodworking

88 Questions & Answers

What causes curl in cherry?; Open-grained wood doesn't absorb water-based stain

96 Master Class

Laying out compound-angle dovetails

109 Finish Line

A versatile 18th-century stain



Gel stain user's guide, p. 60



On the Cover:

*Contributing editor Mario Rodríguez smooths a curved drawer front made using one of his two methods. See p. 40
Photo: Erika Marks*



Midi-lathes, p. 68



Knockdown bookcase, p. 32

Articles

32 Bookshelves in a Day

Knockdown unit is engineered for stability and speedy assembly

BY STEVE LATTA

36 Floating-Tenon Joinery

Jig works with a plunge router to make quick, strong joints

BY LON SCHLEINING

ON OUR WEB SITE: Watch a video clip of the author using the jig

40 Two Ways to Make Curved Drawer Fronts

Choose a technique that fits your tooling and work habits

BY MARIO RODRIGUEZ

45 Soup Up Your Spokeshave

Three-step process takes the tool from good to better to best

BY BRIAN BOGGS

ON OUR WEB SITE: Video tips on using a spokeshave

50 Wine-Glass Cabinet

Tapered stiles and glass panels lighten an ash cabinet

BY SCOTT GIBSON

56 Installing a Cast-Iron Vise

There's more to it than sinking a few lag screws

BY TOM BEGNAL

60 Gel Stain User's Guide

Easy to apply, these stains are forgiving, even on blotch-prone woods

BY TERI MASASCHI

63 Many brands of gel stains, many shades of cherry

64 Compound Angles Without Math

Simple set-up block dials in tablesaw settings for accurate butt and miter joints

BY STEVE BROWN

68 TOOL TEST

Midi-lathes

This new breed of small lathe offers several features found in bigger machines at a more affordable price

BY ANDY BARNUM

74 A Life Built on Bookmarks

A modest woodworking business thrives on efficiency and ingenuity

BY JONATHAN BINZEN



Wine-glass cabinet, p. 50

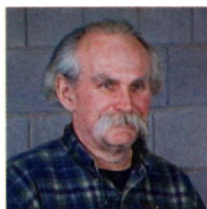


Installing a cast-iron vise, p. 56



Contributors

Raised on a farm in Kentucky, **David Salisbury** (Finish Line) originally wanted to be a farmer, but when his father sold the farm, that plan fell through and he turned to woodworking. Hired by Colonial Williamsburg 27 years ago, he completed his apprenticeship and has worked in the cabinetmaker's shop ever since. Salisbury finds it deeply ironic that his grandfather was a cabinetmaker in Germany, but when he came to this country he couldn't earn a living in that profession and so became a farmer. When not woodworking, Salisbury enjoys saltwater fishing, except between December and March, when his Kentucky Wildcats college basketball team takes priority.



Andy Barnum ("Midi-lathes") lives with his wife and two daughters in Carmel, N.Y., where he maintains an active woodworking business. He also teaches wood-

turning classes at the School of Art and Design at Purchase College in Purchase, N.Y., and at the Brookfield (Conn.) Craft Center. Barnum makes many of his own hand tools and finds it especially satisfying when he uses them to build furniture. Now, however, after accumulating hand tools for several decades, he is thinking that it might be time to downsize his collection. Anyone need 200 planes?

Brian Boggs ("Soup Up Your Spokeshave") makes chairs and rockers in Berea, Ky. While he is always working to refine the Appalachian chair style, he's just as interested in refining his production processes. His curiosity and inventiveness extend from the jigs and tools he uses to the process of harvesting and milling hickory bark for chair seats. His latest engineering venture is an improved version of his original bark machine. The new machine will gang-rip, split and surface rough material into uniform strips, then wind them into coils. This time he's using a system of aluminum extrusions called "The Industrial Erector Set" manufactured by 80/20 and an array of bolt-on mechanical



components from McMaster-Carr. These modular, adjustable parts allow him to design and debug his machine as he builds it. But more importantly, he said, "They're a blast."

Scott Gibson ("Wine-Glass Cabinet") does what many of our readers wish they could do: make furniture and write about it. He is a career journalist who has spent the last 10 years writing and editing magazine articles about furniture making and home building. A former staff editor at *Fine Homebuilding*, *Fine Woodworking* and *Home Furniture*, he is now a contributing editor to *Fine Homebuilding* and writes for several other publications. Gibson and his wife, Susan, returned to Maine last year, where they are renovating a house near the Saco River.

Steve Brown ("Compound Angles Without Math," Master Class) is the head of the cabinet- and furniture-making program at Boston's North Bennet Street School. After graduating from the same program in 1990, he worked as a furniture maker with Philip C. Lowe for almost nine years before returning to North Bennet Street School as an instructor. Since 2001, when he was tapped to run the program, Brown has been working on reshaping the two-year course. The challenge is to provide students with a solid foundation in the basics while offering them the experience of building high-end period pieces. For more information on the program, go to: www.nbss.org.



Fine Woodworking

PUBLISHER

Timothy D. Schreiner

EXECUTIVE EDITOR

Anatole Burkin

ART DIRECTOR

Michael Pekovich

MANAGING EDITOR **Matthew Teague**

SENIOR EDITOR **Asa Christiana**

ASSOCIATE EDITORS

William Duckworth, Thomas G. Begnal, Timothy Sams, Mark Schofield

SENIOR COPY/PRODUCTION EDITOR

Thomas McKenna

COPY/PRODUCTION EDITOR

Julie Risinit

ASSOCIATE ART DIRECTOR **Kelly J. Dunton**

IMAGING SPECIALIST **William M. Godfrey**

SHOP MANAGER **John White**

EDITORIAL ASSISTANT **Christopher X. Baumann**

CONTRIBUTING EDITORS

Tage Frid, R. Bruce Hoadley, Christian Becksvoort, Mario Rodriguez, Gary Rogowski, Mike Dunbar, Lon Schleining, Garrett Hack

CONSULTING EDITOR **Chris Minick**

METHODS OF WORK **Jim Richey**

INDEXER **Harriet Hodges**

GROUP PUBLISHER **Jon Miller**

ADMINISTRATIVE ASSISTANT

Mary Lou von der Lancken

MARKETING MANAGER **Karen Lutjen**

CIRCULATION MANAGER **Christine Rosato**

ADVERTISING MANAGER

David Gray

SENIOR NATIONAL ACCOUNTS MANAGER

Linda Abbett

NATIONAL ACCOUNTS MANAGERS

John Dyckman, William M. McLachlan

WOODWORKING BOOKS & VIDEOS

EXECUTIVE EDITOR **Helen Albert**

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. U.S. distribution by Curtis Circulation Company, 730 River Road, New Milford, NJ 07646-3048 and Eastern News Distributors, Inc., One Media Way, 12406 Route 250, Milan, OH 44846-9705.

Subscription Rates: U.S. and Canada, \$34.95 for one year, \$59.95 for two years, \$83.95 for three years (in U.S. dollars, please). Canadian GST included. Outside U.S. and Canada, \$41.95 for one year, \$73.95 for two years, \$104.95 for three years (in U.S. dollars, please). Single copy, \$7.99. Single copies outside the U.S. and possessions, \$8.99.

Postmaster: Send address changes to *Fine Woodworking*, The Taunton Press, Inc., 63 South Main St., P.O. Box 5506, Newtown, CT 06470-5506.

Printed in the USA

HOW TO CONTACT US:

Fine Woodworking

The Taunton Press, 63 S. Main St., P.O. Box 5506,
Newtown, CT 06470-5506 (203) 426-8171
www.finewoodworking.com

Editorial:

To contribute an article, give a tip, or ask a question, contact *Fine Woodworking* at the address above or:

Call: (800) 283-7252, ext. 423
Fax: (203) 270-6753
E-mail: fw@taunton.com

Customer Service:

For subscription inquiries, you can:

- Visit our subscriber service section at:
www.finewoodworking.com
- E-mail us: fwservice@taunton.com
- Call our customer support center:
To report an address change, inquire about an order, or solve a problem, call:
(800) 477-8727
To subscribe, purchase back issues, books or videos, or give a gift, call:
(800) 888-8286

Advertising:

To find out about advertising:

Call: (800) 283-7252, ext. 829
E-mail: fwads@taunton.com

Member Audit
Bureau of Circulation



Retail:

If you'd like to carry *Fine Woodworking* in your store, call the Taunton Trade Company at:
(800) 283-7252, ext. 329

Mailing List:

Occasionally we make our subscribers' names and addresses available to responsible companies whose products or services we feel may be of some interest to you. Most of our subscribers find this to be a helpful way to learn about useful resources and services. If you don't want us to share your name with other companies, please contact our Customer Service Department at:
(800) 477-8727


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 2002 by The Taunton Press, Inc. No reproduction without permission of The Taunton Press, Inc.

GENERAL

PRECISION WOODWORKING TOOLS



EXCEPTIONAL PRICING SERVICE & VALUE
Made In Canada

GENERAL MACHINERY

The only High Quality, Heavy Duty Line of Woodworking Equipment
Tablesaws, Jointers, Mortisers, Lathes, Drill Presses and accessories including Modulus* Scoring Saw Attachment

www.woodworktools.com
ASHMAN TECHNICAL LTD.
351 Nash Rd, N. Hamilton, Ontario, CANADA L8H 7P4
Phone 905-560-2400 • FAX: 905-560-2404
1-800-668-5721

READER SERVICE NO. 200

Turn to Quality.

Call Starter Kit!

#3300-FW...only \$29.99!
Reusable Turning Kit
includes: 7 mm mandrel rod, #1 or #2 Morse taper, knurled nut, bushings, washers, tubing, stopper turning guide. **Plus receive:** 1 Cocobolo Duck Call Blank Kit with predrilled blanks, reed & lanyard.
Ask about our other call blanks!

- High-Quality Pen, Project & Game Call Kits
- Large Selection of Turning Blanks
- HUT Wood Finishes
- Sherline & Jet Lathe Systems
- Innovation, Not Imitation

Shop online www.hutproducts.com
Mention this ad for a FREE Catalog
Call Today! 1-800-684-9371



READER SERVICE NO. 213

THE SOURCE FOR BANDSAW ACCESSORIES

Iturra Design : New 2002 Catalog

Free Catalog



- Introducing the **Quick Release** by Carter Products
- Our new **Blade Gage** bandsaw blade tension meter.
- **Lenox Pro Master** carbide-tipped and Bimetal blades
- **Bandrollers**, rip and re-saw fences, improved tension springs, tires, table inserts, circle jigs, and much more.
- History and comparison between **Delta** and **JET** bandsaws.

CALL 1-888-722-7078 or 1-904-642-2802

READER SERVICE NO. 53

Hammer

...for Woodworking perfection

The new EXPERT Line

Featuring state of the art sliding table technology, the patented roller bearing system. Hammer offers MORE for professionals that expect MORE from their tablesaws. If a saw is not enough, The HAMMER is also available with a shaper or even as a full combination machine. In any case providing you with a cutting accuracy of 0.1mm and a 6 year warranty on the guiding system. Cutting your 8 ft sheets or 2 inch strips will be a breeze.

- Sliding table saw K 3 L Expert**
 - 9 ft sliding table
 - scoring unit
- Combination machine C 3 41 L Expert**
 - 9 ft sliding table
 - tilting shaper
 - 16" planer-thicknesser
- Saw - Shaper B 3 L Expert**
 - 9 ft sliding table
 - tilting shaper

Call now for free information
☎ 1-800-572 0061



Call 916-375-3190 • Fax 916-375-3194 www.hammerusa.com

HAMMER USA West 1851 Enterprise Blvd. • West Sacramento, CA 95691
HAMMER USA East 2 Mc Cullough Drive • New Castle, DE 19720

Quality and precision made in **AUSTRIA**

READER SERVICE NO. 150

Letters

Practical use for faux finishing—

Peter Gedrys' Finish Line "The art of faux graining" (*FWW* #157, pp. 114-116) doesn't mention one very practical use for faux finishing, one I discovered on a trip to Paris.

To list all the pleasures of walking around that glorious city would take pages; but as a woodworker, I zeroed in on the many heavy, oak, raised-panel doors that are used at street level in older buildings. Light colors seem to prevail, yellows and oranges mostly. Though many are set deep in masonry walls, most get some direct sunlight each day. Some get baked all day. The thing that struck me was that, in general, these light finishes were in great condition. As someone who has worked on boats, I know the short life of clear finishes in UV light. As a New Yorker, I've been heartbroken to watch thousands of dollars of excellent woodworking and material on Madison Avenue storefronts turn shabby in a year or so.

So I was particularly interested in these Parisian doors. Though the work was uniformly at a high level, many of the best-looking doors were faux bois—there was usually some small chipping at an edge—and often many years old. The trick was, as far as I could tell, that the job was done entirely in pigmented paint: no glazing and no clear topcoat.

It seems to me that this insight could be highly valuable to woodworkers who do

outdoor jobs like storefronts and signs. If you skip the expensive woods and don't labor the joinery, you can give a client a project that costs less and lasts longer with a false wood finish. Faux bois, by its nature, can cover a lot of problems.

—Robert Braczyk, New York, N.Y.

Diamond stones deserve mention—

The comparison and evaluations of nine different honing systems ("Sharp and Sharper," *FWW* #157, pp. 36-41) were well done and nicely written. We here at Diamond Machining Technology were pleased to see the DMT DuoSharp included in your evaluation.

More directly to the point of my letter, there seems to be widespread mention of virtually every manufacturer of each product that was used in your article; however, Diamond Machining Technology is conspicuously absent. Now, I would anticipate that the readership of *Fine Woodworking* is able to correlate the distinctive polka-dot interrupted cut pattern pictured and be able to say unequivocally that product was made by Diamond Machining Technology; however, an editorial mention would have been appropriate. In this way, the readership could be assured that the "diamond stone" was truly of the highest-quality flatness with precisely micronized monocrystalline diamond and not a cheap imitation.

Thanks again for a thoughtful, well-written article on what we base each and every day of operations on at Diamond Machining Technology: "Sharp and Sharper"!

—Stanley A. Watson, technical director,
Diamond Machining Technology

Plywood instead of MDF?—In reading the Methods of Work "Replaceable insert for radial-arm saw" (*FWW* #156, p. 22), I was surprised to see plywood used as a top for a radial-arm saw.

Over 30 years I have used two radial-arm saws, and both saws came with 1-in.-thick medium-density fiberboard (MDF) tops. When I replaced my original saw, the only part that I was able to salvage from the earlier saw was the top because when I bought that earlier saw, I put a piece of ¼-in.-thick fiberboard on the top and let that piece take all the



The Taunton Press
Inspiration for hands-on living™

INDEPENDENT PUBLISHERS SINCE 1975

TAUNTON, INC.

Founders, Paul and Jan Roman

THE TAUNTON PRESS

President & CEO John Lively

Chief of Operations Thomas Luxeder

Finance Director Timothy Rahr

Publisher, Magazines Jon Miller

Publisher, Magazines Sarah Roman

Publisher, Books James Childs

Editorial Director Marc Vassallo

Creative Director Susan Edelman

Human Resources Director Carol Marotti

Controller Wayne Reynolds

Technology Services Director Edward Kingston

Promotion Director Steven Turk

Fulfillment Director Patricia Williamson

Associate Ad Sales Director Jeff Dwight

TAUNTON TRADE COMPANY

President, Jan Roman

TAUNTON DIRECT

Circulation Director, Ned Bixler

TAUNTON NEW MEDIA

Director, Suzanne Roman

THE TAUNTON STAFF

Books: Marketing: Allison Hollett, Brandi Gabriele, Audrey Locorotondo. Editorial: Maria Taylor, Robyn Airken, Helen Albert, Peter Chapman, Carol Kasper, Carolyn Mandarano, Suzanne Noel, Jennifer Peters, Stephanie Ramp, Amy Reilly, Jennifer Renjilian, Marilyn Zelinski. Art: Paula Schlosser, Joanne Bisson, Nancy Boudreau, Wendi Mijal, Lynne Phillips, Carol Singer, Rosalind Wanke. Manufacturing: Thomas Greco, Michael Gyulay.

Business Office: Holly Smith, Deborah Cooke, Gayle Hammond. Legal: Carolyn Kovalski. Magazine Print Production: Philip Van Kirk, Nicole Anastas.

Distribution: Paul Seipold, Aaron Lund, Sergio Colon, Leanne Dion, Deborah Greene, Linnea Ingram, Frederick Monnes, Raymond Passaro, Elsie Rodriguez, Alice Saxton, Rocco Toce.

Finance/Accounting: Finance: Kathy Worth, Andrea Henchcliffe, Susan Hochreiter, David Pond. Accounting: Patrick Lamontagne, John Vaccino, Irene Arfaras, Lydia Krikorian, Elaine Yamin, Carol Diehm, Margaret Bafundo, Dorothy Blasko, Susan Burke, James Post, Lorraine Parsons, Priscilla Wakeman.

Fulfillment: Diane Goulart. Client Services: Jodi Klein, Nancy Knorr, Donna Capalbo, Renee Pagelson. Customer Service: Ellen Grassi, Bonnie Beardsley, Katherine Clarke, Frances Denninger, Alfred Dreher, Monica Duhancik, Summerlily Gajdosik, Margaret Hicock, Barbara Lowe, Eileen McNulty, Patricia Parks, Deana Parker, Patricia Pineau, Marylou Thompson. Data Entry: Anne Champlin, Madelaine Frengs, Debra Senfelder, Andrea Shorrock, Betty Stepany.

Human Resources: Linda Ballerini, Christine Lincoln, Dawn Ussery.

Fine
Woodworking

.... around the country

If we're in your neck of the woods,
come by and see us

Nov. 21-22: Publisher Tim Schreiner and executive editor Anatole Burkin will be in the *Fine Woodworking* booth at the Mid-America Industrial Woodworking Expo in Columbus, Ohio. The show takes place at the Greater Columbus Convention Center. For more information on the show, visit their web site at www.tsishows.com.

Information Technology Services: *Applications Development:* Leslie Kern, Marjorie Omaljev, Roger Seliga, Heidi Waldkirch, Carole Ando, Gabriel Dunn, Kathy Martin, Robert Nielsen, Linda Reddington, Lawrence Sullivan, Cynthia Zibelin. *Desktop and Network Support:* Kenneth Jones, Michael Colonari, Michael Lewis, Jay Ligouri, Joseph Manganello.

Marketing: Renu Aldrich.

Operations: Lori Runco, Jeannette Pascal, Dorothy Simpson, Ward Willis. *T Room:* Michael Louchen, Geraldine Benno, Anna Pendergast, Norma-Jean Taylor. *Maintenance:* Susan Nerich, Alvin Jack, Lincoln Peters.

Promotion: Nina Anthoine, William Brady, Mary Beth Cleary, Maria LaPiana, Sandra Motyka, Donald Torrey, William Sims. *Promotion Print Production:* Diane Flanagan, John Cavallaro.

Taunton Creative and Editorial: Robert Goodfellow, Sarah Opdahl, Pamela Winn. *Photography:* Scott Phillips. *Prepress:* Deborah Cooper, Richard Booth, William Bivona, David Blasko, James Chappuis, Brian Leavitt, Chansam Thammavongsa. *Advertising Production:* Laura Bergeron, John Garofalo, Steven Molnar, Patricia Petro, Kathryn Simonds, Martha Stammer. *Editorial:* Steven Aitken.

Taunton Direct: Nancy Clark, Deborah Johnston, Christine Rosato, Eileen Sheehan, Jeanne Todaro.

Taunton New Media: Jodie Delohery, Philip Allard, Christopher Casey, Mark Coleman, Ruth Dobsevage, Kathryn Dolson, Gary Junken, Timothy Murphy, Rita Scanlan.

Taunton Trade Company: Susan Shaw, *Director:* John Bacigalupi, Trina Bayles, Paul McGahren, Eve Pison, Elizabeth Quintiliano, Maureen Remitz. *Single Copy Sales:* Mark Stiekman, Valerie Droukas.

TAUNTON MAGAZINES

Fine Woodworking
Fine Homebuilding
Threads
Fine Gardening
Fine Cooking

Our magazines are for people who are passionate about their pursuits. Written by practicing experts in the field, Taunton Press magazines provide authentic, reliable information supported by instructive and inspiring visuals.

TAUNTON BOOKS

Our books are filled with in-depth information and creative ideas from the finest authors in their fields. Whether you're practicing a craft or engaged in the creation of your home, Taunton books will inspire you to discover new levels of accomplishment.

WWW.TAUNTON.COM

Our website is a place where you can discover more about the interests you enjoy, converse with fellow enthusiasts, shop at our convenient on-line store or contact customer service.

EMPLOYMENT INFORMATION

To inquire about career opportunities, please e-mail us at tauntonjobs@taunton.com or visit our website www.taunton.com. You may also write to The Taunton Press, Human Resources, 63 S. Main St., Box 5506, Newtown, CT 06470.

CUSTOMER SERVICE

We are here to answer any questions you might have and to help you order our magazines, books and videos. Just call us toll-free at 1-800-477-8727.

The Taunton Press, Inc., Taunton Direct, Inc., Taunton Trade Company, Inc., and Taunton New Media, Inc., are all subsidiaries of Taunton, Inc.



FREE CATALOG

LEARN THE ART OF SEAT WEAVING FOR FUN OR PROFIT

- Cane
- Cane webbing
- Rush
- Binding Cane
- Chair and stool kits
- Wood parts
- Upholstery Supplies
- Shaker Tape

...And much more

Frank's Cane and Rush Supply
7252 Heil Avenue, Dept. FW2
Huntington Beach, Ca. 92647
ph: (714)847-0707 fax: (714)843-5645
www.franksupply.com

READER SERVICE NO. 85



Real hand carvings in Real wood

www.buycarvings.com

Wild Goose Carvings 888 345 4552



R²

The **NEW** REPLACEABLE and REVERSIBLE Microplane[®] Rasp.

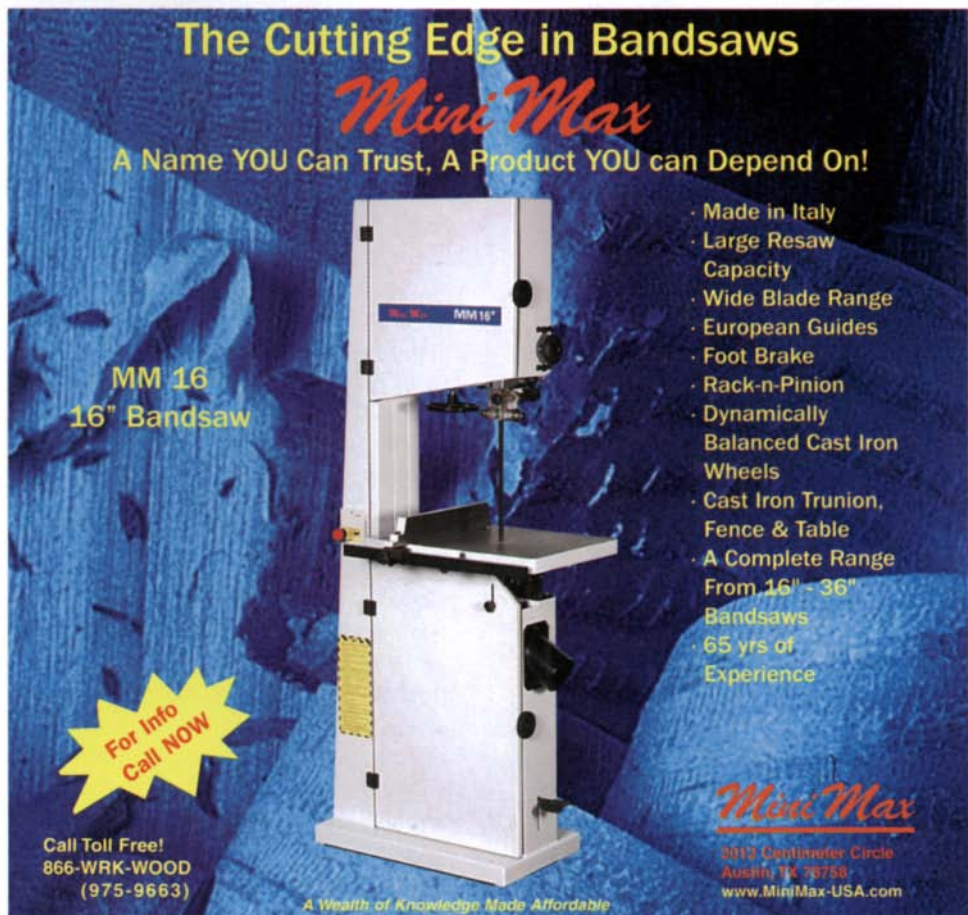
"Microplanes[®] shave the wood instead of tearing and gouging."
- Scott Phillips

For more info call: 1-800-555-2767

Microplane
Sharper Cutting Tools

www.microplane.com
info@microplane.com

READER SERVICE NO. 114



The Cutting Edge in Bandsaws

MiniMax

A Name YOU Can Trust, A Product YOU can Depend On!

MM 16
16" Bandsaw

- Made in Italy
- Large Resaw Capacity
- Wide Blade Range
- European Guides
- Foot Brake
- Rack-n-Pinion
- Dynamically Balanced Cast Iron Wheels
- Cast Iron Trunion, Fence & Table
- A Complete Range From 16" - 36" Bandsaws
- 65 yrs of Experience

For Info Call NOW

Call Toll Free!
866-WRK-WOOD
(975-9663)

MiniMax
2012 Centimeter Circle
Austin, TX 78758
www.Minimax-USA.com

A Wealth of Knowledge Made Affordable

READER SERVICE NO. 144

cuts. Not only do I crosscut, but I also perform a lot of cutting at different angles and frequent dado cutting on my radial-arm saw. —Paul Jacklin, Corona, Calif.

Manufacturer warning—*Fine Woodworking* published a quick tip in its Methods of Work department that suggested using Rain-X on glasses to prevent fog and dust buildup (*FWW* #156, p. 18).

Rain-X is designed for external automobile glass only. When used on plastic surfaces, such as safety glasses or goggles, damage may occur. Our product directions clearly state: “Do not use on plastics unless preapproved by the manufacturer of the plastic to be treated.”

—Mike Maddox, national manager, technical service, Pennzoil-Quaker State Co.

Cyber satisfaction—Several years ago, when I was introduced to the World Wide Web, I surfed right to your web site. I was sorely disappointed and quit visiting until several weeks ago.

What a difference! I really like the format that you have now. It is clear and well laid out. Keep up the good work staying in touch with your readers. I'll stay in touch with *FWW*.

—Steve Shank, Bend, Ore.

PVC pipe dangers not debunked—In the article “PVC Pipe Dangers Debunked” (*FWW* #153, pp. 48-49), Rod Cole surmises that PVC pipe for home-shop dust-collection systems is safe. I feel strongly that metal pipe is safer than PVC.

Historically, plastic pipe has been taboo in the woodworking industry. Panels and

About your safety:

Working wood is inherently dangerous. Using hand or power tools improperly or ignoring standard safety practices can lead to permanent injury or even death. Don't try to perform operations you learn about here (or elsewhere) until you're certain they are safe for you. If something about an operation doesn't feel right, don't do it. Look for another way. We want you to enjoy the craft, so please keep safety foremost in your mind whenever you're in the shop.

—Anatole Burkin, executive editor

committees composed of scientists, engineers and industry experts who work in insurance, human safety and woodworking and equipment manufacturing consistently agree that plastic pipe should not be used in material conveying wood waste.

Some of the reasoning is as follows:

Static sparks arcing internally or externally can ignite combustible mixtures inside or outside the pipe, not limited to wood dust mixtures.

Static sparks arcing from the pipe can jolt, injure or startle personnel working on dangerous equipment.

The danger of duct fires: Plastic pipe itself is combustible. It cannot contain a fire starting in a duct. It's easy enough to check your dust bin or bags for smoldering material, but sparks or embers can also ignite residual sap coating or dust anywhere in your ductwork. Running the collector for a few minutes before shutdown can help, but not all ducts are designed efficiently, and some material may remain in the duct. Smoldering materials inside the pipe are out of sight and inaccessible.

Limited choices of pipe size: PVC fittings are not designed for pneumatic conveying, compromising efficiency and good design.

The above incidents do occur in the woodworking industry. Fire loss is much less likely in a small woodworking shop, but the hazards are still present. Rod Cole's research is impressive and relevant. It provides much needed additional information in risk assessment, precisely because many woodworkers use PVC drainpipe for air handling applications. However, the research is limited in scope and done by one person working outside his field of expertise. Although generally more expensive, metal pipe is still a far better choice for woodworking applications.

—Robert Witter, Oneida Air Systems Inc.

Another household cleaner for shop use

—A number of readers suggested oven cleaner as an alternative to the blade cleaners reviewed recently in the Tools & Materials department (*FWW* #154, pp. 30-31). We conferred with Tony Ferrato, a 30-year veteran at Forrest, who said that oven cleaner is okay to use and won't

harm the carbide teeth. Limit exposure to 20 minutes, and use either a brass or nylon brush to scrub the blade. Oven cleaner, however, may cause the body of the blade to tarnish and may remove writing and labeling information.

—Tom Begnal, associate editor

Addendum—Some readers asked us how to get in touch with instructor Peter Gedrys, author of last issue's Finish Line. He may be reached at Architectural Finishes, 112 Mt. Parnassus Road, East Hadam, CT 06423; arcfinishes@msn.com.

Corrections—Because of an editing error, the origin and current home of the Shaker clock reproduced in issue #157 were incorrect. Isaac Newton Youngs lived in the Mount Lebanon, N.Y., community and built this clock as part of a group of 22. An original is now housed in the Hancock, Mass., dwelling house.

Also, the article on honing systems, “Sharp and Sharper” (*FWW* #157, pp. 36-41) had a reference to ceramic stones, which in the published version were eliminated due to space constraints. We apologize for any confusion this may have caused.

Assistant Art Director

Fine Woodworking is looking for a graphic designer with three-plus years of magazine experience and knowledge of woodworking to assist in developing technical illustrations and article layouts. Must have strong drawing skills, be proficient on the Mac (Quark), understand the production process and be able to meet tight deadlines. Photographic abilities are a plus. Send letter and resume to: Personnel Department, The Taunton Press Inc., 63 S. Main St., P.O. Box 5506, Newtown, CT 06470.

Writing an article

Fine Woodworking is a reader-written magazine. We welcome proposals, manuscripts, photographs and ideas from our readers, amateur or professional. We'll acknowledge all submissions and return those we can't publish. Send your contributions to *Fine Woodworking*, P.O. Box 5506, Newtown, CT 06470-5506.

I'm Bill Carroll,
call me & I'll show
you how you can
own a Woodcraft
franchise



**When I
think about
owning my own business ...**

Bring your woodworking skill, your love of tools, and your expertise and we'll show you how you can turn your passion for woodworking into your life's work.

...I think of Woodcraft



WOODCRAFT®
Helping You Make Wood Work®

800 344-3438 or e-mail:
bill_carroll@woodcraft.com

1177 Rosemar Road
P.O. Box 1686
Parkersburg, WV 26102-1686 Dept.F02WW10Q

SWIVEL CHAIR

Bases • Mechanisms • Parts



• No minimum quantity • Online catalog
www.swivel-chair-parts.com

Abacus

professional



PR.28

INVISIBLE 23 GAUGE HEADLESS PINNER
SHOOTS: 15MM (5/8") - 28MM (1 1/8")
\$279 USD

CALL FOR NEAREST DEALER
DEALER INQUIRIES WELCOME
WWW.OMERTOOLS.COM

TO ORDER CALL
TEL: 604.876.9909
FAX: 604.876.3914

OMER
Direct

READER SERVICE NO. 6

12" Tilting Arbor Table Saw Extremely Affordable Unbelievable Quality

European riving knife safety!
Superior dust collection design!
Professional precision and repeatable accuracy!!

PK 300V TABLE SAW

- 3.6HP, 1-ph 230V (S1)
- 52" rip and crosscut
- Scoring unit built in



- Full Dado capability
- Professional sliding table

ROJEK

for a lifetime of woodworking

Exclusive Distributor
in the United States

TM
TECH MARK, INC.

Let us make you a believer! Call toll-free: **800-787-6747**

7901 Industry Dr., North Little Rock, AR 72117

Fax: 501-945-0312 • Website: www.tech-mark.com

COMBINATION MACHINES • SHAPERS • JOINTERS • PLANERS • SLIDING TABLE SAWS • SLOT MORTISERS

READER SERVICE NO. 198

T E C H A I R

Juried by Sam Maloof
October 12-November 23

Krikorian Gallery

Worcester
Center for Crafts

Opening Reception: Saturday, October 12, 6-8 pm
Slide Lecture with Sam Maloof:
Sunday, October 13, 2-4 pm

Call 508-753-8183 for information
www.worcestercraftcenter.org

25 Sagamore Road, Worcester, Massachusetts

READER SERVICE NO. 25



All the best of our 155 issues, now on CD

Finally! Here's the most complete library of authoritative woodworking information anywhere. Now on a single, easy-to-use CD.

The Best of Fine Woodworking gives you fast, immediate access to more than 500 of the most significant articles from 27 years of publication.

It includes timeless material from out-of-print issues. Plus invaluable tips from "Methods of Work," our most popular column, going back to its debut in 1976.

This CD is a virtual archive of the magazine that started the revolution in woodworking.

PC and MAC compatible, it's ready to load and ready to use. Full-text search capability locates the exact information you want – plus all related material – in seconds.

The Best of Fine Woodworking will be ready to ship October 31, 2002, so pre-order today.

Price: \$150.00

Fine Woodworking subscribers pay only \$125.00



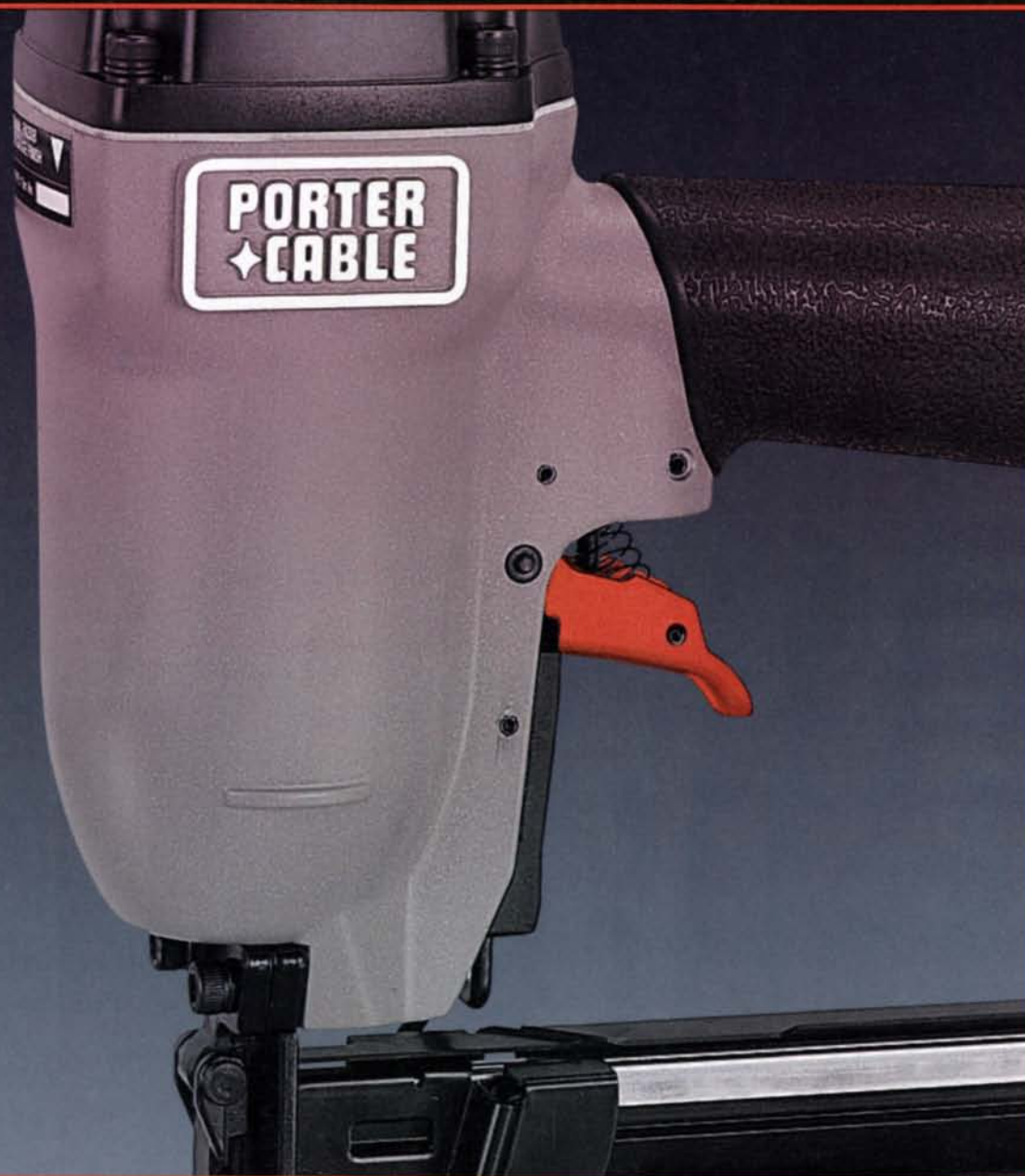
The Taunton Press

Call to pre-order today, (800) 888-8286 operator W1278

Postage and handling extra; payable in U.S. funds.

© 2002, The Taunton Press, Inc.

**IMPROVED ERGONOMICS. EXCEPTIONAL CAPABILITIES. SLEEK DESIGN.
ARE WE TALKING ABOUT A NAILER OR A SPORTS CAR?**



PIN100



FN250B



DA250B



PN650

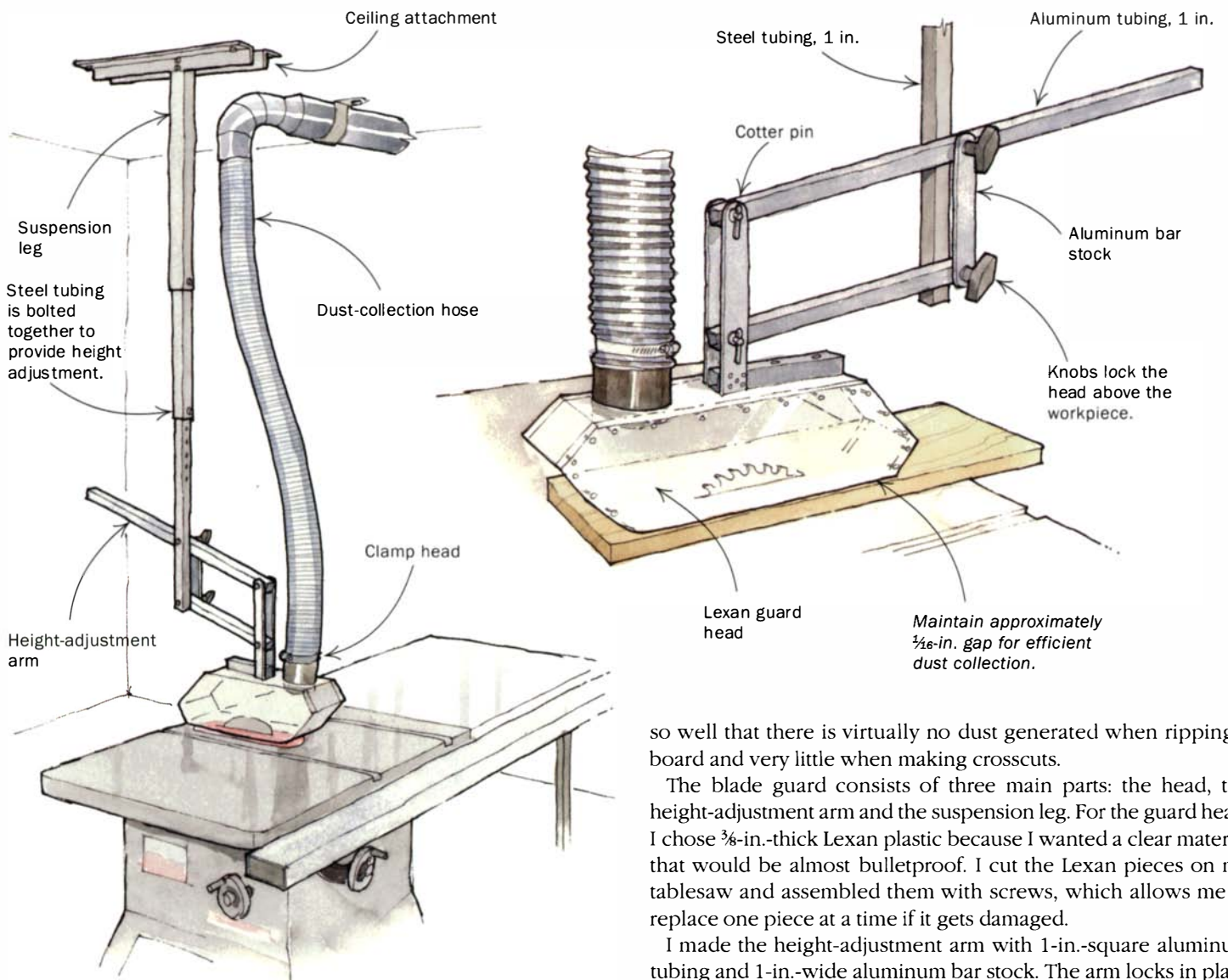
INTRODUCING THE NEW FINISHING NAILER FROM PORTER-CABLE.

Our new finishing nailer has more features than a high-performance roadster. Its in-line magazine has all the nail capacity you need and fits snugly into the sleekly designed, lightweight housing. Perfect for window casings, staircases, crown molding and a host of other applications. It's as fast and powerful as a sports car, yet as durable as a work truck. Our nailer is also available in a combo kit, which provides everything you need to get started. For your nearest dealer call 1-800-4US-TOOL.

READER SERVICE NO. 104

**PORTER
★CABLE**

Adjustable overarm blade guard with dust collection



When I decided to build a blade guard for my tablesaw, I wanted one that not only would protect my fingers but also would provide excellent dust collection. I believe I achieved this in the design shown above, and for a cost of less than \$100. One important safety feature is that during use the guard head is locked into position just $\frac{1}{16}$ in. above the workpiece. In my opinion, this feature provides more protection than a guard head that can be lifted by the workpiece during the cut. The dust-collection component works

so well that there is virtually no dust generated when ripping a board and very little when making crosscuts.

The blade guard consists of three main parts: the head, the height-adjustment arm and the suspension leg. For the guard head, I chose $\frac{3}{8}$ -in.-thick Lexan plastic because I wanted a clear material that would be almost bulletproof. I cut the Lexan pieces on my tablesaw and assembled them with screws, which allows me to replace one piece at a time if it gets damaged.

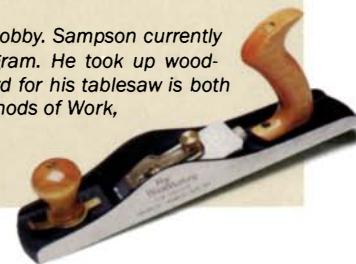
I made the height-adjustment arm with 1-in.-square aluminum tubing and 1-in.-wide aluminum bar stock. The arm locks in place with T-knobs to hold the head at the right height over the sawblade. The parallelogram-shaped mechanism keeps the head level with the table at any height, and it easily can be raised several inches when changing blades or cleaning the tabletop. To remove the head from the adjustment arm, I simply have to remove a couple of cotter pins.

I made the suspension leg from 1½-in., 1¼-in. and 1-in.-square steel tubing. These sizes fit inside each other, telescoping to allow gross height adjustments and quick removal of the entire unit, if

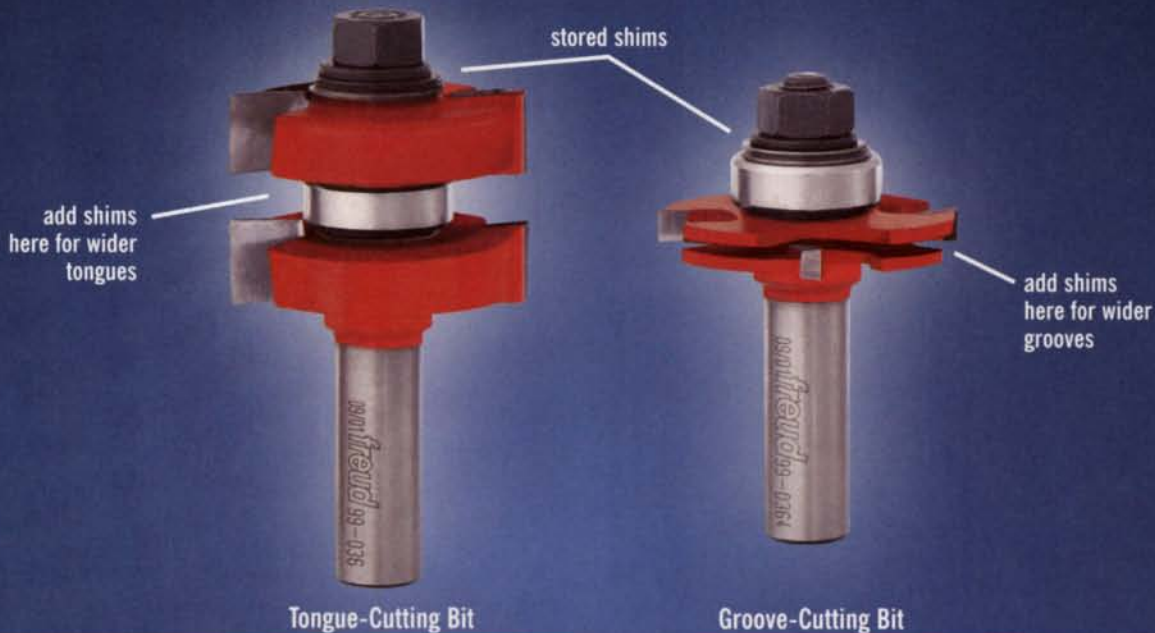


A reward for the best tip

Woodworking is not rocket science, but Gordon J. Sampson brings the talents of that discipline to his hobby. Sampson currently works at NASA in Houston, Texas, as an electrical engineer on the International Space Station program. He took up woodworking as a serious leisure pursuit only three years ago. Sampson's design for an overhead blade guard for his tablesaw is both sturdy and elegant. Send us your best tip, along with any photos or sketches (we'll redraw them), to *Methods of Work*, Fine Woodworking, P.O. Box 5506, Newtown, CT 06470-5506.



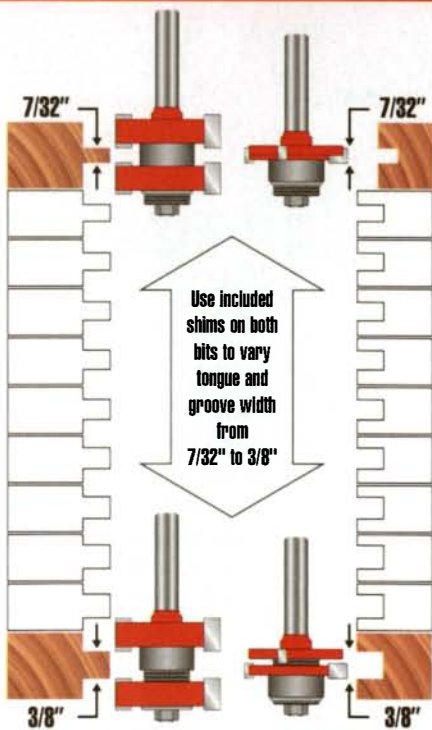
How many different projects will this set create?



