

WOODWORKER'S JOURNAL

"America's leading woodworking authority"™

THE BIG ROUTER ISSUE



Classic Highboy Part II
(page 30)

6 Dovetail Jigs
Routers to the rescue



Bookshelves

• Easy-to-build • Modular
(page 44)

December 2009



Display until January 5, 2010



WIFE APPROVED

THE NEW SAWSTOP PROFESSIONAL CABINET SAW: AFFORDABLE SAFETY AND PERFORMANCE

Listen up guys, your wife is going to love this saw — maybe even more than you do. First, it stops on contact with skin and prevents serious injuries. Second, it's an awesome saw — powerful, well-built, durable. Finally, it's priced about the same as other cabinet saws, so why not choose the one that also comes with peace of mind?



Go to sawstop.com/wifeapproved and we'll send her a persuasive information kit, including a DVD that will close the deal.

(Circle No. 59 on PRODUCT INFORMATION form)



Watch the MirrorCoat Application Video at www.systemthree.com



MIRRORCOAT

POURABLE, SELF-LEVELING BARTOP COATING

Pourable Perfection

MirrorCoat is specially formulated to create glossy, high build resin surfaces on bars, counters and tabletops. Pour a perfect durable, smooth, glossy finish on many surfaces such as wood, ceramics, plaster and masonry.

MirrorCoat is pourable, self-leveling, scratch and stain resistant as well as alcohol and water proof.



SYSTEMTHREE Find a dealer near you at: systemthree.com Or call 800.333.5514

©2007 System Three Products, Inc. All Rights Reserved.

(Circle No. 66 on PRODUCT INFORMATION form)

SOMMERFELD'S TOOLS

For Wood

Cut 5 Different Dovetail Joints With The Sommerfeld KatieJig®

Cut Perfect Dovetails with Sommerfeld's New Katie Jig®

On your bench or on your router table the remarkable, easy-to-use Katie Jig® makes quick work of complicated dovetail joints!

- **New Half Blind Accessory** - Now you can cut half blind dovetails on your Katie Jig!
- **No complicated assembly** - Just take it out of the box and use it immediately.
- **No lengthy manual to read** - Just a few pages of clear, easy-to-follow directions show you how to use the jig.
- **One set-up to cut pins & tails** - All other dovetail jigs need two set-ups to complete both parts of a joint.



ITEM # 20KJ

The New Katie Jig®

Only **\$219.⁰⁰**



Dovetails Made Easy DVD with the KatieJig Only \$9.⁹⁹

ITEM # DVD8



For a **FREE** Catalog call today...

Source Code WWJ1209

Toll Free 888-228-9268 • www.SOMMERFELDTTOOLS.com

(Circle No. 63 on PRODUCT INFORMATION form)

GREX

GREX 23 GA. HEADLESS PINNERS

A BETTER WAY TO JOIN WOOD




BEST NEW TOOL
Woodworking

2008
WOODWORKING
BEST

READER'S CHOICE
2008

P650
3/8" - 2"

P645
3/8" - 1-3/4"

P635
3/8" - 1-3/8"

P630
3/8" - 1-3/16"

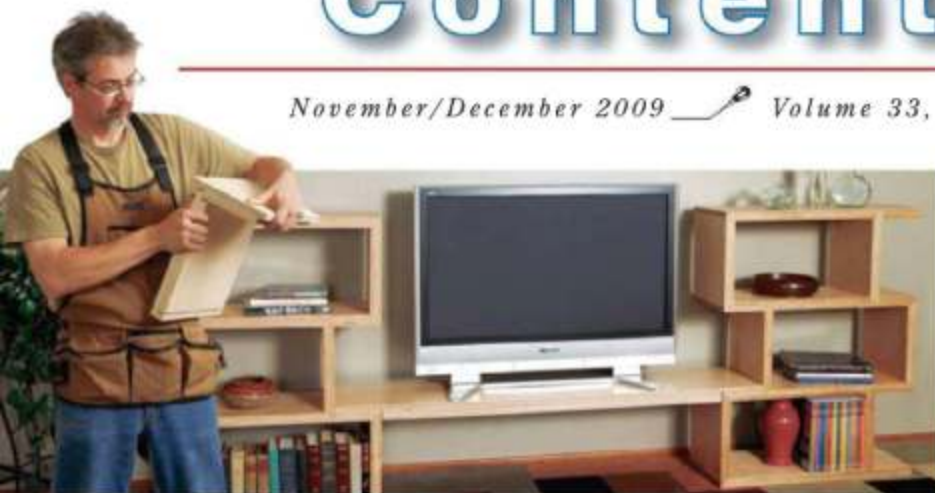
"THE INVISIBLE FASTENER"
IN THE SHOP & ON SITE,
FROM 3/8" FOR FINE WORK,
UP TO 2" FOR BASEBOARDS
& CROWN MOLDING.