Tongue-Cutting Bit

Groove-Cutting Bit

How high can you count?



Now one bit set will create up to 80 different tongue and groove widths for countless applications.

Introducing the Adjustable Tongue & Groove Bit Set from Freud. This revolutionary two-piece set will do the job of several sets – saving you time, money and storage space.

The exclusive design enables one bit to cut grooves as wide as 3/8" and as narrow as 7/32", ideal for 1/4" plywood. The second adjustable bit produces the mating tongues, and features opposing shears for silky smooth cross-grain cuts without splintering.

The set includes shims, so you can customize the fit by .002" increments for a tight glue joint or a loose slide.

The Adjustable Tongue & Groove Bit Set (item #99-036) produces perfectly fitted joints in stock from 1/2" to 1-1/4" thick for a multitude of projects, from classic Shaker style cabinet doors to breadboard ends, drawer glides and glued-up panels. You can even create arch topped doors, since the bits are bearing guided.

Whether you're a production shop or a hobbyist, Freud makes your job easy!



Shaker Style Doors



Tongue & Groove Joints



Breadboard Ends

freud[®]
The Psychology of Woodworking

(U.S.) 1-800-472-7307 • (CANADA) 1-800-263-7016

www.FreudTools.com

READER SERVICE NO. 151

Red router bits are a registered trademark of Freud TMM, Inc. Patents Pending. **ISO 9002** CERTIFICATE REGISTRATION # 12 100 9159

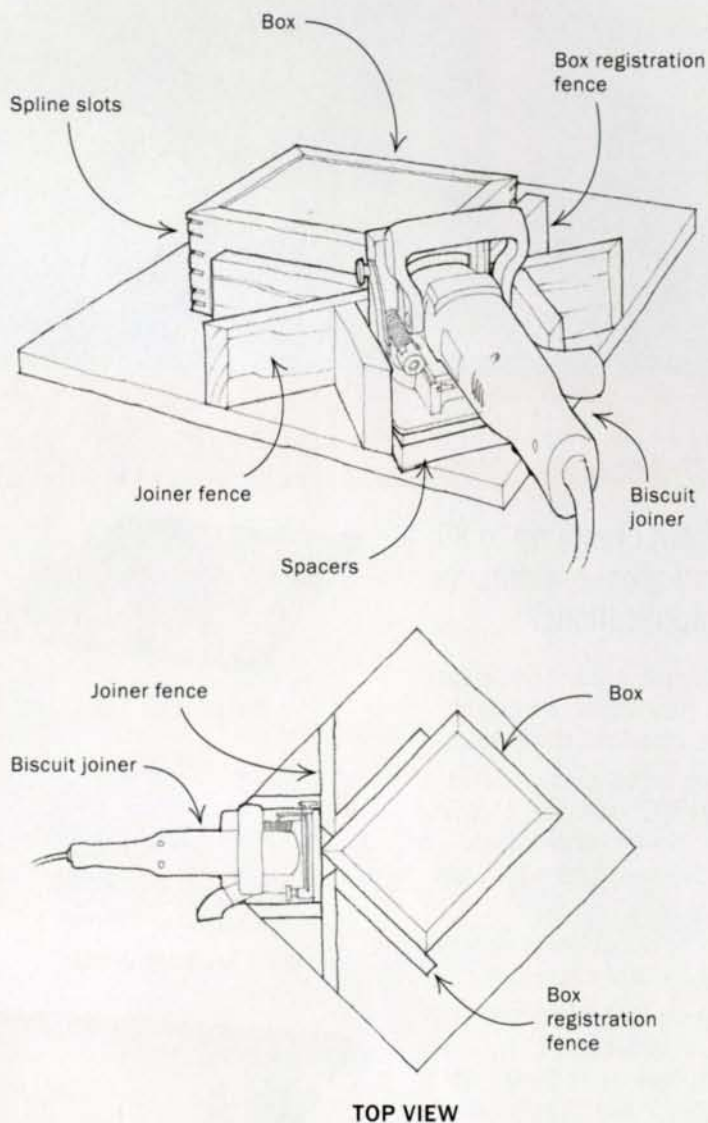
Methods of Work (continued)

necessary. I bolted the top of the suspension leg between two heavy angle irons that are in turn lag-bolted into the ceiling joists. A sturdy connection to the ceiling is important, so you may have to improvise, depending on the particulars of your shop. In my case, I also was able to bolt the suspension leg to a garage-door support for additional stability.

Once I had the unit supported and ready to use, I attached a 3-in. plastic splice to a length of 3-in.-dia. plastic dust-collection hose and inserted the splice into the hole in the top of the blade guard. Now my tablesaw is safer and dust-free (well, almost dust-free).

—Gordon J. Sampson, Pearland, Texas

Cutting spline slots with a biscuit joiner



This technique for cutting spline slots in the corners of small boxes is safer and faster than using a sliding 45° jig on the table-saw. The splines not only add strength to the corner joint, but they also are quite attractive.

To make this jig, start with a base of 3/4-in.-thick plywood and add two sets of fences to the top—one to register the box and

another to register the biscuit joiner 45° to the box corner. Adjust the biscuit-joiner fences high enough that you can raise the joiner with spacers to cut splines at different heights off the bottom. I use spacers that are 1/4 in., 1/2 in. and 3/4 in. thick to produce several height combinations.

To use the jig, place the box into the corner, against the registration fence, and bring the biscuit joiner into position at the height for cutting the first slot. This may require a spacer. You want the spline slot to be as deep as possible without cutting through to the inside of the box. Set the depth (by varying the biscuit-size setting) and then cut the slot by plunging the joiner into the box. Rotate the box to cut slots in all four corners at that setting, then flip the box and repeat the process. Raise the joiner again with a spacer and repeat the process as many times as needed to cut the desired number of spline slots in all four corners.

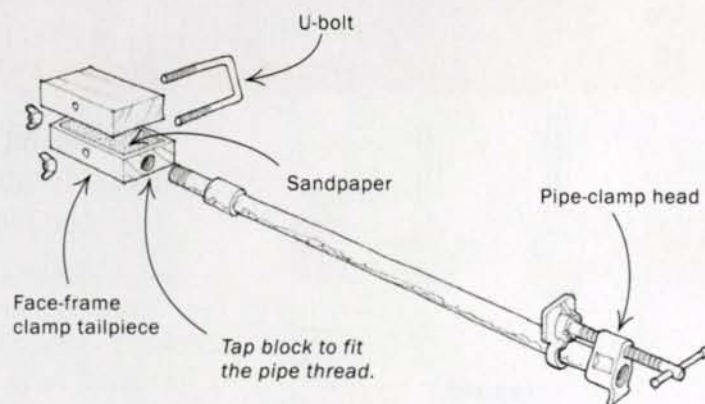
Cut the spline material from a contrasting wood and glue it in the slots. After the glue dries, you can trim and sand the splines flush with the box sides.

—Walter E. Erck, Mount Prospect, Ill.

Quick tip: Broken baseball bats are a good source for turning replacement chisel handles. Most teams just throw away the bats. One bat will yield three or four clear, straight-grained ash handles.

—Randy Lee, Fairfield, Ohio

Shopmade face-frame clamp



When I had to assemble a large face frame, I realized my bar clamps were not long enough and were so heavy that they would probably distort such a light framework. So I made several of the clamps shown above based on a commercial clamp designed for face-frame assembly. The clamp uses a common pipe-clamp head to apply pressure and a tailpiece that grips the stock between two offset, cantilevered hardwood blocks faced with 100-grit sandpaper. A square U-bolt provides the pivot that joins the blocks.

Because I own a pipe tap, I was able to attach the tailpiece by drilling and tapping the end of the bottom block. Alternatively, you could drill a slightly oversized hole in the block and pin the pipe in the hole with a small bolt. A little flex in the joint is good because it allows the assembly to be somewhat self-aligning.

Wing nuts on the ends of the U-bolt allow it to be reversed to the other side to accommodate left- or right-hand application on a

Adams Wood Products™
LTD., L.P.

STOCK ITEMS
NO MINIMUM ORDERS
-OR-

WE WILL MAKE PRODUCTION RUNS OF YOUR PART

By American Craftsmen

CHAIR LEGS
ACR08 AMDOB

BUN LEGS
A0556

FR STYLE QUEEN ANNE LEGS

FINIALS
A0851

913 LEGS

113 REEDED BASE W/206 LEG

404 CHAIR KITS

P.O. Box 728, Dept. Q36
Morristown, TN 37815-0728
Phone 423-587-2942 • Fax 423-586-2188
www.adamswoodproducts.com

FREE COLOR CATALOG

READER SERVICE NO. 68

Kreg

POCKET HOLE SYSTEMS

Have you discovered the Pocket Hole Advantage?

Visit **KREGTOOL.COM** today to learn how the speed, strength and simplicity of pocket hole joinery can complement your woodworking skills. Our "Virtual Trade Show" features a **FREE** video demonstration of the tools and techniques in action!

Kreg

The **BLUE** mark of quality. **www.kregtool.com**
1-800-447-8638

READER SERVICE NO. 191

TOOL DOCK™

The Modular Workshop

See it at...
www.tooldock.com

For more information call: 1-866-866-5362

©2002 Waterloo Industries, Inc., USA
READER SERVICE NO. 7

Australian School of Fine Furniture

AUSTRALIA'S MOST COMPREHENSIVE 2 YEAR DIPLOMA COURSE IN DESIGNING AND MAKING FINE FURNITURE OFFERED IN THE FORESTED ISLAND STATE OF TASMANIA. NEXT INTAKE JANUARY 2003.

FULLY ACCREDITED INCLUDING PROFESSIONAL TRAINING IN DESIGN, MAKING AND BUSINESS MANAGEMENT. FOR INFORMATION: EMAIL: INFO@ASFF.COM.AU WEB: WWW.ASFF.COM.AU PH: +61-3-6331 0288

READER SERVICE NO. 135

"How I Make \$1,113 A Day Woodworking ...And You Can Too!"



California Woodworker Finally Reveals The Truth About Making Money With Your Craft.

Would you like to know an easy, almost "fool-proof" way to make solid money woodworking? If so, this will be the most exciting message you will ever read.

Here's why: my name is Ray Sutton. I'm a woodworker just like you. I work out of my tiny shop making furniture and other projects...probably the same kind of stuff you do. The only difference between us is that I have a proven system that reliably brings me over \$1000 per day with my woodworking projects...rain or shine. (And I'll give you proof of that, too!)

Yes, I've achieved the fantasy of a fabulous income, doing what I love: woodworking. But it wasn't always this way...

For years, I struggled to discover a "sure-fire" way to make money with my craft. This struggle took me \$42,000 into debt, and put my house and marriage on the line. It forced me to take jobs I absolutely hated, just to support my craft.

What Is The Secret?

Finally, I had a "breakthrough". I was doing just about everything right. Except one thing. Once I discovered what it was, I couldn't sleep for three days - it was so simple! And my excitement wasn't a false alarm, either. After putting this secret into motion, my income exploded like a fireworks display!

This amazing secret is now the foundation for my entire business. I tease my friends it's like the "goose that lays the golden eggs". It lets me make an average of \$1,113 a day (that's \$23,355 a month)

with my woodworking business. Sometimes, I work a week then take the next 3 weeks off. The System continues to bring in money.

There is no personal selling, no "cold-calling" involved and it's 100% ethical. And, by the way, it's totally different from anything you've ever seen...people seek ME out. You can use this system if you just want to boost your cash-flow or...go full-time with it and really make wads of cash for you and your family.

Bottom line: I've discovered a simple, easy-to-implement, step-by-step system I'm convinced anyone can duplicate once they understand it.

Free Report

Everybody laughed when I told them I'd make serious money woodworking -- but now the joke's on them. I make great money doing what I love...and I'm going to teach YOU how to do the same. But there's just too much to tell in this little space. So I'm making available a special, free report to anyone who asks for it. Entitled, "The Secret Of Making Money Woodworking" it's yours free whether you're a professional or amateur, as long as you're 100% serious about improving your woodworking income. To get your copy...

Call 1-800-821-1180 for a 24-hour FREE recorded message

You've got nothing to lose - heck, even the call is free! So call and get your report NOW!

© 2002 RPG, Inc.

#1 Rated Drum Sander by Independent Experts!



FREE 30-Day Trial!
5-Year Warranty
Prouder Than Ever to be MADE IN AMERICA!

Wide Belt Performance ...at About 1/3 the Cost!

Call today for a FREE report on why Woodmaster's Drum Sander was voted "tops" by *Fine Woodworking Magazine* vs. Performax®, Grizzly®, etc. See how a Woodmaster can cut your sanding time by up to 90%!

Now, our line of 26" and 38" drum sanders includes a new 50" model. These commercial-duty sanders fill the niche between slow hand methods and expensive wide-belt sanders...at about one third the cost. And there's no sacrifice in quality.

Call today and we'll give you the names of Woodmaster owners near you. This way, you can find out, first hand, how a Woodmaster might be just the machine you've been looking for.

Call Today for Free Facts
1-800-821-6651 ext. DS87

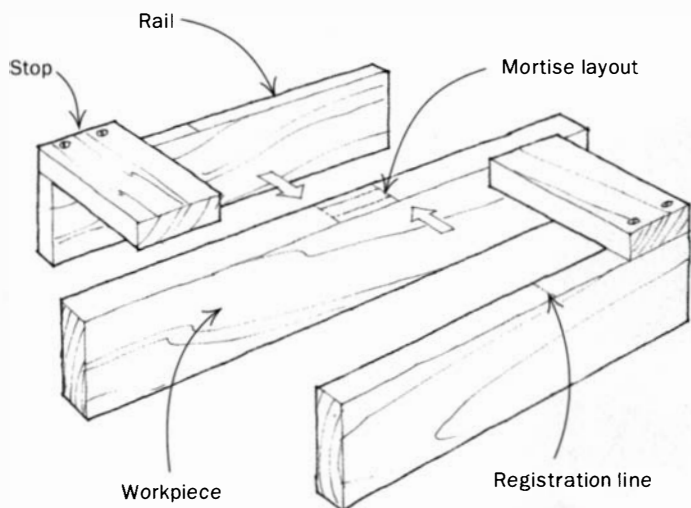
Woodmaster Tools, Inc.
1431 N. Topping Ave. Dept. DS87, Kansas City, MO 64120

READER SERVICE NO. 165

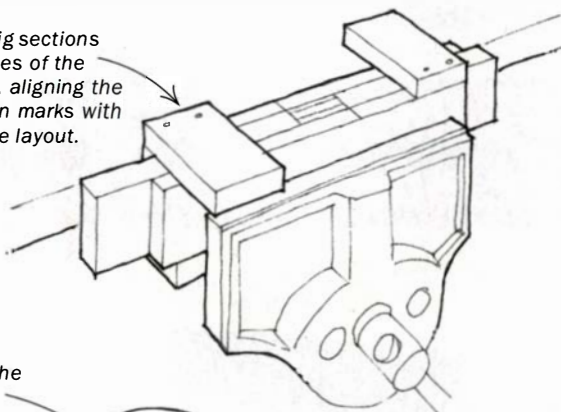
Methods of Work (continued)

frame. The maximum opening between the blocks (determined by the location of the pivot holes) should be a little more than the thickness of the stock to be joined. A $\frac{7}{8}$ -in. opening is about right for $\frac{3}{4}$ -in.-thick stock. —Jeffrey P. Gyving, Point Arena, Calif.

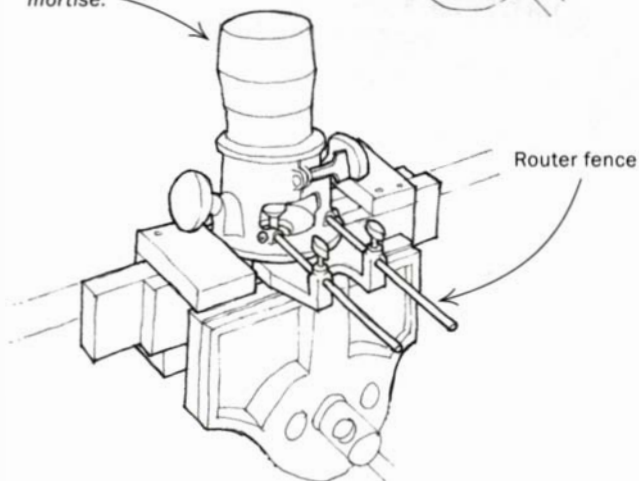
Router mortising jig



1. Clamp jig sections to both sides of the workpiece, aligning the registration marks with the mortise layout.



2. Rout the mortise.



This simple router-mortising jig has two sections that are clamped to both sides of the workpiece to provide a wide, stable routing plat-

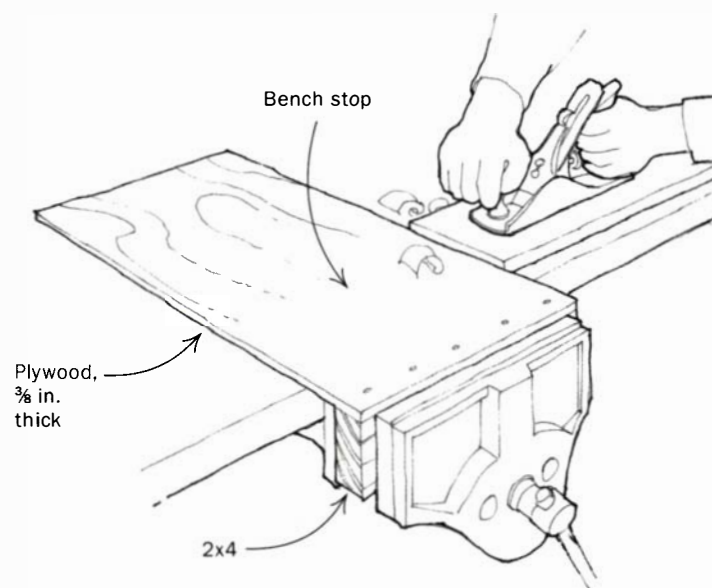
form and to control the length of the mortise cut. The jig, which is used with a fence on the router, can be set to make just about any length of mortise on any thickness of wood. Best of all, you can put it together from scraps in no time.

Each jig section consists of a stop screwed at a right angle to the top edge of a rail. For smaller mortises, $\frac{3}{4}$ -in.-thick by 3-in.-wide stock will work fine for both the rails and the stops. You may want to scale up the jig for larger mortises or use thicker stock to provide a wider platform for mortising thinner workpieces. When sizing the jig, just be sure the rails are long enough so that the stops overlap when the rails are clamped to the workpiece. You also can chamfer the bottom edge of the stops to aid in clearing debris.

Before using the jig, clamp it to a piece of scrap and rout a short mortise by bumping the base of the router against each stop. Use the ends of the mortise to mark a square pencil line across the top of each rail. This line will register the distance from the router baseplate to the outside edge of the bit, and you can use it to align the jig quickly with your mortise layout lines. The registration lines work only for one size of router bit, but the jig is so easy to make that I have a separate one for each bit that I use to cut mortises.

To use this jig, mark out your mortise on the workpiece. Align the registration marks on each jig section with the mortise-length layout lines and clamp the two jig sections to the workpiece, making sure that the rails are flush along the top. Set the router fence to locate the mortise laterally and rout the mortise to depth. If the mortise is near the end of a workpiece, it's a good idea to add a piece of scrap the same thickness as the workpiece to provide a longer clamping base. —Rob Sterling, Boise, Idaho

Bench stop for planing



My bench has no dogs or other accessories for securing a workpiece to the top of the bench for planing or scraping. So I came up with a modified bench stop that performs this function quite well. To make one, screw a generously sized piece of $\frac{3}{8}$ -in.-thick plywood (mine is 14 in. wide by 18 in. long) to a 2x4 scrap. The $\frac{3}{8}$ -in.

WHERE WOODWORKERS GET THEIR EDGE.



ACCURACY

- Micro-line depth adjustments in 1/64" increments
- Precision machined motors and bases
- Concentricity gauge



POWER

- 2 maximum HP/12 Amp EVS with full feedback control and soft-start motor
- 1-3/4 maximum HP/11 Amp motor



VERSATILITY

- Interchangeable motors and bases
- Quick release motor latches
- Tool-free, adjustable motor cam lock



EASE OF USE

- Detachable cordset
- Through-the-column dust collection on plunge base
- Rubber, overmolded handles

INTRODUCING THE NEW ROUTER SYSTEM FROM DEWALT.

Accuracy. Power. Versatility. It's what the new DEWALT® router system delivers. The new DEWALT router system consists of two motor packs, a 2 maximum HP EVS or 1-3/4 maximum HP motor and three interchangeable router bases: fixed, plunge and D-Handle. The fixed base and D-Handle provide superior accuracy through a micro-line depth adjustment ring and concentricity gauge to ensure bit concentricity. The plunge base offers through-the-column dust collection and the smoothest plunge stroke for accuracy and control. The ergonomic D-Handle base features a detachable cordset that plugs into both motor packs directly from the handle. The new DEWALT router system: where woodworkers get their edge.

For more information, call **1-800-4-DEWALT** or visit our web site at www.DEWALT.com

©2002 DEWALT. The following are trademarks for one or more DEWALT Power Tools and Accessories: The yellow and black color scheme, the "D" shaped air intake grill, the array of pyramids on the handgrip, the kit box configuration, and the array of herringbone-shaped humps on the surface of the tool.

READER SERVICE NO. 45

DEWALT®

Methods of Work (continued)

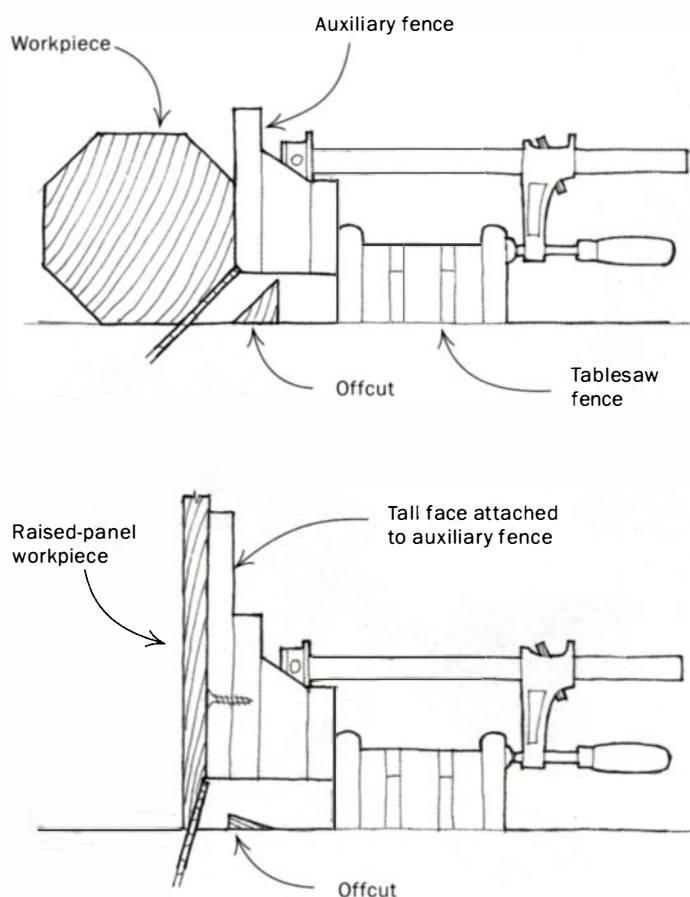
plywood is thin enough that it won't interfere with a plane coming off the end of a 3/4-in.-thick workpiece. The jig is wide and long enough to keep the board from moving sideways when planing at an angle to the board's grain. Pressure from the plane usually will keep the workpiece firmly against the jig.

—Justin Smith, *Gustavus, Alaska*

Quick tip: To compress a biscuit swollen with moisture, lay it on a solid surface and strike it a few times with a carpenter's claw hammer. Test it in the slot and strike again, if necessary. The biscuit will swell for a tight fit as soon as glue is applied.

—Jim Miller, *Milan, Ill.*

Safer bevel cuts on the tablesaw



All references to cutting bevels on the tablesaw that I've seen have the sawblade tilted away from the fence with the workpiece between the fence and the blade. I think this arrangement not only increases the possibility of burning or gouging the work, but it also poses a risk of kickback.

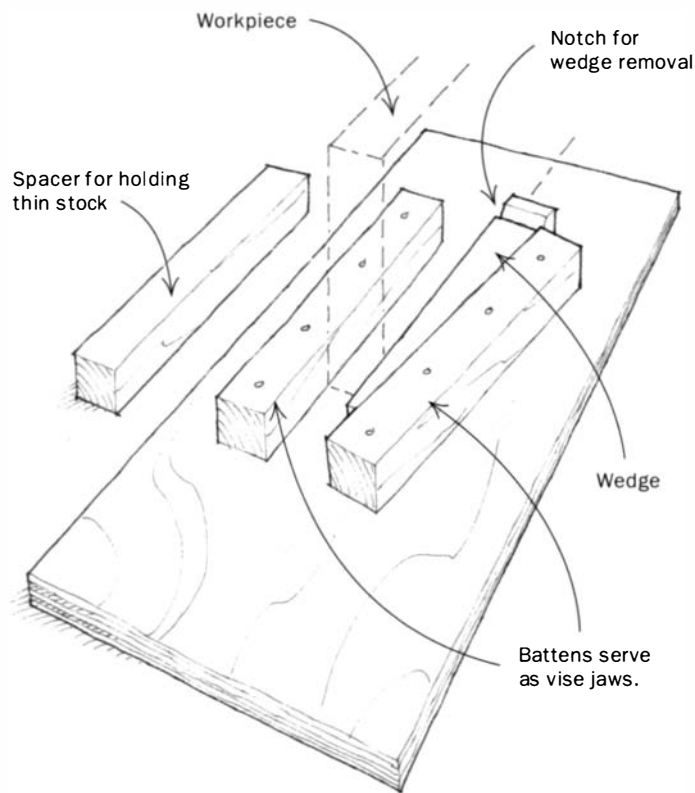
To avoid those problems, I moved the rip fence to the other side of the blade, made an auxiliary fence as shown above and began cutting bevels in a different way. There are several advantages to this setup: First, it is safer. The offcut falls into the large space under the auxiliary fence where it cannot bind and kick back. Second, any wayward movement of the workpiece during the cut

produces not a gouge but a high spot. This can be corrected by running the piece through again. It is not possible to cut too deeply because the fence keeps the workpiece a fixed distance from the blade. It's easy to creep up on a perfect cut with this method.

The method works especially well at beveling long workpieces lying flat on the saw table, such as cutting octagonal posts from square blanks. But by adding a tall fence you can easily and safely use this setup for raising panels. When shaping raised panels, it is best to define the panel field with a scoring cut before making the bevel cut to produce neater edges.

—Tom Lathrop, *Oriental, N.C.*

Fifteen-minute vise



Here is a handy little device that is beyond simple to make. I originally made it to hold a door upright so that I could plane the edges. Since then I've used it in practically any way you might use a vise. The device is portable, and it's a great tool to have on installations. If you lose it, you can make another with scrap in only 15 minutes.

To make the vise, rip two 2x4s to make four 2x2 battens about 12 in. long. Choose the best of the four battens and cut it into a 3° or 4° wedge shape with a notch in the top of the thick end as shown. Choose two of the other battens as the jaws of the vise. Affix one of the jaws to a 3/4-in.-thick plywood base with glue and screws. Use the fourth piece as a temporary spacer and set the wedge next to it. Place the second jaw against the wedge, and glue and screw it to the base as you did the first one.

To use the jig, place the workpiece between the jaws and tap the wedge into place. To release, tap the notch on the thick end of the wedge. If you need to hold a thin workpiece, just add another spacer, sized as needed.

—Albert Kauslick, *Burlington, N.C.*

Gemini Carving Duplicator

**"The Professional's
Woodworking Secret"**

**Filmsy
Carvers**

Videotape demo
available
Call for details

**Fast
Rugged
Accurate**

Allred & Associates, Inc
11 Teasel Lane - Skaneateles NY 13152
+1 315 252-2559 fax: 252-0502

Visit our extensive website:
www.wood-carver.com

READER SERVICE NO. 110

Vacuum Laminating Technology Inc.

1-800-403-2344

Our Improved Vacuum Presses
are the answer to all
pressing needs.

- Regulated industrial vacuum pumps
- Vacuum generators & Vacuum Clamps
- Heavy duty Vacuum Bags in Urethane or Vinyl
- TopPress, the easy to use top loading press



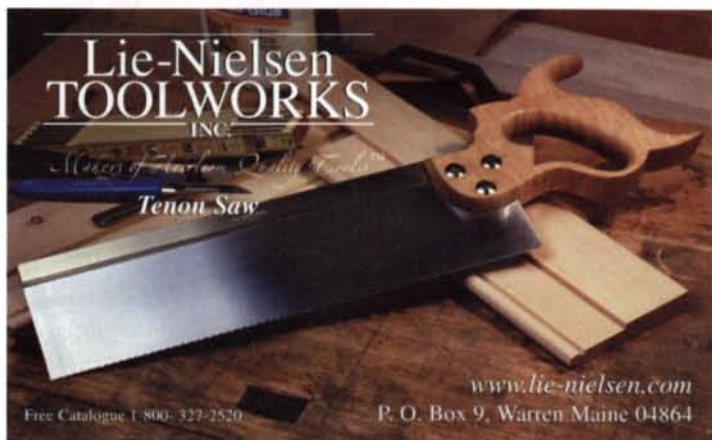
We guarantee the best
quality and the lowest
prices. Call now for our
special deals.

P.O. Box 2164 • Fort Bragg, CA 95437
Tel 707-961-4142 • Fax 707-961-4143

www.vacuum-press.com



READER SERVICE NO. 54



**Lie-Nielsen
TOOLWORKS
INC.**

Masters of Handmade Quality Tools

Tenon Saw

www.lie-nielsen.com

P. O. Box 9, Warren Maine 04864

Free Catalogue 1-800-327-2520

READER SERVICE NO. 117

THE NEW YANKEE WORKSHOP BUILT SOLID...WITH STRONG SUPPORT

THE NEW
YANKEE



WORKSHOP

For more than a dozen years, Norm Abram has invited viewers into his workshop to offer step-by-step instructions on building furniture and other woodworking projects. None of this would have been possible without the solid help of loyal underwriters.

Columbia Forest Products is proud to sponsor The New Yankee Workshop. After more than forty years in business, Columbia is the largest manufacturer of hardwood plywood and veneer in North America, and a maker of solid, engineered and laminate flooring. And, through its continued support of The New Yankee Workshop, Columbia Forest Products celebrates the woodworker in everyone.

East 1-800-237-2428 • West 1-800-547-1791 • Canada 1-888-664-1964 • Columbia Flooring 1-800-654-8796
www.columbiaforestproducts.com

READER SERVICE NO. 120

columbia
FOREST PRODUCTS

Notes & Comment

Awards from coast to coast



Fine Woodworking. This chair was made by Robert Ortiz of Chestertown, Md., who won the award for best newcomer in woodworking at the Philadelphia show.

Maryland woodworker wins FWW award

Robert Ortiz, a Chestertown, Md., furniture maker, won the Best New Artist in Wood award at the 2002 Philadelphia Furniture and Furnishings Show. The award is sponsored by *Fine Woodworking* and includes a check for \$1,000. Woodworkers in their first or second year of exhibiting at the show are eligible for the award.

Ortiz, whose furniture combines Shaker and Asian influences, was drawn to woodworking in 1984, when he came across a copy of George Nakashima's book, *Soul of a Tree*.

Having been a musician, Ortiz finds that building a piece of furniture is not unlike making music. "Measure upon measure, one builds a piece, one note, one joint at a time," he said. "With patience and dedication, the goal is to achieve a well-arranged and orchestrated piece, perhaps even a work of art."

—Tim Schreiner, publisher

Marquetry table wins Best in Show at San Diego

A round tilt-top table with traditional marquetry, a sculpted base and cast bronze feet won the Best in Show award at this year's Design in Wood competition at the San Diego County Fair. *Fine Woodworking* sponsors the award, which is the top prize at the show and includes a \$1,000 check and a plaque for the winner.

Paul Schürch of Santa Barbara, Calif., won for his "Charles X" breakfast table, which is made of Pollard ash and is graced with intricate purpleheart inlay, and bronze, three-toed griffin feet that Schürch cast him-

self. The table is 42 in. dia. by 30 in. high and is finished with oil and varnish.

A woodworker for more than three decades, Schürch has been working professionally since 1980 and has been featured in many magazines, including *Fine Woodworking* and *Architectural Digest*.

He has trained in Switzerland, England and Italy, and he returns annually to Remonti Intarsiatori in Italy where he learned advanced inlay and marquetry techniques.

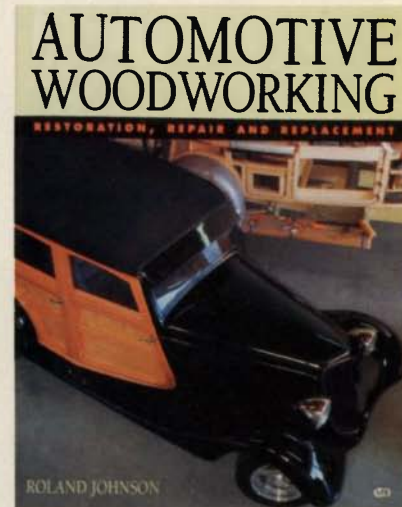
The Design in Wood exhibition is held annually in conjunction with the San Diego County Fair. It attracts more than 360 woodworking pieces from around the nation and several foreign countries.

—T.S.



Best in show. Paul Schürch's table features Pollard ash inlaid with purpleheart and cast-bronze, three-toed griffin feet.

Book review



Automotive Woodworking: Restoration, Repair and Replacement by Roland Johnson. MBI Publishing Co., St. Paul, Minn., 2001. \$24.95 paperback; 160 pp.

Roland Johnson describes himself as a professional woodworker and a hot-rodder at heart. Two dozen articles for *Fine Woodworking* confirm the former, and I can certainly attest to the latter, having been whipped around the back roads of Minnesota by Johnson in his half-finished hot rod.

This book is aimed at the car enthusiast who has limited knowledge of woodworking. It gives a good introduction to the hand and power tools you'll need to work on your "woody," plus a guide, including color photographs, to different solid woods and veneers suitable for use in or on a car. The book covers refinishing and restoring wood, as well as bending and shaping the complex replacement parts needed on cars.

Most of the photographs are black and white, and although chiefly taken by the author, they clearly convey the information. My only quibble is with his method of applying a finish: Get a good natural bristle brush, Rollie, and toss those foam ones!

—Mark Schofield, associate editor

You Did It Yourself

Using Raised Panel Doors, Dovetail Drawer Boxes or Complete Cabinet Kits from



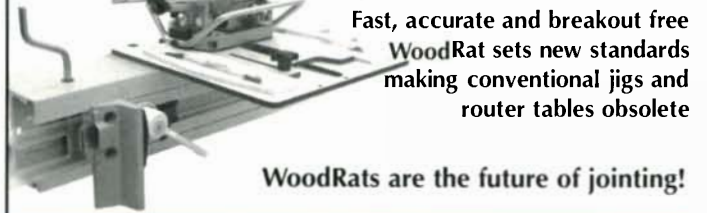
Scherr's
Cabinet and Doors, Inc.
531 5 Highway 2 East • Minot, ND 58701
Ph. (701) 839-3384 • Fax (701) 852-6090
email: doormker@minot.com

www.scherrs.com

READER SERVICE NO. 129

New LittleRat with "Point & Shoot" dovetail jig and PlungeBar fitted to router >>>

WoodRat.
Any joint in the book...



Fast, accurate and breakout free WoodRat sets new standards making conventional jigs and router tables obsolete

WoodRats are the future of jointing!

Get details at www.woodrat.com

sales@woodrat.com

READER SERVICE NO. 186

Quality Pen Kits and Other Turning Kits



• Designers & Manufacturers • Wholesale & Retail

THE BereaHardWoods CO. Inc.

Manufacturer of quality writing instruments, components and kits.

CALL FOR FREE CATALOG

6367 Eastland Rd. • Brookpark, Ohio 44142 U.S.A.
Ph: 440-234-7949 • Fax: 440-234-7958 • bereahard@aol.com
www.bereahardwoods.com

READER SERVICE NO. 1

RAZOR SAW
It cuts FASTER! EASIER! MORE ACCURATELY!



Order now, only \$25.95 post paid!

Craftsmen around the world have discovered the secret of better quality work. The Razor Saw cuts by pulling, and will give a cleaner, more accurate cut in half the time.

Purchase a RAZOR SAW now and we will include our 72 page catalog of the world's finest woodworking tools. Or send \$3.00 for a two year subscription to our Catalog.

The Best handsaw for ALL woodworkers!
www.japanwoodworker.com
Dept D2

THE JAPAN WOODWORKER

1731 Clement Ave. • Alameda, CA 94501 • 1-800-537-7820

READERSERVICE NO. 3

Vacuum Pressing



Q.V.P.

Professional Air-Powered System with 8'6" x 52" bag Start at only \$555.00

Veneering • Laminating • Klamping

- 13 Vacuum Press Models in Stock
- 30 Different Stock Bags and Frame Presses
- Custom Bags up 12' x 80'

CALL 800 547-5484

Quality VAKuum Products, Inc.

43 Bradford St Concord, MA 01742
Phone (978)369-2949
Fax (978)369-2928

www.qualifyvak.com

Seven Corners Hardware, Inc.

Your Complete Power Tool Source Since 1933

216 West 7th Street
St. Paul, MN 55102

READER SERVICE NO. 214

WHITECHAPEL LTD
THE WORLD'S FINEST HARDWARE

Free 216 page color catalog: 1-307-739-9478
Web: whitechapel.ltd.com



French armature hinges available in six sizes.

READER SERVICE NO. 83

Save Money—saw your own lumber.

Make Money—saw for others.

- Cut logs up to 28" D. x 11' L.
- Extra bed sections permit longer lengths.
- Easily transportable.
- Video available.

Free \$2! Catalog.

Wood-Mizer®
Number One in Worldwide Sawmill Sales
www.woodmizer.com

8180 W. 10th St. Dept. FW1
Indianapolis, IN 46214

Prices & quantities listed are subject to change without notice.

Call for the location nearest you! **1-800-553-0219**

READER SERVICE NO. 81

ROBERTS PLYWOOD

THE SOURCE FOR EXOTIC, FANCY PLYWOOD AND VENEER
PLYWOOD
Anigre, Karelian Birch Burl, Bubinga, Macassar Ebony, Kewazinga, Lacewood, Makore, Bird's Eye Maple, Curly Maple, Swiss Pearwood, European Planetree, Santos Rosewood, English Sycamore, Wenge, Zebra wood, and many many more.

VENEER

From Afrosomia to Zebra wood, including Crotch Mahogany and many of the Burls. Available in paper back and the new 2-ply NBL (no black line) wood backed veneer.

In stock at our 77,000 ft. warehouse, we can ship orders same day.

Visa, MasterCard, Amex

45 N. Industry Ct., Deer Park, NY 11729

631-586-7700 Fax: 631-586-7009
1-800-422-4944

WWW.GETWOOD.COM



READER SERVICE NO. 93

Turning trends

Two major exhibitions of turning are currently visiting U.S. museums. The Challenge VI exhibition, touring until the end of 2003, presents the results of the Wood Turning Center's challenge to established and emerging international lathe artists to seek new areas of exploration. Wood Turning in North America since 1930 features more than 130 items covering the last 70 years. To mark these exhibits, *Fine Woodworking* asked the executive director of the Wood Turning Center in Philadelphia, Albert LeCoff, for his thoughts on the current state of turning and the directions it is heading.

Our boundaries are melting

The previous boundary between turning and other arts is being swept away. Outside critics write about us, help to jury exhibits and teach us to put our field in context with a larger world. This is making some turners uncomfortable because we are used to being insular, but if we look outward and skyward, we can continue opening the world of turning to new audiences.

At recent exhibits, viewers were asking "Is this turning?" Hugh



Breaking the wooden mold. Hugh McKay executes forms that incorporate glass and metal. "Ruuach 2000" (left) is made from cast-leaded crystal. "Ruuach 2001" (right) is made from nickel-plated bronze and cast-leaded crystal. Both pieces are 18 in. dia. by 14 in. high.

McKay's latest work looks as if it has not even been near a lathe. Many artists are exploring; their work may start by rough turning and finish with carving or unique finishes, or even end up cast into other materials.

In the last couple of years, wood turning has been featured in a bounty of museum exhibits, coffee-table books and critical articles and has commanded fantastic prices. This is causing a frenzy in the world of turning.

Let's enjoy this adrenaline, but let's also be inclusive. Let's keep inviting the general public to participate in our events and discover turning. But let's be careful not to self-destruct. As Rude Osolnik once asked a fellow turner, "Do you want to trade your \$10,000 bowl for my \$10,000 bowl?"

For more information on the tour schedule for both of these exhibitions, log onto www.woodturningcenter.org/events.html.

—Albert LeCoff



Under pressure. Steve Bishop expresses the pressures of making a living. This piece, called "Portrait of the Artist as a Middle-Aged Man, 2000," is 3½ in. deep by 19 in. wide by 5½ in. high. It's made of bird's-eye maple, redwood and maple burl and has gold-plated hardware.



"Rushmore 2000." Not content turning profiles of heads, Gene Kangas sculpts them, cuts them about, and reassembles the parts to create political and humorous statements.

A woodworker's tour of Eastern Europe

For those interested in fine European furniture and restoration techniques, Eva Frank, daughter of the late George Frank, a restoration and finishing expert, is organizing a visit to Prague, Vienna and Budapest, scheduled for April 28 to May 8 of 2003. The trip will be led by David Larson, a longtime friend of George and a career finisher and restorer. The tour will include behind-the-scenes visits to experts at museums, select factories and restoration workrooms—areas otherwise inaccessible to

the public. This tour follows two similar trips organized by Eva and led by her father, a consulting and contributing editor to *Fine Woodworking* for its first 15 years. The first, in 1984, was to China, while the second trip visited England and France.

The cost of next year's trip, including airfare from New York, is \$2,899 per person, double occupancy. For more information, contact Eva at (610) 894-9664 or evatfrank@aol.com. The group is limited to 25 people.

—Asa Christiana, senior editor



NEW!
Katie Jig JR

"... [JR] it cuts perfect dovetails the first time, every time."

American Woodworker Feb 2001

KATIE JIG www.katiejig.com
Phone: 317-881-8601

READER SERVICE NO. 10

ApolloSpray
Discover the Difference

- HVLP Turbines
- HVLP Spray Guns
- Apollocoat Coatings

Call for our show schedule and check on our Fall Specials

1-888-900-HVLP (4857)
www.hvlp.com

READER SERVICE NO. 205



Northend Hardwoods
Cabinet Hardwood Lumber and Plywood

Custom Millwork ♦ Custom Doors
Flooring ♦ Stair Parts
All Made to Order

Main Milling Facility
Lyndonville, VT 05851
1-800-626-3275

Branch Office
Williston, VT 05495
1-800-265-7430

We Ship Any Amount - Anywhere

READER SERVICE NO. 142



We Manufacture & Service
SHAPER KNIVES
MOULDER KNIVES

Williams & Hussey Profile Knives

We now distribute **FREEBORN** Cutters

FOLEY BELSAW • MOULDER HEADS
RBI & WOODMASTER KNIVES
LOCK EDGE COLLARS
ROSETTE CUTTERS
CUSTOM ROUTERS & CUSTOM CUTTERS

Quick Turnaround Time
Top Quality Products
at Competitive Prices

W. Moore Profiles LTD.
1 Commercial Drive,
P.O. Box 752, Florida, NY 10921
www.wmooreprofiles.com **1-800-228-8151**

Serving the Industry for over 10 Years - Fax (845) 651-1097

READER SERVICE NO. 86

YESTERMORROW
DESIGN/BUILD SCHOOL

Courses for novices & professionals
FURNITURE • CABINETRY
RUSTIC FURNITURE
WOOD TURNING
BURTON'S ROUTER RODEO
PLUS 60 OTHER COURSES

Classes run
2 days to
2 weeks
year round

FREE CATALOG
888-496-5541
WWW.YESTERMORROW.ORG
WARREN, VERMONT

READER SERVICE NO. 74

NEW! **BROOKLINE**
COLORPLY
DECORATIVE COMPOSITE LUMBER

Amazing new product for turning, carving, etc.



8 patterns • Variety of sizes/thicknesses

Brookside Veneers Ltd.
Cranbury, NJ 609-409-1311

colorply.com

READER SERVICE NO. 159

TENRYU PRO SERIES

"The cuts were so quiet and effortless it felt like I forgot to raise the blade"

Hal Taylor, Museum Quality Works of Art, Hartwood,VA

Hal's comment is typical of the many we receive from craftsmen who have tried our Pro Series blades.

Each blade features:

- Expertly-tensioned, fully-hardened tool steel plates for true run
- Fine grit honing of carbide edge for clean, smooth, and easy cuts
- Resin bond-filled expansion slots for extremely quiet cuts

- High-grade, wear-resistant carbide tips for long life

Tenryu Pro Series blades are also available for cutting plastic and non-ferrous metals. So save your ears and make life easier with Tenryu blades. Ask for them at your favorite dealer or call 800-951-SAWS.

TENRYU AMERICA, INC.
www.tenryu.com

FOR YOUR SAFETY: Follow machine and manual safety instructions.



Making quality saw blades since 1910
TENRYU

READER SERVICE NO. 59

New Options!

2hp Component Dust Collector

- Price - \$699 - \$894*
*Systems Only
- Max. System Performance - 1100CFM
- Quiet Operation - 75db
- Filtration - *Eliminates Need for Overhead Filter Unit*
- Design Service Available
- Internal and External Filter Options

Ask for our **FREE Brochure!**

Oneida Air Systems

1-800-732-4065
www.oneida-air.com

Proudly Made in the U.S.A.



Oneida Air Systems, Inc. 1001 W. Fayette St. Syracuse, NY 13204

READER SERVICE NO. 194



Learning from a master

Last year, several students and I were privileged to spend five days in Rockport, Maine, developing our wood-carving skills with the help of cabinet-

maker Philip C. Lowe at the Center for Furniture Craftsmanship. Our experience ranged from the quite accomplished to those who had never held a carving tool. To cater to our varying talents, Lowe started with the basics—sharpening tools, reading the wood and getting a feel for carving with, against and diagonal to the grain.

The learning curve was steep: On the third day we carved a fan; on the fourth day we carved and reeded a Sheraton-style leg; our pièces de résistance were some acanthus leaves and scrolls.

After hours, we found time for the center's weekly barbecue and a futile attempt to beat Peter Korn, the center's director, at croquet with his home field (not a lawn) advantage. I may not be ready to tackle a Newport secretary, but I think a lowboy is within reach.

For more information, contact The Center for Furniture Craftsmanship at (207) 594-5611 or visit the school's web site (www.woodschooll.com).
—M.S.



Lowe and his students. Above, Phil Lowe demonstrates classic ornamental carving to a student at the Center for Furniture Craftsmanship. At left, his students show off their work.

THE WORLD'S BEST ROUTER JOINERY JIGS BY LEIGH

The Rout Stuff.



D4 Dovetail Features:

- Infinite spacing of pins and tails
- Through dovetails up to 1 1/4" thick
- Half-blind dovetails up to 1 1/2" thick
- Sliding dovetails up to 1 1/2" thick
- All three can be cut in boards up to 24" wide
- Imperial or metric measurement scales

Comes standard with:

- Two cutters for 1/2" to 3/4" through dovetails
- 168-page fully illustrated User Guide
- D4 Dovetail Jig Instructional Video
- Cam-Action Speed-Clamps
- Adjustable side stop for angled dovetails



Leigh Joinery Jigs have it all. Hobbyist or professional, the Leigh D4 Dovetail Jig will ensure you create your best work. Versatility, precision and superb value make the Leigh Dovetail Jig better than the rest. Rout through and half-blind dovetails, with variable spacing of pins and tails, on one jig. Create decorative Isoloc joints, finger joints, and multiple mortise & tenons effortlessly with Leigh attachments and our exceptional user guides! Get the right stuff for the job. Call toll free now!

Call For Your FREE Leigh Catalog Today! 1-800-663-8932

LEIGH
Joining Tradition With Today

Leigh Industries Ltd., PO Box 357
Port Coquitlam, BC Canada V3C 4K6
Toll free 1-800-663-8932 Tel 604 464-2700
Fax 604 464-7404 Web www.leighjigs.com



The Thomas Chippendale School of Furniture

Scotland's leading independent furniture school. We offer courses geared toward designing and making exhibition-quality fine furniture. You will be taught in a commercial studio that produces fine furniture for galleries and private clients. Attend our 30 week intensive career course in the heart of the Scottish countryside or our 16 week intensive career course in the Pacific Northwest.

We are proud to announce the opening of our new sister school in Oregon, USA offering long & short courses with our visiting British instructors

- Veneering
- Carving • Gilding
- Hand Joinery • Bowl Turning
- Restoration & Conservation
- English Windsor Chair Making

For more information call
Scotland: 011 44 1620 810 680
Oregon: (541) 484-3811
www.chippendale-schools.com
www.chippendale.co.uk/

READER SERVICE NO. 96

HEARNE HARDWOODS, INC.

Specializing in Pennsylvania Cherry

Plain & Figured Cherry from 4/4 to 16/4
 Also: Premium Walnut, Figured Maple, wide planks & a large variety of exceptionally fine domestic & imported woods including free form slabs, turning blanks, burls, & instrument lumber.

National & International Shipping

200 Whiteside Dr., Oxford, PA 19363

ph 610-932-7400 fax 610-932-3130
 email hearnehardwoods@chesco.com

Toll Free 1-888-814-0007

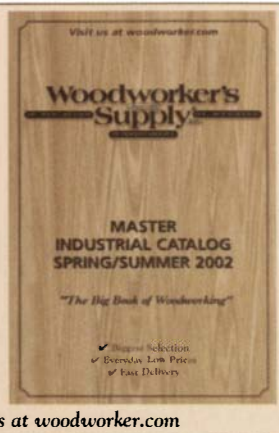
READER SERVICE NO. 79

If you are in a woodworking business... this could be the most valuable tool in your office™.

Please call
1-800-645-9292
 for your 452 page catalog.

FREE
 to woodworking businesses.

visit us at woodworker.com



READER SERVICE NO. 19

OUR STORY IS YOUR STORY...

"Waterlox is impervious to anything, extremely easy to apply, and the look is completely classic."

- Pieter Van Munching



Worldwide Finishing Solutions

At Waterlox, we're proud of our line of wood sealers and finishes, products we developed and have manufactured since 1916. Our greatest achievement lies in knowing our customers are completely satisfied. Their story is our story:

- Unique blend of resin and tung oil
- Durable, beautiful hand-rubbed look
- Simple to apply
- Minimal effort, maximum protection

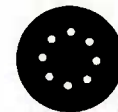
Ask us about our Original Sealer/Finish, Satin and High Gloss Finishes. Contact us today by e-mail: info@waterlox.com or call 1-800-321-0377.

www.waterlox.com

READER SERVICE NO. 121

Supergrit® SANDPAPER

HOOK & LOOP



2" \$16/100 3" \$20/100
 4 1/2 or 5" 5 or 8 Hole \$13/50
 6" 6, 8 or 16 Hole \$17.50/50

"LAPIKA" MICRON 1/4 SHEETS
 40-10 MICRON (400-1500 GRIT)
 REG. \$39.95/50 SALE \$12.50/50

BELTS—A.O. RESIN		SHEETS—9" x 11", A.O.	
1 x 30 \$.75	4 x 24 \$ 1.10	60D, 80D \$ 14/50	
1 x 42 \$.75	4 x 36 \$ 1.50	120C, 150C \$ 23/100	
3 x 21 \$.85	6 x 48 \$ 3.50	180A, 220A \$ 21/100	
3 x 24 \$.90	6 x 89 \$ 6.20		

RED HILL CORP. FREE 48 PAGE CATALOG & Incredible close-out sheets.

P.O. BOX 4234
 GETTYSBURG, PA 17325 **800-822-4003**
www.supergrit.com

READER SERVICE NO. 8

See the affordable Lamello Classic C2

Swiss Biscuit Joiner

- New swivel front fence: 0° to 90° with notches at 22.5°, 45° & 67.5°
 - New increased maximum depth
 - New extra-flat anti-slip pads
 - New stop square for vertical work
- Power, precision and balanced design for use on wood, laminates, solid surface and aluminum materials.



FREE Color Catalog

"Simply the Best"

COLONIAL SAW
 MACHINERY SALES AND SERVICE

Purchase online at

www.csaw.com

or call 1-800-252-6355

E-Mail: lamello@csaw.com

READER SERVICE NO. 76

COMPONENTS plus

SAVE the CAPITAL INVESTMENT of MACHINING
 INNOVATIVE, READY-TO-ASSEMBLE COMPLETE 32mm SYSTEM
 • RESIDENTIAL • COMMERCIAL
 DOWELS INSERTED in TOPS • BOTTOMS • RAILS
 SHELVES and DRAWER PARTS INCLUDED by CABINET
 OPTIONS: FLAT DOORS & DRAWERFRONTS, SALICE HINGES and ALFIT SLIDES & CUSTOM BANDING
 THERMOFUSED 2-SIDED MELAMINE



SIMPLIFIED ORDERING!
 Just fill out the spec form and order form. VASS will do the pricing for you.



alfit > SALICE

CALL FOR A BROCHURE
 PHONE 303-321-5320 • FAX 303-321-5333
 3838 EUDORA WAY • DENVER, CO 80207

READER SERVICE NO. 62

Finest Quality Reproduction Brass and Iron Hardware

Since 1932, BALL AND BALL has been manufacturing the finest quality antique reproduction furniture hardware, builders hardware, lighting fixtures, and fireplace accessories available. Call for our 108-page catalog, available for \$7.00 (catalog cost refunded on first order).



Ball and Ball
 463 W. Lincoln Highway
 Exton, PA 19341
 Phone: 610-363-7530 • Fax: 610-363-7659
 Orders: 1-800-257-3711
 Visit our website - www.ballandball-us.com

READER SERVICE NO. 55

EXCELLENT RESULTS DON'T HAVE TO COST MORE

10" x 40 TOOTH CARBIDE TABLE SAW BLADE

BLADE	PRICE	RIP CUT	CROSSCUT
AGP1040	\$70	Excellent	Very Good

Source: Fine Woodworking Magazine, March-April 2002 Issue

EVERLAST
 SAW & CARBIDE TOOLS, INC.

Rail Head Industrial Park
 1478 Rail Head Blvd., Naples, FL 34110
 1-800-387-5278 • Fax (941) 596-9616
www.everlastsaw.com

READER SERVICE NO. 131

Tools & Materials



Big, brawny and accurate. A new 12-in. table saw from Laguna Tools, the TS, weighs in at nearly a half ton, but it provided wonderful accuracy on all counts.

Laguna 12-in. table saw is beefy and well made

From a distance, the new European-made Laguna TS table saw looks like an American cabinet saw on steroids. The Laguna is big, with a 31½-in. by 38-in. top and a shipping weight of 998 lbs. The power plant is a 3½-hp, 220-volt motor. The saw accepts both 12-in. and 10-in. blades.

I recently put the Laguna through its paces and discovered several impressive features. The trunnions and the top are fitted to the case with roll pins, so the top can't move in relationship to the blade. As long as the manufacturer has set the parts properly, you'll never have to realign the top with the blade. I also like that height-adjusting screws can level the two-part top as well as align the extension table with the top. In addition, the saw includes a splitter that raises and lowers with the sawblade. And the splitter is fully adjustable in all three axes, so it can be aligned perfectly with the blade.

The saw was designed to take an Al-tendorf-style short-stroke sliding table and a scoring blade attachment. The Laguna's top is split down the middle, and one half can be removed to make room for the slid-

Shop Test Antivibration gloves



Padded gloves keep bad vibes at bay. Tools that generate a lot of vibration can permanently damage your hands. Antivibration gloves can help keep hands healthy.

As I've recently learned, my years of using palm sanders, routers and other high-vibration tools have resulted in permanent damage to the nerves in the tips of my fingers, causing a constant tingling sensation and slight numbness.

Better late than never, I decided to research vibration-reducing gloves. They're padded with gels, air bladders, elastic polymers or various types of high-density foams to reduce the effects of vibration.

Although there are a number of manufacturers, I looked at three gloves: the Ergodyne ProFlex 9015, the Impacto Air Glove AIR473 and the Valeo GAFS. Each is full-fingered and padded with antivibration material in the fingers and thumb, vital for protection to the fingertips.

All of the gloves offered good dexterity,

but the ProFlex gloves were a bit more flexible and easier to manipulate. The ProFlex and the Valeo gloves stop the padding in the fingers just short of the tips to increase dexterity and offer more sensitivity at the fingertips. But the Air Gloves, with padding all the way to the fingertips, might offer better vibration protection. Another consideration when purchasing gloves is to make sure they are snug; a loose-fitting glove hampers dexterity.

Although there are scientific methods for checking the performance of the antivibration material, I used a fly-by-the-seat-of-the-pants method—my tingling fingers. And as I operated all of the high-vibration tools in my shop, I found a significant reduction in tingle with all of the gloves. Of the three, though, the Air



Splitter adds safety. To help prevent kick-back, the Laguna TS includes a splitter that effectively covers much of the back of the blade. Plus, the splitter adjusts in three planes, making it easier to get the splitter and blade properly aligned.

ing table. They may not be options most amateur woodworkers want to pay for, but it's nice to have upgrade options.

The quality of this Bulgarian-made saw was both outstanding and lacking. The arbor assembly "beam" is a huge 30-in.-long, ½-in.-thick iron casting with ¾-in.-thick ribs. Amusingly, the case on the tool I looked at was assembled while the paint was still wet, embedding many washers and nut heads. According to a Laguna representative, the company is taking steps to bring the fit and finish up to snuff.

On the other hand, all of the important tolerances were amazingly dead on. Right out of the box, the TS was tuned almost to perfection. Arbor runout was a miniscule 0.001 in., even with an extension collar (to use dado blades, you must remove the extension collar). The miter-gauge slots were perfectly parallel to one another and essentially parallel to the blade, out by only 0.003 in. over a 24-in. length. The tops and the throat plate also were flat.

The miter gauge fit perfectly into the slots. There was no side play, yet it moved easily. Whether by design or accident, it's the first one I've seen that didn't need extensive tune-up to work.

The fence is a functional Biesemeyer copy. And the dust collection worked fine.

All things considered, the Laguna TS table saw looks to be exceptionally well made, though a little rough on the edges. And it has some neat features. If the price and quality hold steady and the saw earns a reputation for holding up under long-term use, Laguna could give major American saw makers a run for their money.

The TS currently sells for \$2,295; add \$1,200 for the sliding table and another \$500 for the scoring blade attachment. For more information, contact Laguna (800-234-1976; www.lagunatools.com).

—Strother Purdy

Coffee-can storage bins

Walk into any workshop, and you're likely to find a few coffee cans filled with an assortment of odd parts, which means that coffee-can storage scores pretty low on the convenience meter.



But long-suffering connoisseurs of coffee-can storage can now perk up. McFeely's is offering circular plastic bins, divided into four compartments. Three bins fit into a can, one on top of another, so you end up with a dozen compartments per can. Add the plastic coffee-can lid, and the entire package is just about spill-proof.

The bins are sold in sets of three. Two sizes are available: one for 26-oz. and 28-oz. cans, and the other for 34-oz. and 39-oz. containers. Sets sell for \$6.95. For more information, contact McFeely's (800-443-7937; www.mcfeelys.com).

—Tom Begnal

Gloves seemed to demonstrate a bit more vibration absorption.

By the way, don't wear these gloves, or any other type of glove for that matter, while operating table saws, jointers, radial-arm saws or other tools where the glove could easily become entangled with the blade or the cutter.

The Ergodyne ProFlex 9015 gloves sell for about \$40 a pair; the Impacto Air Gloves (AIR473) sell for about \$34 per glove; and the Valeo GAFS gloves sell for about \$20 per glove. For more information, contact Ergodyne (800-225-8238; www.ergodyne.com), Impacto (888-232-0031; www.2protect.com) or Valeo (800-634-2704; www.valeolnc.com).

—Roland Johnson



Getting a grip on vibration control. Johnson tried three top-of-the-line antivibration gloves, giving each one a hands-on test in search of a favorite.

Low-angle smoothing plane from Veritas Tools

I have long considered a low-angle smoothing plane to be a specialized tool. So when I received the new Veritas low-angle smoothing plane, I expected it to be limited to working end grain and miters. However, it showed amazing versatility, handling miters, end grain and long grain with ease. Plus, it converts to a shooting plane.

This is a solid tool. The body is cast from durable ductile iron. It has a substantial bed machined at a 12° angle, a sturdy A2 steel blade and a stout, well-designed lever cap.

A simple blade-adjustment mechanism, similar to vintage Norris planes, regulates the vertical (depth of cut) and lateral (alignment with sole) movement.

The throat can be

opened quickly for coarse work or closed up tightly for fine work.

I tested the Veritas to see how it would perform cleaning up mill marks on end grain and miters. With its low-angle design, I was able to take continuous shavings on mahogany and cherry end grain. However, when subjected to the harsh test of planing 1¾-in.-thick white-oak end grain, the blade dulled more quickly than I expected. Skewing the plane and taking a very light cut improved performance.

The Veritas smoothed large surfaces well. The low angle helped it cut with minimal effort. When working on well-behaved wood or planing diagonally across the grain, it left a smooth, blemish-free surface. On stubborn woods, the low angle tended to lift the wood fibers, tearing the grain. Tearout can be minimized by closing the throat and taking a lighter cut or by sharpening the blade with a steeper bevel.

This plane worked surprisingly well as a shooting plane—something I hadn't anticipated. The broad side-wing of the plane is machined square to the sole, providing good stability.

Veritas is on to something with this carefully designed and well-



A smooth smoother. The plane was comfortable in most assignments, whether working end grain, long grain or miters.

built plane. What might be perceived as a specialized tool can actually do just fine serving multiple purposes. That's the type of resourcefulness I look for in my shop.

The plane sells for about \$140. For more information, contact Veritas Tools (800-267-8735; www.leevalley.com).

—Chris Gochmour



Low-angle plane gets high marks. The latest offering from Veritas Tools provides lots of versatility.

Clamps with a deeper reach

When you need a clamp with an extradeep reach, the Adjustable Clamp Co., maker of Jorgensen clamps, has one that just might fit your needs. The 4900 series steel clamp has an impressive 9-in. reach (measured from the inside edge of the bar to the centerline of the Acme screwthread). And it can apply up to 1,200 lbs. of clamping pressure.

Be careful, though, not to drop one on your toes. The 18-in. clamp I tested weighed about 12 lbs.

The 4900 series is available in seven lengths: 8 in., 12 in., 18 in., 24 in., 36 in., 48 in. and 60 in. Expect to pay about \$70 for an 8-in. clamp and \$105 for a 60-in. one. To learn more, contact the Adjustable Clamp Co. (312-666-0640; www.adjustableclamp.com).

—T.B.

Strother Purdy builds custom furniture in Bridgewater, Conn.; Tom Begnal is an associate editor; Roland Johnson works wood in Sauk Rapids, Minn.; Chris Gochmour is a furniture maker in Murray, Utah.



Jumbo jaws. Jorgensen has a new series of clamps that feature a 9-in. reach.



**FIRST WE RAISED THE BAR.
THEN WE LOWERED THE PRICE.**

*Due to heavy demand,
quantities are limited.
Check with your distributor
for availability.*

Introducing the innovative JET 10" SuperSaw.[®]

It's the attention to detail that sets this saw apart, so let's cut to the chase. Compared to the competition, the JET 10" SuperSaw features two solid cast-iron wings instead of stamped steel giving it twice the cast-iron work surface of other saws. Its optional sliding table boasts a miter gauge with 4 T-slots for jigs and a handy angle

reference guide. It has a brand-new fence with magnified cursor and micro adjustment. And it's heavier than the competition, with a fully enclosed cabinet, larger dust port, and wider stance that makes it far more stable. The SuperSaw is also the only saw on the planet that includes an on/off switch that can be positioned anywhere along the

fence rail, plus thoughtful details like a reset button and power indicator light.

So to review, the JET 10" SuperSaw has better specs, more features, and a warranty that's twice as long. Oh, and did we mention it costs hundreds less? Yes, hundreds. Visit your JET distributor for more details.



For a free 23-minute video
showing everything the SuperSaw can do,
call 1-800-274-6848 or visit jettools.com.

READER SERVICE NO. 210

JET

Powermatic, Performax and JET. A Family of Brands.

Bookshelves in a Day



BY STEVE LATTA

Get the most pure enjoyment from reproducing 18th-century furniture, but every now and then it's nice to break out of that mode and dive into a project that I can knock out in a day or two. This set of bookshelves is just such a beast, and it will cover a lot of wall in the little amount of time required to build it. I've made three versions of this design since I built the first one about 10 years ago. The first has lived in three separate homes, but now it fits the dining room in our new home.

There are some nice features about this design. When you combine the simplicity of the joinery with the absence of hardware, you have a bookcase that can be taken apart and reassembled in minutes. The angle on the bottom of each vertical makes the case lean toward the wall, so the more weight that you put on it, the more secure it is. In most cases, there is no need to tie it to the wall. Although, if you have kids, you may want to add a few fasteners as a precaution. A couple of corner braces at-

tached under the bottom shelf and along the top shelf should do the trick.

Choose your wood and size the joints

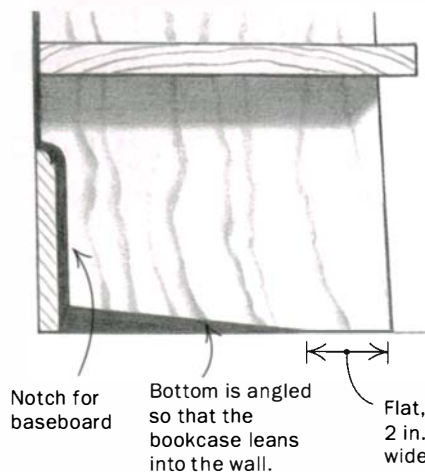
This is a great project for using up old scraps. For these units, I used some less than perfectly clear leftovers of walnut for the verticals and dimensioned #2 white pine 1x12s for the shelves. If you don't

have boards wide enough to make the verticals (mine are 10 in. wide at the bottom), you can glue them up from smaller boards, but make sure the front piece is wide enough that you won't expose a glueline when you cut the taper on the front edge. For the pine shelves, I bought more width than I needed so that I could cut around knots and defects to end up with clear front edges on all of them.

The shelves and the verticals lock together with what I call a housed lap joint (see the drawing on p. 34). The shelves are notched wherever they meet a vertical, and the verticals are notched and dadoed on both sides so that the shelves sit firmly on the shoulders of the dadoes. I cut the dadoes slightly wider ($\frac{1}{2}$ in. or so) than the shelf material is thick. That way, the pieces slide together fairly easily, even after a finish has been applied to them. Don't be obsessive about getting a microfine fit. The joy of this design is lost if you end up having to put together the unit by beating it with a block of wood and a hammer.

In figuring sizes and spacing for the shelves, I kept it simple. The bottom shelf

BOTTOM DETAIL



Knockdown unit is engineered for stability and speedy assembly



sits high enough off the floor (7 in.) to clear the tallest baseboard in an old house where we used to live. The spacing between shelves decreases in 1-in. increments from the bottom to the top.

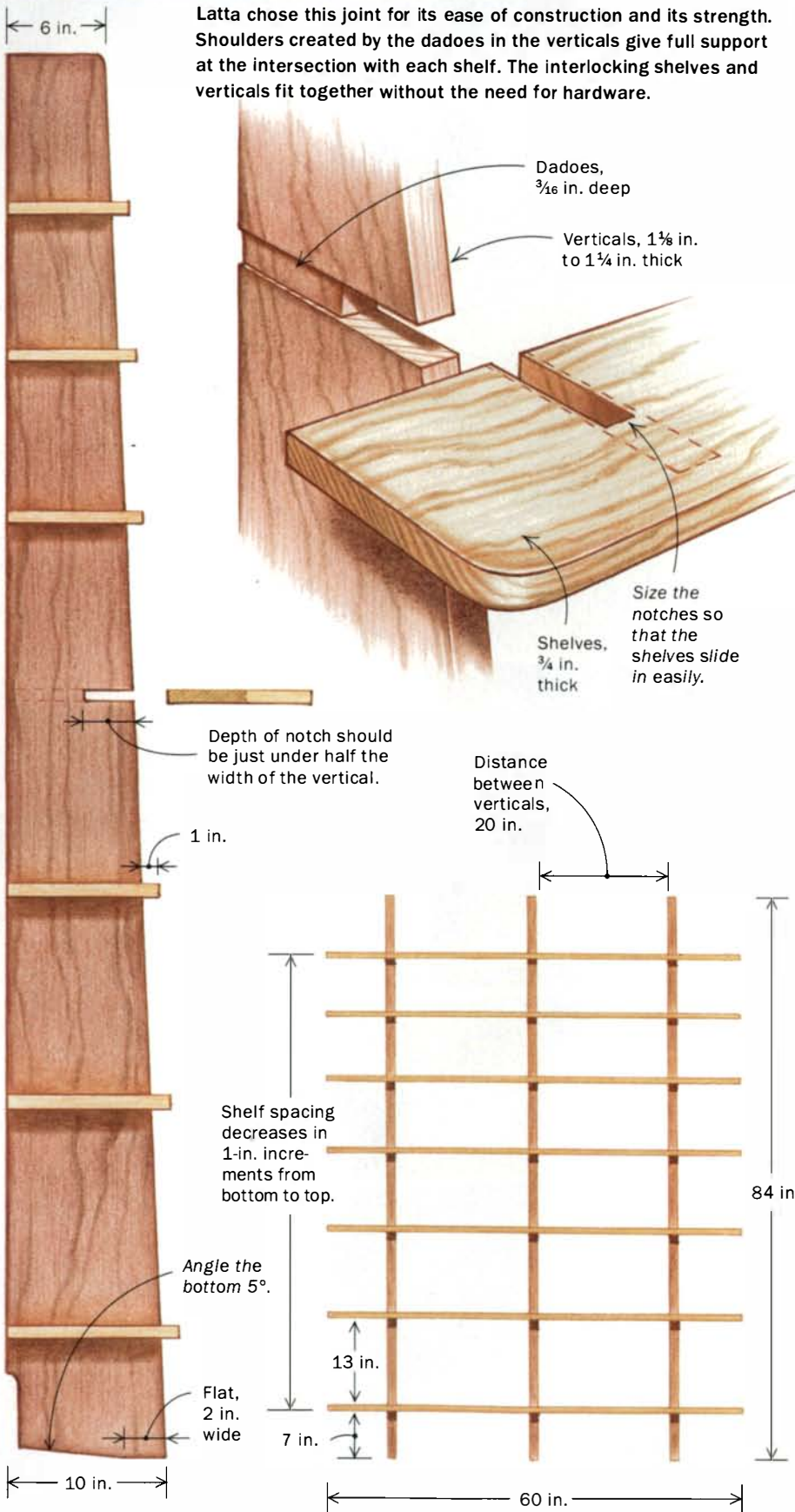
Cut the dadoes before tapering the verticals

Shoot for a thickness on the verticals of around $1\frac{1}{8}$ in. to $1\frac{1}{4}$ in. (Make sure you leave some extra scrap pieces to use in setting up the joinery cuts.) You can cut the joinery using a router, a radial-arm saw or a tablesaw with a carriage jig like the one I used (see the photos on pp. 34-35). If you use a tablesaw, you'll need a long auxiliary fence to keep the stock steady. You'll also need to support the weight of the stock that hangs out over the end of the saw table.

Before cutting the joints in the verticals, make a practice cut halfway through a scrap piece of shelf stock. Use this sample to set the depth of the dadoes in the verticals. To be sure all of the verticals are dadoed correctly, first cut them all to length and then use a story stick to mark the loca-

A HOUSED LAP JOINT CONNECTS THE PARTS

Latta chose this joint for its ease of construction and its strength. Shoulders created by the dados in the verticals give full support at the intersection with each shelf. The interlocking shelves and verticals fit together without the need for hardware.



Dado one side at a time. After setting the blades to the right height, make all of the dado cuts on one side of the verticals. Transfer the cut lines for the dados on the second side with a square and a sharp pencil.

tions of the dados on the front edges of the verticals. A pencil line provides a reference to cut to, and a blue chalkline indicates on which side of the line to cut.

To set the depth of the dados, take a scrap from one of the verticals and set it against a stop block on the carriage. Raise the dado blades, make a cut, flip over the scrap and make another cut opposite the first. Adjust the height of the dado blades until the notched shelf sample slides easily onto the dadoed sample without excessive play. Now begin making the dados on only one side of each vertical. Then use a small square and a sharp pencil to mark the dado cuts across the front edges of all the verticals. Flip over the verticals and, lining up the pencil lines with the kerf in the carriage, cut the dados on the other sides of the verticals. Hold-down clamps keep the boards from sliding out of position.

After cutting the dados, lay out the taper on one of the verticals and mark each dado for where a chunk of waste needs to be taken out to receive the shelf. Use a sabersaw to cut away most of the waste. Stay about $\frac{1}{8}$ in. from the edges of the dado and clean up using a router with a bearing-guided, flush-trimming bit.

Cut the taper on one vertical using the bandsaw and then, with a jointer or a handplane, clean up that edge. Use the first ver-



Cut away the wood you don't need. Housed lap joints require you to remove some wood from all of the pieces being joined. In the verticals, remove most of the waste with a sabersaw.



Clean up the sabersaw cut. Use a router equipped with a bearing-guided, flush-trimming bit.

tical as a pattern to mark and cut the others. The radius on the top front corners of the verticals (and on the ends of the shelves) can be cut a number of ways. If I'm doing lots of shelves and supports, I make a template out of medium-density fiberboard (MDF) and flush-cut the pieces using a router. Once the verticals have been cut to shape, soften the outside edges with a 1/8-in. roundover bit. Finally, notch the bottom back edge of each of the verticals to clear any baseboard on the wall where they will live. Now use a sliding compound-miter saw to make a 5° angled cut on the back edge of the bottom of each vertical, leaving a 2-in.-wide flat at the front.

Notch the shelves to fit

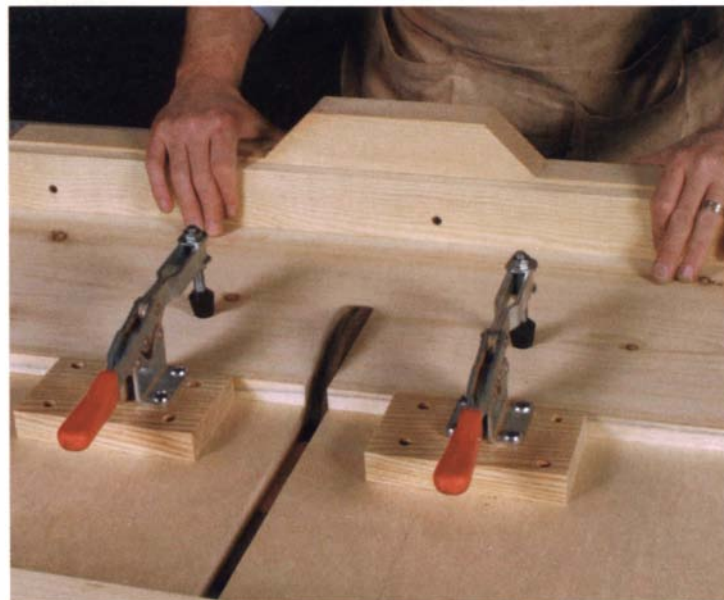
After ripping the shelves to width, mark out the notches from the back edge. Cut the notches for the shelves using the same dado setup you used for the verticals, and set up the carriage with a stop block. Use the hold-down clamps on blocks to grip the shelves firmly. Raise the dado blades as high as possible to get the flattest cut on the downward arc. Setting the dado blades at full height is dangerous, so keep your hands completely away from the cut. After cutting all of the shelves at one setting, reset the stop block and repeat the process until all of the notches have been cut. Make

any necessary adjustments in the length of the notches so that the shelves line up with the back edge of the verticals. When you are done notching, radius the ends of the shelves and round over the front top and bottom edges. If your layout and machining have been accurate, all of the pieces should slide together easily. At this point they're ready for a final sanding and finish.

You can assemble this bookcase by yourself, but it never hurts to have a second pair of hands to help out. Lean the verticals

against the wall and slide the bottom shelf into place. One by one, work your way up to the top. This process should take only a few minutes. Use small shims with double-sided carpet tape to level the case. If the unit is installed on a slippery wood or tile floor, you can mount a few small metal corner braces beneath the bottom shelf. □

Steve Latta teaches woodworking at the Thaddeus Stevens College of Technology in Lancaster, Pa.



Notch cuts require clamps. While plowing out the notches for all of the shelves, Latta clamps the workpiece in place for each cut, being careful to keep his hands well clear of the exposed dado blades.



Floating-Tenon Joinery

BY LON SCHLEINING



Simple jig works with a plunge router to make quick, strong joints

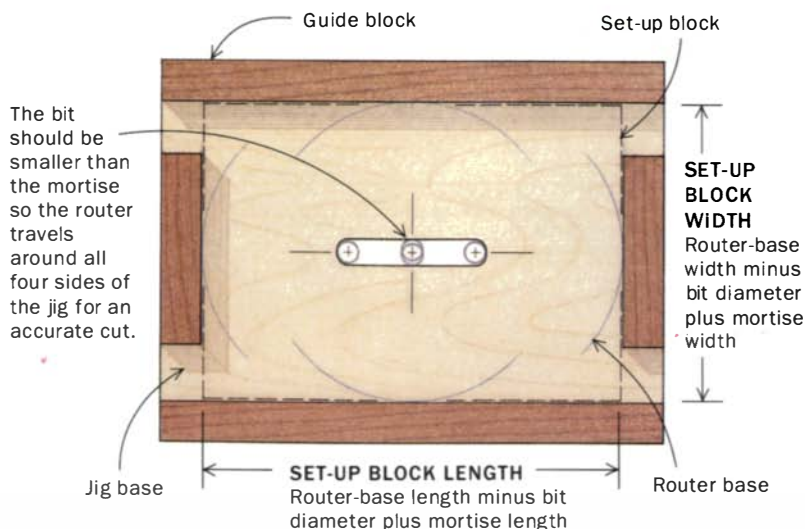
Mortise-and-tenon joints are the building blocks of furniture making. Once you have a simple and reliable system for making them, joinery on tables, chairs and case goods is straightforward, fast and consistent, even when there are compound angles.

The distance between the shoulders is critical in the case of something like a table apron or a chair stretcher. One day I had cut a big pile of pieces to length, only to discover that I'd made one teensy mistake: I had forgotten to allow for the extra tenon length on both ends of the pieces. That's when I began to rethink my resistance to using floating tenons. With floating tenons, you simply cut the piece to exact length, and it's done. The shoulders fit perfectly, eliminating one of the most frustrating parts of mortise-and-tenon joinery.

Set-up blocks are the key to making an accurate jig

1 ATTACH THE GUIDE BLOCKS

This mortising jig relies on guide blocks to limit the travel of the router. Make a set-up block, which represents the overall travel of the router base, for gluing the guide blocks to the jig base squarely and accurately.



The guide blocks are glued to the base of the jig. Clamp the guide blocks both to the set-up block (center) and to the top face of the jig. Thin packing tape on the set-up block makes it easier to remove after glue-up.

In a joint-strength test last year (*FWW* #148, pp. 74-79), floating tenons compared favorably to traditional mortise-and-tenon joints, putting to rest common doubts about their performance.

A floating tenon is a separate piece inserted into matching mortises in two mating pieces. Similar to biscuit joinery, you cut a mortise into each of the pieces to be joined—leg and apron, rail and stile. Then you mill tenon stock to fit the mortises, cut it to length and assemble the joint.

Make a router jig for this joinery

There are many ways to cut mortises, but this router jig is my favorite for floating-tenon joinery. It will create precise, matching mortises in both the sides and ends of workpieces, and it's easy to make using birch plywood, screws, glue and a few hardwood blocks.

The jig shown here will cut a mortise 1 in. from the clamping fence, meaning the mortise will be centered in 2-in.-thick stock. This large capacity adapts well to a variety of projects and joints. If your workpieces are thinner, for example, or you'd

like a reveal with a thinner member centered on a leg, post or stile, or even if you want an angled mortise, the jig is easily adapted with a few shims.

You can change the starting dimensions of this jig to suit the mortise you cut most often, or you can build several variations, as I have, each with a specific purpose.

Build it accurately or suffer later

This jig is designed to last—turning out lots of accurate joints. So take your time.



Watch it on the web

To see the author demonstrate this jig, go to www.fine woodworking.com.

The first step in the assembly is to glue four blocks to the base of the jig. These blocks guide the router base. Note: Even round-based routers tend to be off center slightly, so it's important to keep the router facing in a single direction when you use the jig.

The easiest way to keep the guide blocks square and parallel during glue-up is to cut a set-up block the size of the area inside the guide blocks. Clamp the guide blocks to the set-up block before clamping and gluing them to the plywood base.

Once the glue cures, remove the set-up block and use a router and $\frac{3}{8}$ -in. bit to plunge-cut the mortise slot into the base. Next, draw the centerlines on both the top and bottom of the base. These lines must be drawn carefully because they'll be the reference lines for every cut you make.

Attaching the clamping fence is the other important part of the assembly. If the fence is misaligned or out of parallel even slightly, the mortise-and-tenon joint won't come together as it should.

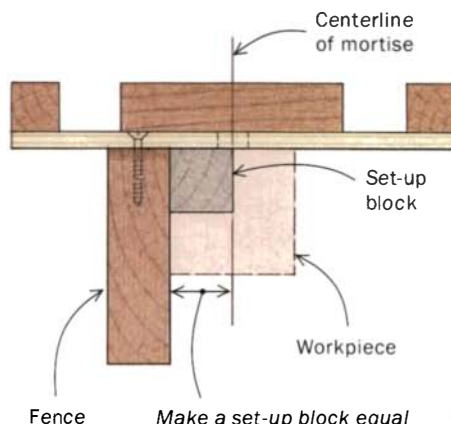
To lock in the distance between the fence and the mortise's centerline, make another

2 ATTACH THE FENCE TO THE BOTTOM

A fence on the underside of the base locates the workpiece. Use another set-up block to locate the fence accurately.



First, rout the mortise slot in the base. The blue tape on the handle and the jig records the correct orientation of the router.



Make a set-up block equal to the distance between the edge of the workpiece and the center of the mortise. Use the block to attach the fence (right).



Carefully mark the centerline of the mortise and clamp the set-up block in place. Clamp the fence to both the block and the jig when gluing it down. Add screws from above the jig base.

USING THE JIG

Schleining sized this jig to handle the thickest workpiece—a 2-in.-thick table leg—that he commonly mortises. To mortise the thinner rail, add a shim to the jig (see bottom of page).



1 Lay out the workpieces carefully. Mark the outer reference faces of each piece, and transfer the centerline of the desired mortise from one piece to the other.



2 Align the centerline with center marks on the jig. Then clamp the workpiece in place. The mark on the end grain (right) signifies the mortised sides of this table leg.



set-up block (1 in. thick for this jig). Clamp the block to the base, aligning its edge with the mortise slot's center, then clamp the fence to the block and the base and drill the pilot and clearance holes for the screws. Use 1½-in.-long screws, countersinking them so that they sit flush in the base.

Remove the fence temporarily and spread on some glue. Then clamp up everything again and tighten the screws.

Cut matching mortises

As always for mortise-and-tenon joinery, start by marking the reference faces of your workpieces—for example, the front side of stiles and the corresponding faces of rails. Whether the mortises are in a table, a chair or a frame, corresponding faces should go against the clamping fence of the jig to make sure they line up correctly later.

To lay out the mortises themselves, all you need to do is mark their centerlines.

Rout in several passes—It's a good idea to cut the 1-in.-deep mortises in at least two or three passes. It puts too much strain on the bit and the machine to cut it all at once. If your router has a stepped depth adjustment, now's the time to use it.

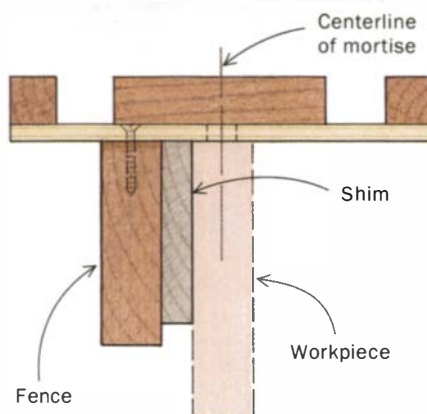
Because this jig guides the base of the router, accumulated chips and dust can change the path of the bit. If your router doesn't have dust collection built in, cut the mortise, vacuum out the jig and the mortise, then take a final pass.

Use a straight bit with a ½-in. shank, designed for plunge cutting, with a cutting

3 Rout in a few passes for a clean mortise. Clamp the jig's fence sideways in a vise to secure the setup. The bit is smaller than the mortise, so move the router clockwise around the jig for an accurate cut.



ADD A SHIM FOR THINNER STOCK



Thinner workpieces are no problem. This shim is sized to center the mortise in the rails, creating a ½-in. reveal between rail and leg.

diameter slightly smaller than the desired mortise. By making a pass around all four sides of the jig, you can better control the width of the mortise. Otherwise, the guide blocks would have to fit the router base exactly with absolutely no slop, a notion I find unrealistic.

One caution: The mortise routed into the end grain may come out at a slightly different width than the one made in the face grain. If you find a difference, add a layer or two of masking tape to the jig's guide blocks to cut one or the other.

Make tenon stock to fit

It's straightforward to mill tenon stock once you've established the size of the mortises. First, use the same material that the mortised workpieces are made of, with the grain running the same direction as it does in the rail. This will help at least one side of the floating-tenon joint expand and contract similarly. Cut the tenon board long enough to cut all of the tenons with plenty left over to trim planer snipe from the ends.

Rip the tenon board $\frac{1}{16}$ in. smaller than the length of the mortise. This does three important things: It allows a little leeway for aligning the rails and stiles during glue-up, gives excess glue a way to escape and allows for the uneven expansion and contraction of the tenon and the mortise in the leg or stile.

Using a planer, reduce the board to the thickness of the mortise. When you get close, test-fit the corner of the tenon board in the mortise, then crank down the planer a little at a time until you get a snug fit. Beware of the snipe that most planers leave on the ends of boards. Chop off this area before each test fitting.

Next, using a $\frac{3}{16}$ -in. roundover bit, round each edge of the tenon stock. This radius will match the one left by the $\frac{3}{8}$ -in.-dia. router bit used to cut the mortises. The tenon should fit into the mortises snugly—without having to be forced in and without falling out when held upside down. Last, cut the tenons to length, about $\frac{1}{8}$ in. shy of the combined depths of the mortises: for example, $1\frac{1}{8}$ in. long for two 1-in.-deep mortises. Test the fit, then glue up the joint. That's all there is to it.

Jig can be adapted to many mortises

If your workpieces are narrower than the ones this jig is set up for—maybe you're joining $\frac{3}{4}$ -in.-thick rails and stiles—simply

MILLING TENONS



Plane the tenon stock to thickness. Test often for fit, then round the edges with a roundover bit on the router table.

As always, dry-fit before glue-up. The tenons should fit snugly but not require excessive force to fit.



add a shim between the workpiece and the clamping fence (see the bottom photo and drawing on the facing page).

Another frequent adaptation you'll make is to change the mortise length. Let's say the rail on a chair is 2 in. tall; obviously, the $2\frac{3}{4}$ -in.-tall mortise would be too large. But adding blocks to the guides at each end of the jig shorten the mortise. You should adjust both ends equally, because the jig uses centerlines to position the workpiece.

If the mortise is too short for your project—let's say a table with a tall apron or a breadboard end—you can slide the jig along the workpiece to cut two or more mortises in a row. This jig even makes angled joints easier (see the photos below).

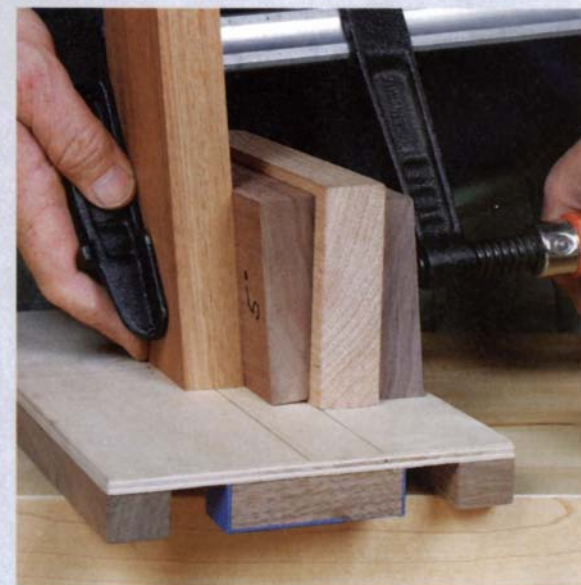
Once you get the hang of it, this is the sort of jig you'll use all the time. □

Lon Schleining, a contributing editor, teaches about woodworking throughout the country.



Cut the rail at the desired angle where it meets the post. When using the router jig to cut the mortise in the rail, just add an angled shim. Add an identical shim on the other side of the fence to keep the clamping force square. The post is mortised without angled shims.

Angled joinery made easy



Two Ways to Make Curved Drawer Fronts

Choose a technique that fits your tooling and work habits

BY MARIO RODRIGUEZ

Faced with any woodworking task, you'll typically find that there's more than one way to get the job done. You can cut joinery by hand or with a dedicated machine. You can lay up veneer with a hammer or a vacuum press. And you can apply a finish with a brush or a spray gun. Making a curved drawer front is no different: How you go about it is often determined by the equipment and tooling you have, the dimensioned lumber you have access to and the radius of the curve you need to build.

I've done a lot of steam-bending, but I'd never build a curved drawer front that way because the end result would be too difficult to control. You'd have to steam a blank much longer than necessary for the finished piece, and the springback would severely limit the reliability of the outcome. In this article, I'll illustrate two dependable techniques: cutting thick stock to shape and gluing up a bent lamination. □

Mario Rodriguez is a contributing editor to Fine Woodworking. He teaches woodworking to students in a furniture-restoration program at the Fashion Institute of Technology in New York City.

SOLID WOOD OR LAMINATED?

Faced with building curved drawer fronts, you need to decide which technique to use. A solid block of wood cut to shape (top) takes less time than it does to cut and glue multiple parts into a curved shape. A laminated drawer (bottom), however, is less bulky and does not require a piece of thick lumber.

SOLID-LUMBER DRAWER FRONTS

STEP 1: LAY OUT AND CUT

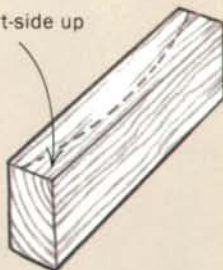


Work from a template. A scrap of plywood, marked and cut to align with the front face of the table the drawer fits into, is used to mark the 12/4 block of mahogany that will become a drawer front. Make the cuts on the bandsaw (below right).

PAY ATTENTION TO THE END GRAIN DURING LAYOUT

When you cut a curve through the face of a board, the grain will read differently than it does flat. A look at the end grain will indicate the pattern that will emerge.

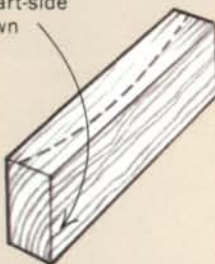
Heart-side up



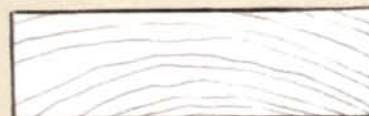
With the heart side of the board facing up and to the front, a curved cut will result in a drooping grain pattern.



Heart-side down



By orienting the heart-side of the board down for a curved cut, you achieve a more pleasing arched effect.



Compared with gluing up a bent lamination for a curved drawer front (see p. 43), cutting the curve on the bandsaw is easier, provided the drawer front is small enough that you can cut the whole thing from a single block of wood. When you use this method, the grain patterns in the wood will change as you cut the curve, and you'll expose some end grain. Using one thick block of lumber works

especially well with some woods but not so well with others. It's a lot easier to find a good, clear piece of 12/4 or even 16/4 mahogany (if you need that much thickness for your radius) than it is to find the same thickness in a wood like red oak, which might be full of small splits and checks.

If you're designing the piece of furniture from scratch, decide how you're going to treat the back face of the drawer front. The more sophisticated choice is to cut the back face to a curve as well, but you don't have to. Whether the front face is convex or concave, you can leave the back face flat. One big advantage is that the flat face simplifies the joinery, no matter what type of joint you use to fasten the face to the drawer sides and the bottom to

continued on p. 42



SOLID DRAWER FRONTS (continued)

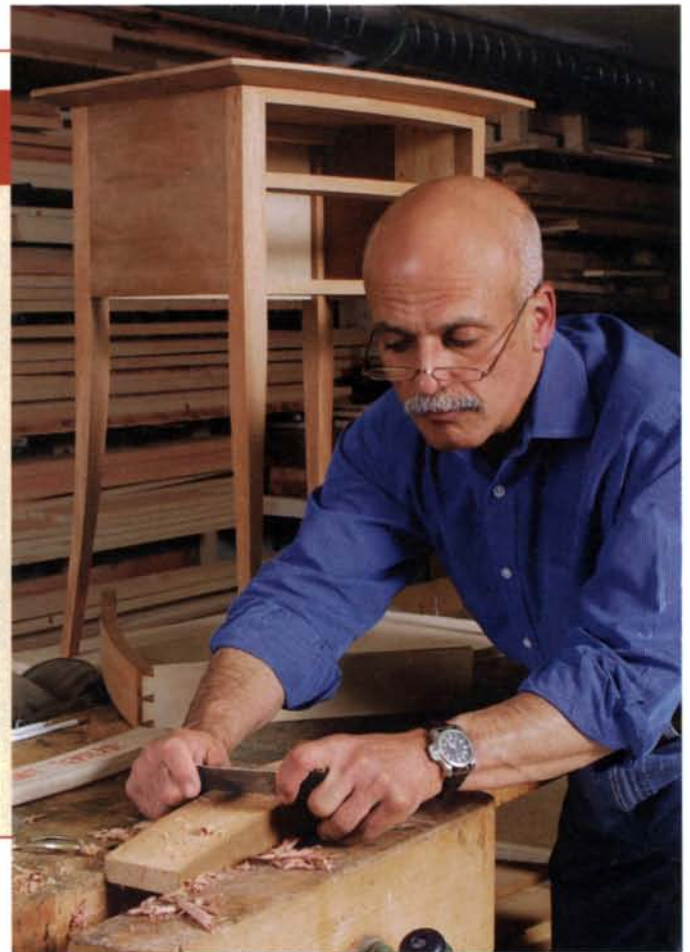
the front and sides. Cut all curves slightly oversized—for cutting curves in solid lumber, you'll need a bandsaw with a sharp, fairly narrow blade, depending on the radius you have to cut. If you don't have a bandsaw, you can certainly cut curved faces with a coping saw, though it will take a lot longer.