888-4GREXCO (447-3926) • www.grexusa.com

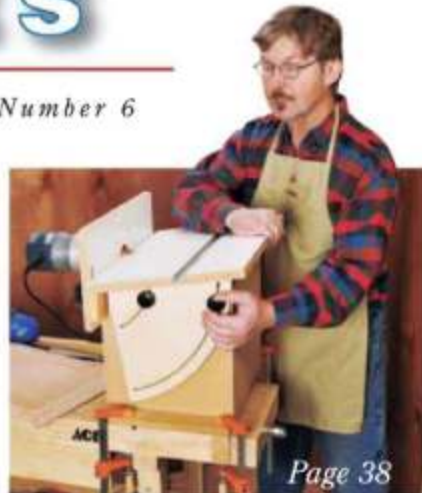
(Circle No. 35 on PRODUCT INFORMATION form)

Contents

November/December 2009  Volume 33, Number 6



Page 44



Page 38



Page 30



Page 23

23 Table-sawn Picture Frames

By Chris Marshall

Form all your frame's profiles and joinery with a table saw.

30 Queen Anne Highboy (Part 2)

By Kerry Pierce

Completing the highboy with dozens of dovetails.

38 Horizontal Tilt-top Router Table

By Sandor Nagyszalanczy

Our author brings a whole new slant to a sweet little router table.

44 Modular Bookcases

By Rob Johnstone

Flexible and functional: configure bookcases for your needs.

Departments

8 Editor's Note

Mock-ups: beyond the napkin.

10 Tricks of the Trade

Time-saving tips.

12 Letters

A tree's true measure.

16 Questions, Answers and Stumpers

Router bit reasons.

20 Shop Talk

Uncommon woods: mesquite and sumac.

50 Tool Review

Six unique jigs make dovetail joinery "outside the box."

62 Today's Shop

Our expert considers router table features and options.



Page 50

70 What's In Store

Routing tools and more new items.

76 Finishing Hotline

Exterior project: tung oil, linseed oil — or neither?

78 Skill Builder

Box and finger joints.

Page 62



How Do You Turn Your Home's Interior From Ordinary To *Extraordinary?*

With Freud's Architectural Millwork Router Bits!

Turn your home's interior from ordinary to **EXTRAORDINARY** by customizing your trim with Freud's new Architectural Millwork Router Bits! With Freud's new router bits, you will be able to completely customize any room in your house with unique trim in your choice of high quality, stain-grade wood for a *truly exceptional, one-of-a-kind look!*

Now anyone with a 2-1/4 HP router and router table can make **casing, wainscoting, chair rails, baseboards, crown molding, entry & interior doors, French doors and more** from any wood species. Finally, you are able to achieve the design profiles you want for a fraction of the cost of molding from a custom millwork shop.

Don't settle for MDF moldings – Get the natural, beautiful stain-grade wood you've always wanted with the profile that matches your style.

(Circle No. 31 on PRODUCT INFORMATION form)



1-800-334-4107
www.freudtools.com/architectural

freud[®]
Precisely the best.

Enter to win the *Woodworker's Journal* High-tech Tool Giveaway

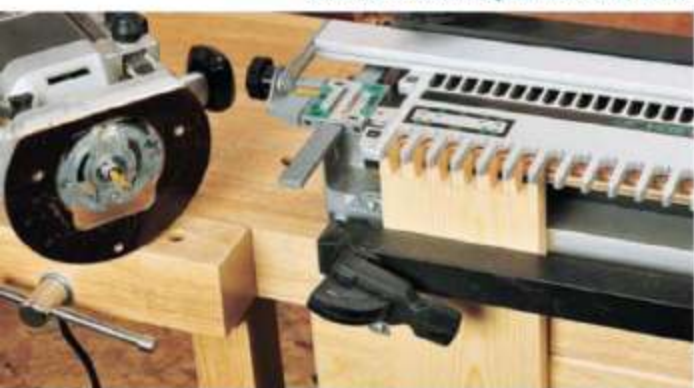


**WIN the Complete
TEK4 Cordless Tool
Line from RYOBI**

- Enter by December 31, 2009
- Tool Value: \$825

SIGN UP TODAY AT:
www.woodworkersjournal.com/ezone
Complete rules on sign-up page