No saw is going to cut curves without leaving some blade marks. So when you lay out and cut your curves, assume you'll need to do some planing or scraping and sanding to smooth down the finished surface. I used a spokeshave and a scraper for the solid drawer shown here. Cut the curves fat of the line and smooth out the faces as necessary, depending on whether or not you plan to add a layer of veneer on the front.

STEP 2: REFINE AND SMOOTH THE FACE



Curves can be a pleasure. Using a spokeshave and a scraper, Rodriguez smooths the face of a drawer to remove marks left by the bandsaw.



A lot like masonry. Bricklaid cores are aptly named: Small scraps are glued together in a running-bond pattern. This kind of core is especially well suited for large drawers or those with curved shapes going in two directions.

This technique is good only if you plan to veneer the face of the drawer front. Done right, with plenty of glue, the blank will be strong and stable. This method requires more time and effort than cutting a blank from one thick board, but if the design calls for a core thicker than you can get in solid lumber, it's the only alternative.

I lay the wood bricks the same way a mason builds a wall, buttering each block with glue and staggering the joints. I place the glued blocks on a plywood template with the desired shape drawn on it. The plywood has to be waxed to keep the glue from sticking to it. The suction created by the glue is enough to get a good bond; clamps aren't necessary. Then I cut the curve on the bandsaw.

Bricklaid cores are another alternative

If you can't buy lumber that's thick enough, if the drawer face is large or if the drawer calls for a serpentine veneered front (curving in two directions), you can glue up solid blocks of smaller pieces of wood in a bricklaid pattern. Any clear lumber will work, but pine and poplar are two common choices.



Just another form of solid lumber. Bricklaid cores tend to be strong and stable, once the glue has set. For the most part, you can shape them just as you would a solid block of lumber.

LAMINATED DRAWER FRONTS



There are many advantages of resawing thin slices from one board and gluing them back together in a bent lamination. If done correctly with a caul or form made to the right size and shape, you end up with a curved board that's strong and stable, with seams that are virtually invisible. You can use the laminated piece as a finished front, or you can add a layer of veneer.

Different woodworkers have different opinions on how best to resaw the lumber for a curved drawer front. Whatever the technique, one truth is immutable: You have to start with lumber that is considerably thicker than what you need as a finished thickness, because with every bandsaw kerf that you cut, you lose some material. For resawing, a sharp blade is especially critical, and it's important to make the first cut with a face that's been jointed flat riding against the fence and an edge that's been squared to that flat face riding on the saw tabletop. Clean up all bandsawn laminates with a pass through the planer.

How thick do you cut each laminate and how many do you need for a drawer front? The answer depends on how tight the radius and how large the drawer will be. On average, I'd
continued on p. 44



Slice bent laminations from the same board. To get a premium match for color and grain, resaw all of the laminates from the same stock. Use a board thick enough to include waste lost to sawkerfs.

STEP 1: RESAW THE STOCK



Dressed faces make neater joints. Rodriguez removes bandsaw marks from the laminate pieces by running them through the planer, set to make a light pass. Thin stock should be supported with a sled clamped to the bed of the planer.



STEP 2: LAMINATE THE DRAWER FRONT

A good caul won't call for many clamps. These male and female cauls hold the bent laminations together until the glue sets. The cauls are thick enough to distribute the pressure evenly throughout the form.

LAMINATED DRAWER FRONTS (continued)

STEP 3: TRIM TO SIZE AFTER GLUE-UP



Dressing the laminated workpiece. Clean and square up one edge on the jointer (left), rip the drawer front to width slightly oversized (center), then clean up that ripped edge on the jointer. Cut the angled ends to length on the bandsaw (right).



recommend cutting separate laminates to between $\frac{1}{8}$ in. and $\frac{1}{4}$ in. thick. I think one mistake beginning woodworkers often make is constructing drawers from stock that is thicker than necessary. Drawer components should be kept as thin as structurally possible. For the table shown here, the top and bottom drawer faces are 3 in. and 4 in. wide; the radius of the curved faces is about

5 ft. The laminated drawer front is $\frac{3}{4}$ in. thick and the sides are $\frac{1}{2}$ in. thick. The drawers are sturdy, but the delicate proportions keep them from looking clunky.

Glue-ups are a cinch if you're well prepared before the glue goes on. For curved components, if you don't have a vacuum press, you have to make a set of gluing forms, or cauls, with the curves cut to the inside and outside ra-

dius of the drawer face. A few hand clamps provide sufficient pressure. With a vacuum press, you only need to use a male form; the curved piece will stay put once the glue sets.

For really large drawers, regular white and yellow (polyvinyl acetate) glues are not the best choice for curved components because they allow the wood to

move more with changes in humidity. Large curved drawer fronts can change shape enough that they'll cease to fit well into the carcass in which they're mounted. Several other glues, such as hide glue, urea resin, resorcinol and epoxy glues, are better candidates for gluing up the core of large, curved components. With that said, for curved pieces that are less than 6 in. wide, I do use yellow glue for cores and face veneers.



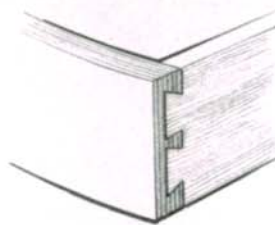
Dovetailing solid drawer fronts. The layout and joinery are the same as for square drawers.

Plan the joinery early on

For these drawers I used half-blind dovetails to join the fronts to the sides. You may prefer some other joint, such as a sliding dovetail, a tongue and dado or even a doweled rabbet joint. Whatever your preference, the type of joint you use and whether the drawer face is inset or

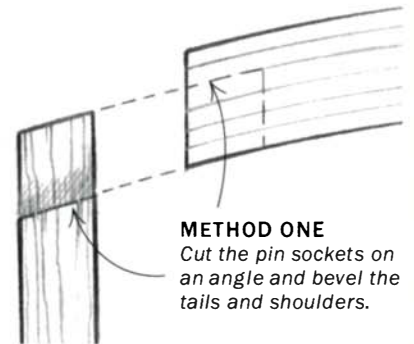
overlay to the carcass frame will affect the length of the drawer fronts and how you join them to the drawer sides.

Keeping the back face of the solid-lumber drawer front flat really simplifies cutting the half-blind dovetail—the technique is the same as cutting one from straight stock. But the curve of a bent-laminated drawer front offers some complications. Either you have to relieve the back corners of the drawer front to provide a flat surface where it meets the shoulders of the tails cut on the drawer sides, or you have to angle the pins cut into the ends of the drawer front and bevel the shoulders at the tails to fit that angle.

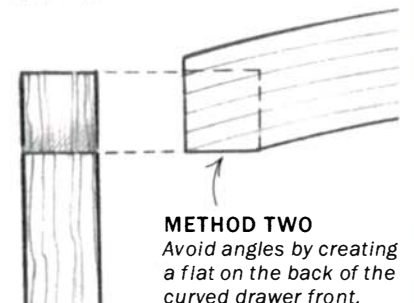


DOVETAILING CURVED DRAWER FRONTS

Cutting a half-blind dovetail into the edge of a curved drawer front can be done one of two ways.



METHOD ONE
Cut the pin sockets on an angle and bevel the tails and shoulders.



METHOD TWO
Avoid angles by creating a flat on the back of the curved drawer front.

Soup Up Your Spokeshave

BY BRIAN BOGGS

Three-step process takes the tool from good to better to best



1 REPLACE THE BLADE

On the typical metal-bodied spokeshave, this step alone will improve performance tremendously. Thicker, flatter replacement blades are less prone to chatter, and higher-quality steel will take a finer edge.

3 MAKE A NEW CAP IRON

The ultimate performance upgrade is to replace the stamped-metal cap iron with a flat, shop-made cap that will act as a true chipbreaker.

2 FLATTEN THE BED

The beds of most shaves are not flat from the factory, another cause of vibration and poor results. With some epoxy, a piece of paper and your new blade, you can mold a perfectly flat bed.

The tool's name suggests that the spokeshave is for shaving wheel spokes, but chair makers and cabinetmakers have been using the spokeshave for generations in myriad wood-shaping situations. Basically, a spokeshave is a very nimble plane, with a short sole that can follow convex and concave surfaces. A good shave can follow an S-curve and leave a surface that needs little further attention.

Any time you have a part that you can't plane evenly because of its shape, there is probably a spokeshave that will help.

Think of all of the parts that you have bandsawn a curve into: a table apron, a leg for a hall table, parts for a music stand. While a

template setup for a router or a sander will smooth the curves, it takes time to make the template and the setup. I recently sold my inflatable sanding drum because I could almost always spokeshave a part to smoothness more evenly and quickly. Even when I template-rout bandsawn parts, I finish them with a shave.

Start with a metal-bodied, flat-bottomed shave

I have been using shaves to shape my chair parts for 18 years and have about a dozen or so, each with its own purpose. If you don't own a shave, you have a lot to choose from. There are flat and round-bottomed shaves, and you can buy a shave that is concave

across its width, which leaves softer facets on round parts. Then there's the whole group of wooden shaves, in which the blade rests directly on the wood for the lowest possible cutting angle. But a metal-bodied, flat-bottomed spokeshave is the most versatile and gives the greatest chip control.

This standard spokeshave is inexpensive, but it requires a tune-up. The tuning process has the obvious benefit of improving the tool's performance, but it has an even more important role in developing your understanding of the tool. You'll quickly identify problems in your shaving work, and I bet you'll keep the blade sharper after you've so lovingly refined the tool.

Although there are a number of metal shaves on the market, their tune-up checklists are the same. The metal shave that shows up most often in my students' toolboxes is the Record No. 151, so for simplicity, I'll use this one as a demonstration.

I break down a major tune-up into three manageable tasks, most of which can be accomplished quickly. You don't have to go through all three steps to improve your tool; the first two will make a big difference. But once you see how much better the tool performs, I think you'll want to go all the way.

Step 1: Changing the blade is easy and effective

Sharpening any edge tool is basic to getting it to work properly, but if the blade won't take an edge well or hold it for long, you are going to be frustrated.

Spare yourself some agony and purchase a good blade. Typically, the original blades are so warped that by the time you flatten both sides and get them to rest solidly in the bed, you'll wish you had bought a good blade to start with. I have used replacement blades from Hock Tools (888-282-5233; www.hocktools.com) as well as from Glaser Engineering (write to Jerry Glaser, P.O. Box 95, El Segundo, CA 90245). You will get a Hock blade (\$32) more quickly, but you'll save yourself some lapping time with a Glaser blade (\$28). The latter is lapped flat with the edges finely ground and honed by hand.

1. Replace the blade

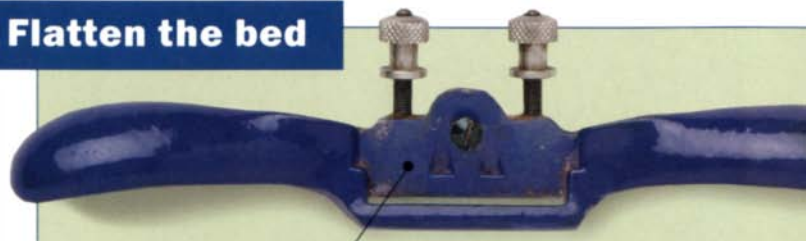


Aftermarket blades are beefier, providing a solid feel and less chatter. They are also made with better steel; even long-wearing A-2 is available.

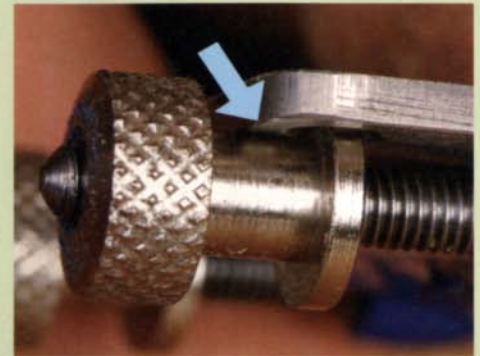


A thicker blade requires a bigger throat. File the front edge of the opening until there is an even, $\frac{3}{4}$ -in. gap or less in front of the blade.

2. Flatten the bed



A bumpy bed and crooked adjustment screws prevent a solid connection between the blade and the tool.



The blade should not ride on any part of the adjustment knob. If it does, it is being lifted off the bed of the tool.



Find the culprit and apply a bit of tape. Before putting down epoxy and clamping the blade in place, add two layers of masking tape to the highest knob so that the blade will clear it later.

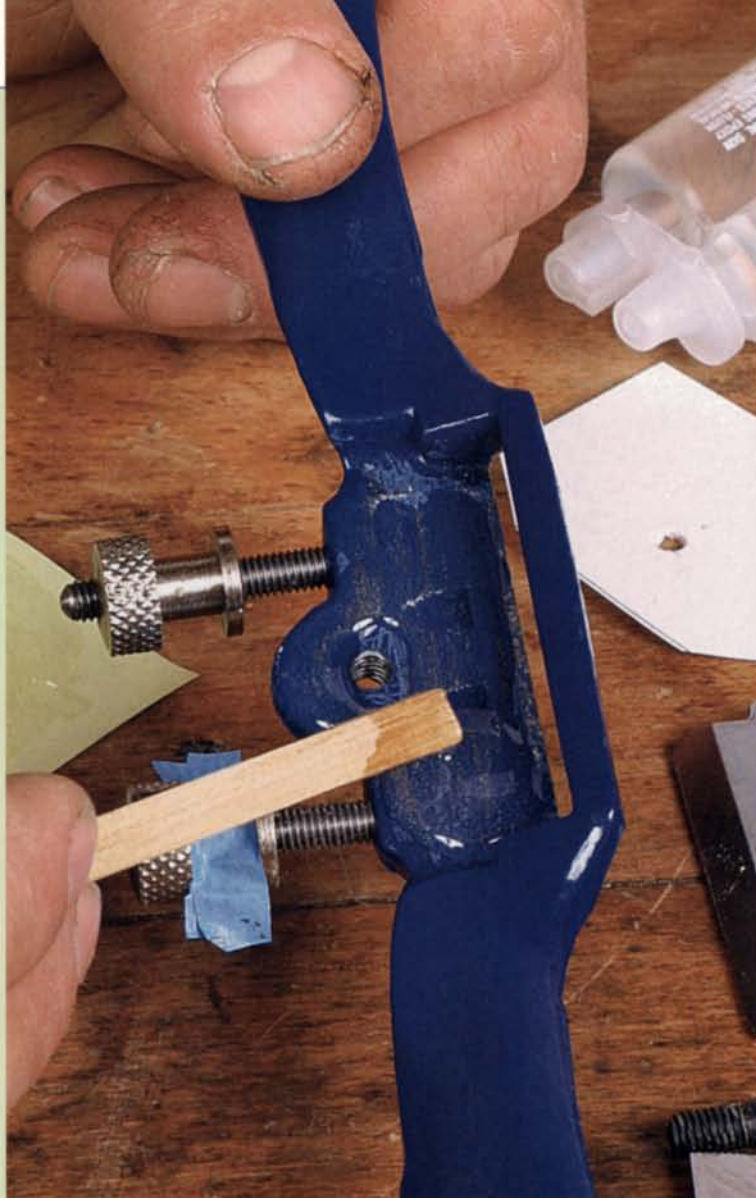
Both replacement blades are available in A-2 steel, which holds an edge beautifully. In my shop tests it holds an edge six to eight times longer than regular carbon steel but takes a very fine edge almost as quickly with the same honing techniques.

You may find that the new blades are a bit thick and won't quite pass through the throat. That's okay because it forces you to open the throat by filing it, and you can true it up in the process. This opening should be less than $\frac{3}{4}$ in. wider than the blade, just enough for a shaving to squeeze through.

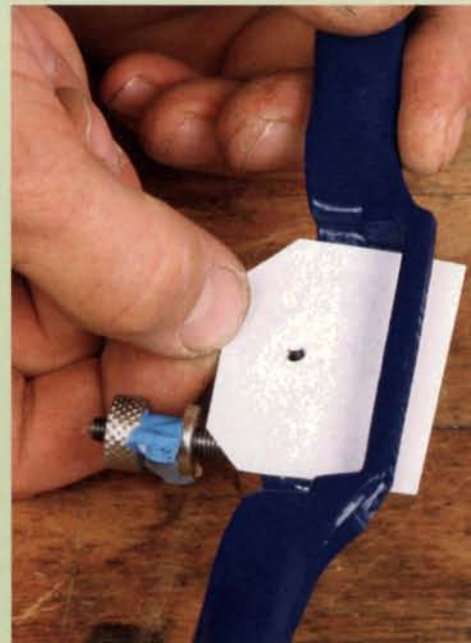
Step 2: A level bed eliminates chatter

The bed, or frog, on most shaves is a painted metal surface that can be filed. But filing an area that you can't see well or hold firmly with a clamp is a fine art. I prefer to be practical here and save the art for woodworking. I simply level the bed with epoxy, using the blade itself to mold the new bed.

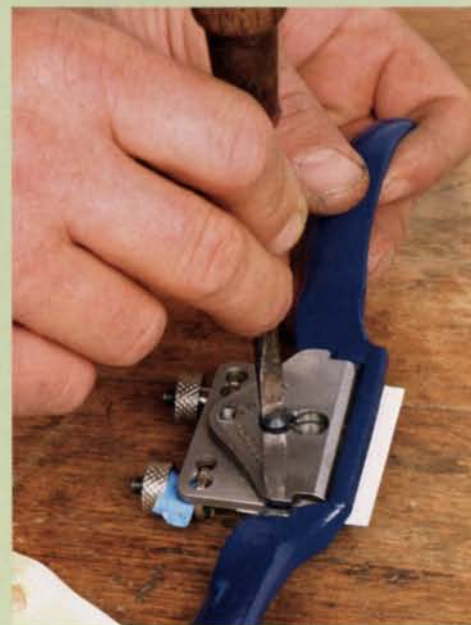
This method will work for any blade, but if you start with a dead-flat replacement blade you'll make a flat bed, which then will work



Apply a layer of epoxy to the bed. If the masking tape and the high knob are lifting the blade off the bed considerably, add a thicker layer of epoxy and allow it to firm up slightly before clamping down the blade.



Add a sheet of paper to provide a smooth surface for the blade. Have this strip cut to size beforehand, with a hole punched out for the center screw.



Use the stock cap iron to clamp the blade in place. The blade will create a flat bed to support it completely. Use the center screw to apply even pressure.



Remove excess epoxy. Some epoxy will squeeze out around the paper, but it's easy to trim and pare cleanly.

for any other flat blade you use. (Hopefully, you'll enjoy using your shave enough to wear out blades.)

Often the blade-adjustment screws aren't perpendicular to the bed, and the knobs, instead of turning freely in the slots in the blade, hold the blade off the bed. Also, if the holes in the knobs aren't centered, the knobs will lift the blade in some positions but not others. Find the high spot (if there is one) on the highest knob, and wrap that spot with two layers of masking tape. The tape will hold the blade clear of the adjustment knobs.

Molding a new bed in epoxy—To start, apply a thin but complete coat of wax to the back of the blade as well as to the center (hold-down) screw. Allow that to dry, then buff. Now clean any oil off the bed with mineral spirits and dry carefully. Scratch the paint with heavy sandpaper or a file for a good bond with the epoxy.

Next, cut a strip of paper to go on top of the epoxy, making a better sliding surface for the blade. Also, before applying the epoxy, place two layers of masking tape over the front edge of the blade

3. Remake the cap iron

The underside of the stock cap iron is the problem. Because its leading edge is rounded, it has a tendency to catch shavings. So much metal would have to be removed to flatten the bottom that it simply is easier to make a new cap iron.

Rounded edge on stock cap iron

Shopmade cap iron can act as a true chipbreaker.

to maintain an even throat opening as you clamp down the blade onto the soft epoxy.

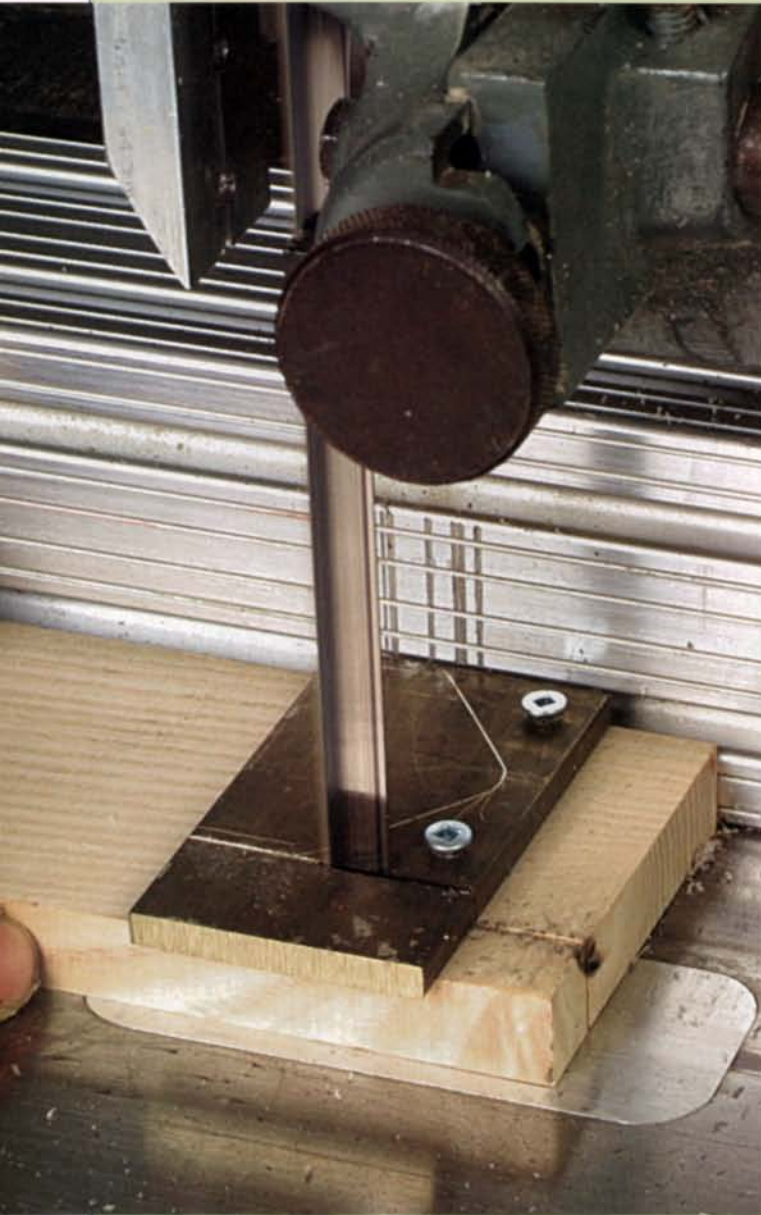
Whip up a batch of epoxy with a working time of 20 minutes or more, and apply an even layer to the bed. You could use auto-body filler here, too. Use just enough epoxy to fill the voids, unless you have crooked adjustment screws and need to raise the blade off the bed. For a thicker bed, wait until the epoxy firms up slightly before inserting the blade and clamping it down.

Place the paper carefully over the bed, centering the hole for the cap screw. Now assemble the shave, using just the center screw to hold down the blade. Use only enough screw pressure to hold things in place while the epoxy dries. Too much pressure might flex the blade and create a bowed bed. Also, if you have one high adjustment screw, be careful to lay the blade in level. Don't let it droop over the other adjustment screw. And make sure the blade is extended through the throat so that the bevel clears the bed area.

If in the first step you filed open the throat too much, use a piece of veneer or card stock instead of paper. The veneer also can be added later, glued to the paper.

Let the epoxy set up overnight. Then take apart the tool and trim the paper and any epoxy squeeze-out. Lap the bottom flat using a diamond plate or simply sandpaper glued on glass. Then file a 1/2-in. chamfer on the front edge of the bed and on the leading edge of the sole. Sharp edges here will scrape your wood.

Done well, these first two steps will yield a fine cutting tool that will take most straight-grained woods to a beautiful finish. You might want to stop here and enjoy some woodworking for a while, but eventually you will encounter difficult areas that don't want to shave clean no matter which direction you cut. Skewing the blade will help, but to get a perfect finish all of the time, you need perfect chip control. When you're tired of sand-



If the teeth are fine, a wood-cutting bandsaw blade will cut brass. Screw the brass stock to a wood scrap for safer and easier handling. Put the screws through the waste areas. Grind an even bevel along the front edge.



The side notches must be filed to the correct depth. Use a wood guide block to keep the file level. When fully seated, the cap iron should stop about 1/4 in. from the front edge of the throat.

ing *almost*-perfect finishes, you're ready to replace the cap iron.

Step 3: Shopmade cap iron reduces tearout

On most spokeshaves the cap iron is just a crude hold-down that keeps the blade in place. But it can do more. A flat, correctly positioned cap iron can act as a chipbreaker for finer cuts with less tearout, just like the chipbreaker on a smoothing plane.

The manufacturing process used on a cap iron leaves the bottom edges rounded. But without a machinist's surface grinder, it is difficult and time-consuming to get a stock cap iron dead-flat. I think it is far quicker and easier simply to start over. A quick cap iron can be made from 1/4-in.-thick brass bar stock. A steel cap is fine too, but brass is much easier to work and can be cut at the bandsaw with a fine-toothed wood-cutting blade. Of course, you also can use a hacksaw. The best place to get a scrap of brass bar stock is a local machine shop.

You can form the back edge of your new cap iron to the shape of the stock cap iron, or you can just leave it long. The important areas are the beveled chipbreaker edge and the small ears that rest in the notches in the body. These locate the chipbreaker edge.

Before sawing the stock to width, mount it on a flat scrap of wood, as shown on the facing page. This will make it easier and safer to hold the stock for sawing, grinding and drilling. Use a



The well-tuned spokeshave. Outfitted with an after-market blade, a flat bed and a shopmade cap iron, a spokeshave—either pushed or pulled—will plane curved surfaces glassy smooth.

Watch it on the web

For video tips on using a spokeshave, go to www.finewoodworking.com.

6-tpi (or finer) blade at least 3/8 in. wide, if possible, to handle the added pressure of cutting metal. Cut the notches only roughly to size because you're going to do the final fitting with a file.

Next, grind an even bevel along the front edge. For this I clamp the stock in a vise and pivot a belt sander on its back edge. Check for square and make any necessary adjustments.

Check your fit and file the notches as needed. You won't need the slotted hole the original has; just drill a slightly oversized clearance hole.

When the cap iron is close to the edge of the blade and acting as a chipbreaker, a good seal is critical. To help this I burnish the leading edge of the cap iron just as I would a scraper, throwing a burr toward the blade. A little lapping evens out the burr.

When you assemble the tool for use, apply just enough screw pressure to keep the tool from falling apart while you use it. Tighten it only when the blade slips out of adjustment.

You should know that even a well-tuned shave requires practice to master. However, with your souped-up shave, practice should be a lot more fun. □

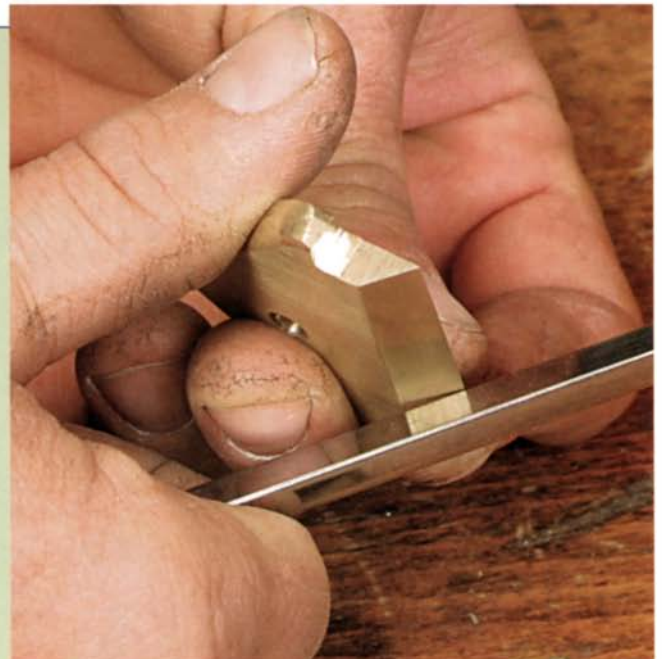
Brian Boggs is a chair maker and chair-making instructor in Berea, Ky.



Next, mark for the center hole. This simply is a clearance hole for the center screw, which threads into the body of the tool.



Mount the cap back onto the wood block for drilling. A screw clamp makes a good vise. Next, use the bandsaw to cut the corners off the back edge.



Last, burnish a very fine burr on the front edge. This will create a tight seal against the blade, preventing chips from slipping underneath. Flatten the hook slightly on a bench stone.



Wine-Glass Cabinet

Tapered stiles and glass panels lighten an ash cabinet

BY SCOTT GIBSON

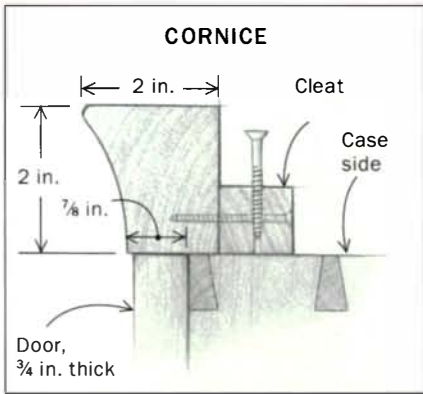
Wall cabinets are relatively small. That's one of their beauties. They can be used in many spaces that would be too cramped for larger pieces of furniture, and their scale makes them familiar and approachable. A wall cabinet also can be made from scraps and offcuts of prized lumber that would be unusable elsewhere.

Wall cabinets lend themselves to many variations in design, depending on where they will be installed and what they will be used for. This cabinet is made of quartersawn white ash. It is for wine glasses and is intended for a dining room. It is less than 7 in. deep. With the exceptions of the cornice and the matching base, the cabinet is rectilinear. Door stiles are tapered slightly on the inside edge to help the cabinet appear lighter at the top. A covered cornice gives the top of the case some heft, and small windows at the tops of the doors give you a peek inside. There's minimal hardware, so the wood is really what's on display.

Size the cabinet to fit the glasses

Unless the cabinet has no specific use, it makes sense to size it carefully for the things that are to be stored there. Wine glasses

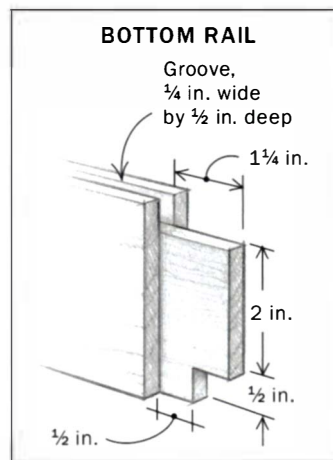
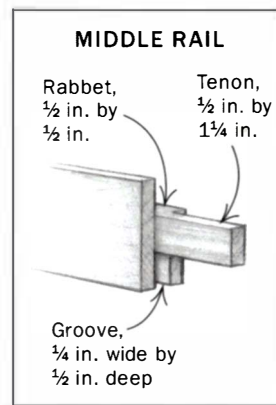
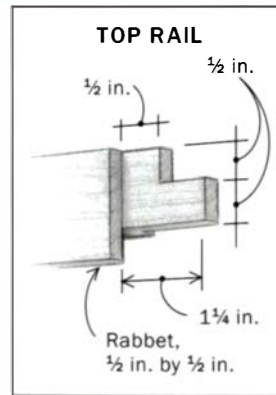
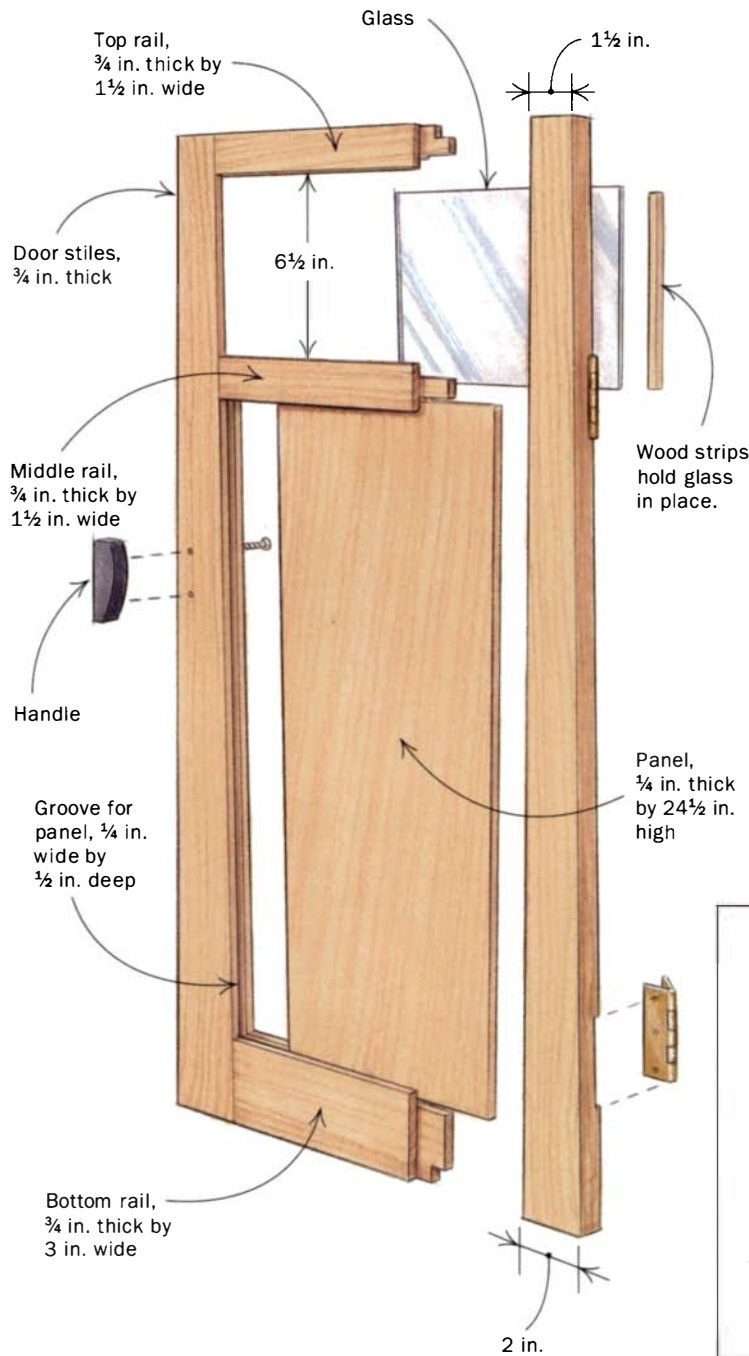
BASE MOLDING SUPPORTS THE CABINET



This simple box is accented by doors with tapered stiles, which gives the illusion that the piece has a slight V-shape. The cornice and the matching base also provide some weight to the piece and reinforce the tapered appearance.



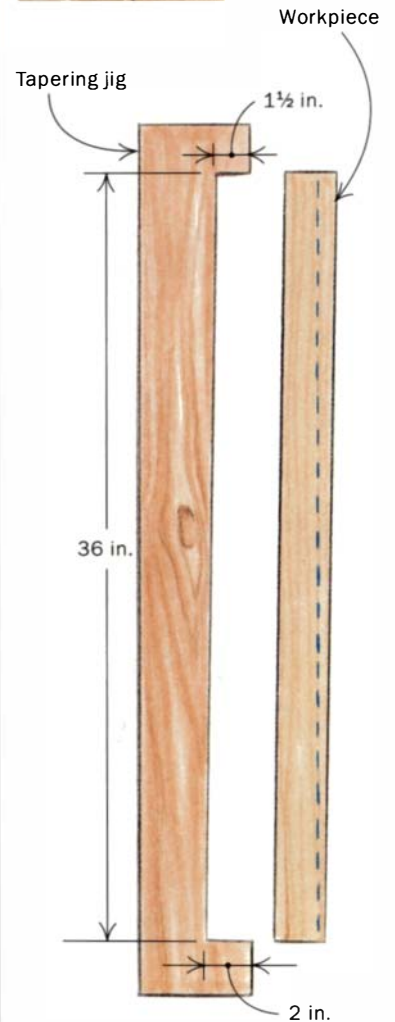
DOORS WITH TAPERED STILES REQUIRE CAREFUL PLANNING



1 TAPER THE STILES



Use a jig to cut the 1° taper. Save the offcuts because you'll need them to help cut the rails.



come in many sizes and shapes, but those in the mixed collection my wife and I own are about $3\frac{1}{2}$ in. wide and about 7 in. tall. Those dimensions became the rough guide for laying out the cabinet. Although adjustable shelves allow some flexibility in height, there is no way to fudge a cabinet that is too shallow.

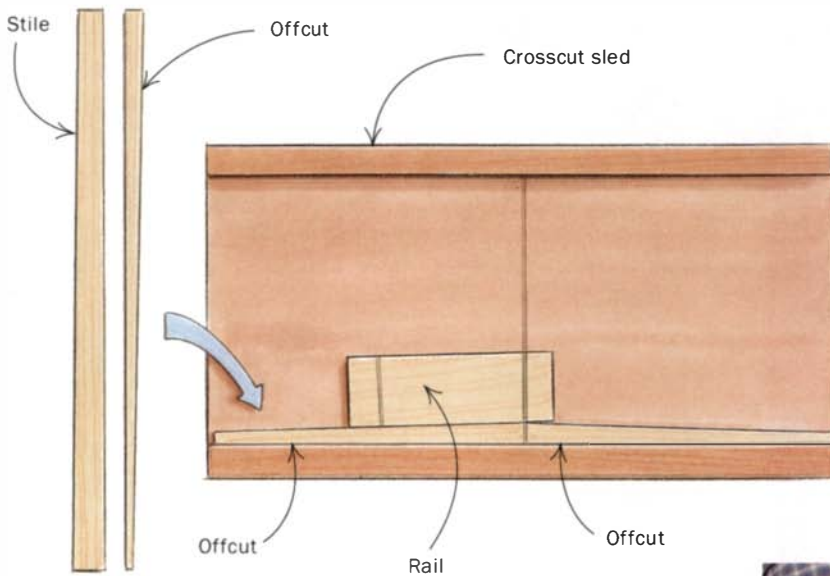
There are two other considerations: the thickness of the back, which is set into rabbets in the back of the case, and whether the doors will be inset or overlay. The back of this cabinet was made from four shiplapped boards. A frame-and-panel back was another good option, but shiplapping these boards was the best way to present the bands of browns and creams in the wood. Because the

boards were set into the back of the case, the overall depth of the cabinet had to be increased by at least that much. I added a safety margin of another $\frac{1}{2}$ in. in case we ever get slightly larger glasses.

If you choose inset doors—those that fit inside the case—they also must be factored into the depth of the case. Doors should be a full $\frac{3}{4}$ in. thick, so the sides of the case must be that much wider if this is the door style you choose. I chose overlay doors, which are attached to the outside edges of the case. One visual advantage of overlay doors is that they give the case a cleaner, less cluttered look—from the front, you see the doors, not the edges of the case. Another option is to make the top and bottom of the case wider

2 TENON THE RAILS

Tack portions of offcuts from the stiles onto a crosscut sled for your tablesaw. Place the thicker ends near the blade.



Trim the tapered shoulders on a sled. Nail offcuts from the stiles to a tablesaw sled or miter gauge. The offcuts will provide the correct shoulder angle.

than the sides by the thickness of the door. This allows the doors to cover the edges of the cabinet sides but fit inside the top and bottom pieces.

As for width, I wanted to fit five or six glasses side by side on each shelf. A little extra room here also is a good idea.

The carcass is just a four-sided box, dovetailed at the corners. The sides are $\frac{3}{4}$ in. thick, and the top and the bottom are $\frac{7}{8}$ in. thick. Although using half-blind dovetails would have kept the sides of the case cleaner, I'm still a sucker for at least some exposed joinery, so I used through-dovetails. I made the top a little thicker to allow slightly longer pins (these are cut with a 1:8 angle).

Doors are the focal point

This cabinet is almost all door, so it pays to use the best wood you have for the panels and the door parts. I liked the idea of a cabinet that was tapered—slightly narrower at the top than at the bottom. But that seemed to create more problems than were worth solving, so I opted instead to taper the inside edges of the door stiles. The taper is gentle—about 1° —going from 2 in. wide at the bottom of each stile to $1\frac{1}{2}$ in. wide at the top. A more severe taper would have made the stile too wide at the bottom or too narrow at the top to accommodate a tenon. Each door also was fitted with a trapezoidal window roughly 7 in. on a side.

The easiest way to lay out the mortise-and-tenon joints for the door was to use a full-sized drawing on a piece of paper or scrap of plywood. The length of each of the three rails was taken directly from the drawing. I just had to add an allowance for the tenons.

After cutting the rails to size, I made the cheek cuts on the tablesaw using a simple jig. Then I finished the tenons with the rails



Fit the middle rail. Dry-fit the door frame and fit the middle rail to the piece, using a full-sized drawing as a guide.

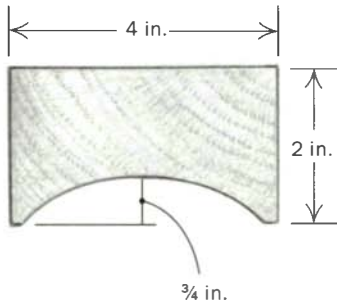
flat on a tablesaw sled. To get the right angle, I took the offcuts left over from tapering the door stiles and tacked them to the table-saw sled. If the joints didn't fit perfectly, I adjusted them with a shoulder plane or put them back on the jig to remove a little more wood with the tablesaw. Making the door parts and dry-fitting them directly on the full-sized template simplified the process. But it did take some fussing to get three unequally sized rails into place while keeping the stiles parallel and the door square.

The little windows fit in a rabbet cut in the back of the middle rail, the top rail and the two stiles. This was a good place for a router. The rabbet can be created using a bearing-guided rabbet-

COVED CORNICE

1 CUT THE COVE ON THE TABLESAW

Make a $\frac{3}{4}$ -in.-deep cove by taking very light cuts across the blade. It should take about 6 to 10 passes.



Set your guide 2 in. from the crown of the blade. This cut will be made at 45°.

Cut the cove. Move the stock over the blade at a slow but steady pace. Don't remove too much with each cut.



ing bit after the door has been glued up. Small strips of wood hold the glass in place. They can be secured either with brads or with hot-melt glue.

Coved cornice can be cut on a table saw

I don't own a shaper, but by passing the stock at an angle over the table saw blade, I was able to produce the coved cornices for this cabinet with ease. By varying the angle of the approach and the angle of the blade, this technique allows you to make profiles of amazing variety—from plain semicircular cuts to dramatic shapes that look like waves about to break. The trick is to clamp guides to the table saw so that the stock won't wander and to take $\frac{1}{16}$ -in. or smaller bites.

The stock for the cornice was 2 in. thick, giving me plenty of material in which to cut the profile. After cutting the cove in the cen-

ter of the material, I ripped one edge to give the cornice its finished shape. The pieces were mitered and glued together as a unit before they were attached to the case. By hot-gluing triangular-shaped blocks on the two outside corners, I was able to use spring clamps to close the miter tightly. When gluing up the assembly, a spacer block can be inserted between the two short legs, if necessary, to keep the assembly in shape. I cleaned up the saw marks on the pieces before gluing them together.

Once the glue dried, I sanded the corners to remove any traces of squeeze-out and screwed the assembly to the top of the case. The front edge of the assembly overhangs the front of the case by about $\frac{7}{8}$ in. The overhang covers the tops of the doors and allows for a small lip. A cleat attached to the back of the front cornice was screwed to the top of the case; on the two short legs of the cornice, tabletop buttons made a tight connection while allowing for cross-

2 RIP, MITER AND ATTACH THE CORNICE



Rip to size. Determine the height you want the cornice to be and rip it to width.



Triangular blocks add bite to spring-clamp jaws to close up miters. Attach the blocks with hot-melt glue, and chisel them off after the cornice is dry.



Attach the cornice to the case. The front cornice piece is screwed through the cleat. The side pieces are attached with buttons, which allow for wood movement.

grain seasonal movement in the case top. Attached this way, the front of the cornice won't move.

There is one other component made with the same material—the base that supports the cabinet on the wall. It is only $2\frac{7}{8}$ in. deep, enough to give the cabinet a sturdy shelf but shallow enough that it doesn't make the cabinet look bottom-heavy. It is 4 in. narrower than the cabinet. After the three sides of the base piece were joined, I added a base cleat that meshes with a corresponding cleat screwed to the wall. Called a French cleat, this hanging system hides any fasteners, and it is simple to install and remove.

Hang the doors and apply a finish

Depending on how the case is built, knife hinges would be a good choice for this cabinet. They are unobtrusive and strong. I've also used crank hinges (Whitechapel Hardware; 307-739-9478), which allow doors to be folded open all the way. I decided on good-quality extruded brass butt hinges.

Because the cabinet has overlay doors, the stops are already built in. To keep the doors closed, I used small, powerful magnets sold by Lee Valley (800-871-8158). They are less difficult to install than conventional bullet catches and will be unaffected by small seasonal changes in the doors.

Fitting overlay doors is not as finicky as fitting inset doors, but the outside edge of each door still should line up exactly with the edge of the case. Planing a bevel of a degree or two on the mating edges of the center stiles makes it easier to open and close the doors without having them bind.

For finish, a coat of Watco oil brings out the wood's color, and three or four coats of blond shellac or lacquer protect it. □



A French cleat bears the weight. The base engages with the wall cleat, and the cabinet sits atop the base. The case requires only a single screw at the top to hold it securely to the wall.



Scott Gibson is a freelance writer living in Maine.

Installing a Cast-Iron Vise

It's hard to imagine working in a shop that lacks a good bench-mounted vise. After all, woodworkers come from the factory with just two hands, and we need both of them to use most tools. So it usually takes some help to keep a workpiece fixed firmly in place.

The cast-iron style of vise has long been a staple in woodworkers' shops, and for good reason. A cast-iron vise that's well maintained can last several generations, and a workpiece locked in its grip won't easily budge.

A cast-iron vise has another plus: It generally installs without much fuss. But

that doesn't mean the procedure is fool-proof. To minimize the fussiness factor, there are a few worthwhile points to keep in mind—including a little preinstallation planning.

Where to put it

At first glance, a workbench seems to offer a number of places to locate a vise. But a few spots can be eliminated quickly. Any vise centered on the front, back or end of a bench is sure to be in your way, so the vise almost always ends up installed near a corner to make it as unobtrusive as possible. Your options narrow even further when

you consider the bench location, its design and you—or more specifically, your handedness.

Bench location and design—When a bench is positioned well away from the walls, allowing all-around access, the vise can be installed adjacent to any of the corners. But if the bench butts against a wall, both corners of that side of the bench are eliminated as options. If the bench has to go in a corner, the options become fewer. So it's best not to finalize the vise location until you've considered where the bench is going to go.

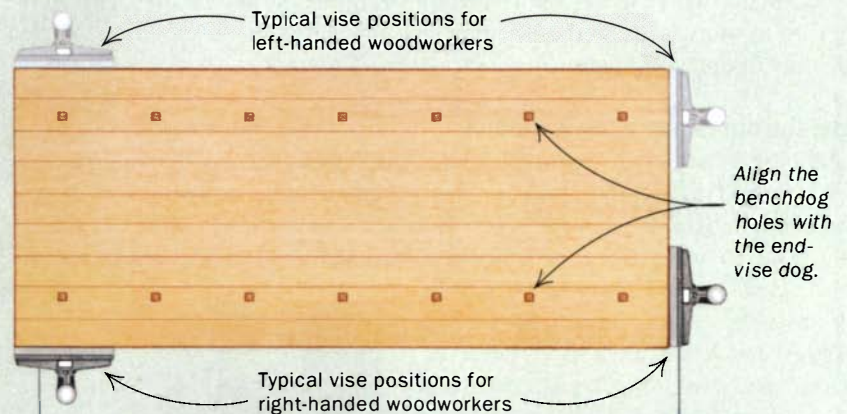


FRONT VISE

If you're going to mount only one vise, a front vise offers the most useful clamping options. A board clamped horizontally in a front vise is perfectly positioned for edge-planing. Clamp it vertically, and the end of the board can be planed or sawed easily.

Determine the best location

Before installing a vise, consider where on the benchtop it's going to work best for you. Right-handers generally prefer the front vise on the left end of the benchtop, with the end vise on the right, near the front corner. Reverse the locations if you're a southpaw.



END VISE

Used with a benchdog, an end vise allows a longer board to be clamped quickly face-down on the bench for planing, scraping or sanding.



Most cast-iron vises have a metal dog built into the front jaw. When the vise dog is used with a benchdog, the vise offers additional clamping advantages. Keep in mind, though, that the holes for the benchdog must be in line with the vise dog. So before you settle on a vise location, make sure the benchdog you use can be placed into all of the holes without interfering with the vise, the bench legs or anything else under the top.

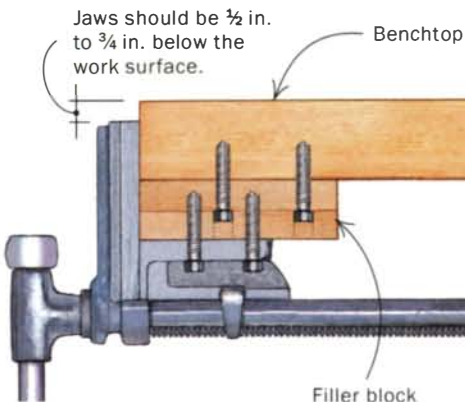
Front or end vise?—A vise can be mounted to the front or end of a bench. Because each location has its advantages, many



MOUNTING THE VISE



Figure out the filler-block thickness. With both the vise and benchtop upside down to make the job easier, measure the distance from the benchtop to the top edge of the vise jaws and then add $\frac{1}{2}$ in. to $\frac{3}{4}$ in.



Attach the filler block, then the vise, using lag screws. You might think that about does it, but to get the most out of the vise, you should cover the metal jaws and edge of the table next.



A long face. A mortise in the back face accepts the back jaw. The face extends the full length of the benchtop, which will make it easier to clamp long boards.



Measure, mark and cut out the mortise. On many vises, the face of the back jaw isn't square to the benchtop. To make sure the mortise ends up deep enough, measure the depth from the thickest part of the jaw. Use a drill bit to remove most of the waste stock before using a router to clean out the waste that remains.

benches include both front and end vises. If a bench is limited to having just one vise, it's best to install it as a front vise, because most of us naturally gravitate toward the front of the bench.

Think right or left—More than anything else, your handedness determines the best vise location. Right-handers usually like a front vise on the left of the bench. That way, when crosscutting a board with a handsaw, the cutoff end can be held by the left hand.

When the front vise is installed on the left, you'll want the end vise added to the right, near the front corner. Reverse the locations if you're a lefty.

How to mount it

There are several ways to install a cast-iron vise; your best option depends on the

benchtop's design. The procedure outlined here covers the most common installation, one where the back jaw of the vise simply butts against the edge of a top that's about 1½ in. thick.

Cast-iron vises, especially large ones, are heavy and awkward to hold. So try to work with the benchtop turned upside down, as shown here. If flipping the top isn't an option, you can make the vise easier to handle by removing the front jaw along with the screw and guide bars.

Include a filler block—Ideally, when the vise is installed, the top edge of the jaws should be ½ in. to ¾ in. below the top of the bench. The extra space allows room for the wood face, added later, to cover the top of the jaw.

Also, on some vises, the dog extends almost ½ in. above the jaws, even when the dog is fully lowered. Unless the jaws are well below the benchtop, the dog will always stick above the work surface.

To get that extra space, you're likely to need a wood filler block between the underside of the benchtop and the mounting bracket portion of the vise. The block

should be wide and long enough to cover the bracket and thick enough to produce the intended spacing.

Install the filler block and vise—Before securing the block to the underside of the top, drill and counterbore it for four lag screws. Position the block on the benchtop and drill the pilot holes. Add glue, then slip the lag screws into the holes and thread them home.

Now position the vise on the block, with the back jaw firmly against the edge of the bench. Then drill the pilot holes and add the lag screws. If you've been working with the benchtop upside down, now's the time to flip it right-side up.

Make the faces—A workpiece secured in the vise is less likely to dent if the cast-iron jaws have wood faces. The faces can be installed several ways.

A quick method is simply to screw a rectangular piece of hardwood stock to the jaws of the vise. Most jaws have predrilled holes, making the job an easy one.

I prefer to mortise the back face to accept the back jaw. Also, I like to extend the back face the full length of the bench. Effectively then, the back face becomes part of the edge of the benchtop. So when a long board is clamped on edge in the vise, the



Attach the back face to the edge of the benchtop. To fill in the gap between the back face and the back jaw of the vise, add a couple of strips of epoxy putty to the mortise just before applying the face to the bench (left). After coating the jaw with paste wax, attach the face with a few wood screws driven into counterbored holes (right).



Plane the top edge of the face. A sharp handplane is all it takes to get the face flush with the top of the bench.

board remains in contact with the back face the full length of the bench. That makes it easier to clamp the end of the board to the benchtop.

To create the mortise, first mark its length, width and depth on the back of the back face. When measuring the depth, keep in mind that most jaws taper in thickness, meaning the back jaw usually isn't square to the benchtop. So to make sure the jaw can fit fully into the mortise, measure the depth dimension at the bottom of the jaw at its thickest point.

Once the mortise has been marked, use a drill press and a Forstner bit to remove most of the waste. Clean up the rest with a router.

Mount the faces—At this point, there's just one more detail to attend to before the back face can be attached. Because the back jaw is tapered, it doesn't fit fully against the mortise. As a result, there's a gap that widens as it nears the top of the jaw. Thus, the jaw loses some support provided by the back face.

To fill in the gap, use a bit of epoxy in putty form. You can find this stuff at most hardware or home-improvement stores. To prevent the epoxy from sticking to the jaw, add a heavy coat of paste wax to the area of the jaw that meets the epoxy.

Next, attach the back face, using the vise to clamp one end. The top edge of the face should stand proud of the benchtop by $\frac{1}{16}$ in. Now add a bar clamp to the other end of the face. Secure the face with screws driven into counterbored holes, and add wood plugs to the holes.

The front face is just rectangular stock that's attached by driving screws through holes in the front jaw. Because the front jaw has a taper, like the back jaw, the

front face cants toward the back face. That's actually a plus because it helps the vise grip more tightly along the full width of the jaws. But if there's too much cant, it can be reduced quickly by handplaning a bevel on the entire inside surface of the front face.

For the final step, add a finish to the two faces, preferably one that matches the finish on the original benchtop. □

Tom Begnal is an associate editor.



Add the front face. Like the back jaw of the vise, the front jaw is tapered. To minimize the effect of the taper, you can bevel the outside surface of the front face slightly. Then attach the face by driving two screws through predrilled holes in the jaw.

Gel Stain User's Guide

Easy to apply, these stains are forgiving, even on blotch-prone woods

BY TERI MASASCHI

Wipe-on stains have become enormously popular in the last few years, and none more so than the gel versions. Sold as one-step, foolproof finishes that need only a rag as an applicator, gel stains appeal to that large group of woodworkers who dislike finishing. While many serious finishers spurn these stains assuming they have few good qualities, others find ideal uses for them.

Gel stains are forgiving, but they won't hide the sins of bad sanding marks, spots of filler or glue smudges. Contrary to popular belief, these combination finishes still need a clear topcoat in most circumstances. Different brands of gel stains also vary both in their handling characteristics and in their color rendition of the same named

stain (see p. 63). However, for those projects made of difficult, blotch-prone woods, such as cherry and pine, gel stains may be the best solution. Their ability to layer color makes them easy to use as glazes. For these reasons and others I will demonstrate, these small cans of thick color deserve a spot on everyone's shelf.

Where gel stains prove their value

One of the strongest selling points of a gel stain is its ease of application. There is no need for a spray gun, a specialty brush or even a spotless shop—only a nice, soft cloth, such as an old T-shirt. Gel stains are all wipe-on/wipe-off products, which results in very little wet surface (tacky at most). A gel stain is not like a traditional thin pigment stain that never gets deeper in color no matter how many coats are applied. Rather, a gel stain builds up color with each application, so don't apply a

heavy first coat for a darker color. Simply apply a second one.

Gel stains work well on blotch-prone woods

The end grain on tabletops and raised panels often absorbs regular stains in dark, ugly contrast to the straight grain around it. Likewise, some cherry and pine boards turn blotchy when a stain has been applied. One solution is to use a stain controller (see *FWW* #156, pp. 113-114), such as a thin coat of clear gel varnish or de-waxed shellac, but using a gel stain may negate the need for this step.

Gel stains color in increments

Woodworkers often combine solid wood and plywood in the construction of cabinets. It is a common struggle to make these components blend together when it comes to staining them. A gel stain is an ideal solution for this problem. If one component is

What puts the "gel" in gel stains?

The Bartley Collection Ltd. has been making gel stains and varnishes for 30 years. These products start life much the same as their liquid counterparts. A powdery thickening agent is added to the liquid mix of resins, pigments and mineral spirits. In a process known as thixotropy, 100-gal. batches are put in a machine resembling a large milkshake maker. As the ingredients are stirred for at least an hour, the chemicals react together and heat up to around 150°F. Once this temperature has been reached, the mixture must be canned quickly before it cools and becomes the thick mixture known as a gel stain.



A tale of two stains. The gel stain on the left imparts an even color over the whole piece of wood. The dye stain on the right creates a blotchy finish on the face grain and an ugly, dark end grain.



WIPE ON, WIPE OFF



One of the main appeals of gel stains is their ease of use. They can be applied to raw wood straight from the can using only a small rag. Apply the stain in a circular motion, working it into the wood. Avoid leaving large amounts of surplus gel on the wood. Before the gel has a chance to become tacky, wipe the surface with a clean rag, leaving only a thin layer of finish on the wood.



DEEPEN COLOR WITH ADDITIONAL COATS

Plywood and solid wood react differently to the same stain, resulting in uneven color. Gel stains build color in increments, so it's easy to match the colors.

lighter than the other, a second application on the lighter area pulls in the tones nicely.

Sapwood sometimes can be concealed by applications of gel stain on the light stripes. Usually two coats will successfully blend the light with the dark, but if necessary, you can alter the tone of the gel stain by adding concentrated pigment such as Japan colors or artist's colors.

Gel stains are a nifty medium for glazing—Start by applying a base stain either with a dye or a pigment stain. Seal this with a clear gel varnish or a thin coat of dewaxed shellac. Scuff-sand with 320- or 400-grit paper and then apply a thin glaze of gel stain. This imparts a small amount of tone to the wood without being heavy and creates a deeper look from the layers of color.

You also can use two different gel stains to match the color of another finished piece. To match a tabletop to its base, for instance, I used an initial coat of Clearwater stain, followed by an application of Bartley gel stain.

Gel stains have a downside

For everything good about gel stains, there are a few drawbacks. Lack of clarity is certainly a common complaint. A gel stain on a figured wood, such as tiger or bird's-eye maple, is a crime. The resulting appearance is muted and lacks intensity. Even on straight-grained wood, application of multiple coats of gel stain risks muddying up the wood.

Topcoats receive special consideration—Most gel stains remain on the surface—especially on hardwood—rather than penetrating the wood as dye stains do. Unless they are well protected with a durable topcoat, heavy-use areas such



Another layer of color. Gel stains increase the degree of color with each application. Two thin coats are better than one heavy one.

A perfect match. A second coat of stain on the hardwood frame leaves it looking as if it came from the same tree as the plywood panel.



as tabletops are at risk of the color wearing through. With the exception of Clearwater, topcoat options are limited with these gels. Bartley, Wood-Kote and Olympic all recommend a gel varnish or liquid polyurethane. Because gel varnish is actually gelled polyurethane, which is softer than its liquid counterparts, it is not a good choice for tabletops.

Care should be taken when topcoating oil-based gel stains with solvent-based lacquer. These stains have a resin binder that,

if left on too thick or still curing, may cause the lacquer to crinkle.

Gel stains can be the answer to challenging staining situations. For those unwilling to take chances with the unfamiliar world of dye stains, spraying stains, pre-stain conditioners, pre-sealing or pre-sizing, these gels will work beautifully as a one-step staining process. □

Teri Masaschi is a woodworker, finisher and restorer in Albuquerque, N.M.

Many brands of gel stains, many shades of cherry

Gel stains are available in oil- and water-based forms. These stains come in the typical range of wood tones as well as in bright primary colors. For this article, I tested the cherry stain from various

manufacturers to show the wide range of tone and each stain's ability to grab the wood, or "take." I chose to illustrate it on cherry and pine boards, two blotch-prone woods.



BARTLEY

Very rich in tone, one application alone imparts a deep color. This stain leans toward the reds that are good for traditional work such as reproductions. The label states that the product stains and seals in one step. However, a surface left at this stage is vulnerable and lacks sheen. It's best to topcoat with gel varnish or polyurethane.

ON CHERRY



ON PINE



CLEARWATER

Because this product is a dye, it tends toward greater transparency than the other gels, which are pigments. Clearwater has no binder, so any topcoat can be used over it. However, if a water-based topcoat is used, preseal the gel stain with a thin dewaxed shellac to prevent color bleed-through.



MINWAX

This stain is weak in color and light bodied; the tone is closest to unstained cherry. It must dry for 24 hours before a polyurethane topcoat can be applied.



OLYMPIC

This oil-based interior/exterior antique cherry is the most orange colored of the five stains shown here because one of its ingredients is red iron oxide. The consistency in the can resembles thick latex paint, and more than two coats hides most grain. Topcoat with oil- or water-based polyurethane.



WOOD-KOTE

This stain is heavily pigmented with an orange/brown tone. The colorant is so strong that it can "grab" the wood a bit too intensely. It is not as easy to wipe off as the other gels, and it also has a strong odor. After Wood-Kote dries in two hours, polyurethane or lacquer can be used as a topcoat.



Compound Angles Without Math

Simple set-up block dials in tablesaw settings for accurate butt and miter joints

BY STEVE BROWN



Work from a model

By beveling the edges of a wood block at the desired slope for your sides, you create a working model of the box or tray and all of its angles. Used alone, laid on its side, the block gives you the blade and miter-gauge angles for a butt joint; add a 45° triangle (above), and you have the settings for a miter.

Compound angles add visual interest to a piece. Instead of building a cradle that looks like a stiff box, you can angle the sides to give it a more subtle, inviting appearance. Angled sides are used in many types of woodwork, from simple serving trays and window boxes to the high-style bombé chest, with its flat, sloped case and drawers that are carved into a bulge on the outside.

A compound angle occurs at the intersection of two sloped sides, and there are a

number of joints that can be used to connect them. The most basic and fundamental of these is the butt joint. Miter joints and dovetails are more complex options. At North Bennet Street School, where I teach, we've found an easy tablesaw method that handles all three variations required, with some handwork for dovetails.

To form a compound angle on the tablesaw, both the blade and the miter gauge must be angled for crosscutting. The problem is that you cannot get those angle set-

tings from the standard views on drawings. When any piece features surfaces that are not perpendicular to the line of sight, there is distortion in their size and shape. Take the front side of a simple box. If each side slopes outward 10°, the front and side views will show a slightly shortened front side, and the crosscut angle at each end will be distorted. The top view is also deceiving—you are not looking straight down on the top edges of the box, so you can't read the true bevel angle of the butt joints.

There are a few traditional approaches to calculating these two angle settings. The first involves drafting a corrected view that shows the true dimensions and angles of each side of the box. The second is a mathematical solution using trigonometry. However, while working through these traditional solutions with our students, we became dissatisfied with their complexity and potential for inaccuracy. There are chances for error when drawing or making calculations and also when you turn those numbers into actual tablesaw settings. This led us to rethink the problem and eventually figure out a simpler method for determining and cutting compound angles on the tablesaw.

Set-up block is a simple solution

To carry out this method, you need to know only the slope angle for the sides. This slope is also usually the blade angle used to rip the top and bottom edges of each side. If the slope is 10°, for example, most designs call for a 10° bevel along the top and bottom edges.

The basic trick is using that same blade angle to bevel the edges of a set-up block, which then becomes a working model of the box and all of its angles (see the photos and drawing at right). That's it. The edges of the block represent the sides of the box. Simply flip the block on one edge and slide an adjacent edge against the blade to find the appropriate blade and crosscut angles for an accurate butt joint.

This approach lets you walk up to the saw with any slope in mind and quickly create tight joints.

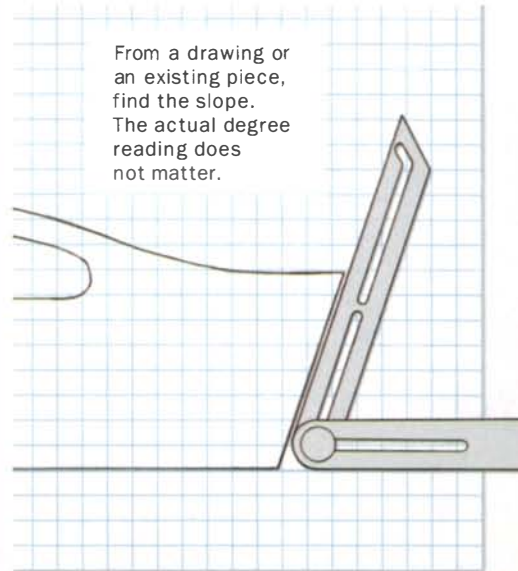
Start by ripping the box parts to width (or height, depending on your perspective) with the appropriate bevel on the top and bottom edges. Next, joint and plane a block of wood flat and square on all sides. Make the block roughly 2 in. thick by at least 3 in. wide by 10 in. long, for reasons that will become apparent later. Next, crosscut each end of the block and rip one edge at the same blade angle you used to bevel the sides. If necessary, you can hold the box parts in place against the block to see if the slope suits your tastes. You now have your set-up block.

Cut the basic butt joint

At this point a butt joint is easy to produce. Set the blade angle first. Lay the block on one of its beveled sides and change the

PICK A SLOPE, ANY SLOPE

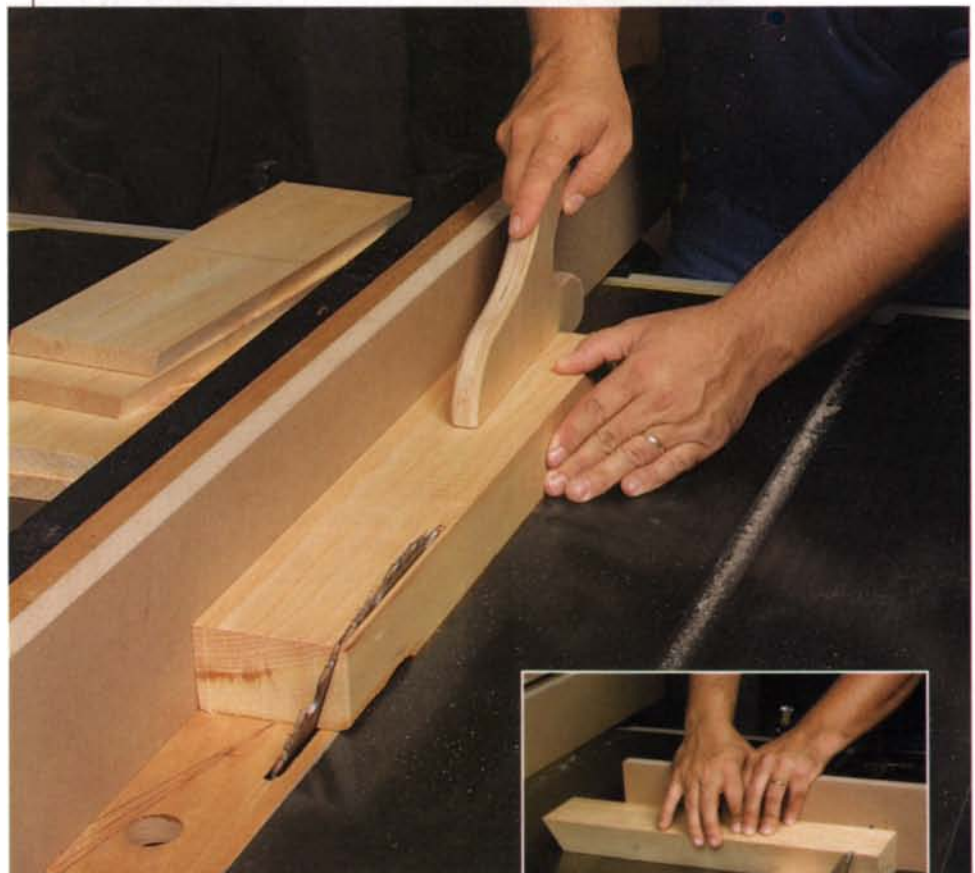
To make the set-up block, you need to know only the slope of the sides of the box. Set the sawblade to that angle and bevel three edges of a long block. The block becomes a working model of the box and all of its angles and can be used to set up the tablesaw to cut the joints.



From a drawing or an existing piece, find the slope. The actual degree reading does not matter.



Transfer that angle to the blade. This is a good time to rip the top and bottom edges of the box sides, which usually are cut at this angle.



Now make the set-up block. Mill a flat, square block roughly 2 in. thick by 3 in. wide by 10 in. long. Then rip one edge (above) and crosscut the two ends at the slope angle (inset).

COMPOUND-ANGLE BUTT JOINT



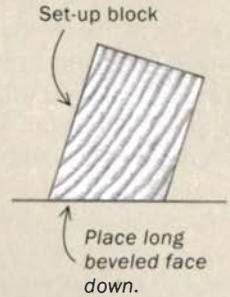
The set-up block is all you need to cut a perfect compound-angle butt joint. The block should be narrow enough to fit under the teeth of the blade when it is fully raised, with the end of the block flush against the blade's side.



1

Use the block to set the blade and miter-gauge angles

Find both angles in one step. Place the set-up block on its long beveled side. Pivot it forward and back while changing the blade angle until the end of the block is flush against the blade.



Hold the block in place and bring up the miter gauge. When the gauge is flush to the block, lock in the angle setting.

blade angle until it is flush with the angled end of the block (the block should be narrow enough to fit against the side of the blade without hitting the teeth). Next, keeping the block on its side, hold it against the miter-gauge fence. Adjust the miter-gauge angle until the end of the block mates perfectly with the flat face of the blade. The saw is now set up to cut the correct compound angle on all of the sides.

Tablesaws tilt only one way, so one end of each side will be crosscut on the left side of the blade, with the miter gauge riding in the left miter slot. The other end will be cut on the other side of the blade, with the board flipped edge for edge onto its other face. To help keep track of the cuts, lay out each one and label the inside and outside faces of each part before starting.

This simple approach usually yields a perfectly fitting joint on the first try; however, just to be safe, I recommend cutting a sample joint first. Then set the parts against the set-up block to check the joint. If any adjustments to the miter fence or blade angle are necessary, take another slice off the



2

Cut both ends of the board



Switch miter slots, not settings. There's no need to change the blade angle when cutting opposite ends of a box side; just flip the board edge for edge and move the miter gauge to the other side of the blade. Label the inside and outside faces of each part and lay out all of the cuts to keep track of them. Also, use a stop block to index the second cut on each side.

sample sides and check the joint again. Remember to save all of your offcuts; you'll be able to use them as clamping blocks later during glue-up.

Miters aren't much harder

To cut miters, the crosscut angle stays the same; only the blade angle has to change. To find that new angle, you will need a 45° triangle. When you have the set-up block

on its side and the miter fence properly angled, lay the triangle against the top face of the set-up block. Now crank the blade angle over until it mates with the edge of the triangle (see the left photo on the facing page).

What is happening here is complex mathematically but much simpler visually. If you look at the top view of the box with butt joints, the sides will appear to meet at a 90° angle. Although you know that the

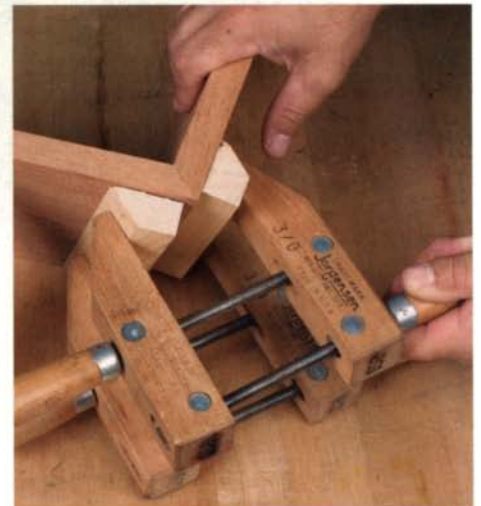
COMPOUND-ANGLE MITER JOINT

To turn the butt joint into a miter joint, simply add a 45° triangle to the front face of the set-up block and reset the blade angle. The miter-gauge angle stays at the butt-joint setting.

Place the triangle flat against the front face of the set-up block. Angle the blade to meet the edge of the triangle.



Again, lay out and label the sides to keep track of the cuts. Workpiece creep is especially a problem with these sharply angled cuts, so clamp on a stop block, or a stop stick.



Miter-joint clamping strategy. Rip some scrap stock at the current blade angle and glue these blocks onto the workpieces. Use these clamping cauls to draw the joint tightly together. The blocks can be pared away later.

ends of the boards were not crosscut with the blade at 90°, from that angle (looking straight down on the sloped sides), the joint is square. That's why you can lay a square across the beveled top edge of the set-up block or the box itself and find a 90° angle between the sides. Likewise, a miter on this compound-angle joint will actually be 45° when viewed from the top. By placing the triangle flat across the top side of the set-up block, you are using this phenomenon to find the right blade angle for a

perfect miter. The blade will not actually be 45° from the table, of course, because the triangle itself is being held at an angle.

If all of this doesn't make perfect sense to you, don't worry; the procedure will work anyway.

To learn how to lay out compound-angle dovetails, see Master Class on p. 96.

With this technique you'll never have to fear compound angles. You can cut a butt or miter joint at any angle. You can even set adjacent sides of a box at different angles and still determine the tablesaw settings for perfect joints. Also, with the butt joint in your repertoire, dovetails are just a layout procedure away. □

Steve Brown is the head of the cabinet- and furniture-making program at North Bennet Street School in Boston.

Midi-lathes

This new breed of small lathe offers several features found in bigger machines at a more affordable price

BY ANDY BARNUM

A lathe can make most good shops even better. A woodworker can add considerable appeal to a furniture piece (depending on the style) by including turned parts, such as legs, knobs, spindles and pedestals. Other turned items, such as bowls, plates and boxes, stand fully on their own merits.

Many woodworking shops, however, don't have a lathe—most likely because of cost or space. Lathes require cash, something many of us don't have in surplus. And lathes take up a lot of space, something most shops have little of, if any, to spare.

But the arrival of a new category of small lathes has made cost



Meet the testers

Students and instructors from the School of Art and Design at Purchase College tested five midi-lathes for a semester, giving each of the lathes a serious workout. In the process, the students created dozens of turnings.



DELTA 46-250

The Delta weighs less than the average lathe in this group, making it easier to lift and move. It has an on/off switch that is conveniently located above the headstock. The tailstock handwheel turns comfortably.



Telephone: (800) 438-2486

Street price: \$300 (\$50 for bed extension)

Weight: 65 lbs.

Motor: ½ hp, 6.6 amps

Swing: 10 in.

Distance between centers: 14½ in. (37 in. with extension)

Speed settings (rpm): 500, 800, 1,250, 1,800, 2,650, 3,700

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 1½ in. travel

Faceplate included: Yes

Outboard turning option: No

and space less of an issue. Introduced in the late 1990s, these machines—often called midi-lathes—are generally bigger and beefier than the so-called minilathes, yet they're smaller than full-sized machines. Midis are affordable—selling for between \$285 and \$350—and take up very little space. Plus, when not in use, most can be picked up and stored out of the way, although a couple of the heavier models might best be moved by someone who spends regular hours at a gym.

Midi-lathes have other features that appeal to me. Unlike minilathes, the midis include some qualities normally found only on bigger machines, such as ½-hp motors and spindles with 1-in. by 8-tpi threads and #2 Morse tapers. Also, when used with an optional bed extension, a midi can turn long spindles between centers.

For someone unsure whether wood turning is going to be worthwhile, a midi-lathe just might be the best way to test the waters. Not only are the midis relatively inexpensive, but they also have enough power to do some serious work. And as your turning skills grow, you can grow the lathe by adding a bed extension.

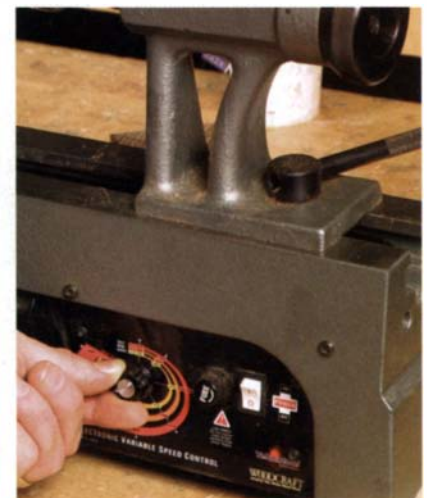
So midi-lathes have a lot going for them. But how well do they work?

Students give the test

I teach wood turning at the School of Art and Design at Purchase College in New York. The shop has 10 full-sized lathes. But the class, part of a furniture-design program, often at-

tracts as many as 15 students. With an obvious need for more lathes, I arranged to borrow the five midi-lathes currently on the market—the Delta 46-250, the Fisch TC 90-100, the General 25-100 M1, the Jet JML-1014 and the Nova Mercury—to find out how well they could hold up to the wear and tear of regular use. By the way, the Nova Mercury is marketed as a minilathe, even though it has a ½-hp motor, 1-in. spindles, #2 Morse tapers and an expandable bed, all features found on the other midis. So I felt comfortable including it in the midi-lathe group.

To find out how the midis would hold up under daily use, each



Two ways to change speeds. To make any speed change on the Delta, Fisch, General or Jet, the belt (left) is repositioned on stepped pulleys. Changing speeds on the Nova (right) is mostly just a matter of turning a dial.

FISCH TC 90-100

At 81 lbs., the Fisch weighs slightly more than the average midi-lathe weight of 74 lbs. It has the lowest price of the bunch. And, at 15 in., it ties for the most distance between centers without a bed extension. The on/off switch is conveniently located in the headstock.



Telephone: (724) 663-9072

Street price: \$285 (\$60 for bed extension)

Weight: 81 lbs.

Motor: ½ hp, 6.6 amps

Swing: 10 in.

Distance between centers: 15 in. (39 in. with extension)

Speed settings (rpm): 500, 800, 1,250, 1,800, 2,650, 3,700

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 2½ in. travel

Faceplate included: Yes

Outboard turning option: No

one was put to work in my once-a-week, all-day class for an entire semester. As the semester progressed, the student testers provided plenty of candid feedback on the strengths and weaknesses of each machine. Here's what we found.

Power isn't a problem

Anyone taking a quick look at these small lathes might be tempted to dismiss them as less-than-serious machines. So right off the bat we wanted to know if they have enough power. And within a few weeks, after turning an assortment of bowls, plates and spindles, the students concluded that they do. The ½-hp motors, a size that's often standard on larger (12-in.) lathes, provided all the muscle we needed.

Dial-a-speed is simpler

Lathes are designed to run at several speeds to accommodate different sized workpieces. Large, heavy workpieces require a slow speed, while small, light parts can be spun considerably faster. So it's helpful to be able to change speeds without a lot of annoyance.

The Nova stands out from the others in this regard. Thanks to a d.c. motor, a three-step pulley and variable-speed control, the Nova has an overall speed range of 140 rpm to 5,350 rpm. Depending on the pulley location, the lathe can be set to slow (140 rpm to 1,750 rpm), medium (320 rpm to 3,670 rpm) or fast (470 rpm to 5,350 rpm). The medium speed range took care of almost all of our needs. And because

the belt setting was rarely changed, speeds were varied simply by turning a dial.

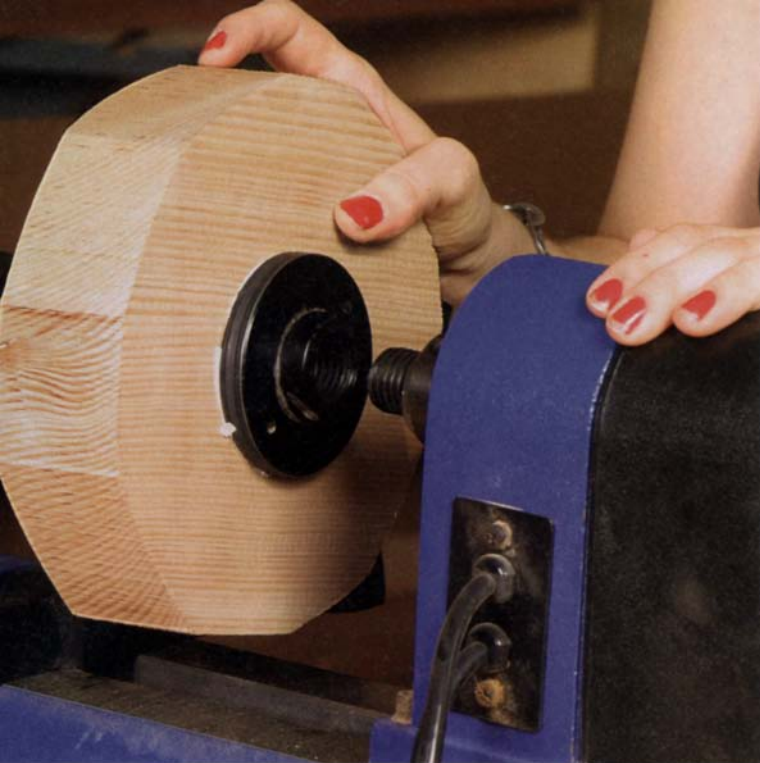
The Delta, Fisch, General and Jet have six speeds each (see the charts for more specs). To change speeds, the motor must first be raised and then a V-belt shifted to the appropriate position on a step pulley. While the procedure isn't a major headache, it falls short of the simpler Nova system. Also, the small belts on all of these lathes made belt tensioning a bit fussy. If it's too loose, the belt could slip; if it's too tight, the belt could strain the bearings.

Cast-iron parts make a beefier machine

A lathe should feel solid and steady during the turning process. Excessive vibration or movement can interfere with tool control and,



A plywood base adds support. To make sure these machines don't move around while in use, it's a good idea to bolt the feet to a piece of plywood, then clamp the plywood to the bench. The only lathe not eager to wander was the General. Its large, soft rubber feet helped keep it in place.



Faceplates welcomed. A steel faceplate is supplied as a standard item on all of the midi-lathes reviewed.

ultimately, the quality of the wood surface. While the midi-lathes aren't as rock-solid as most full-sized lathes, they are hardly rickety, mainly because the beds, headstocks and tailstocks are made from cast iron, a material favored for its vibration-dampening property. Also, on each of the lathes we looked at, the way on the bed—which allows both the tailstock and tool rest to slide—was ground smoothly.

We did notice, though, that because midis are relatively light in weight, all but the General moved around on the benchtop a bit

when in use. Four large, soft rubber feet kept the General lathe from wandering. To keep the others solidly in place, it's a good idea to bolt them to a plywood base and then clamp the plywood to a sturdy workbench.

Headstocks have sturdy spindles

The 1-in. headstock spindle really separates these lathes from the previous generation of minilathes. Those earlier lathes used ¾-in.-dia. spindles, making them more likely to flex and vibrate.

Each of the five lathes has a headstock spindle with 1-in. by 8-tpi threads and a #2 Morse taper. And all accept a faceplate. The Nova allows outboard turning when used with an optional outrigger unit.

Two lathes, the Delta and the Jet, come with a hand-wheel at the outboard end of the spindle. This useful feature makes it easy to check tool-rest clearance and to examine work in progress.

Tailstocks offer live centers

Except for the Nova, all of the midi-lathes have a tailstock spindle with a live cup center and a #2 Morse taper. The Nova uses a live single-point center along with the #2 Morse taper.

All proved to be an improvement over the dead cup center of old, but for most work we preferred a live cup center over a live single-point center because the live cup center engages the wood



Better and best. Only the Nova uses a live single-point center (right) in the tailstock; the other midis use a live cup center (left). The students favored the live-cup version.

GENERAL 25-100 M1

By far, the General is the heaviest of the midis, weighing in at 106 lbs. At 15 in., it ties the Fisch for the most distance between centers, sans a bed extension. Add the long bed extension, and it provides 45 in. between centers, more than any of the other midis reviewed.



Telephone: (514) 326-1161

Street price: \$300 (\$145 for long bed extension; \$85 for short bed extension)

Weight: 106 lbs.

Motor: ½ hp, 3.8 amps

Swing: 10 in.

Distance between centers: 15 in. (35 in. or 45 in. with extensions)

Speed settings (rpm): 480, 1,270, 1,960, 2,730, 3,327, 4,023

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, ¾ in. travel

Faceplate included: Yes

Outboard turning option: No

JET JML-1014

This midi weighs in at just 59 lbs., a number that back muscles will appreciate. With the bed extension added, the Jet has 40 in. between centers, one of the longest. At a price of \$350, it is the most expensive lathe in this group.



Telephone: (800) 274-6848

Street price: \$350 (\$50 for bed extension)

Weight: 59 lbs.

Motor: ½ hp, 5 amps

Swing: 10 in.

Distance between centers: 14 in. (40 in. with extension)

Speed settings (rpm): 500, 840, 1,240, 1,800, 2,630, 3,975

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 2 in. travel

Faceplate included: Yes

Outboard turning option: No

more solidly. A live single-point center can wear away at the wood and eventually loosen.

The tailstock on each of these lathes uses either a cam lock or a quick lock, providing the convenience of one-handed moving and locking. To lock the tailstock in place you simply give the handle a quarter turn. These locks worked just fine and proved to be a nice plus.

On the Delta, Fisch and Jet, a handwheel is turned to adjust the tailstock spindle in or out. The Nova incorporates a knurled knob that made the task less convenient.

The Delta, Fisch, General and Jet have self-ejecting systems for the Morse taper center, a feature we liked because it was quick and easy to use and didn't require an extra tool. You simply retract the spindle, and the center pops loose. The Nova gets the job done with a long, cylindrical piece of steel called a knockout bar. You slip the bar into the hollow spindle, then the bar is used to tap the Morse taper and free it up.

A longer tool rest would be a nice upgrade

All of these midi-lathes have relatively short (6-in.) tool rests, which drew many complaints from the students. They wanted a longer tool rest that wouldn't have to be repositioned as frequently when turning a long piece.

A longer tool rest (12 in.) is available from Fisch as an option. We tried it, and it quickly proved to be a hit. It also worked on all of the other midis, but to fit the Nova we had to sand down the shaft diameter a bit. By the way, Fisch also offers an optional curved bowl-turning rest.

The best full-sized lathes feature a cam lock to secure the base of the tool rest. A cam lock allows for easy one-handed adjustments of the tool rest. The midis all had a sturdy scaled-down version of the cam lock that worked just fine.

Choosing a favorite was a challenge

By the end of the semester, all five of these midi-lathes had accumulated a good many hours of run

Short tool rests lack support. A 6-in.-long tool rest, the standard for all of the machines, wasn't favored by the students. Longer tool rests are available after-market.



NOVA MERCURY

Although it's the lightest and most compact of all the midis, the Nova is limited to 8 in. between centers without a bed extension, 20 in. with one. Variable-speed control makes it quick and easy to change speeds. It's the only one that allows outboard turning.

Telephone (Woodcraft):
(800) 225-1153

Street price: \$300 (\$50 for bed extension)

Weight: 50 lbs.

Motor: ½ hp, 5.5 amps

Swing: 8 in.

Distance between centers:
8 in. (20 in. with extension)

Variable-speed settings (rpm):
140-1,750; 320-3,670; 470-5,350

Headstock spindle: 1-in. by 8-tpi threads, #2 Morse taper

Tailstock spindle: #2 Morse taper, 2½ in. travel

Faceplate included: Yes

Outboard turning option: Yes



time. Yet all of them were still going strong. And along the way, the students were able to create dozens of remarkable turnings.

That said, when forced to pick a favorite, we ended up giving a slight nod to the Nova. It's the lightest and most compact of the bunch, so it's easier to carry and store. Those are important features in our shop.

Also, on the Nova, we like the simplicity of the variable-speed dial. It pretty much eliminates the need to fuss with belts when changing speeds. That's a nice plus.

On the downside, though, the Nova has the shortest distance between centers. Adding the bed extension increases the distance

between centers, but when compared to others with added bed extensions, the Nova still comes up short in the length department.

Everything considered, though, we were more than pleased with the performance of all these lathes. Indeed, the machines did everything we asked of them from the first day of class to the last. Anyone looking to get started in wood turning, but with a limited budget or minimal shop space, ought to consider taking a closer look at these little lathes. □

In addition to teaching wood turning at Purchase College and Brookfield Craft Center, Andy Barnum builds furniture at his shop in Carmel, N.Y.

Bed extensions stretch the lathes

All of these midi-lathes offer optional bed extensions that bolt to the end of the lathe, effectively increasing the distance between centers. With an extension, the Nova, the smallest of the lathes, grows to 20 in. between centers. On the opposite end of the scale, the other midis stretch the center-to-center dimensions anywhere from 37 in. to 45 in. (see charts).

Once all of the bed extensions were installed, we checked each one for

alignment with their base castings. We were pleased to find that all of them lined up, with the tool rests and tailstocks sliding smoothly from one casting to another. Also, with the bed extensions added, we did some spindle turning with the tailstock positioned for the maximum distance between centers. All of the midis handled the extra turning capacity with no noticeable difficulty.



A Life Built on Bookmarks



This modest woodworking business thrives on efficiency and ingenuity

BY JONATHAN BINZEN

If a Newport secretary contains a waterfall of woodwork, then one of Alan Bradstreet's wooden bookmarks holds barely a droplet. Then again, it might take one person the better part of a year to build a full-bore secretary; in the same 12 months, Bradstreet, who works alone in a small shop, would have stacked up 50,000 of his handsome bookmarks.

Bradstreet, 54, moved to Maine in the 1970s and found his way into woodworking. Unlike many other woodworkers who make a modest profit designing and building magnificent furniture, he makes a comfortable living by working very small and selling very cheap—in very large numbers. The Bradstreet collection of bookmarks comprises some 130 scrollsawn designs.

It's not that Bradstreet doesn't have the same urges toward creativity and complexity as

his peers; he has just chosen to channel them differently.

Bradstreet's first decade in woodworking was spent in a 40-man factory in Auburn, Maine, that produced wooden kitchenware. He began as a laborer and worked his way up to foreman and eventually to vice president. He loved his years there and is grateful for the training. When he left in 1985, he took what he had learned and became a one-man factory.

When you visit his shop now, it is evident that Bradstreet combines the attributes of a hard-headed businessman, an enlightened foreman and a clever, untiring worker.

The boss

Bradstreet the businessman has focused on manufacturing one thing and has stripped away everything extraneous. For some years he made jewelry boxes, business-card holders and other small items, but these days he is bookmarks and nothing but.

Personal interests are purged here, too. Bradstreet is a mad collector—his house and barns are brimming with arcana, such as the eight antique, treadle-powered scrollsaws nestled together in one attic and the collection of 19th-century



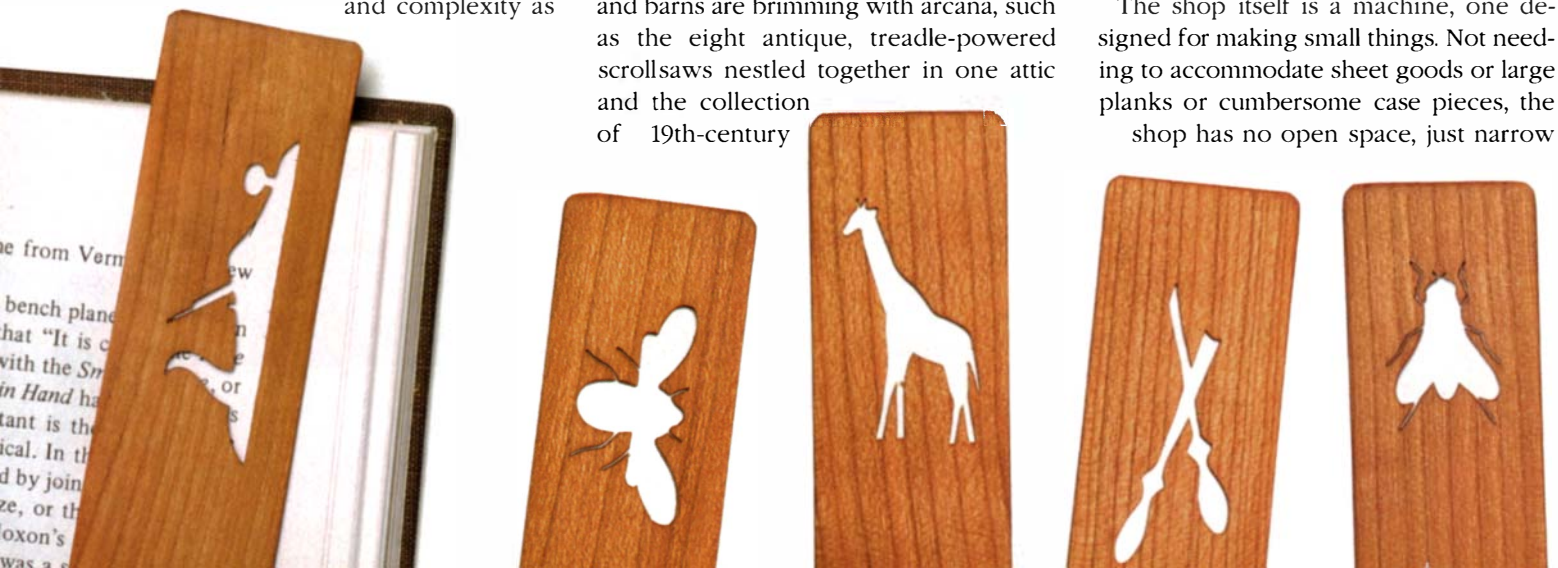
Stack and slice. Bradstreet built a miniature crosscut sled for cutting the blanks to length one stack at a time. He keeps an eye out for even tiny imperfections in the wood.

shaving-razor sharpeners displayed in a bathroom. But there's no arcana in the shop. It's all business.