www.woodworkersjournal.com/ezone



www.woodworkersjournal.com/MoreOnTheWeb

**WOODWORKER'S
JOURNAL**
"America's leading
woodworking authority"



Here, on one CD, are some of the all-time shop favorites from Woodworker's Journal magazine. Easy to search, easy to print! You get:

- 35 great woodworking projects
 - Over 100 great ideas for your shop
 - Shop tips, tricks and much more
- www.woodworkersjournal.com
© Copyright 2009 Woodworker's Journal

www.woodworkersjournal.com/workshop_projects

eZine

Our bi-weekly electronic magazine

- Sweepstakes! Win Ryobi's TEK4 cordless tools
- New! Bi-weekly contests for our readers
- Free downloadable plans
- Early info on new tools
- Photos of readers' projects, games and more

www.woodworkersjournal.com/ezone

More on the Web

MORE ON THE WEB

Online resources on woodworking

- Dovetail jigs: check out our comprehensive list
- Skill Builder: techniques and tools for box and finger joints
- Dish Carving Bit: scoop out smooth serving trays with your router — no hand carving and scraping

www.woodworkersjournal.com/MoreOnTheWeb

QUIK-LINK

QUIK-LINK

Products in this issue — one click away

- Tool Review: unconventional dovetail jigs
- What's In Store: shopping for your shop

www.woodworkersjournal.com/QuikLink

WWJ Store

WWJ STORE

Project plans, books, back issues and more

- NEW CD! Workshop Projects (35 projects)
- Router table hardware options
- Project plans: downloadable or pre-printed

www.woodworkersjournal.com/WWJStore

Social Networking

Friend us, follow us, read our blog: keep up with all things woodworking when you find *Woodworker's Journal* on Facebook®, Twitter and our staff blog.
www.facebook.com/woodworkersjournal
www.twitter.com/woodworkersjrnl
www.woodworkersjournal.com/blog