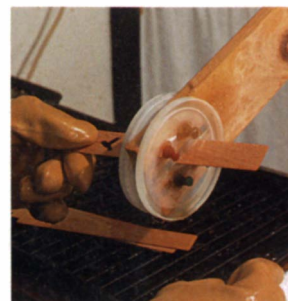
Bradstreet used to sell through craft fairs, but now he and his wife, Susan, who handles all of the shipping and other office work, sell exclusively wholesale. By far their largest customer is L.L. Bean, whose outlet store in nearby Freeport sells about half of what Bradstreet produces.

With silky surfaces, nicely eased edges and beautifully scrollsawn decorations, Bradstreet's bookmarks have a distinctly handmade feeling. But for efficiency's sake, he sticks to machines.

The shop itself is a machine, one designed for making small things. Not needing to accommodate sheet goods or large planks or cumbersome case pieces, the shop has no open space, just narrow



TV or not TV. Reruns of Remington Steele keep Bradstreet company as he scrollsaws the designs in his weekly quota of 1,200 bookmarks. Addressing the safety issue, he said, "I don't watch the screen while I'm sawing, but if something interesting comes on, I stop to look."



A sophisticated squeegee. Bradstreet removes excess linseed oil from bookmarks after dipping. The essential component of this high-tech squeegee? Coffee-can lids.

passageways between rows of machines cleverly arranged to achieve one purpose.

Aiming for the utmost economy of time, energy and materials, Bradstreet has bought pairs of some machines. "It's like Noah's Ark in here," he said. To avoid constant changing of sawblades, he has two identical handsaws that stand side by side—one with an aggressive blade for rough cutting, and one with a fine-toothed blade for more delicate work; and there are two stationary drum sanders—one fitted with a balloon sanding drum, and the other with a flap wheel.

Another of Bradstreet's canny efficiencies is that his business runs on scrap. He buys offcuts from several large furniture manufacturers, greatly reducing his material costs. The scrap comes jointed and planed, saving work and further gratifying Bradstreet's Yankee love of thrift.

The foreman

Bradstreet the foreman has made the shop as pleasant as possible. The shop sits on the corner of his property in a 150-year-old building with one room on each of two floors. Windows on all

four walls fill the place with light. At 17 ft. by 21 ft., the building is not large, considering the number of machines it holds, but Bradstreet's logical layout makes the place feel cozy, not crowded.

The shop is also amazingly absent of sawdust. A central dust collector is hooked up to every machine and is supplemented by a ceiling-hung air filter.

However pleasant the surroundings may be, producing 50,000 bookmarks a year is not scintillating work. To ward off tedium, Bradstreet listens to news on the radio built into his hearing protectors. And by the scroll saw sits a small black-and-white television that is often tuned to reruns of *Star Trek* and *Remington Steele*. "I think I'd go nuts if I didn't watch TV," he said. "It's an important part of my shop."

The craftsman

For Bradstreet the worker, "It's all about discipline," he said. He sets a target every week—1,200 bookmarks is the current quota—and every week he hits it. "Then it's play time," he said. His favorite playground is the Haystack Mountain School of Crafts, an hour or so away in Deer Isle, Maine. There and elsewhere in just the past four years, Bradstreet has taken some three dozen workshops—most of them a few days in

duration but some of them lasting a week or two. He's tried his hand at twig furniture, carving, found-object assemblage, turning, reed furniture and mixed media.

When Monday rolls around, Bradstreet is back in the saddle, sitting at the scroll saw beside a box full of bookmarks-in-the-making. He is proud of what he produces. "I want these bookmarks to be—bar none—the best out there," he said. And no doubt they are. But for Bradstreet the one-man factory, this is not just a craftsman's point of pride; it's an imperative of good business. A bookmark—like a Newport secretary—won't sell nearly as well if it is poorly made. □

Jonathan Binzen is a freelance writer and former senior editor of Fine Woodworking.



Current Work provides design inspiration by showcasing the work of our readers. For more details and an entry form, visit our web site at www.finewoodworking.com. Send photos and entry forms to Current Work, *Fine Woodworking*, 63 S. Main St., Newtown, CT 06470.



◀ **Dorothy Roof** Beverly, Mass.

Roof built this settee (18 in. deep by 46 in. wide by 38½ in. tall) while she was a student at The Furniture Institute of Massachusetts. To build the piece Roof worked from a photo of the 1805 John and Thomas Seymour original at the Winterthur Museum in Wilmington, Del., and used mahogany, flame birch and maple in its construction. Roof chose this project for the challenging joinery, interesting birch inlay and the variety of turned and carved details. The finish is linseed oil and shellac. Photo by Charlie Mulcahey, Two Fast Photo



Albert Bangert ▶
Scituate, Mass.

After a 32-year career in the consumer-products industry, Bangert decided to change directions and learn the art of furniture making. As a student at North Bennet Street School in Boston, he built this Duncan Phyfe-style drum table (21 in. dia. by 21 in. tall) to hone his skills in carving, hammer veneering and bricklaying of the apron core. The table is constructed of mahogany, crotch-mahogany veneer and poplar. The finish is shellac. Photo by Lance Patterson



◀ **Aaron P. Griffith** Dexter, Mich.

In his first year as a professional woodworker, Griffith made this display case (15 in. deep by 20 in. wide by 35 in. tall) for his first client, a collector of 18th- and 19th-century miniature portraits. Griffith faced a unique design challenge because the portraits are subject to fading. His solution was to design a case that opened for viewing but was otherwise closed to protect the antiques. Built from crotch and African ribbon mahogany with ebony trim, the case has a hand-rubbed lacquer finish.

Thomas Mannello Plantsville, Conn. ►

This mahogany corner cabinet (26 in. deep by 49 in. wide by 89 in. tall) took Mannello more than two years to complete. The carvings, moldings, finials and other design concepts were borrowed from a Goddard-Townsend secretary. The display-cabinet interior is quilted sycamore. The cabinet has a shellac finish.



◄ **Richard Johnson**
Caledonia, Ont., Canada

Johnson built this library stand (16½ in. deep by 18 in. wide by 42 in. tall) to hold a dictionary. Taking approximately 400 hours to complete, the stand is made of amboyna and cedar of Lebanon. The storage compartment allows one to keep notepaper at hand, and the through-shelf provides a place to write. The lid features a dyed, braided leather stop and Japanese marbled paper on the inside. The stand has a shellac and wax finish.





◀ **Joe S. White Jr.** Brooksville, Fla.

This tall cabinet (15 in. deep by 23 in. wide by 70 in. tall) is made of walnut and butternut. White built this piece from the top down. He first formed the bent-laminated top, then fit the sides and doors to the top. "The placement of the stained glass was a critical design decision," said White. "You tend to focus your sight to the intersection of the doors and top." The exterior of the cabinet is finished with polymerized tung oil and paste wax, and the interior is finished with tung oil and shellac. Photo by Bryant Photography



Noel Forde ▶
Calgary, Alta., Canada

This bedside table (17 in. deep by 22 in. wide by 27 in. tall) is one of several pieces Forde has made for a local client. Designed and built in the Arts and Crafts style, the table is made of quartersawn white oak. It is finished with dye stain, glaze and Swiss oil.

Guy Lewis Dorset, United Kingdom ▶

"When visiting art galleries," said Lewis, "I am always slightly disappointed that the seating arrangements do not do the exhibits justice." This piece is Lewis' example of a better gallery bench. Constructed of maple and walnut, the bench (20 in. deep by 80 in. wide by 20 in. tall) took approximately 120 hours to complete and is finished with oil and wax.





Phil Sollman Bellefonte, Pa. ▲

Sollman designed and built this display cabinet (24 in. deep by 72 in. wide by 96 in. tall) for a client who collects American and English glass and pottery. The cabinet's plywood substrate was vacuum-bag laminated with 1/8-in.-thick shopmade, book-matched tiger-maple veneer. The shelves are hollow to allow for air circulation for the low-voltage lighting. The cabinet has a sprayed lacquer finish.

Michael Moss ►
Cape Elizabeth, Maine

This cabinet-on-table (12 in. deep by 16 in. wide by 52 in. tall) was Moss' final project while attending a 12-week course at The Center for Furniture Craftmanship in Rockport, Maine. The cabinet is in the Krenovian style, while the table is of Moss' own design. Made of cherry, the piece features walnut-burl veneered door fronts and ebony door and drawer pulls. The finish is Waterlox and tung oil.



Joe Pellegrine Indiana, Pa. ▲

Pellegrine built this serpentine desk (31½ in. deep by 51 in. wide by 30 in. tall) because he wanted to make something special for his dad. Taking approximately 400 hours to complete, the desk is constructed of mahogany and birch with crotch mahogany, sapele and holly veneers. The writing surface is inset with leather. The piece is finished with lacquer over shellac.

Tips for photographing your furniture

1. Clean and dust the furniture.
2. The furniture will appear more three-dimensional if it is lit so that each plane has a different brightness. Take care, however, to avoid excessively bright highlights or dark shadows.
3. To be sure the photos will be free of distortion, avoid the use of wide-angle lenses, and photograph with the camera positioned even with the center of the furniture both vertically and horizontally.
4. Use 35mm color print (negative) film of moderate speed (ISO 200-400). If you're using a digital camera, shoot at the highest resolution and place the image on a CD.
5. Photograph the furniture from several angles. Include some head-on shots, as well as some shots that show both the front and side of a piece.
6. Keep the background simple. A cluttered or otherwise distracting background may draw the viewer's attention away from the subject.

Enjoy the benefits of HVLP with a FUJI!



Introducing the new Q3™ and Q4™ Quiet models.
First ever in the mid-price range.
Noise reduced by over 50% for a more relaxed spraying environment.
Systems also include the new Fuji Hi-Flex™ Rubber Hose.

FUJI
INDUSTRIAL SPRAY
EQUIPMENT LTD.

- High transfer efficiency
- Soft, easy to control spray
- Compact and portable

Dealer Inquiries Welcome • 800-650-0930 • Website: www.fujispray.com

READER SERVICE NO. 140

Pink Ivory
Dagame
Brazilian Rosewood
Pear
Plum
Burls
Snakewood
Bubinga
Koa
Satinwood
Cocobolo
Padauk
Rosewood
Bloodwood
Ziricote
Purpleheart
C. Ebony
Pau Rosa
Camphor
"It's a matter of pride for both of us"

Quality Exotic Wood

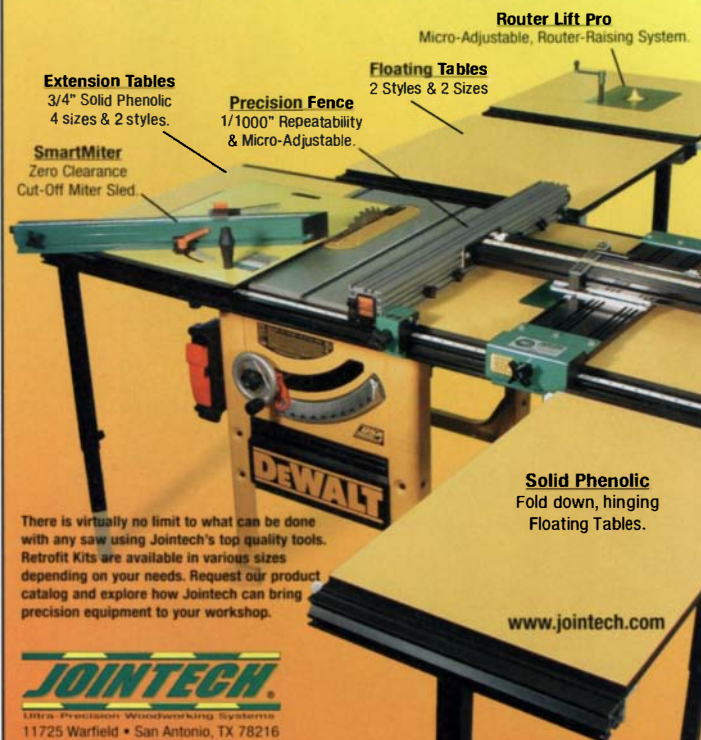
»TURNERS«
Thick Planks for Bowls/Squares
»CABINET MAKERS«
Individually Selected Lumber
for
Furniture / Boxes / Inlays
Over 70 Species
www.bereahardwoods.com
The BereaHardWoodsCo.
6367 Eastland Rd. • Brook Park, OH 44142
P 440-234-7949 F 440-234-7958

Pernambuco
Mac. Ebony
E.I. Rosewood
Bocote
Curly Maple
Quilted Maple
African Ebony
Zebrano
Lacewood
Lignum Vitae
Osage
Tulipwood
Blackwood
Mahogany
Jelutong
Holly
Wenge
Goncalo Alves
Many More...
"It's a matter of pride for both of us"

READER SERVICE NO. 2

SAW TRAIN™

ULTRA-PRECISION COMBINATION TABLE SAW and ROUTER FENCE SYSTEM



Extension Tables
3/4" Solid Phenolic
4 sizes & 2 styles.

Precision Fence
1/1000" Repeatability
& Micro-Adjustable.

Floating Tables
2 Styles & 2 Sizes

Router Lift Pro
Micro-Adjustable, Router-Raising System.

SmartMiter
Zero Clearance
Cut-Off Miter Sled

Solid Phenolic
Fold down, hinging
Floating Tables.

There is virtually no limit to what can be done with any saw using Jointech's top quality tools. Retrofit Kits are available in various sizes depending on your needs. Request our product catalog and explore how Jointech can bring precision equipment to your workshop.

www.jointech.com

JOINTECH
Ultra-Precision Woodworking Systems
11725 Warfield • San Antonio, TX 78216

CALL 1-800-619-1288 FOR MORE INFO.

READER SERVICE NO. 127



Table Legs!

95 styles and sizes
Table base kits in
21 styles & sizes
Ready to finish
Free catalog and
pricing at:
www.tablelegs.com
800-843-7405

CLASSIC DESIGNS
by MATTHEW BURAK

BOX 329, ST. JOHNSBURY, VT 05819

READER SERVICE NO. 195

How old is 25?

This September we release our 25th annual woodworking catalog, which raised the question of significance. If you are a dot-com company, you're old at 25. If you are a woodworker, 25 is young.

We concluded we are young but old-fashioned. While we have an e-commerce Web site, we still print and mail our 250+-page woodworking tools catalog to hundreds of thousands of customers. While we have a high-tech phone switch, real live people answer your calls*. While we could have our computers handle all our communications with you, we prefer to write personal notes in response to your questions and comments. That, we suggest, is significant in today's world.

*7 to 7 EST, but never on Sunday.

1-800-683-8170 or customerservice@leevalley.com

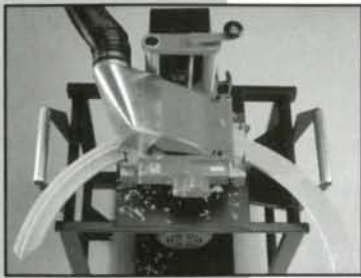
Lee Valley & Veritas®

Lee Valley Tools Ltd., 12 East River St., Ogdensburg, N.Y. 13669

Shop online:
www.leevalley.com

READER SERVICE NO. 155

The Ultimate Molder!



- Straight, Round, Elliptical
- Simple, Easy, Safe
- 100 Standard Knives
- Custom Knives Available
- Quality Construction
- Made in the USA



**Williams & Hussey
Machine Co., Inc.**

800.258.1380 (USA)
603.654.6828

Visit us online at
www.williamsnhussey.com

READER SERVICE NO. 163

ACCURACY FOR SALE!



Carter Band Saw Guides increase cutting accuracy, reduce blade friction and improve overall saw performance. A variety of models to fit saws 14" and larger. Conversion Kits also available for many popular saws.



Toll Free: 888-622-7837
PRODUCTS CO., INC.

2871 Northridge Dr., N.W., Grand Rapids, MI 49544
Ph: 616-647-3380 Fax: 616-647-3387
E-Mail: sales@carterproducts.com
Visit our Website at: www.carterproducts.com

READER SERVICE NO. 169

Operate 3-Phase Shop Motors from Single Phase Power

Different Models To Fit Your Needs



The Ronk ROTO-CON®

Rotary Phase Converter will provide 3-phase power from single-phase sources to operate single or multiple motor applications found in woodworking shops.

The Ronk Phase-Shifter is a medium-duty static-type converter for shop applications such as drill presses, mills, saws, etc., where continuous full load use is not required, but low initial cost is important.



**1-800-221-RONK
EXT. 219**
ELECTRICAL INDUSTRIES, INC. www.ronkelectrical.com

P.O. Box 140, Dept. 219 • Nokomis, IL 62075 • Ph: 217/563-8333 Ext. 219 • Fax: 217/563-8336

READER SERVICE NO. 49

"Imagination Not Included"

With over 50 years of experience, MiniMax offers the CU 300 Smart Combination machine. We give you endless creative ability by putting quality and power at your fingertips.

- ★ Buy before the next issue and receive a \$600⁰⁰ credit to use towards anything in our store (shipping, bandsaw, tooling, etc.)



CU 300 Smart

A Wealth of Knowledge
Made Affordable

MiniMax

2012 Centimeter Circle
Austin TX 78758
www.Minimax-USA.com

Call Toll Free!
866-WRK-WOOD
(975-9663)

For Info
Call NOW

READER SERVICE NO. 87

FASTER

- 30 Second Set Time
- No Clamping or Bracing
- Improves Productivity

HIPURFORMER™
ADVANCED BONDING SYSTEM



1-800-347-4583
www.titebond.com

Titebond®
Glues & Adhesives

READER SERVICE NO. 176

A SECOND PAIR OF HANDS

Now your table saw will support up to 48" of cut material.

Lifts quickly into position and folds out-of-the-way in one simple easy step with no tools... supports 200 lbs.

FREE Color Catalog
Call: 1-800-624-2027



HTC PRODUCTS, INC.
ROYAL OAK, MI
48068-0839



The Hallmark
of Quality

PATENTED



READER SERVICE NO. 29

PRO-V

Professional Vacuum Bagging Kit

Includes electronically controlled 5 CFM, vane type vacuum pump, 54"x109" seamless urethane vacuum bag and 10' of vacuum hose. **No compressor needed.**

888-342-8262 **VAC-U-CLAMP**
www.vac-u-clamp.com

READER SERVICE NO. 78

Heavy Glass Table Tops

FACTORY DIRECT DISCOUNT PRICING

■ Table tops
■ Shelves
■ Doors
■ Display Cases
■ Entertainment Centers
■ Tempered Glass

TABLE TOPS BY PHONE SATISFACTION GUARANTEED!

WGB ■ SHAPES ■ THICKNESSES ■ EDGE DESIGNS
Use Reader Service For FREE Catalog

SALES 1-800-288-6854

READER SERVICE NO. 21

NEW

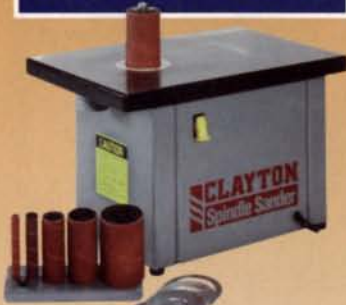
Precision Router Lift

"finest pitch, finest adjustment"
call for free catalog

Woodpeckers

1.800.752.0725
www.woodpeck.com

THE STANDARD IN SANDERS



Clayton Spindle Sanders are built in the USA with precision balanced spindles, oversized bearings, and a premium Baldor Induction Motor.

- Benchtop and full-sized, professional models
- Large table surface
- Built-in dust port
- Quick-change drums

Clayton tackles the toughest sanding jobs...smoothly.

FREE COLOR CATALOG,
call: 1-800-971-5050

CLAYTON
Spindle Sanders

ROYAL OAK, MI 48068-0520
READER SERVICE NO. 28

OXFORD

PREMIUM SPRAY LACQUER

KEEP FROM FREEZING
KEEP OUT OF REACH OF CHILDREN
DO NOT DRINK OR FUMES DANGEROUS - IRVING

NOW YOU CAN ORDER ON-LINE!

- Oxford Premium Spray Lacquers
- Oxford Hybrid Varnishes
- Oxford Polyurethanes
- Homestead Dyes
- Mirka Abrasives
- Spray Equipment
- Polishing Materials

or call 1-800-752-9922

www.targetcoatings.com

READER SERVICE NO. 47

Groff & Groff Lumber

Exceptionally Fine
Furniture & Instrument
Grade Woods

PREMIUM WALNUT, CHERRY, CURLY CHERRY,
BIRDSEYE AND TIGER MAPLE
Sawmill Direct • Slabs to 40" Wide
75+ Unusual Native & Imported Species
Matching Fitches • Burls & Turning Blocks
Order 75 Domestic and Imported Species 4/4 -16/4
Custom Flooring & Wainscoting
Reclaimed Pine & Chestnut
No Order Too Large or Too Small
858 Scotland Road, Quarryville, PA 17566
1-800-342-0001
(717) 284-0001 • Fax (717) 284-2400

National & International Shipping

READER SERVICE NO. 32

General 10" Table Saw

Millennium Addition

Call for Price and Availability



FREE
Table, Board, Leg Set
& Carbide Blade

More General Machinery

- 15" Band Saw (#490-1) 1HP
- 12" Lathe (#160-2) 1HP
- 12" HD Lathe (#260-VD)
- 8" Jointer (#480-1)
- 6" Jointer (#1180-1) 1HP
- 15" Drill Press (#34-01)
- 14" Planer (#130-1) 3HP
- 20" HD Lathe (#26020-VD)



2025 Beaver Avenue, Des Moines, IA 50310

1-800-835-5084

www.WoodsmithStore.com

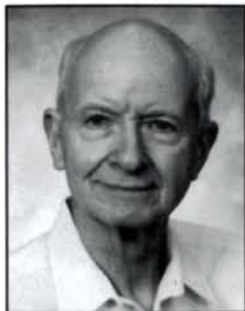
READER SERVICE NO. 145



Forrest Saw Blades

America's Best Since 1946!

"You Can Count On Us For Quality, Performance, and Dependability!"



Jim Forrest, President

"When we established Forrest Manufacturing over 55 years ago, we committed our company to providing the very best products and services possible.

"Since then, demanding craftsmen have come to rely on us for the finest quality blades and dados. They also count on us for the best in-factory sharpening available anywhere.

"Forrest saw blades eliminate or reduce splintering, scratching, and tearouts.

We make them of high corrosion-resistant C-4 carbide to provide the longest possible life between sharpenings. We also hand-straighten them for perfect flatness and an astonishing +/- .001" runout that gives you peak performance. And Forrest blades feature exceptional perimeter concentricity and super fine tooth grind to ensure the highest quality edges.

"Our exclusive guarantee is another reason to have complete confidence in the products we offer! **Purchase any Forrest blade or dado and use it for up to 30 days. If you are not completely satisfied for any reason, return it for a full refund.** There's never any risk to you. You have my word on it!"

Woodworker II

ALL PURPOSE - table saws and portable circular saws.

		Sale Price	10% Off First Blade	15% Off Second Blade
12" x 40T x 1"		\$120	\$116	\$110
10" x 40T	(1/8" or 3/32" K)	\$119	\$107	\$101
10" x 30T	(1/8" or 3/32" K)	\$99	\$ 89	\$ 84
8 1/4" x 40T	(3/32" K)*	\$99	\$ 89	\$ 84
8" x 40T	(3/32" K)	\$99	\$ 89	\$ 84
7 1/4" x 30T	(3/32" K)	\$89	\$ 62	\$ 59
5 3/8" x 40T x 10mm	(5/64" K)**	\$89	\$ 80	\$ 76

Also available: 14"x40Tx1" • 14"x30Tx1" • 12"x30Tx1" • 9"x40T • 9"x30T • 8"x30T(3/32"K) • 6"x40T(3/32"K). Call for prices.

The 10"x40T earned the Editor's Choice for the best performance regardless of price. American Woodworker April 1998, pp 68-69.

*For Sears & Makita **For DeWalt Cordless Portables

New! Customized Woodworker II

For the advanced table saw operator. Ideal for joinery and special uses!

		Sale Price	10% Off First Blade	15% Off Second Blade
10" x 40T (1/8" K)	#1 grind for square cut box joints.	\$130	\$117	\$111
10" x 40T (1/8" K)	#6 grind for near flat bottom, easy feed.	\$130	\$117	\$111
10" x 40T (1/8" K)	Dovetail joint grind. Specify angle & left or right points. See Fine WW12/01.	\$130	\$117	\$111
10" x 40T (5/64" K)	Ultra thin kerf for precision work. Use stiffener plate.	\$130	\$125	\$118
10" x 20T (1/8" K)	Fast feed rip for thick hardwood without burning, but finish is not smooth like WW1.	\$94	\$ 85	\$ 80

Dado-King

You get flat-bottomed grooves and no splintering—even when crosscutting oak plys and melamine. This award-winning set comes with six 4-tooth chippers (including 3/32" chipper), two 24-tooth outside blades plus shims. Cuts 1/8" to 29/32" grooves.

	Sale Price	10% Off First Set	15% Off Second Set	FREE \$21 value!
6" set	\$260	\$242	\$229	10" Blade Runner carrying case. Protects and holds up to 10 blades. Ships with 6", 8", or 10" Dado sets. Included free with your order!
8" set	\$280	\$260	\$245	
10" set	\$240	\$314	\$297	
12" set	\$440	\$404	\$382	

Chop Master

Specially designed for sliding compound miter, miter-chop, and radial saws.

		Sale Price	10% Off First Blade	15% Off Second Blade
7 1/2" x 60T x 5/8"	Makita Cordless Slide	\$106	\$ 95	\$ 89
8 1/2" x 60T x 5/8"	Hitachi, DeWalt, Ryobi, Freud TR125	\$110	\$107	\$101
10" x 80T x 5/8"	Delta, Bosch, Hitachi, Makita, Ryobi, AEG & all	\$130	\$125	\$118
12" x 80T x 1"	Delta, Hitachi, Makita, B&D, Sears & all	\$140	\$134	\$127
15" x 100T x 1"	Makita, Ryobi	\$190	\$179	\$169

Also available: 8 1/4" x 60T • 6 1/2" x 40T • 9" x 80T • 14" x 100T. Call for prices.

Duraline HI A/T

Cuts melamine perfectly. 220mm & 300mm available. Our best plywood blade.

		Sale Price	10% Off First Blade	15% Off Second Blade
10" x 80T	(1/8" or 3/32" K)	\$160	\$143	\$135
12" x 80T x 1"	(1/8" K)	\$184	\$163	\$154

14"x100Tx1" • 14"x80Tx1" • 16"x100Tx1" • 8" • 7 1/4" and others. Call for prices.

Woodworker I

Designed for radial arm or tablesaws—fine crosscut.

		Sale Price	10% Off First Blade	15% Off Second Blade
7 1/4", 8", 8 1/4" x 60T		\$100	\$ 98	\$ 93
10" x 60T		\$120	\$116	\$110
12" x 60T		\$130	\$125	\$118

Also available: 9" x 60T • 14" x 60T. Call for prices.

All prices effective through September 30, 2002.

Two Easy Ways to Order

Call toll-free

1-800-733-7111

(In NJ, 973-473-5236)

Fax 973-471-3333

Se habla español

Western Canada: Call Sharp Tech, Inc.

877-228-0908 • Fax 403-225-3767

Other Canadian Sales: Call CMVR - Ron

Collier 800-229-4814 • Fax 989-684-0402

Visit our internet store

stores.yahoo.com/forrestman



DON'T SEE WHAT YOU NEED?
Call us for other blades and dampener discs!

*3 coupons at \$5 each, use 1 coupon per blade.

\$15 OFF* OUR EXPERT BLADE SHARPENING!

Don't take a chance with micro-chipped edges on your expensive wood! Our in-factory sharpening preserves the life and performance of all types of carbide blades. In fact, Forrest Manufacturing represents the industry standard for fine quality sharpening. Most orders processed in 3 to 5 days. You'll receive \$15 in DISCOUNT COUPONS* for our expert factory sharpening with every new Forrest blade or dado you purchase! Coupons can be used to sharpen any carbide blade. (Please include return UPS of \$7 + \$1 for each additional blade.)

FORREST

Forrest Manufacturing Company
457 River Road
Clifton, NJ 07014

© 2002 Forrest Manufacturing Company, Inc.

Top 10 unavoidable truths of woodworking



Woodworkers are only human, and we tend to seek the path of least resistance, finding the quick or easy way out. This tendency almost always leads to trouble.

The good news is that you can control this urge as long as you recognize the symptoms. There are many ways woodworkers can go astray trying to find a shortcut. These pitfalls are especially inviting to beginners, who have yet to learn the hard way, but the shortcuts also snare their fair share of old pros, like me, who should know better.

There are 10 unavoidable truths of woodworking. For me these rules are the pillars of good work, and most are based on common sense. Follow them carefully if you want to reach your full potential. Ignore them at your own risk.

1. Don't rush

Do not confuse working quickly with rushing. After years of practice, the best craftsmen appear to work very fast, but they do not rush. You rush when you focus on getting the job done in less time. It's an impulse we all fight. Pros have deadlines and hourly rates to meet. And hobbyists, because of work and family, have limited shop time.

Rushing causes more injuries than any other bad habit. It also results in more mistakes. When you are focused on the completion time, you are less attentive to the work and the process.

2. Learn to sharpen

Sharpening is a skill that too few woodworkers ever master. Most tools will not work well if dull, and some won't work at all. This forces woodworkers to resort to methods that are frequently clumsier and more awkward. Knowing how to sharpen is a gateway skill: It opens the door to faster, easier techniques that yield better results.

Knowing how to sharpen is a gateway skill: It opens the door to faster, easier techniques that yield better results.

Many woodworkers admit they do not know how to sharpen. Others think they know how but really don't. When handed a truly sharp tool, they cannot believe the difference between it and the tool they have been using.

Do not be intimidated by sharpening. It's not complicated, but it is a lot easier if you find someone to show you how. Sharpening has some subtleties, and no matter how many times you read that a sharp tool will cut wood cleanly and effortlessly, you have to experience it to truly understand.

Sharpening and honing are part of the measured rhythm of fine work and so are connected to Rule #1.

3. You get what you pay for

Most of us have limits on our woodworking budgets that cause us to think twice about paying the long dollar for equipment or materials. However, quality in new or used machines and hand tools always has been and always will be expensive. When you try to cut corners by buying the low-end brand or lower-quality materials, you set yourself up for disappointment.

4. Finishing is half the battle

When you're finished with the woodwork, you're only halfway done. While we all love to work wood, most of us dread finishing. We enjoy being precise and finicky when making a project, but most of us hate the sanding and cleanup required for a perfect

Superior European Machines

Free Video

The Knapp

There is simply no other combination machine on the planet, built to such a high level of quality.

Each machine is custom tailored to meet your demands. The Knapp has a sliding table with virtually no deflection; Cured cast-iron work surfaces throughout; Dovetail raising and lowering mechanisms; Self cleaning threads; Separate jointer and tablesaw fence. It's built more like a metal working machine.

Free Video

Laguna TS

During the last decade Laguna Tools has become the benchmark for band saw innovations. Let us demonstrate to you how we are also taking the table saw to new levels. Call today to receive your free video presentation of the unique features on our new affordable table saw. Our appreciation and knowledge of North American woodworking, combined with European heritage make our designs and innovations unparalleled.

NEW: NX-31

Free Video

Here's the ultimate five-in-one value combination machine. This compact, workhorse has the five main tools needed to create masterpieces. The NX-31 gives you:

- 12" jointer to prepare your lumber
- 12" planer to dimension your lumber
- 3 HP shaper
- 3 HP, cast-iron mortiser
- 12" table saw with a 50" sliding table panel saw
- 10-second change-over time
- 3 separate motors 3 HP each

LAGUNA TOOLS

Fine European Woodworking Machinery

800-234-1976

www.lagunatools.com

E-mail: mail@lagunatools.com

17101 Murphy Ave. • Irvine, CA 92614 • (949) 474-1200

finish. However, when we skim we get poor results. Glue spills show up suddenly when finish is applied. Or we find flaws in surfaces that are supposed to be perfectly flat.

I can't tell you how many woodworkers I know who have left raw wood rather than go through the effort of finishing it.

I, too, am guilty of taking finishing shortcuts. Often, when I make something for the house, I wipe on a quick and easy oil finish that looks disappointing a couple of years later. I keep telling myself that one of these days I will do a more permanent finish

over the oil, but I don't. I just don't want to deal with the steps involved in applying a great-looking finish.

The undeniable truth is that the finishing is as important as the woodworking, and it frequently takes almost as long.

The truth is that the quality of your projects is better if you are not learning the skills on the job.

5. Practice makes perfect

When we decide to undertake a new project, we can't wait to jump right in and get to work. However, woodworking is a bundle of skills that are polished by practice. That's why your parents and teachers told you, ad nause-

am, "Practice makes perfect." It does.

The truth is that the quality of your projects is better if you are not learning the skills on the job. Try unfamiliar skills first on some scrap. Cut a few dovetails before tackling the drawers of your Queen Anne highboy.

6. Dry-fit before glue-up

This is one of the first things to go when we are rushing. It also can be the result of over-confidence. Other times we simply forget. Whatever the excuse, dry-fitting saves a lot of grief.

Joints that are too tight can lock up when glue hits them, and freeze before coming together completely. You don't want to get caught racing against a glue's set time, trying to hammer a piece apart. It usually results in damaged or broken parts.

A dry fit lets you figure out which components of an assembly to put together first, which clamps to use and where to put them. Basically, you don't want to be scrambling around or discovering any nasty surprises after the glue has been spread and the clock is ticking fast.

7. Glue won't rescue poor joinery

When it comes to securing two or more pieces of wood to each other and having the joint look good and hold up over the long haul, nothing replaces proper fitting. There is no glue so strong or so gap filling that it makes up for sloppy joinery.

Because we are human, things will go wrong. While there are tricks for correcting mistakes, these never should be thought of as

ways to get around good workmanship. When a joint isn't right, sometimes there is no sound and seamless way to fix it short of doing it over again. Don't let laziness come back to haunt you.

8. Your router won't do everything

It's an unavoidable truth that our craft involves a wide range of skills, techniques and tools. While we all wish it were different, there is no universal wonder tool that will do everything perfectly and effortlessly.

In an effort to do it all with one machine, woodworkers often end up working in ways that are cumbersome and time-consuming. They end up wasting precious shop time building elaborate router jigs instead of making the one-time investment in a new tool or technique. Some woodworkers will spend hours working on a router setup to cut curved, tapered table legs, for example, when a bandsaw and a well-tuned spokeshave would do the job in much less time.

9. Use both hand and power tools

Woodworkers tend to come in two extremes. The first are those who will (or can) only use machines. And then there are others who insist on doing everything by hand. I say you can't do it all by machine, but working only by hand wastes time.

When it comes to performing an operation only once or twice, it is frequently faster and easier to work by hand. The same applies to delicate work like fitting joints. On the other hand (no pun intended), some woodworkers regard woodworking as an alternative to the gym. Who wants to spend an afternoon thicknessing 1-in. planks to $\frac{3}{4}$ in. with a jack plane just because they did it that way in the old days? I would rather spend 20 minutes at the thickness planer and save my precious shop time for the fun and important parts. The reality is that an efficient, effective woodworker knows how to use both machines and hand tools.

The reality is that an efficient, effective woodworker knows how to use both machines and hand tools.

10. Keep your shop clean

Think of your shop as a tool. Keep it tuned up and well-maintained. We all get so involved in our work that our benchtop and every other flat surface quickly become cluttered. A messy shop is dangerous for you, your tools and your projects. It is also very inefficient. Cleaning up as you work is a habit you can develop. I am hardly a paragon of tidiness when I work, but every time I reach for a tool, I look at the bench and see if there is anything I can put away. This is a lot easier than forcing myself to stop and do a general cleaning. □



Protect your hands.
Protect your blades.

FREE CATALOG
1-800-786-8902



Change the way you change your blades.

benchdog.com

READER SERVICE NO. 157



102 Page
Catalog
Out Now!

We'll show you how to build and
enjoy some of the most beautiful
furniture in the world.

LIONEL HASTINGS & COMPANY

ONLY \$20 CALL (800) 522-7615
FAX (775) 235-7621

NEW! POCKET HOLE JOINERY MADE EASY

POCKET JIG™

Patented
www.woodjigs.com
Heavy Duty
Aluminum
Extrusion

Use It To
Easily Make:

- Flush Joints
- Corner Joints
- Angle Joints
- Face Frames
- Table Leg Braces
- Cabinetry
- Furniture

Hardened
Steel
Bushings

Sug. Retail: **\$34.95** Send for our Dealer list.

Sim'p'l Products, Inc., P.O. Box 187, City Island, NY 10644

READER SERVICE NO. 192

**SQUARE DRIVE
SCREWS**

- Square Drive Beats Driver Bit Slippage
- Hardened Steel for Extra Strength
- Deep Thread for Super Grip
- Stocking Over 750 Sizes & Styles

McFEELY'S
SQUARE DRIVE SCREWS

PO Box 11169 • Lynchburg • VA 24506
www.mcfeelys.com or 1-800-443-7937

READER SERVICE NO. 72

POWER TOOLS ONLINE

Buy online
or Call:
1-800-222-8404

Bosch
Black & Decker
Delta
DeWalt
Dremel
Porter-Cable
Leatherman
Makita
plus 'How To
Books'

www.tylertool.com

READER SERVICE NO. 187

Ask about
**LEASE
PLANS**



The Woodworker's Edge...
BRIDGEWOOD®

Wilke Machinery Company offers a full line of professional woodworking machines and power tools that are designed for any job. Next to "buying right the first time", from whom you buy is one of your most important purchase decisions. The Wilke sales staff pays special attention to customer support while offering competitive prices. The Service Department ensures your continued satisfaction with in-stock parts and technical know-how.

BW-8J Long Bed Jointer...could be the best 8' Jointer on the market today! It's surely a super value.

FEATURES: 9' x 66" table. 8" cutting width. 1/2" max. cutting depth. 1/2' x 8" rabbeting capacity. 4500 RPM, 4 knife cutterhead. 1-1/2 HP, 1 PH American made motor. 4" Dust hood. 4" x 36" easy to adjust fence...tilts inward and outward to 45° with positive stops at both positions as well as at 90°.

BW-002A Dust Collector...
portable, compact unit can solve your dust collection problems at a very low cost.

FEATURES: Metal impeller (not plastic). Bag attached with quick release metal straps. 2 HP, 1PH motor. 1059 CFM. One 5" or two 4" dia. hose inlets. 43.5 gal. collection bag. 1 micron filter bag.



PBS-440 Bandsaw...
designed and manufactured in Europe. It runs quietly and vibration free.

FEATURES: 3 HP, 1 PH or 3 PH American made motor. Magnetic starter with thermal overload protection. Precision balanced cast iron wheels. Table slot for miter gauge use (Miter gauge optional). Blade tension indicator. Foot brake. Dust collection hookup. Cast iron rip fence. Heavy duty, European tri-bearing blade guides. Exclusive, double box beam frame design.



BW-310SL Sliding Spindle Shaper...
smooth-sliding table is supported by adjustable ball bearings. Excellent for end grain.



FEATURES: Sliding table. Forward/reverse switch. Two spindle speeds. 1/2-inch collet chuck. Three interchangeable spindles. Magnetic starter.



For information and a **FREE** catalog contact us by toll free phone:

1-800-235-2100

visit our web page:

www.wilkemach.com

write or visit our showroom:

3230 N Susquehanna Trail, York, PA 17402-9716

READER SERVICE NO. 106

What causes curl in cherry?

What sort of stress could a cherry tree have been under to produce curl?

—Kenneth A. Swanson, Winchester, Va.

Jon Arno replies: The curly figure of cherry exhibits lustrous, cross-grain bands that seem to shimmer with changes in the direction of light. When occurring in maple, curly figure is known as fiddleback, because this form of showy maple has long been a wood of choice in violin making. Curly figure is even more attractive when it occurs in cherry because the shimmering bands overlay but do not totally obstruct cherry's somewhat bolder, natural grain pattern. The end result is one of the most beautiful and complex figures to be found in any of our domestic hardwoods.

As for what causes the tree to produce a wavy pattern in its grain, there is as yet no scientifically proven explanation. Because curly figure often appears at the bottom end of the trunk where it begins to transition into the roots, it was once thought that maybe curly figure was caused by the weight of the tree compacting the wood fibers and causing them to curl. However, this seems improbable in that there doesn't appear to be any correlation between tree

size and the occurrence of curly figure. Big, heavy trees don't always develop curly figure, and it is not always associated just with the bottom end of the trunk. Although it is only a hypothesis, the more likely explanation is that curly figure results from an imbalance in the tree's growth hormones, possibly in turn caused by the tree's inability to access some essential nutrient when it needs to. So, as you suggest, stress very likely may trigger the formation of curly figure.

Although curly figure is found in many species, it does seem to be especially common in cherry. As you might expect, the life history of a typical cherry tree is one of almost perpetual stress. Cherry is a shade-intolerant species, often referred to as a "nurse tree," because it quickly gets established on burned-over or logged land, but is eventually crowded out by more robust species. Virtually from the moment it germinates, cherry first experiences the frenzy of rapid growth in full sunlight, then the struggle to adjust to

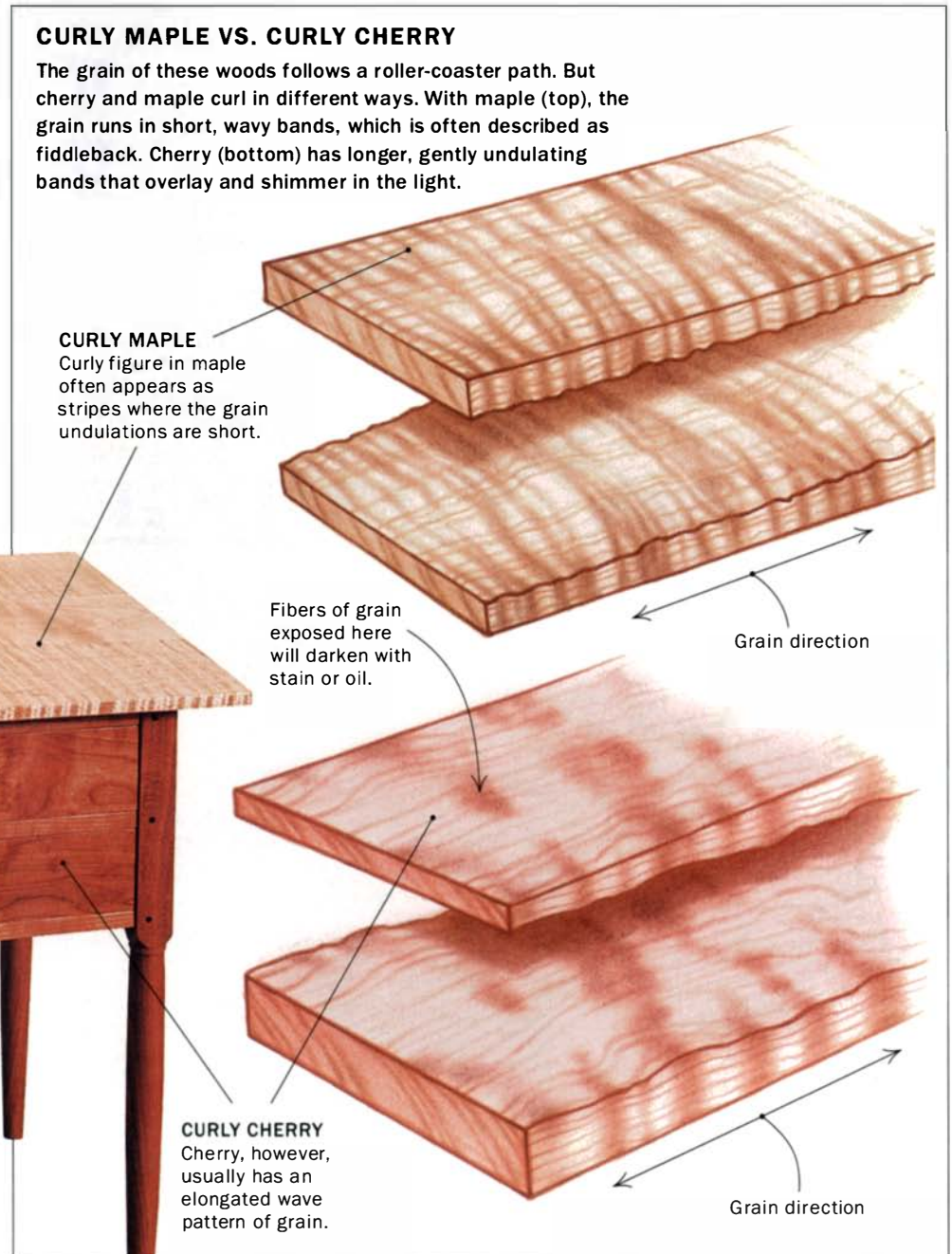
CURLY MAPLE VS. CURLY CHERRY

The grain of these woods follows a roller-coaster path. But cherry and maple curl in different ways. With maple (top), the grain runs in short, wavy bands, which is often described as fiddleback. Cherry (bottom) has longer, gently undulating bands that overlay and shimmer in the light.

CURLY MAPLE
Curly figure in maple often appears as stripes where the grain undulations are short.

Fibers of grain exposed here will darken with stain or oil.

CURLY CHERRY
Cherry, however, usually has an elongated wave pattern of grain.



DON'T JUST IMAGINE IT ROUT IT!

with Viper® Carbide Router Bits

Over 400 profiles to choose from



Straight

Forming



Grooving



*Laminate
& Trim*



Bring out the beauty of the wood in your projects. Signs, picture frames, moldings, furniture, cabinet doors. Simple or complex, if you can imagine it, you can rout it with Viper router bits. With finely honed RazorSmooth carbide edges, high-strength brazing, precisely machined anti-kick bodies and anti-stick coating, Viper consistently delivers clean, smooth, burn-free cuts. And Viper bits are made with care in West Jefferson, NC, by folks who know woodworking.

T h e A r t o f R o u t i n g

Oldham

www.oldham-usa.com
READER SERVICE NO. 98

1-800-828-9000

constantly changing light sources as other trees begin to overtake it and, finally, the extreme light deprivation as a mature forest canopy forms above it. It's a life you wouldn't wish on your worst enemy, but then from a more selfish perspective, it does indeed result in one of the most prized of all cabinetwoods.

[Jon Arno is a wood technologist in Troy, Mich.]

Open-grained wood doesn't absorb water-based stain

For many years, I have been having trouble staining oak with aniline dye stains. The pores are not absorbing the dark brown stain, leaving many small, whitish flecks. I suspect that the culprit is surface tension in the solvent (water). My solution has been to apply a walnut-colored paste filler after sealing with vinyl lacquer. This process is messy and tedious. Other than substituting pigment-based stains for the dye stains, do you know of a simpler solution?

—E.K. Hulet, Diablo, Calif.

Chris Minick replies: The driving force for dye-stain absorption into a wood surface is capillary action. The depth of

penetration of the dissolved dye into the wood is dependent on the surface tension of the liquid dye stain and the diameter of the wood pore. So, you are right—your penetration problem is related to the surface tension of the dye stain you are using. An alcohol-based dye stain (or just adding a few drops of dishwashing liquid to the water-based dye) would improve penetration, but not as much as you might think. As it turns out, the pore diameter has a much greater effect on penetration depth than does the surface tension of the dye stain. You can prove this to yourself by staining a piece of scrap flatsawn oak with both a water-based dye stain and a solvent-based (non-grain-raising) dye stain. You will find that the largest pores have not been stained with either product.

Unfortunately we don't have any control over pore size. So we have to devise other methods to completely color the large pores found in oak. Pigment stains are the answer. The act of wiping a pigment stain on a piece of oak physically packs each pore with colored pigment.

I don't understand your reluctance to use a pigment stain, since you are essentially doing the same thing with

your laborious pore-filling process. If you wipe off the excess stain thoroughly, the pigment stain will not obscure the wood significantly. I think that all that cloudy grain business is overblown. If applied correctly, most pigment stains are just as transparent as dye stains.

[Chris Minick is a contributing editor.]

Making three-phase machines work in a one-phase shop

I am thinking of buying some used industrial equipment from a local cabinetmaker, but all of the machines have three-phase motors. This is for my home shop, where I have only single-phase power. Is there anything I can do to convert these machines to operate on single-phase power?

—Franklin Maeve, San Diego, Calif.

John White replies: Most heavy machinery is designed to be run on three-phase electrical power because three-phase motors are simpler, more efficient and sturdier than single-phase motors. Unfortunately, three-phase power generally is not available in residential areas, but it may be worth checking with your power company. Even if it is

WATER-BASED STAINS WON'T ENTER PORES



Due to surface tension, water has trouble penetrating the pores of open-grained woods. As a result, specks of unstained pores are left across the surface.



Use oil-based pigment stains with oak. Oil-based products will penetrate the pores more effectively than water-based products, resulting in an even finish.

To PIN or NOT to PIN?

WE HAVE THE ANSWER!



TWO-WAY MOISTURE METER
... PIN-TYPE OR PINLESS
INSTANT PUSHBUTTON SELECTION
WIDE RANGE 0% - 99% DIGITAL
WOOD SPECIES COMPENSATION
NEW DUAL-MODE MODEL CMT-908
... ASK FOR FREE CATALOG OF
ALL OUR MOISTURE METERS

END WOOD WARPING NIGHTMARES
PIN-TYPE & PINLESS MOISTURE METERS FROM \$69
www.electrophysics.on.ca

Electrophysics
1-800-244-9908

Box 1143, Station B
London, Ontario
Canada N6A 5K2

Foreign & Domestic HARDWOODS

LUMBER & VENEERS

ALL TYPES & ALL SIZES

• Custom Milled • Shipped Anywhere!

Call 914-946-4111
Fax 914-946-3779
ASK FOR OUR COLOR CATALOG!

M.L. CONDON
COMPANY Inc.
262 Ferris Avenue • White Plains, NY 10603

READER SERVICE NO. 60

SUPERSHOP 10-IN-1 WOOD & METAL SHOP

**BECOME A BETTER WOODWORKER
GUARANTEED!!**
You'll make projects with higher
QUALITY, PRECISION,
SPEED & SKILL



• New, different & BETTER than "lookalike" machines
• 10 most-used tools in 1 for ultimate versatility
• Premium quality makes it an outstanding value
• Rock-solid 450 lbs., 2.5 times MORE than others
• State-of-the-art ELECTRONIC speed controls
• 30-Day RISK FREE & Industry-Leading Warranty

SuperShop will increase your woodworking skills or WE'LL BUY IT BACK!

Call Today for your FREE report!
1-800-476-4849
Ask for operator FWW

READER SERVICE NO. 75

4-WAY MONEY-MAKER!



• Molds
• Planes
• Sands
• Saws

FREE 30-DAY TRIAL!

Now, turn a \$5 rough board into \$75 worth of high-dollar molding in less than one minute! Make over 350 standard patterns, picture frame stock, any custom design. Quickly converts from Planer/Molder to Drum Sander or Gang Rip Saw! Choose from 12", 18" and 25" Models.

Variable Feed Makes The Difference!
Just a twist of the dial adjusts the Woodmaster from 70 to over 1,000 cuts per inch. Produces a glass-smooth finish on tricky grain patterns no other planer can handle. **Five Year Warranty. Prouder Than Ever To Be Made In America!**

FREE FACT KIT!
1-800-821-6651 ext. PE98
Woodmaster Tools, Inc. 1431 N. Topping Ave. Kansas City, MO 64120

READER SERVICE NO. 164

MAO SHAN is now online. Come visit our website and see all of our Do-It-Yourself Woodworking Machinery!

- Competitive prices!
- Professional manufacturer since 1980 of woodworking machinery.
- ISO 9001 Certified!
- Dealer and Distributors' inquiries only please.
- Cast iron foundry established in 1975, casting and machining of OEM parts.
- OEM & ODM inquiries are welcome.



http://www.maoshan.com


E-mail: maoshan@ms15.hinet.net
Fax: 886-4-22792667

READER SERVICE NO. 103

STRONGER

Superior Strength
Eliminates Nails & Staples
Permanent Bond

HIPURFORMER™
ADVANCED BONDING SYSTEM



1-800-347-4583
www.titebond.com

Titebond®
Glues & Adhesives

READER SERVICE NO. 176

<h4>LOCK MORTISER</h4>  <p>HORIZONTAL & VERTICAL WORK 5/8, 3/4, 1" BIT 23000 RPM \$880</p>	<h4>EDGE LIPPING PLANER</h4>  <p>\$440 FLUSH PLANE EDGE STRIPS 2-1/4" WIDE CARBIDE BLADES FOR HARD WOOD SOLID SURFACE, NON SCRATCH BASE CONTINUOUS ADJUST CUT DEPTH REMOVE RATE UP TO 1/8" 17 LBS 1050 W</p>
<h4>DOOR PLANER</h4>  <p>\$390 18"x3" 1 PIECE CAST ALUMINUM HOUSING 13 LBS MICRO BEVEL FENCE INCLUDED</p>	<h4>LAMINATE+VENEER SLITTER</h4>  <p>\$1500 \$95 POWERED SLITTER 30" WIDE, SPEED: 35 FT. NO WIDTH LIMIT ON 4'x8" INLAID QUALITY 110V</p>
<h4>CURVE PLANER</h4>  <p>\$325 3" WIDE, 17" CONVEX-CONCAVE SELF-INDEX BLADE CARBIDE 2 SIDE BLADES \$99 GLUE SPREADER WHITE GLUE 2 ROLLERS 3.5" UPPER 4.75" LOWER</p>	<h4>STATIONARY MITER CUTTER</h4>  <p>\$230</p>

EDGE BANDERS



EB-25 \$5,800
CALL FOR FREE VIDEO

MOTORIZED FLUSH TRIM TOP+BOTTOM & ENDS AUTO BELT FEEDER PRE-GLUED PVC & VENEER 220 V, 1 PHASE 900 COLOR MATCH TAPES

EB-10 BENCH MOUNT MOTORIZED FLUSH TOP+BOTTOM TRIM AUTO END CUT SAME HEATER/TRIMMER AS EB25 BANDS CURVES WITH FEEDER \$3400 W/O \$2950 CURVE BANDER \$1950

COMPLETE MANUAL SYSTEM
HOT AIR BANDER + DOUBLE EDGE & END TRIMMER **\$340**

BISCUIT JOINER

WWW.VIRUTEX.COM
800-868-9663
FAX 212-989-1777
601 W. 26 NY, NY 10001

READER SERVICE NO. 40

available, the cost of connecting may be financially prohibitive.

Short of running three-phase power, there are a number of options available to get a three-phase tool running on single-phase power. The first and most obvious option is to replace the machine's motor with a single-phase unit. But this may not be possible on some machines because the original motor has special mounting brackets or the drive shaft has custom threads or splines. Unfortunately, specialized motors are fairly common on tablesaws. If the tool's manufacturer is still in business, you may be able to obtain a single-phase motor from them.

Another option is to use a converter that will allow you to run a three-phase machine on single-phase power. There are three basic types of converters: static, rotary and electronic.

Of the three, the static type is the least expensive. A static converter has no moving parts and needs to be sized for the motor it's running. Unfortunately, a static converter reduces the available

horsepower of the motor by about a third and has difficulty starting air compressors, dust collectors, large bandsaws and other machines with heavy starting loads. The reduced horsepower often isn't a problem and can be compensated for by reducing the feed rate or by taking lighter cuts. But overloading or stalling a motor hooked up to a static converter will cause destructive overheating of both the motor and the converter. A hard-to-start machine can be run by first starting another lightly loaded machine, an "idler" that serves as an electrical flywheel to start the second machine. A surplus three-phase motor can be used as a dedicated idler that runs continuously to improve both the starting and the running of other motors hooked up to a static converter.

A rotary converter, which looks like a heavy-duty electric motor with an oversized junction box attached, functions as both a motor and a generator. As a rotary converter is spun by single-phase power,

it generates three-phase power to run other machines. More expensive than a static converter, a rotary converter costs around \$600 for a 3-hp unit but doesn't have the starting and reduced-power problems that occur with a static converter. If you expect to own several three-phase machines, buy a good-sized rotary converter, which will be more economical in the long run.

An electronic converter is more properly called an inverter for technical reasons, and most catalogs will list this device under that name. An electronic inverter transforms single-phase power into direct current and then uses microchip-guided controls to simulate three-phase alternating current. The electronics in an inverter allow you to control the motor's speed, torque and direction of rotation, and often allow for a soft start to bring the machine up to speed gradually. Most of the added control offered by an inverter would be wasted on a tablesaw but would be a great advantage on a lathe or possibly a

EXPECT THE BEST



Do more with wood

Come take a look at FELDER and see why many say "The best woodworking machine in the world." State of the art technology backed up with superior customer service makes a FELDER machine a few cuts above the rest of the pack. Don't believe us, ask one of the tens of thousands of satisfied clients throughout the world. From our removable spindle to our patented quick change knife system, FELDER is the leader in its field.

Quality and precision made in

AUSTRIA






www.felderusa.com



Call now for free information
1-800-572 0061

Saw - Shaper KF 700

- Cutting length 4 to 10 ft
- Rearward tilting shaper spindle and sawblade 90°-45°



Jointer - Planer AD 731/41/51

- Planing width 12/16/20 inch
- Self aligning planer knives

FELDER USA West 1851 Enterprise Blvd. West Sacramento, CA 95691

FELDER USA East 2 Mc Cullough Drive New Castle, DE 19720

Call 916-375-3190 · Fax 916-375-3194

We Manufacture and Stock

Moulding Knives

in HSS and Carbide

Next Day Delivery

on Over 700 Patterns for Woodmaster, Belsaw, Williams & Hussey and more.

Custom Knives a Specialty

Log on to www.moldingknives.com

Great Prices - Unsurpassed Quality

Fast Delivery

Toll Free: 1-866-499-8399 ext. 227



READER SERVICE NO. 156

EuroShop

Fine European Woodworking Machinery



- 7 Models Available from 16" to 36"
- Resaw Capacities from 10" to 21.5"
- Electronically Balanced Cast Iron Wheels
- Cold Vulcanized Tires
- High Rigidity Frames
- Foot Brake with Micro Switch

"I own four bandsaws and I like the EuroShop bandsaw the Best"
- Sam Maloof

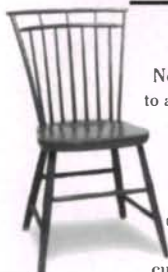


EAGLE TOOLS

2217 El Sol Avenue
Altadena, CA 91001
800-203-0023
www.eagle-tools.com

Fine Woodworking Machinery & Tools
Since 1988

READER SERVICE NO. 48



Make Your Own Antiques

Nothing brings warmth and vitality to a home like Cohasset Colonials™ furniture and accessories. Our new fall catalog is filled with authentic reproductions of early American furniture. Make your own antiques from our accurately handcrafted kits, or let us custom finish our furniture for you.

Send for our FREE Catalog

Cohasset Colonials®

Box 548-FW3, Ashburnham, MA 01430
1-800-288-2389

READER SERVICE NO. 190

GET THE PERFECT EDGE.

TURN TO PAGE 19.

READER SERVICE NO. 188

The Toughest Glue On Planet Earth

You're beyond simple yellow glues and you don't want a different bottle of glue for every project. You want Gorilla Glue®. Bonds wood, stone, metal, ceramic, plastics and more. Incredibly strong and 100% waterproof. Don't monkey around with other glues.

For retailer near you, call 800-966-3458 or visit www.gorillaglu.com.



for retailers near you:
www.gorillaglu.com
1-800-966-3458



READER SERVICE NO. 84

bandsaw. Because it must be programmed, an inverter typically is dedicated to running only one machine, but with some compromises, it can be used to run several tools. The price of inverters has been dropping steadily over the last few years.

Choosing the right type and size of converter and hooking it up correctly can be complicated. You should do some research and get more advice before investing in a converter or an inverter. (Manufacturers of converters and inverters offer extensive literature and phone consultations.) You'll find a list of expert sources on our web site: www.finewoodworking.com.

[John White is the shop manager for *Fine Woodworking*.]

Testing for sharpness

I enjoyed the recent article on honing systems ("Sharp and Sharper," FWW #157, pp. 36-41), but one question comes to mind: Is there any way to test for sharpness while you are honing a

blade without loading it in a plane and taking a cut?

—Bill Woodson, Peoria, Ill.

Aimé Fraser replies: You can check for sharpness quickly by holding the tool lightly between your thumb and forefinger and lowering the edge gently onto the thumbnail of your other hand (see the photo at right). A sharp blade will catch on the nail immediately. A not-quite-sharp blade will skid a little and then catch, but not very solidly. A dull one will slide. If your iron fails the sharpness test, go back and start at the beginning of your honing process. I recommend using a honing jig for quick, consistent results. Spend plenty of time on the coarsest stone until you feel a fine burr along the entire back of the blade. Then go through the abrasives again, one by one, lapping the burr off the back after you finish with the finest grit. Try the sharpness test again.

[Aimé Fraser is a woodworking teacher and writer.]



Sharpening rule of thumb. A dull edge will skid across a thumbnail. A sharp edge will catch.

The Best Place to Buy Over 200 JET Tools Online at the lowest prices guaranteed

Shop at www.amazon.com/jet

TOOLS & HARDWARE
amazon.com

Call for your FREE Tool Crib catalog
1-800-635-5140

**We will match our competitors price plus beat it by 10% of the difference. Find out more at www.amazon.com/price-match.*

READER SERVICE NO. 152

Hersaf
Screw-on Router Bits
Choose Your Material, Choose the Cutter Size, Screw on the Cutter and You're Ready to Go!

Free Catalog 1-800-553-9344
www.hersaf.com

READER SERVICE NO. 102

Wood Moisture Meters

Wood moisture is a crucial factor that determines usefulness and stability of wood. Pin-type moisture testers measure surface and core moisture to avoid cracking, warping and delamination.

The versatile mini-Ligno meters from Lignomat are ideal for veneer, heavy timbers and curved plywood; a favorite for professional woodworkers and serious hobbyists. Ask about our free brochure for pin and pinless moisture meters.

800/227-2105 Lignomat USA Ltd.
503/257-8957 PO 30145, Portland OR 97294

READER SERVICE NO. 67

Keep your *Fine Woodworking* back issues looking brand new.



Store your treasured copies of *Fine Woodworking* in slipcases for easy reference again and again! Bound in dark blue and embossed in gold, each case holds more than a year's worth of *Fine Woodworking*. Only \$8.95 (\$24.95 for 3, \$49.95 for 6).

Add \$1.50 per case for P&H. Outside the U.S., add \$3.50 each (U.S. funds only). CT residents add 6% sales tax.

To place an order using your credit card, call **1-800-888-8286** or send your order and payment to: Taunton Direct, Inc., P.O. Box 5507, Newtown, CT 06470-5507

RIP AW

The Portable Sawmill.

The "affordable portable" one man band sawmill. Weighs only 45 lbs. Cuts 20" diameter logs into lumber. Minimum 1/8" to maximum 9" thickness. Maximum width, 14". Start-up video available.



Better Built CORPORATION

789 Woburn Street, Dept. FW
Wilmington, MA 01887
Website: www.ripsaw.com
Free brochure download

(978) 657-5636

fax (978) 658-0444

READER SERVICE NO. 179

Carve Wood, Engrave Metal with the same pneumatic power handpiece.

Request FREE information...

1-800-835-3519

Source #121007



GRS TOOLS

System 3

900 Overlander
Emporia, KS 66801
Fax: 620-343-9640
GRS@GrsTools.com

Some dovetail jigs promise you everything...

The Keller Dovetail System only promises what it can deliver.

Fast setup. No test cuts. Precision joinery. Unlimited widths. Classic and variable spacing. Compound, acute and obtuse angles. Curved dovetails. Box joints. Made in USA since 1976. 20-yr. warranty. 30-day money-back guarantee.

"Your best choice.

It's the easiest of all the jigs to use and great for production use."

—*Woodworker's Journal*

VIDEO: \$8.95 + \$2 P/H



KELLER & CO.

1327 1st Street, Dept. F92
Petaluma, CA 94952
1-800-995-2456
707-763-9336

www.kellerdovetail.com

Keller Dovetail System
Simple. Fast. Accurate. Enjoyable!

READER SERVICE NO. 34

Taking Band Saws to New Levels

You have heard about them, you know that they are called the best, now it is time to own one. Our band saws have won Editors Choice Awards and our customers rave about them. But don't take our word, call today and order your free demonstration video and see for yourself.

Designed by Laguna Tools and imported from Italy, we have the finest and largest selection of European band saws in the country.

- Best specifications in the industry
- Dynamically balanced cast-iron flywheels
- Wider blades for straighter and smoother re-sawing
- Euro guides
- Conforms to the toughest dust standards
- Quiet and smooth with more power
- Robot welded steel frames
- More resaw height
- Rack and Pinion
- Easy blade change
- Mobility kit available
- Manufactured in Italy
- Order a custom made band saw to suit your needs.

LAGUNA TOOLS

Fine European Woodworking Machinery

800-234-1976

17101 Murphy Avenue Irvine, CA 92614 • (949) 474-1200 • Fax (949) 474-0150 • E Mail: mail@lagunatools.com • Web: www.lagunatools.com

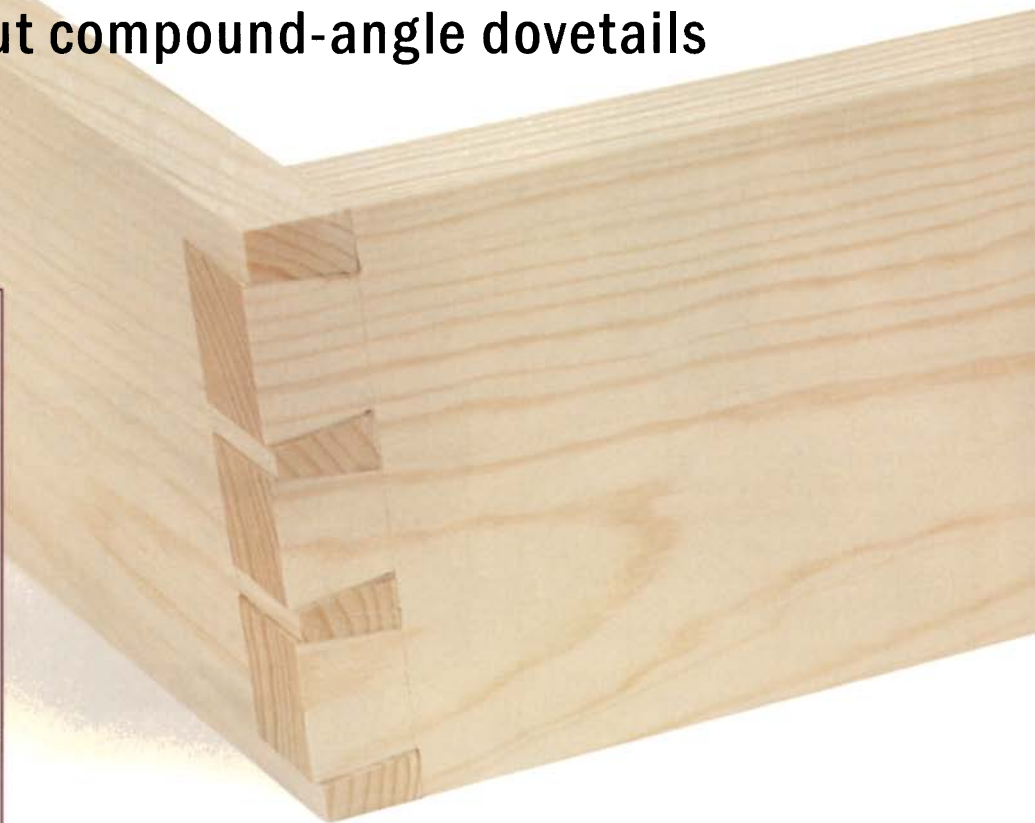
READER SERVICE NO. 206

Laying out compound-angle dovetails

START WITH A PRECISE BUTT JOINT



Brown simplifies the process of making compound-angle butt joints on pp. 64-67 of this issue. Here he offers an easy layout technique that opens the door to dovetails.



If you can cut an accurate butt joint on a compound angle (see pp. 64-67), then you can cut compound-angle dovetails. The rest is basically a layout lesson. Done well, these specialty dovetails become an attractive design element in themselves. Cradles and trays are just a few projects that require them. The drawers on a bombé-style chest are another example.

Fundamentally, compound-angle dovetails are the same as normal dovetails. The shoulders of the pins and tails are parallel to the ends of the board, and the lines for the pin faces are parallel to the top and bottom edges of the board. The angle for the flare of the tails still needs to be appropriate to the overall grain direction. And spacing the pins is still a matter of strength and individual taste. The challenge is to figure out specifically what these angles are when you factor in the compound angle, and also how to work with the awkwardly shaped boards.

By the way, with the extra angles involved, hand-cutting is probably the easiest way to form these joints. I suppose a tablesaw or bandsaw could be used, but only with a number of ramps or jigs. And as far as I can tell, a router set-up simply is not possible.

Scribe the shoulder

The shoulder (the length of the pins and tails) is still determined by the thickness of the adjacent board. However, because these boards connect at an angle, the dimension of the shoulder line is not the actual thickness of the adjacent board but the width of its edge when cut at an angle. Sounds complicated, but all you have to do is use the angled end of one board

to locate the scribe line on the other. Mark the face that has the sharper corner, because this is the edge that a marking gauge can be used on. Then carry the line across the edges using a square, keeping the line parallel to the beveled edge and the blade of the square flat on that edge. Last, use a straightedge to carry the shoulder line across the other face.

I prefer to cut pins before tails, but going tails-first also would be feasible here. Lay out the rise and run angles the same way to get the two bevel-gauge settings needed; then



Projects like this Shaker cradle depend on compound-angle dovetails. The angled sides make the interior more accessible.

FREE TOOL CATALOG!

Your Best Work Starts With Us...

With over 8,000 of the finest woodworking tools in the world, Woodcraft can help you work more efficiently and skillfully than ever.

Call for your Free copy today.

1-800-542-9115



WOODCRAFT®
Helping You Make Wood Work®

www.woodcraft.com

Visit one of our stores located nationwide! Call us for the store nearest you.



Proud sponsor of "The American Woodshop" hosted by Scott Phillips on PBS.

560 Airport Ind. Park,
Dept. 02WW10Q,
PO Box 1686,
Parkersburg, WV
26102-1686

READER SERVICE NO. 202



You asked for it.
You got it.

New lower prices – call or go online.

FESTOOL

888.337.8600
www.festool-usa.com

READER SERVICE NO. 42



POWERMATIC

WE HAVE
IT ALL IN
WOODWORKING
SUPPLIES



GENERAL




3001 RAMADA WAY, GREEN BAY, WI 54304
1-800-891-9003 FAX (920) 336-8683
www.woodworkersdepot.com
PROFESSIONAL QUALITY AT A WAREHOUSE PRICE



DELTA
CMT JET
EQUIPMENT & TOOLS

READERSERVICE NO. 26

NEW! The Leigh FMT Mortise and Tenon Jig




Finally a jig designed to create mortise and tenons in one quick easy setup!

FMT features:


- Unique patented guide system
- Joints of any size from 1/2" x 5" down to a tiny 1/16" x 1/32"
- Use on matches or stock up to 3" x 5 1/2" (mortise) and 2 3/4" x 5 1/2" (tenon)
- Easy fingertip adjustment of joint tightness
- Make angled and compound angled joints
- Rout perfectly aligned double, triple and quadruple joints
- Use virtually any plunge router
- Uses 1/2" shank cutters
- Cam-action speed-clamps
- Integral dust port for vacuum

Call For Your Free Leigh FMT Brochure Today! 1-800-663-8932
Leigh Industries Ltd., PO Box 357, Port Coquitlam, BC, Canada V3C4K6
Tel. 604 464-2700 Fax 604 464-7404 Web www.leighjigs.com



Joining Tradition With Today

ORIGINAL **CONTRACTOR DUTY SERIES**
Model 3512-01, 3512-03



Specifications

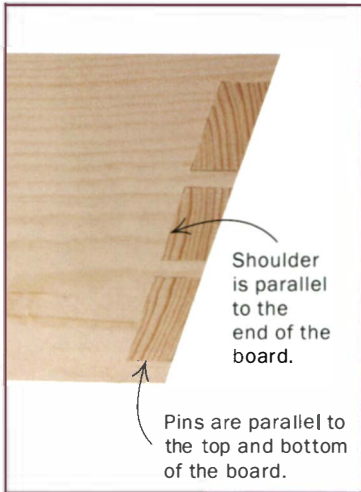
- 3hp 1ph 220V
- 3hp 3ph 230/460V
- 12"/13" Blade Capacity
- Automatic Brake
- 24" Crosscut Capacity
- Auto Return Device
- Complete Guarding, Table, Frame Legs

The Original Saw Company
465 3rd Ave. SE • P.O. Box 331
Britt, Iowa 50423
www.originalsaw.com
800-733-4063 • (641) 843-3868
FAX (641) 843-3869

Call for a distributor nearest you

READER SERVICE NO. 132

SCRIBE THE SHOULDERS AND SIDES OF PINS



1

Use the marking gauge on the inside face (with the sharper edge). Rub the beam along the face of the board to keep the gauge in proper alignment.



2

Carry the lines across the edges. Using a square with its blade laid flat along the beveled edge of the workpiece, scribe the lines with a knife.

transfer those angles to the face grain of the tails boards, rather than to the end grain of the pins boards.

Rise-run technique simplifies layout

Start by laying out the pin spacing along the inside face of the board. Just as with regular dovetails, use the centerlines to mark the edges of each pin. The difference here is that the pencil lines used to lay out the sides of the pins should be parallel to the top or bottom edge of the box, not square to the end of the board.

The key point with compound-angle dovetails is that the flare of the pins (and tails) is not a single angle as it is with normal dovetails; both the direction of the grain and the centerline are parallel to the top and bottom edges of the box sides but not square to the ends of the boards. So the top and bottom of each pin are at different angles.

To find the two necessary bevel-gauge settings, set up a rise-run ratio on the face of one of the boards. To get a true 6:1 dovetail angle, don't take the rise dimensions as measurements up the face of the board. Instead, take them as elevations, with the board in its sloped position. To do this turn again to the indispensable set-up block (see p. 65). Lean the board against it, and then use the top face of the block and two box sides laid on top of it to make three evenly spaced marks.

Now set up the run. Draw a line through the center mark, parallel to the top and bottom edges of the box. Measure the thickness of the box sides and use that increment to make six marks along that long centerline. That's the run for a 6:1 ratio. Last, connect the sixth point with the top and bottom rise marks you made earlier. These are the correct angles for the top and bottom of each pin (or tail). Lay a sliding bevel gauge along the end of the board and take the top setting. Lay out all of the top sides of all of the pins on the



3

Connect the lines. Last, use a straightedge and marking knife to connect the scribe lines along the outside face of the board.



4

Brown prefers doing pins first. Along the outside face of the board, mark the spacing. Set the blade of your sliding bevel gauge parallel with the top and bottom edges of the board and lay out the sides of the pins.

Teardrop Trailer Plans

Build your own classic camping trailer!
The ultimate woodworking project

- NO WELDING REQUIRED!
- FULL GALLEY IN REAR

8' Cubby



Complete plans include built-in icebox, stove, water tank, 12V electric system, cabinets, floor hatch for porta-potty. Sleeps two inside the cabin, 4' x 8', 900 lbs.

Kuffel Creek Press • www.kuffelcreek.com

PO Box 2663 • Riverside • CA 92516 • fax 909/781-9409

READER SERVICE NO. 183

THE DOVETAIL JIG

that has everyone believing that pigs really can fly!

AKEDA
WWW.AKEDAJIGS.COM
TEL: 1.877.387.8544

READER SERVICE NO. 180

www.routerbits.com

Whiteside Router Bits
Systimatic Saw Blades
Fisch Forstner Bits
HTC Mobile Bases



Router Bits on the Web

READER SERVICE NO. 118

CREATE A CLASSIC



Classic styling with a contemporary flair, Shaker design is perfect for today's decorating. Furniture, Accessories and Gifts:

- Chairs
- Tables
- Rockers
- Clocks
- Bar stools
- Mirrors
- Beds
- Bookcases
- Music stands
- Oval boxes
- Baskets
- Framed prints

A large selection of Shaker Chair Tapes. Precisely machined kits or custom finished furniture in maple or cherry.

FREE CATALOG
includes Chair Tape Samples
SHAKER WORKSHOPS
Box 8001-FW3, Ashburnham, MA 01430
1-800-840-9121

READER SERVICE NO. 189

FREE TOOL CATALOG

Visit us on the internet at highlandhardware.com



Our comprehensive tool catalog gives you more than just manufacturer's specs. We provide detailed tool descriptions, useful tips & techniques and a schedule of seminars & hands-on workshops.

CALL FOR FREE TOOL CATALOG
1-888-500-4466

READER SERVICE NO. 63

BETTER

Bonds Most Anything

20 Minute Cordless Use

100% Waterproof

HIPURFORMER™
ADVANCED BONDING SYSTEM

1-800-347-4583
www.titebond.com

Titebond®
Glues & Adhesives

READER SERVICE NO. 176

Fine Woodworking

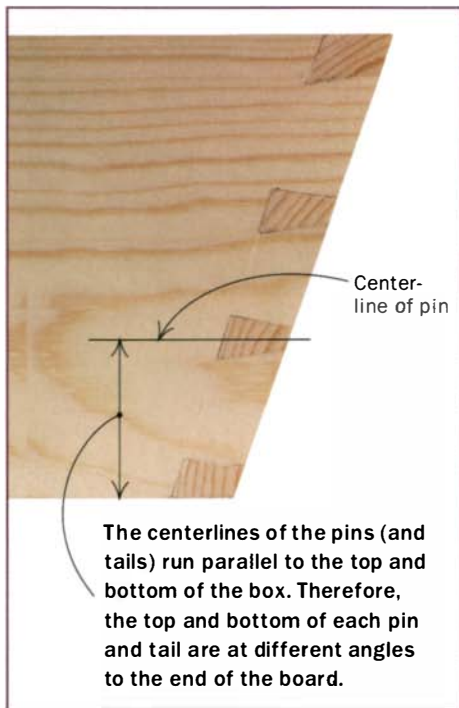
finewoodworking.com

Our Index Is Now Online!

- Every issue, every article and tip since issue #1
- Easily searchable, continually updated
- Links to all tables of contents for every issue
- Cross referenced to *Fine Woodworking* books

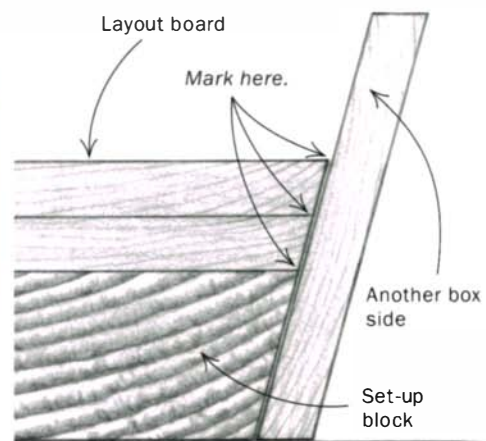
Log on and start searching today!

A RISE-RUN RATIO DETERMINES THE ANGLES



MAKE A LARGE SET-UP BLOCK

Make it like the one on p. 65, with its sides cut at the slope of the box sides. Then use the block and two of the actual box sides to lay out three equal divisions on another side of the box.

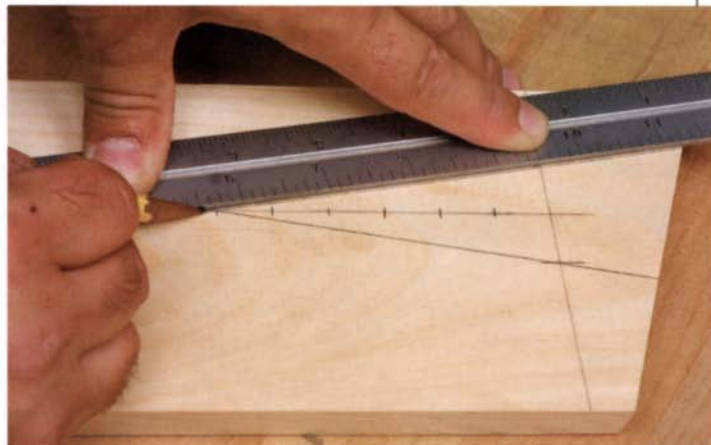


box before changing the setting and laying out the other side of each pin.

Saw, chop and transfer

Once the pins have been laid out, the sawing, chopping and paring to the lines are basically the same as when making conventional dovetails, except the shapes look different and might be a bit awkward to reach. You can rip an extra block while cutting the butt joint and use it as a paring block when cutting the shoulders, clamping it onto the workpiece to guide your chisel.

Transferring the layout of the pins onto the face of the tail board is similar to the regular process, but holding the boards is a bit of a challenge. Lay out the tails with a sharp pencil (a marking knife will bruise the nonwaste portion of the wood). Last, transfer the marks across the end of the board with a bevel gauge set at the appropriate angle. Don't try to mark the tails on the other side of the board. Saw, pare and fit the tails in the standard way. □



Mark out six divisions of the same thickness as the sides to create a 6:1 dovetail angle. Use those lines to set your sliding bevel gauge. There will be different gauge settings for the tops and bottoms of the pins.

SET THE BEVEL GAUGE AND MARK THE PINS



Take the two settings from the layout board. Lay out one of the angles on all of the pins or tails, then reset your bevel gauge to the other angle and finish the layout.

Cut the pins or tails and transfer their locations to the mating board. It's no easy feat to keep these angled boards in perfect position during this step.

Rosewood
Studio



Rosewood Studio is located in Almonte, Ontario; a quiet country town just outside Ottawa, Canada's capital city.

Instruction in Fine Woodworking

Today, people are returning to a traditional set of values, where craftsmanship is more important than efficiency. Our instructors are all professional woodworkers...some of the finest crafts persons of our time including Chris Becksvoort, Michael Fortune, & Garrett Hack. We offer 1-Day to 12-Week Workshops plus Evening Courses & Seminars. Call for your free brochure toll-free 1-866-704-7778 or visit our website at www.rosewoodstudio.com

READER SERVICE NO. 130

Beauty & Tone
at its Finest

BUILD A GUITAR

~Fine Woods & Tools for Guitarbuilders~

LMI

Luthiers Mercantile International
www.lmii.com • 800-477-4437 • Free Catalog

READER SERVICE NO. 71

COMPLETE SAWMILL FOR UNDER \$3000

CALL 1-877-LOGOSOL
FOR FREE VIDEO

www.logosol.com

LOGOSOL

READER SERVICE NO. 99

HIDA TOOL & HARDWARE

1333 SAN PABLO AVE. BERKELEY, CA 94702
510-524-3700 1-800-443-5512 hidatool@hidatool.com



Mitsukawa brand; ryoba & dozuki hardwood saws for furniture & cabinet makers.
Ryoba: 195mm & 210mm (21 teeth on cross-cut)
Dozuki: 210mm & 240mm (27 teeth on cross-cut)

Visit our website at www.hidatool.com

READER SERVICE NO. 171

GENERAL INTERNATIONAL

GENERAL

THE POWER OF THE GREEN MACHINE

WORKING TOGETHER

MODEL 490-1
15" WOOD CUTTING
BANDSAW

MODEL 15-250
24" HORIZONTAL DOUBLE
DRUM SANDER

MODEL 40-250
HEAVY DUTY 3 HP SHAPER

MODEL 350-150
10" TILTING ARBOR SAW

FOR MORE INFORMATION VISIT OUR WEBSITE: www.general.ca

READER SERVICE NO. 175

NORTHWEST
TIMBER

STEP UP TO THE FINEST FIGURED MAPLE, AND WESTERN WALNUT ON THE PLANET

*Furniture by Robert Erickson *photo: M. Lee Fatherree

- FIGURED MAPLE, quilted, curly, spalted, burlled, birdseye and figured flooring
- WESTERN WALNUT, curly, marbled, crotch, burlled and vertical grained
- CURLY CHERRY
- PORT ORFORD WHITE CEDAR VG (OLD GROWTH SALVAGED LOGS)
- MYRTLEWOOD, musical grade, lumber and slabs

NORTHWEST TIMBER

(541) 327-1000 • WWW.NWTIMBER.COM

READER SERVICE NO. 173



WOODJOY® TOOLS
 Fine Tools to Enhance
 Your Skill & Ability
 P.O. Box 204, Swansea, MA 02777
 508-669-5245
 www.woodjoytools.com

THE ST. JAMES BAY TOOL Co.
 Norris Style Planes
 Finished or Castings
 Antique Tools
 Bought & Sold
 Free Catalog
 800-574-2589
 www.stjamesbaytoolco.com



122 E. Main St.
 Mesa, AZ 85201
 480-835-1477

TigerStop.com

Throw Away Your Tape Measure!

Fine Architectural Millwork & Joinery



HARRIS
 Woodworking
 Member AWI

Domestic & Exotic Hardwood Lumber & Plywoods
 Custom Milling

Toll Free 1-888-288-4611 | www.harrisent.com

An Education in Craftsmanship

For careers in:

- CARPENTRY
- PRESERVATION CARPENTRY
- CABINET & FURNITURE MAKING
- PIANO TECHNOLOGY
- VIOLIN MAKING & RESTORATION

Financial aid for qualified students. Accredited member ACCSCT. Short workshops are also offered.

NORTH BENNET STREET SCHOOL
 39 North Bennet Street • Boston, MA 02113
 (617) 227-0155 • www.nbss.org

MISUGI DESIGNS



Japanese Tansu & Cabinet Hardware
 Japanese Woodworking Tools
 Japanese Paper

Visit us at:
www.misugidesigns.com
 Tel: 707-422-0734 / Fax: 707-425-2465

Furniture That Floats



noah's Cedar Strip, Plywood, Canoe & Kayak Kits,
 Boat Building Supplies

www.noahsmarine.com 416-232-0522 Free Catalog

Sauers & Company
 Processed Veneers

Exotic & Domestic Wood Veneer
 Full Sheets or Cut to Size
 Small quantities welcome!

1102 Dorris Avenue
 High Point, NC 27260

www.sveneers.com Phone: 336.886.4716

KREMER
 PIGMENTS


Dyes and Pigments

- natural earth pigments
- natural plant dyes
- alcohol-based metal-complex dyes

Free catalog of woodfinishing supplies

Kremer Pigments Inc. • 228 Elizabeth Street
 New York, NY 10012 • (800) 995-5501
 www.kremer-pigmente.com

TWO CHERRIES



Huge selection of hand forged woodcarving and bench chisels

Robert Larson Co.
 San Francisco
 800-356-2195
 www.rlarson.com

Since 1858

The Museum of Woodworking Tools

Fine tools including CLIFTON BENCH PLANES, Ironi chisels, Sorby, Two Cherrys, Norton, & books, Videos, etc.

Shown: Clifton No. 3 Bench Plane. Premium, heavy duty "Bedrock" design. \$189.95

Call 212-228-9884 for a free catalogue
 www.toolsforworkingwood.com

TIMBER WOLF™
 Band Saw Blades

Swedish Silicon Steel ~1/8" - 2"

www.Suffolkmachinery.com
 Free Catalog ~ 800-234-7297



FROM THE HEART OF

BIRDSEYE MAPLE COUNTRY

PRIME QUALITY LUMBER AND FLOORING

RARE EARTH HARDWOODS 1-800-968-0074
 fax: 1-800-968-0094

Direct importers of hardwood flooring and lumber worldwide.
 Over 80 species in stock

CUSTOM ROUTER BITS, CUTTERS & KNIVES
 2 week or less delivery

LIBERTY LINE
 WHEN IT COMES TO ROUTER BITS WE KNOW WHAT WE'RE TALKING ABOUT.
RIDGE CARBIDE TOOL CO.
 "Industry Leader In Custom Router Bits"

FAX us your custom drawings toll free at 1-888-RCT-TOOL (728-8665) or mail drawings or wood samples

RIDGE CARBIDE TOOL CO.
 595 New York Ave., PO Box 497, Lyndhurst, NJ 07071
 Send \$3 for complete 100 page Stock Tool Catalog or see us at www.ridgecarbide.com
 800-443-0992 rcttool@bellatlantic.net

www.customforgedhardware.com
 Kayne and Son Custom Hardware, Inc.



100 Daniel Ridge Road Dept. FW
 Candler, NC 28715
 (828) 667-8868 or 665-1988
 Fax: (828) 665-8303

Catalog \$5.00

TOP-RATED SEA KAYAKS

Rugged, Ultra-Light, Beautiful Leader in Kayak Kits Since 1986



PYGMY BOATS INC.

CALL OR WRITE FOR OUR FREE COLOR CATALOG
 (360) 385-6143, P.O. Box 1529, Dept. 98
 Port Townsend, WA 98368
 www.pygmyboats.com

www.thetoolchest.com

1000's OF BOOKS COVERING

- Woodworking - All Aspects • Tools & Their Uses
- Home Remodeling & Maintenance
- Contracting • Projects For Home & Recreation

THE TOOL CHEST • 45 Emerson Plaza East • Emerson, NJ 07630
 201-261-8665 1-800-617-TOOLS Fax: 201-261-3865
 FREE USA SHIPPING • BOOK ORDERS OVER \$25

12,000 WHOLESALE BUYERS.
100,000 RETAIL CUSTOMERS.

TO GET YOUR WORK IN FRONT OF THEM,
 GET YOUR SLIDES IN FRONT OF US.

Jury screening deadline for 2003 shows September 5, 2002. Contact us to request an application package:
 American Craft Council, 21 South Eltings Corner Road,
 Highland, NY 12528. Fax 845-883-6130.
 E-mail shows@craftcouncil.org.

American Craft Council 
 www.craftcouncil.org
 800.836.3470

The Fine & Creative Woodworking Program at KROCKINGHAM COMMUNITY COLLEGE

is an internationally recognized associate degree & certificate program. Instruction in hand-tools, furniture, construction, shop start-up, operation & much more.

PO Box 38, Wentworth, NC 27375-0038
 Phone: (336) 342-4261, ext. 2178.
 www.rcc.cc.nc.us/woodwork/homepage.html
 AAEEOC

HARDWOODS

Lumber • Veneer • Turning Stock

Over 100 Quality Hardwoods
From Around the World

Visit our web site
WOODWORKERSSOURCE.COM
Wood Descriptions, Prices, and Current Specials
800-423-2450



WOODWORKERS Source
5402 S 40th Street • Phoenix, AZ 85040
602-437-4415 • 602-437-3819 FAX

"World Timber is trustworthy..."

enough to drop ship bundles direct to my customers. The order will be exactly what the customer expects.

WTC is like a second warehouse for me"
Clay Johnson, Choice Woods

Worldtimbercorp.com

Phone: (910) 326-6252 Email: Worldtimber@tcl.com

BEVEL BOSS

"When the angle isn't 90° I reach for the Bevel Boss. It's a simple tool that lets me set my T-bevel accurately to within 1/4". The Bevel Boss is the ultimate angle authority in my shop."
Chris Beckvoort



3" End Scale • 12" Rule, 1/16" Grads On Back • Easy To Read & Use

877-472-7717 • www.sutherlandtool.com

WOODCRAFT

School of Fine Woodworking

Hands-on woodworking & furniture making classes
nights, weekends & week-long classes

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



Quality German Workbenches
1-800-32Bench



Diefenbach Benches
33498 East US Highway 50
Pueblo, CO 81006

www.workbenches.com

DUST BOY, INC.®

1 and 2 HP Dust Collectors

- Cast Aluminum Blowers
- High Efficiency
- Extremely Quiet
- Portable
- 5 Year Warranty

Visit: www.dustboy.com

DUST BOY, INC.
P.O. Box 278
Arcanum, OH 45304

Free Brochure & Layout
Information Available

Fax (937) 692-8266
800-232-3878



Woodworking Kits

Step-by-Step Plans with Hardware
WoodsmithStore.com
beds • cribs/cradles • workbenches • jigs

OAKWOOD VENEER CO.

- Specializing in exotic and burli wood veneer
 - Flexible paper-backed wood veneer
 - 170 species in stock • Sheet sizes up to 5' x 12'
- CALL FOR FREE SAMPLE! • Warehouse Showroom
800-426-6018 • Fax 248-542-9973
3542 W. 11 Mile, Berkley, MI 48072
www.oakwoodveneer.com



QUESTIONS:
760-434-3030

Our website updates almost daily:
www.anexolichardwood.com

ORDERS: (TOLL FREE) 888-434-3031

ESTABLISHED IN 1975,
100 SPECIES OF EXOTIC WOOD!

**TROPICAL
EXOTIC
HARDWOODS
OF LATIN AMERICA**



**FACTORY DIRECT • LUMBER
SQUARES • SLABS • LOGS • BOWL STOCK**

www.librawood.com

"Forrest" Saw Blades

- 10" Woodworker II - \$97
- 10" Chopmaster - \$107.50
- 12" Chopmaster - \$123
- 8" Dado King - \$227

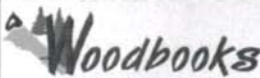
Free Shipping on Saw Blades

www.librawood.com

Woodworking Books, Videos & Plans

Save up to 20% * 800 titles in stock * Free price list

www.discount-books.com



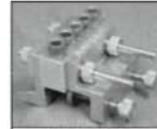
ph 800-378-4060
P.O. Box 121
Penrose CO 81240

WIN A GRIZZLY TABLE SAW IN OUR CRAFTSMAN CONTEST

The plans for this queen sized bed are CAD generated with pages of instructions. Nightstand included as a bonus.



AMERICAN FURNITURE DESIGN
P.O. BOX 300100 ESCONDIDO, CA 92030
BED PLAN \$21.95 +\$3.50 S&H
CATALOG \$3.00
760 743-6923
www.americanfurnituredesign.com



DOWELMAX

Precision Engineered Dowel Jig
Adapts to any joint configuration for Perfect Joints
QUICK - EASY - ACCURATE - VERSATILE

Toll Free 1 877 986 9400

www.dowelmax.com

Patents in
USA & CANADA,
pending in EUROPE

Jordan Wood Boats



Plans For Heirloom
Cradle Boats
And Watercraft

P.O. Box 194 • South Beach, OR 97366 • 541-867-3141
www.jordanwoodboats.com



AMERICAN SCHOOL OF FRENCH MARQUETRY

UNIQUE PERSONAL INSTRUCTIONS
YEAR-ROUND WEEKLY CLASSES

619-298-0864

www.WPatrickEdwards.com

3815 UTAH STREET SAN DIEGO CA 92104

Mitred Doors

Flat or raised panel in a
variety of styles. Finished
or unfinished.

Valley Custom Door
1-800-236-8981

valleycustomdoor.com

blum Grass mepla

www.cabinetparts.com



The one
stop source for
all your cabinet needs

Accuride Salice KV

Rev-A-Shelf

Wilsonart Laminates

The only shop mallet you will ever need!

Halder Simplex Mallet System



Over 60 years
of German quality
now available in the U.S.
Free Catalog

- Tailor hammer to your needs
- 9 hammer sizes
- 7 insert grades
- Interchangeable housings

www.halder-usa.com
262-521-2050



WINDSOR CHAIR WORKSHOPS

in historic Oley Valley, Pennsylvania
Free camping/trout fishing on site
Small classes, individually structured

Jim Rendi, Tel: 610-689-4717
www.philadelphia-windsor-chair-shop.com

Fine European Hand Tools



www.diefenbacher.com

Diefenbacher Tools • 12132 Old Big Bend • St. Louis, MO 63122
Free Hand Tool Catalog • 800-326-5316

We understand. We're wood people.

Whether it's the **smell** of a freshly cut board or the **feeling** of a fine finished piece, we understand there's nothing quite like working with wood. That's why we carry the highest quality kiln-dried **Northern and Appalachian hardwoods** and wood from **FSC certified** well-managed forests for all your wood-working projects. Call or visit one of our **3 locations**.

NORTHLAND FOREST PRODUCTS
Kingston, NH • 603.642.3665
Troy, VA • 434.589.8213
Manassas, VA • 703.393.7500
www.northlandforest.com

Branding Irons

Wouldn't your work look better with your name on it? ©

NEW!
Changeable character head.
Dates-Names-Numbers

Signatures, logos, names. Any size or design.
Optional temperature controller.
Optional drill press mount.
Same-day quotations.
Rapid turnaround from order to delivery.

1-800-964-8251 www.brandnew.net
BrandNew Industries, Inc

TECH-WOOD, INC.
Domestic & Imported Hardwoods

Holly, Blackwood, Mesquite, Koa
+ 60 other species, 4/4-16/4
Burls, Slabs, Thin Lumber
717-933-8989

3M™ Power Visor
Includes Battery Charger

Airware America
Box 975, Elbow Lake, MN 56531-0975
3M Authorized Distributor
e-mail: airware@runestone.net
www.airwareamerica.com

Free Info **1-800-328-1792** *Ideal for wood dust*

SOLID START, Elegant Finish.


OLD GROWTH
Quartersawn White Oak, Curly English Sycamore and American Sycamore
NEW and Matching, Tight Grained Veneers.
Precision sawn figured lumber, bookmatched flitches and **NOW** matching, tight grained veneers.

TALARICO HARDWOODS **610-775-0400**
www.talaricohardwoods.com
22 Hardwood Lane
Mohnton, PA 19540
VISA / MasterCard

SANDY POND HARDWOODS, INC.



FREE GALLON OF Titebond Glue WITH 25 LB. OR MORE



LUMBER • FLOORING
FIGURED HARDWOODS
DOMESTIC AND EXOTICS

1-800-546-9663
www.figuredhardwoods.com

GUITAR MAKING
Master Class with Charles Fox

Invest six days, gain the knowledge of 30 years. Use your woodworking skills to create fine guitars.

May 6-11, July 8-13, Sept. 2-7
707-431-9530
www.americanschooloflutherie.com

QUARTERSAWN HARDWOODS & HIGHLY FIGURED LUMBER

Ash, Cherry, Hard Maple, Red Oak, White Oak, Walnut, Sycamore, Mahogany, Hickory, and Birch. Also, many Exotic Species in Stock.

NEW! We now have European Steamed Beech and Burmese Teak.

WEST PENN HARDWOODS, INC.
(888) 636-WOOD (9663)
www.westpennhardwoods.com

QuikWood® Epoxy Adhesive Putty Stick
repair rebuild restore bond attach patch seal

Easy to Use - No Mess Solvent Free VOC Free

Shapes like modeling clay. Can be sculpted for fine detail. Bonds permanently. Hardens like wood. Sand, carve, drill, tint, paint, and finish.

1. Cut 2. Mix 3. Fix
"When Fillers or Glue Won't Do"

888 4 FIX WOOD ext. 2209 - www.epoxysticks.com

SELF-ADHESIVE 70% WOOL FELT
TAPES • STRIPS • TABS • DOTS

1-800-796-2333 APPROX. 1/16" & 1/8" THICK BROWN, GREEN, BLACK WHITE, AND SILVER GRAY

UBDANN PRODUCTS DIV. 9611 SOUTH COTTAGE GROVE AVE. CHICAGO, IL 60628 FAX 773-375-2494

Every century or so, we like to change the label design. And now we even added a website: www.lionmitertrimmer.com

POOTATUCK CORPORATION READING, MA 1 (866) 944-9600



The best sawmill value...ever. **\$3895**



FREE INFORMATION - USA & CANADA
1-800-661-7746 EXT. 384 **NORWOOD**

ORIGINALFURNITUREPLANS.COM



EXOTIC & DOMESTIC HARDWOODS
LUMBER • PLYWOOD • VENEERS • TURNING BLOCKS • BURLS

FINE WOOD CARVING:
• Architectural Moldings • Capitals • Corbels • Onlays
• Door Panels • Fireplace Mantels • Specialty Molding

We specialize in small to medium size orders!

Over 80 species of hardwood in stock.
CALL FOR PRICE LIST:
800-354-9002
FAX 516-378-0345
www.woodply.com

Wood-Ply Lumber Corp.
100 Bennington Ave., Dept. FW
Freeport, NY 11520

CATALOG for WOODTURNERS!
Call Toll Free...
(800)-683-8876

Fax... (828) 859-5551
E-Mail... packard@alltel.net

Packard Woodworks - PO Box 718 - Tryon - NC 28782



1627 New London Rd. Landenberg, PA 19350
Phone: 610-274-8842
Fax: 610-255-3677
www.goodhope.com

Good Hope Hardwoods, Inc.
"Where Fine Woodworking Begins"

4/4 - 24/4 Custom Cut Wide Matched Sets
Custom Flooring Available
Specializing In:
Figured & Plain Cherry, Walnut & Claro Walnut,
Tiger Maple & 58" Wide Bubinga
Plus Many Other Species

Visa/MC Monthly Specials

AFRICAN EXOTIC HARDWOODS

- BEST PRICES - DIRECT FROM SOURCE
- EXOTIC LUMBER, BLANKS AND BURLS
- LARGE OR SMALL ORDERS WELCOME
- SHIPPED PROMPTLY NATIONWIDE
- CONTACT MAX OR FABs TODAY (828) 658-8455 TEL. CORMARK INTERNATIONAL (828) 645-8364 FAX. 181 REEMS CREEK ROAD, WEAVERVILLE, NC 28787

ASK ABOUT SAMPLE KITS



DOVETAILED DRAWERS
Reasonably priced method to distinguish your cabinets.

- Custom-sized width and depth
- 1/2" solid maple, assembled and sanded
- 2-coat catalyzed finish available
- Quick service, shipped UPS

EAGLE WOODWORKING
1130 East Street, Tewksbury, MA 01876-1459
FAX (978) 640-1501 (800) 628-4849



WEST SYSTEM
EST. 1954

BOATBUILDERS SWEAR BY IT,
and so will you.

Strong, waterproof WEST SYSTEM® Brand epoxy is more than a 2-part adhesive. It's a complete system of resin, hardeners, fillers and additives from which you can easily create the perfect bonding, coating and sealing agents for your wood or composite project.

For a free copy of the 30-page WEST SYSTEM® User Manual & Product Guide, write:

Gougeon Brothers, Inc.
Dept. 44, P.O. Box 908
Bay City, MI 48707
989-684-7286 www.westsystem.com

accurate and tear out free
system/shelf pin holes in all materials
with your plunge router professional appearance
32mm European system or traditional 1" centers

MEG PRODUCTS
phone/fax 609-587-7187
9 John Lenhardt Road
Hamilton Square, NJ 08690
www.megproducts.com

CROWN PLANE COMPANY
TRADITIONAL BENCH MADE PLANES
JACK..SMOOTH..SCRUB..SCRAPERS..BLOCK
CHAIRMAKERS TRAVISHERS..COMPASS PLANES
18 Chase Street South Portland, ME 04106
(207) 799-7535
Order Online www.crownplane.com

AMERICA'S FINEST CLOCK KITS

- Clock kits
- Movements, dials
- Hard to make parts
- Hardware, glass
- Plans
- Assembled clocks

564 Weber St. N.
Waterloo, ONT, Canada
N2L-5C6
(P) 519-884-2511 (F) 519-884-2512
email: info@colonialtimes.com www.colonialtimes.com
Send for your FREE 32 page catalog!

YANKEE HARDWOOD SPECIALTIES
A division of Marshall Lumber Inc.

Select hardwoods
Volume discounts; seasonal specials
Providing woodworkers w/top quality
hardwood for their prized creations.
Gift Certificates available.
Phone us at 800-646-6929
www.yankeehardwood.com

A Woodworker's Dream

Learn to build Shaker-inspired furniture with our finest craftsmen.
One-on-one or group instruction available with classes to fit your schedule from one day to multi-week lengths.

DANA ROBES WOOD CRAFTSMEN
Lower Shaker Village, P.O. Box 707, Enfield, NH 03748
800 722-5036 • Fax: 603 632-5377 • www.danarobes.com

If You're Shopping for a
TORMEK
Call Us First!

- All Accessories in Stock
- 5 Year Extended Warranty
- Technical Assistance

SHARPTOOLSUSA
1106 VALLEY RIDGE DRIVE
GRAIN VALLEY, MD 64029 800-872-5489
SharpToolsUSA@att.net www.SharpToolsUSA.com

The company that knows veneer
not just sells it.

BELCHER Veneer Company

FREE SAMPLES
Toll Free 866.6 VENEER
866.683.6337
authorized CraftWood dealer

31505 Grand River Avenue . #10 . Farmington MI 48336

"CutList Plus helps you maximize wood use for less than \$100"
—Woodshop News

- ▶ Sheet layout optimization
- ▶ Board-foot calculations
- ▶ Project cost estimating

FREE TRIAL DOWNLOAD
http://cutlistplus.com/fw

9th Annual **WOOD Working Shows**

VANCOUVER (SURREY, B.C.) OCT.18-20
CLOVERDALE FAIRGROUNDS - HWY.15 (176 ST. & 62 AVE)
MIN. FROM U.S. BORDER • 3 BUILDINGS
519-351-8341 - www.woodworkingshows.com
e-mail: john@bcwoodshows.com

NEARLY EVERY TOOL MANUFACTURER REPRESENTED

CONOVER WORKSHOPS

Educating America's Woodworkers for over 20 years!

Phone: 440-548-3491
Fax: 440-548-2721
E-Mail: www.conoverworkshops.com

Study Carving in Vermont
with Thomas Golding
Week-long Intensives in New and Traditional Woodcarving. Year round.

HCR 33, Box 7, Saxtons River, VT 05154
Ph/fax 800-710-1872 www.ThomasGolding.com

Windsor Chairmaking Classes
With Marc Blanchette
207-667-1818
125 High St. Ellsworth, ME 04605
On Maine's Coast by Acadia National Park
chairmaker@midmaine.com

The Cutting Edge, Inc.
Fine Hand Tools For Turners
Carvers & All Woodworkers

Hollow Turning
Planes & Handtools
Henry Taylor Carving & Power Carving
AutoMach
Turning Tools

www.cuttingedgetools.com
7123 SouthWest Fwy Houston TX 77074
713/ 981-9228

BAUHAUS APPRENTICESHIP INSTITUTE

Apprenticeship: Art-Furniture Construction/Design,
one year-fulitime, hands-on, professional, no tuition / no salary.
756 Hannah St., Forest Park, IL 60130, (708) 488-8398
www.LF.org/bhai2000

When Only The Finest Veneer Will Do...

Certainly Wood

Phone: 716-655-0206 Fax: 716-655-3446
www.certainlywood.com

WOOD RIVER VENEER

Architectural & Cut to Size Panels,
Faces, 2 Plys & Veneer
800-875-7084
www.woodriverveneer.com

BRING THE OUTDOORS, INDOORS

MANUFACTURERS OF QUALITY
CABINET DOORS AND DRAWER FRONTS
SINCE 1980 • CUSTOMIZED TO FIT YOUR
CUSTOMER'S LIFESTYLE
PHONE: 1-800-273-8600
FAX: 1-800-565-5019
MASS BAY WOOD PRODUCTS, INC.
145 Fisher Street P.O.Box 497 • Franklin, MA 02038

MAKE A WINDSOR CHAIR
with Michael Dunbar



Learn with the Master.

Craftsman - Teacher - Author
— 31 Years —

Week-long Workshops Held Year-round
44 Timber Swamp Road
Hampton, NH 03842
603-929-9801
thewindsorinstitute.com

All Plans Under \$10
bedroom · outdoor/garden · shop jigs
www.PlansNOW.com
SAVE 10% use coupon code: BANDSAW



Convenient & accurate turning aids fit larger lathe spindle sizes. In addition to 1", we now offer 1-1/4" & 1-1/2" - 8 chucks. Available collets hold pieces from 1/4" to 3/4" securely, without marking.
For information call or write: Dept. FW
THE BEALL TOOL CO.
541 Swans Road., N.E. Newark Ohio 43055
Toll Free 1-800-331-4718
Website: www.bealltool.com

The ULTIMATE SAW FENCE!

- GUARANTEED
- EASY REMOVAL
- EASY REPLACEMENT
- ALWAYS PARALLEL **MICRO-RIP 2000**
- SIMPLE INSTALLATION
- NO TAPPING

800-630-8665 (TOOL)
(530) 596-4435
www.microrip2000.com
CALL FOR FREE DEMO VIDEO

BARTLEY

Museum quality Reproduction kit Furniture in Shaker, Queen Anne, and Chippendale styles in Tiger Maple, Cherry, Walnut & Mahogany Woods. Build your own masterpiece & Save hundreds \$\$\$\$!

Use Bartley Gel Finishes to finish your masterpiece.

Catalog at 1-800-787-2800
www.bartleycollection.com



CUSTOM BRANDING IRONS
HIGH QUALITY, DEEP ENGRAVED BRONZE DIES
LONG LASTING - INDUSTRIAL DUTY HEATERS
NOT THE CHEAPEST - QUALITY COSTS MORE
FREE BROCHURE AND SAMPLE BRANDS
ENGRAVING ARTS 800-422-4509 fax: 707-984-8045
P.O. Box 787 www.brandingirons.net
Laytonville, CA 95454 e-mail: clem@brandingirons.net

School of Woodworking
DISCOVER the ART of
HAND TOOL WOODWORKING
1-15 day Courses to Advanced Levels
2002 Catalogue of Courses • (254) 799-1418
WWW.HOMESTEADHERITAGE.COM/WOODWORKING

We Sell Beauty...
Veneer-Faces-Plywood
such as Anegre, Birdseye Maple, Bubinga, Ebony, Goncalo Alves, Harewood, Mahogany Crotch, Rosewood, Sapele and many more.
We have all Burls available.
No order too small.
Woodstock products (Veneer)
Wood Mosaic Inc. (Plywood/Faces)
800-505-8166 • 812-282-1900 • Fax: 812-288-5935
www.woodmosaic.com
www.woodstockproducts.com
E-mail: larry@woodmosaic.com

Specialtytools.com
Your one stop source for tools
Woodworking, Plastic Laminate, Solid Surface
www.specialtytools.com
1.800.669.5519 FAX: 1.800.660.7371

USA Oregon Black Walnut

GOBY WALNUT PRODUCTS
5016 Palestine Rd.
Albany, OR 97321

Wide lumber - 4/4 through 16/4
Turning - Carving Stock
Gunstocks
Instrument Grade Lumber
No Minimum Order

VIEWING BY APPOINTMENT ONLY
(541) 926-1079 WebSite : **www.gobywalnut.com**

Vari-Fence a pivotal router fence with a single lock knob.

True alignment of infeed and outfeed fences. Our micro-stop™ cam allows you to set the finished profile before you start. Put the bit at the desired finished height from the table, and leave it there. Vertical panel bits, moulding bits, all contour bits. CNC construction, very accurate, no gauges or adjustments required after setup. One raised panel or one hundred - all will be exactly the same. Truly innovative. Made in the USA!

Introductory Price: \$139.00 plus s/h

Vari-Fence Systems, Inc.
22022 Martella Avenue
Boca Raton, Florida 33433
Phone: 561-218-8813
Fax: 561-883-0780
E-mail: varifence@aol.com

DIMESTORE COWBOYS
Handforged
Handcrafted Hardware
info@dimestorecowboys.com • 505-244-1483
407 Second Street SW Albuquerque, NM
www.dimestorecowboys.com

THE FURNITURE INSTITUTE of MASSACHUSETTS
Philip C. Lowe, Instructor/Director
A 2-year Hands-on Program with Master Furniture Maker
Summer Workshops available
www.furnituremakingclasses.com

116 Water Street
Beverly, MA 01915
(978) 922-0615

GILMER WOOD CO.
Quality Domestic & Exotic Lumber

- Logs, blanks, squares
- Over 50 species in stock
- Thin woods, Assortments, Books
- Musical instrument woods

Phone 503-274-1271
2211 NW St. Helens Rd, Portland OR 97210
Fax 503-274-9839 e-mail: gilmerwood@aol.com

CLASSIFIED

The Classified rate is \$8 per word, 15 word min. Orders must be accompanied by payment, ads are non-commissionable. The WOOD AND TOOL EXCHANGE is for private use by individuals only; the rate is \$15/line, minimum 3 lines. Send to: *Fine Woodworking Classified Ad Dept.*, PO Box 5506, Newtown, CT 06470-5506. FAX 203-426-3434, Ph. (800) 926-8776, ext. 310. Deadline for the November/December 2002 issue is August 26, 2002.

Business Opportunities

FOR SALE: Woodworking company. 18,000/sqft. Industrial, electrical, 1600 Amps, 3PH, 220/440V. Call (508) 587-3580- Brockton, Mass.

Help Wanted

\$400 WEEKLY ASSEMBLING Electronic circuit boards/products. Rush SASE: Home Assembly-FW Box 216 New Britain, CT 06050-0216.

EXPERIENCED WOODWORKER for the oldest pipe organ building company in the U.S. Challenging and varied work with an excellent work setting. Looking for a long term employee. Please send resume: The Holtkamp Organ Company, 2909 Meyer Avenue, Cleveland, OH 44109.

Hand Tools

INTERNATIONAL ANTIQUE TOOL AUCTION. Sept. 20 & 21, 2002. Nashua, New Hampshire. 6500 tools. Information, photographs & secure online bidding at **www.mjdtools.com**. Details and questions: (800) 869-0695.

SPECIAL COLLECTION ANTIQUE TOOL AUCTION. Oct. 26, 2002. Indianapolis, Indiana. 5000 tools. Information, photographs & secure online bidding at **www.mjdtools.com**. Details and questions: (800) 869-0695.

ANTIQUÉ & USED TOOLS. Hundreds of quality handtools. Many Stanley + parts. Visa/MC. BOB KAUNE, 511 W. 11th, Port Angeles, WA 98362. (360) 452-2292. At **www.antiq-used-tools.com**

ANCIENT & MODERN TOOLS. Woodworking, metal working and other. Users and collectors. www.pennyfarthingtools.co.uk

VINTAGE PLANES & PARTS, buying and selling. Pete Niederberger, Box 887, Larkspur, CA 94977. (415) 924-8403 evenings. E-mail: pniederber@aol.com

FREE CARVING TOOL CATALOG: 1-888-901-8099 or (507) 332-9801. P.O. Box 611, Faribault, MN 55021. www.stubaidirect.com

Finishes

SPRAY-ON SUEDE. Line boxes in seconds. Free brochure (sample enclosed). DonJer Products, 13142 Murphy Road, Winnebago, IL 61088. 800-336-6537. www.donjer.com

Glues & Adhesives

HIDE GLUE, all grades. Bjorn Industries, Inc., 551 King Edward Rd., Charlotte, NC 28211. (704) 364-1186. www.bjorn.net

Hardware

www.profhdw.com Online Catalog; hinges, fasteners, sanding products, optivisors. Professional Hardware. Visa, MC, Discover.

Instruction

APPRENTICESHIP Winner of *Fine Woodworking Magazine's* Apprenticeship Program Award in Professional Artisan Furniture making/designing in rare solid woods. Tuition. Jeffrey Greene. (215) 348-5232. (PA) nolegsneeded.com/greeneandgreene.html

BENJAMIN HOBBS Furniture Making Classes. Queen Anne and Chippendale chairs, chests, beds, tables, more. Hertford, NC. (252) 426-7815. www.hobbsfurniture.com

NEW ENGLAND SCHOOL of Architectural Woodworking. 35-week career training in architectural woodworking or 6-week summer intensive for the serious enthusiast. (413) 527-6103. (MA) www.nesaw.com

TRADITIONAL HIGH-END FURNITURE design, finishing, carving, inlays. No tuition. Year apprenticeship. East Texas. (903) 769-1017.

MASTERPIECE SCHOOL OF FURNITURE offers 1-3 year program in traditional furniture making. Mendocino Coast, California. Summer classes available. Ph/Fax (707) 964-8798. www.masterpieceschool.com

HANDS-ON WORKSHOPS in beautiful Maine. Basic and Advanced. Twelve-week intensive. Center for Furniture Craftsmanship (207) 594-5611. www.woodschoolorg

SCHOOL OF CLASSICAL WOODCARVING. Elected British Master Carver, Ian Agrell, teaches carving for furniture and architecture from his San Francisco workshop. Information from www.agrellandthorpe.com or (415) 381-9474.

WOODWORKER ACADEMY, comprehensive entry level workshops and precision improvement are our specialty. San Francisco area (510) 521-1623 or www.woodworkeracademy.com

BLUE RIDGE MOUNTAINS, VA. One-year apprenticeship available to motivated individual. Saturated learning environment. Accommodations available, tuition. For more information call: Michael Maxwell, (540) 587-9543.

WOODTURNING INSTRUCTION Russ Zimmerman's Punta Gorda, Florida workshop or yours. (941) 575-4337 or www.learnatoturn.com

Machinery New/Used

SCMI BASIC ONE EDGE BANDER: asking \$12,000. Less than 100 hours. Blum Mini Press with line bore: asking \$1800. Both excellent condition. Call (860) 276-0399.

PARTS FOR OLDER MODEL Delta/Rockwell wood-working machines, new, still in boxes, have list. (800) 487-5382.

USED PORTABLE SAWMILLS! Buy/Sell. Call Sawmill Exchange 800-459-2148, (205) 661-9821. <http://www.sawmillexchange.com>

Miscellaneous

LEGAL IVORY. Inlay slabs, turning blocks. Warther Museum Sugarcreek, OH. (330) 852-3455. www.ivorybuyer.com

GLASS SOURCE FOR WOODWORKERS. Glass and mirror custom cut, beveled, edged, etched, or grooved to your specifications. Shipped direct from our shop to yours. Call for free brochure, inquiries, or to place an order. Glass Source 1-800-588-7435.

Power Tools

DEWALT'S NEW NAILGUNS UPS to anywhere. All models, visit 1888nailgun.com call 1-888-nailgun.

STAPLERS AND NAILERS at www.nailzone.com. Senco, Paslode, DuoFast. other tools and fasteners. (800) 227-2044.

LAMELLO BISCUIT JOINERS and Accessories/Parts/Repairs. Best prices-most knowledgeable. Call Hank 1-800-789-2323. Select Machinery, Inc. (NY)

Musical Supplies

PLANS KITS & SUPPLIES for musical instruments; harps, dulcimers, psalteries, banjos and more. Music-maker's Kits, Dept. FW, PO Box 2117, Stillwater, MN 55082. (651) 439-9120. www.musikit.com

BUILD YOUR OWN violin, guitar, or dulcimer! Free catalog featuring kits and all the tools, finishing supplies and instructions needed to build your own instrument. Stewart-MacDonald, Box 900-F, Athens, OH 45701. Call 800-848-2273. www.stewmac.com

Plans & Kits

FULL-SIZE PLANS for building fine furniture. Catalog \$3. Furniture Designs, Inc., CK-902, 1827 Elmdale Ave., Glenview, IL 60025. 1-800-657-7692. www.furnituredesigns.com

CARLYLE LYNCH MEASURED DRAWINGS—Museum and private collection furniture plans by Carlyle Lynch. Catalog \$2. P.O. Box 13007, Arlington, TX 76094. (817) 861-1619.

FULL SIZE FURNITURE LAYOUTS Drawn by: Philip C. Lowe. Catalog \$3. (978) 922-0615. 116 Water Street, Beverly, MA 01915. www.furnituremakingclasses.com

BUILD OUR HEIRLOOM QUALITY wooden geared clock movement kit for your own grandfather clock case. Serenity from a simpler time. www.greyfoxwoodworks.com

Publications

NEW BOOK! *Australian Woodturning Projects* from the publishers of *Australian Wood Review*. See information and order from: www.woodreview.com

Wood

OSAGE-EXTRAORDINARY SIZE, ten year seasoned, sell or trade for antique clocks, call for details: Henry Stegeman (716) 434-8057.

OREGON'S FINEST MAPLE, redwood and buckeye burl. Quality materials for the carver, turner & box maker. Lumber available in fiddleback & curly maple 4/4 to 16/4. (503) 394-3077. www.burlwoodonline.com

SAWMILL DIRECT 100 species of exotics, turning, lumber, logs, slabs, musical instruments
TROPICAL EXOTIC HARDWOODS: Toll Free (888) 434-3031. www.anexotichardwood.com. See our other ad in this issue for more information.

FOREST COUNTY WOOD PRODUCTS: Tionesta, PA. 30+ species- basswood, butternut, willow, mahogany, etc. 800-541-2378. fcwp@benn.com

CUBAN MAHOGANY VENEER (Swietenia Mahogoni) widths to 26-in. flitch prices available. Frank: (707) 744-1530. (CA)

NEWTON WOODS has fine black walnut veneer and furniture grade lumber. Unique figure. Also; mandrone, laurel, Red River gum burl and more. Phone (559) 277-8456 or go to www.walnutwoods.net

BIRD'S-EYE AND CURLY MAPLE, 4/4 to 12/4 lumber, flitches, turning squares and blocks. Black walnut, cherry/quartersawn, and curly oak lumber. Dunlap Woodcrafts, Chantilly, VA. (703) 631-5147.

FINEST RED TEXAS MESQUITE Curly/straight grain. Prices start at \$6.50. 1-866-TEX-WOOD www.texaswoodworks.com

CHESTNUT SPECIALISTS INC. Original plank, resawn or dimensional chestnut, oak and pine reclaimed antique lumber. Kilns drying. (860) 283-4209.

WALNUT SLABS/CROTCHES 18-in. to 80-in. wide to 16-ft. long. Figured claro, myrtle, elm, sycamore. Black acacia. (408) 847-8433. 877-wal-slab. From our sawmills. Gilroy, CA. www.bakerhardwoods.com

ATTENTION VA/MD AREA WOODWORKERS. K/D quartersawn sycamore, red & white oak. Cherry, walnut, elm, apple, and other domestic hardwoods. Herbine Hardwoods, Leesburg, VA. (703) 771-3067.

CALIFORNIA'S FINEST BURLWOODS: Massive inventory, many varieties, all sizes, any use, direct, guaranteed. Established 30-years. Burl Tree, 800-785-BURL.

FIGURED CLARO WALNUT slabs, planks, blocks, dimensions suitable for small to very large projects. California Walnut Designs. 800-660-0203. www.woodnut.com

REDWOOD BURL, RARE EXOTIC burlwood. Direct from logger. Table and clock slabs, turning blocks, box-wood! Burl Country: (707) 725-3982. Fax 707-725-3306. (CA)

FLORIDA'S FINEST 100+ species, great quality inventory, sizes: personal selection/service. ALVA HARDWOODS, (239) 728-2484, 1-888-894-6229.

DOMESTIC AND IMPORTED EXOTICS. For musical instruments, pool cues, knife handles and custom furniture. Price list. Exotic Woods, 1-800-443-9264. www.exoticwoods.com

LONGLEAF (HEART) PINE LUMBER. Resawn from salvaged timbers. Lumber, flooring, stair-tread material and hardwood bow-staves. Lee Yelton: (706) 541-1039. (GA)

EISENBRAND EXOTIC HARDWOODS. - Widest selection anywhere. Domestic/imported. Reasonable prices. Quality guaranteed. FREE brochure. Info - (310) 542-3576. Orders - 800-258-2587. (CA) www.eisenbran.com

FLORIDA—FROM ASH TO ZEBRAWOOD with milling available, including custom, antique restoration and curved moldings. Hardwood Lumber of Lakeland. (863) 646-8681. FREE 877-710-3900.

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

TIGER MAPLE, MAHOGANY, CHERRY; plain and figured. Wide boards, matched sets. 4/4 to 24/4. 200-ft. minimum. (570) 724-1895. www.ironlumber.com

INDEX TO ADVERTISERS

Use reader service card - inside back cover.

For quick access to their websites, go to ADVERTISER INDEX at www.finewoodworking.com

Reader Service No.	ADVERTISER, page #	Reader Service No.	ADVERTISER, page #	Reader Service No.	ADVERTISER, page #	Reader Service No.	ADVERTISER, page #
	Abacus, p. 11	149	Felder USA, p. 92	52	Mass Bay WoodProducts, Inc., p. 105	113	Talarico Hardwoods, p. 104
68	Adams Wood Products, p. 17	42	Festool, p. 97	72	McFeely's Square Drive, p. 87	47	Target Enterprises, p. 82
31	Airware America, p. 104	143	Forrest Manufacturing, p. 83	114	Microplane, p. 9	198	Tech Mark, Inc., p. 11
180	Akeda, p. 99	85	Frank's Cane & Rush Supply, p. 9	185	Micro-Rip 2000, p. 106	167	Tech-Wood, Inc., p. 104
110	Allred & Associates, Inc., p. 21	151	Freud, p. 15	144	Mini Max USA, p. 9	59	Tenryu America, Inc., p. 25
100	American School of French Marquetry, p. 103	140	Fuji Industrial Sprayers, p. 80	87	Mini Max USA, p. 81	88	Thewindsorinstitute.com, p. 106
77	American Craft Council, p. 102	109	The Furniture Institute of Mass., p. 106	125	Misugi Designs, p. 102		Thomas Golding School, p. 105
30	American Furniture Design, p. 103		<i>Fine Woodworking on CD, p. 12</i>	136	Molding Knives.com, p. 93	90	TigerStop, p. 102
205	Apollo Spray, p. 25		GRS Tools, p. 95		The Museum of Woodworking Tools, p. 102	176	Titebond Adhesive, p. 81
200	Ashman Technical, Ltd., p. 7	175	General Manufacturing Co., Ltd., p. 101	9	Noah's, p. 102	176	Titebond Adhesive, p. 91
135	Australian School of Fine Furniture, p. 17	111	Gilmer Wood Company, p. 106	196	North Bennet Street School, p. 102	176	Titebond Adhesive, p. 99
		123	Goby's Walnut Wood Products, p. 106	142	Northend Hardwoods, p. 25	44	The Tool Chest, p. 102
55	Ball & Ball, p. 27	12	Good Hope Hardwoods, p. 104	57	Northland Forest Products, p. 104	7	Tool Dock, p. 17
116	The Bartley Collection, Ltd., p. 106	84	Gorilla Glue, p. 93	173	Northwest Timber, p. 101	152	Toolcrib.Amazon.com, p. 94
107	Bauhaus Apprenticeship Institute, p. 105	33	Gougeon Brothers, p. 105	122	Norwood Sawmills, p. 104	193	Tropical Exotic Hardwoods, p. 103
174	The Beall Tool Co., p. 106	32	Groff & Groff Lumber, p. 82			187	Tyler Tool Company, p. 87
46	Belcher Veneer Co., p. 105		Guitar Making, p. 104	39	Oakwood Veneer, p. 103		
157	Bench Dog, p. 87	29	HTC Products, Inc., p. 82	98	Oldham Saw, p. 89	78	Vac-U-Clamp, p. 82
1	Berea Hardwoods, p. 23	15	Halder, Inc., p. 103	6	Omer Direct, p. 11	54	Vacuum Laminating Technology, Inc., p. 21
2	Berea Hardwoods, p. 80	150	Hammer USA, p. 7	194	Oneida Air Systems, p. 25	69	Valley Custom Door, p. 103
179	Better Built Corp., p. 95	14	Harris Enterprise Corp., p. 102	132	The Original Saw Company, p. 97	126	Vari-Fence Systems, Inc., p. 106
	BrandNew Industries, p. 104	79	Hearne Hardwoods, Inc, p. 27	138	Originalfurnitureplans.com, p. 104	62	Vass, Incorporated, p. 27
159	Brookside Veneers, Ltd, p. 25	102	HerSaf/Safrank, p. 94			40	Virutex.com, Inc., p. 91
	Cabinetparts.com, p. 103	171	Hida Tool & Hardware, p. 101	5	Packard WoodWorks, p. 104		
169	Carter Products, p. 81	63	Highland Hardware, p. 99	124	Philadelphia Windsor Chair, p. 103	86	W. Moore Profiles, p. 25
80	Certainly Wood, p. 105		Homestead Heritage Craft Center, p. 106	24	Plans Now, p. 106	21	WGB Glass, p. 82
96	The Chippendale School of Furniture, p. 27	213	Hut Products, p. 7	133	Pootatuck Corporation, p. 104	121	Waterlox Coatings Corp., p. 27
195	Classic Designs by Matthew Burak, p. 80			104	Porter-Cable, p. 13	146	West Penn Hardwoods, p. 104
28	Clayton Machine Corp., p. 82	53	Iturra Design, p. 7	153	Porter-Cable, p. 111	83	Whitechapel, Ltd., p. 23
190	Cohasset Colonials, p. 93	148	J.B. Dawn, p. 104	128	Pygmy Boats, Inc., p. 102		Wild Goose Carvings, p. 9
76	Colonial Saw Company, p. 27	3	The Japan Woodworker, p. 23			106	Wilke Machinery Co./ Bridgewood, p. 87
156	Colonial Times Clock Company, p. 105	210	Jet Equipment, p. 31			163	Williams & Hussey, p. 81
120	Columbia Forest Products, p. 21	127	Jointech, p. 80			50	Wood River Veneer, p. 105
172	Conover Workshops, p. 105	203	Jordan Wood Boats, p. 103	64	Quick Wood Epoxy Sticks, p. 104	101	Woodcraft School of Fine Woodworking, p. 103
65	Cormark International, p. 104			13	Rare Earth Hardwoods, p. 102		Woodcraft Supply, p. 11
105	Crown Plane, p. 105	10	Katie Jig, p. 25	8	Red Hill Corporation, p. 27	202	Woodcraft Supply, p. 97
	Cut List Plus, p. 105	34	Kayne & Son, p. 102	66	Ridge Carbide Tool Co, p. 102	18	Woodjoy Tools, p. 102
43	Cut-N-Sand, p. 3	191	Kreg Tool Company, p. 17		Ridge Publishing Group, Inc., p. 17	165	Woodmaster Power Tools, p. 17
168	The Cutting Edge, Inc., p. 105	141	Kremer Pigments, p. 102	38	Robert Larson Company, p. 102	164	Woodmaster Power Tools, p. 91
		183	Kuffel Creek Press, p. 99	93	Roberts Plywood Co., p. 23	81	Wood-Mizer, p. 23
22	Dakota County Technical College, p. 3			11	Rockingham Community College, p. 102		Woodpeckers, p. 82
61	Dana Robes Wood Craftsmen, p. 105	207	Laguna Tools, p. 85	49	Ronk Electrical Industries, Inc., p. 81	94	Wood-Ply Lumber Corp., p. 104
139	Delta Machinery, p. 2	206	Laguna Tools, p. 95	130	Rosewood Studio, p. 101	186	WoodRat, p. 23
45	Dewalt, p. 19	155	Lee Valley & Veritas, p. 80	118	Router Bits on the Web, p. 99	145	Woodsmith Store, p. 82
188	Dewalt, p. 93		Leigh Industries, p. 26			23	WoodsmithStore.com, p. 103
147	Diefenbach Benches, p. 103	97	Leigh Industries, p. 97			199	Woodstock Products, Inc., p. 106
	Diefenbacher Tools, p. 104	117	Librawood, p. 103			26	Woodworker's Depot, p. 97
92	Dimestore Cowboys, p. 106	67	Lignomat Moisture Meters, p. 94			56	Woodworkers Discount Books, p. 103
212	Dowelmax, p. 103		Lionel Hastings & Company, p. 87	41	Sandy Pond Hardwoods, p. 104	204	Woodworker's Hardware, p. 3
73	Dust Boy, Inc., p. 103	99	Logosol, p. 101	208	Sauers & Co. Processed Veneers, p. 102	17	Woodworker's Source, p. 103
		71	Luthiers Mercantile Intl., p. 101	160	Sawhelper, p. 3	19	Woodworker's Supply, p. 27
48	Eagle Tools/EuroShop, p. 93			129	Scherr's Cabinet & Doors, Inc., p. 23		Woodworking Shows, p. 105
82	Eagle Woodworking, p. 104	60	M.L. Condon Lumber, p. 91	214	Seven Corners Hardware, p. 23	25	Worcester Center for Crafts, p. 11
	Electrophysics, p. 91	115	MEG Products, p. 105	189	Shaker Workshops, p. 99	119	World Timber Corp., p. 103
170	Engraving Arts, p. 106	103	Mao Shan Machinery, p. 91	27	Sharp Tools USA, p. 105		
131	Everlast Saw & Carbide Tools, p. 27		Marc Blanchette Windsor Chair, p. 105	36	The Shepherd Tool Co., p. 3	16	Yankee Hardwood Specialties, p. 105
				192	Simp'l Products, Inc., p. 87	74	Yesterday, p. 25
				154	Specialty Tools, p. 106		
				162	Suffolk Machinery, p. 102		
				75	Super Shop by Smithy, p. 91		
				197	Sutherland Tool, p. 103		

Finish Line

A versatile 18th-century stain

BY DAVID SALISBURY

In the cabinetmaker's shop at Colonial Williamsburg, where I have worked for more than 25 years, our goal is to replicate as nearly as possible the furniture-making methods used in Virginia between 1750 and 1776. This means that we eschew tablesaws for handsaws, the only router that we use is the hand-powered router plane, and all of our finishes are traditional.

When I started working at the cabinet shop, we were using aniline dyes that were not available until the late 1800s. So after studying the few contemporary descriptions of 18th-century woodworking stains, I began to do my own experiments.

About 15 years ago our shop made two mahogany tables for one of the historical houses in Williamsburg. The wood we had was very light colored and did not have the prized, and historically accurate, red color. That was when I decided to try staining using an 18th-century method.

One stain makes many colors

The most popular way to stain a wood red was to use the sawdust from brazilwood, now known as pernambuco. In the interests of authenticity, at Colonial Williamsburg we still use brazilwood sawdust, but a quicker alternative is to buy brazilwood extract. This stain will produce completely different colors, depending on which mordant is used to pretreat the wood.

A mordant, from the French infinitive *to bite*, not only chemically reacts with the

stain but also helps it to penetrate the wood and bind with the fibers. This combination of stain and mordant gives the striking, deep colors that would not be possible using a stain alone.

It is critical to experiment on scrap to find the color you are seeking. The recipes on p. 110 (one for red stain; the other for black) should only be considered as guides. To avoid the risk of chlorine or other chemicals interfering with



Choose your color



Brazilwood extract produces different-colored stains based on which mordant is applied and the concentration of the liquids. Bright red to deep burgundy result from a combination of alum (potassium aluminum sulfate) and brazilwood. Copperas (ferrous sulfate) and brazilwood yield dark purple to ebony.

BEGIN BY APPLYING A MORDANT



Adding either the alum or the copperas to warm water makes the mordants dissolve faster. Use only distilled water to avoid chemical impurities. Liberally apply the mordant with a brush, making sure you cover the whole surface.



USING THE STAIN

Traditionally, brazilwood sawdust was used to stain wood red. A quicker alternative is to buy brazilwood extract. Different colors can result, depending on whether the wood has been treated with an alum or a copperas mordant before the stain is applied.



Not a flawless finish. When brushing on the brazilwood stain, don't worry about air bubbles or the grainy appearance of the finish. Work fast to maintain a wet edge. While the stain is still wet, wipe off the surplus with a clean, dry cloth.



the process, use only distilled water when making the mordant and the stain. Heat the water until you can just put your finger in it, then add the chemicals or the brazilwood extract, stirring thoroughly. Warm liquid is more likely to raise the grain, so after the compounds dissolve, stand the jars aside to cool.

Raise the grain, sand the wood

Using a water-based stain in liberal quantities raises the grain. Any sanding done after the stain is dry is likely to cut through to bare wood, and it is almost impossible to touch up a stain without redoing the entire

surface or creating a blotchy appearance. To avoid these problems, take the time to preraise the grain with warm water and sand the wood thoroughly smooth, at least two or three times.

First the mordant, then the stain

Apply the mordant with an old or cheap brush, swirling the container often to keep the mineral in suspension. After the mordant has dried, which takes about an hour, apply the stain. Work quickly so that you maintain a wet edge and avoid streaking. The mixture tends to settle, so stir it often. Don't worry about the grainy texture of

the surface or try to brush out any bubbles; these blemishes will be removed when you wipe the surface with a clean, dry cloth.

If you miss a spot or work on an area too large to maintain a wet edge, wet the unstained area with a cloth soaked in distilled water and then apply the stain. This lessens any chance of leaving streaks. If you end up with streaks or blotching, remove the stain with a wet cloth before the stain can dry, then start again. If you want a darker appearance, apply a second coat of stain after wiping down the first coat and letting the surface dry.

The application method for the black stain is the same as that for the red stain, except that copperas is used as the mordant. To obtain a really black look, two or even three coats of the stain may have to be applied.

Sealing and finishing

If you preraised the grain, the surface should remain fairly smooth, but if you detect some roughness, resist the urge to sand it and risk cutting through the stain.

Instead, apply two or three coats of shellac to seal the finish and then sand the surface smooth. For other types of topcoat finishes, make sure the previous coat is dewaxed shellac that is sanded to allow good bonding. □

Recipes

RED

Stain: 2 tbsp. brazilwood extract, 8 oz. distilled water, mixed together

Mordant: 2 tsp. alum, 8 oz. distilled water, mixed together

BLACK

Stain: 4 tbsp. brazilwood extract, 8 oz. distilled water, mixed together

Mordant: 1½ tbsp. copperas, 8 oz. distilled water, mixed together

SOURCES OF SUPPLY

Earth Guild (800-327-8448; www.earthguild.com) sells 4-oz. containers of alum for \$1.60 and 4-oz. containers of copperas for \$2.20.

Kremer Pigments (800-995-5501; www.kremer-pigmente.com) sells brazilwood extract in 100-gram bags for \$10.80.

FROM OAK TO PINE AND EVERY WOOD IN BETWEEN.



Model 9690VSK

INTRODUCING THE **NEW** VARIABLE SPEED ROUTER FROM PORTER-CABLE. NOW WITH A FREE EDGE GUIDE.

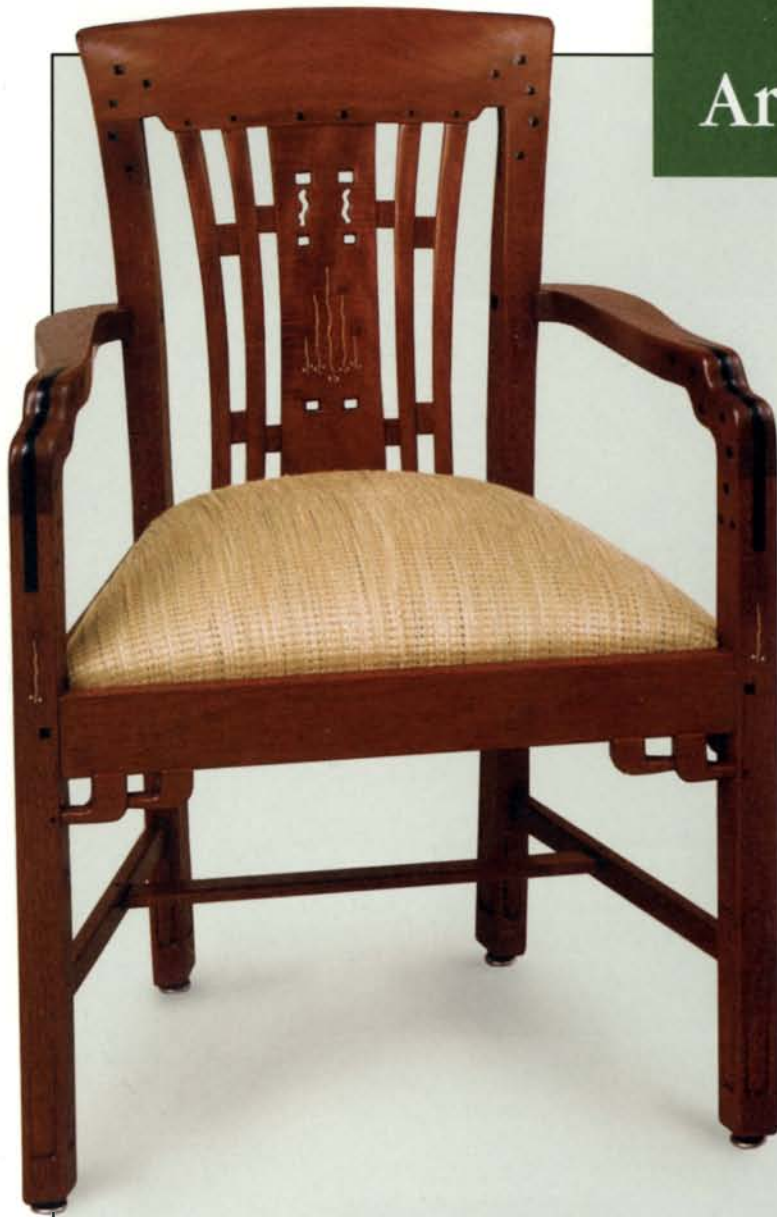


With variable speeds of 10,000 - 27,500 RPM, the 9690VSK has the versatility to handle any job. It also has the power of an 11 amp 1 3/4 HP motor. And now through Dec. 31, 2002, it comes with a free edge guide. All this in a convenient carrying case. For your nearest dealer, call 1-800-4US-TOOL.

READER SERVICE NO. 153

**PORTER
CABLE**

Armchair Woodworker



There's a fair amount of reproduction furniture being built in the Greene and Greene style, specifically pieces inspired by furniture from the brothers' famed Blacker House in Pasadena, Calif. Few, if any furniture makers, however, go to extremes to replicate the originals like Watertown, Mass., craftsman David B. Hellman. His Blacker House living-room armchair just demands to be touched, so organic are its lines and details. The chair's crest rail, with its big sweep and backward curl, looks as if it were shaped by years of wear, not merely carved out of a thick piece of mahogany. The

inlays flow in random, natural lines and thicknesses, possible only through painstaking handwork. And the legs, which might look square in a photograph (depending on the view), are actually parallelograms. No shortcuts were taken at the interface between chair and person: The seat contains hand-tied coil springs and traditional materials. Photos: Lance Patterson