facebook

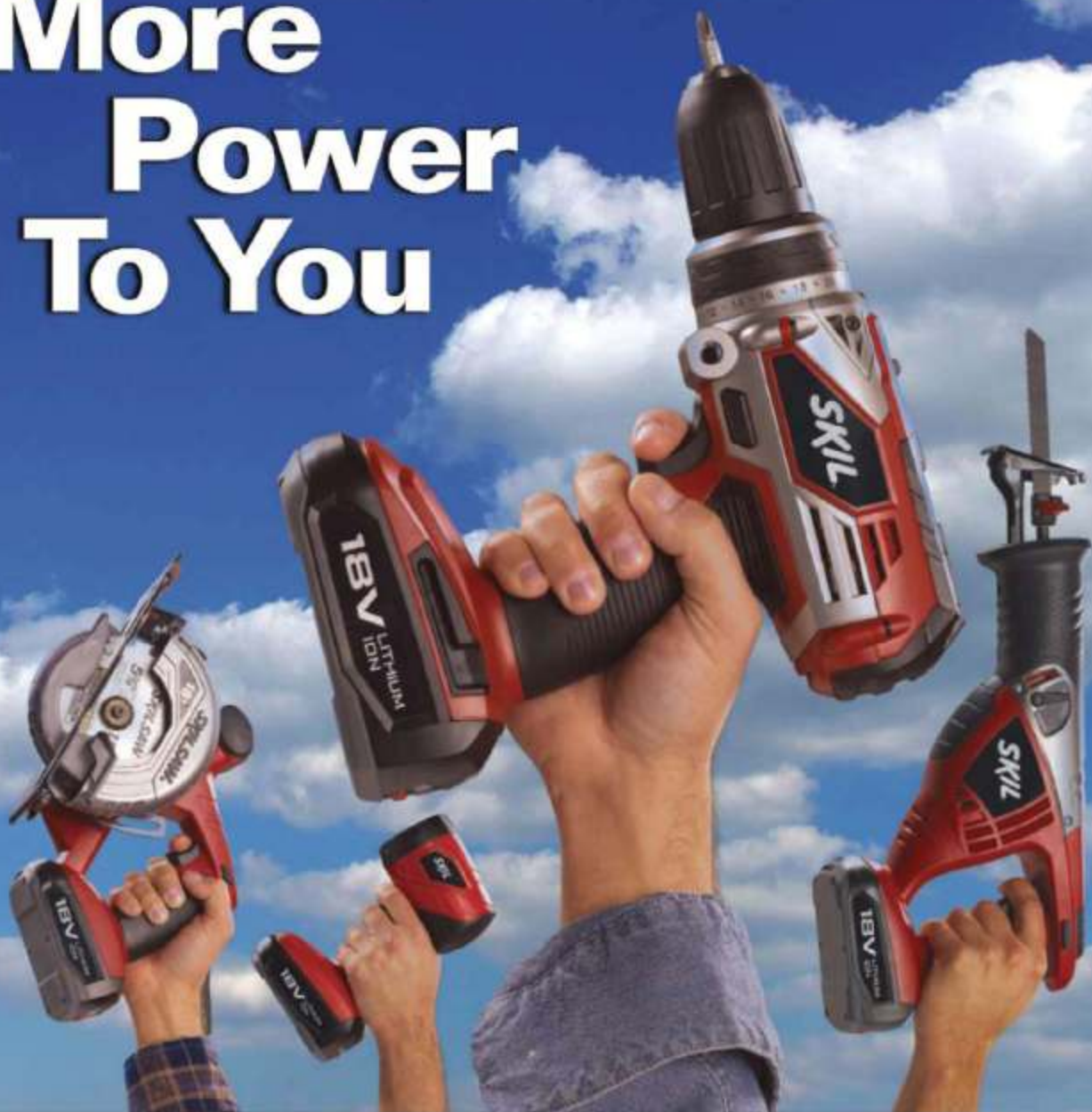
twitter



ROCKLER PRESS THE VOICE OF THE WOODWORKING COMMUNITY

Woodworker's Journal (ISSN: 0199-1892), is published in February, April, June, August, October and December by Rockler Press Inc., 4365 Willow Dr., Medina, MN 55340. Periodical postage paid at Medina, Minnesota and additional mailing offices. Postmaster: Send all address changes to *Woodworker's Journal*, P.O. Box 8572 Red Oak, IA 51591-1572. Subscription Rates: One-year, \$19.95 (U.S.); \$25.95 U.S. funds (Canada and other countries). Single copy price, \$5.99. Reproduction without permission prohibited. Publications Mail Agreement Number 0861065. Canadian Publication Agreement #40009401. ©2009 Rockler Press Inc. Printed in USA.

More Power To You



A Revolution in Power Tool Technology

Finally a line of power tools that brings the next level of performance to the masses. SKIL Lithium-Ion battery technology provides a powerful product that holds a charge 4X longer and is 50% lighter...without the professional price tag. Empower yourself – join the SKIL revolution today.

For product details, visit www.skiltools.com

SKIL

Do it right. Do it with SKIL™

Available at



(Circle No. 61 on PRODUCT INFORMATION form)

PowerPLUS
LITHIUM → COMPATIBLE → NiCAD



Mock-Up for Real Success

When a woodworker's daughter comes to him and mentions — in an offhand manner — that she is shopping (spending money!) for some cool new bookcases, an entirely predictable series of events occur with the inevitability of those in a Greek tragedy. "What kind of bookcase are you looking at?" ask I, a bit miffed that she would even consider shopping for what I could build.

"Well, I haven't found exactly what I want," answers she, with a bit of a wistful expression. (Aha! I knew she needed my assistance, think I!)

Next there is Molly's pencil sketch, on a napkin or other unlikely material, followed up by a series of sketches by her woodworker-dad. However, if said dad just happens to be the editor in chief of a woodworking magazine, sometimes those sketches end up at the office, and next thing you know, you and your staff are in your shop, surrounded by piles of MDF mock-ups of a hip-looking modular bookcase.

Which brings me to the point of this editorial. If you are a woodworker who likes to design your own

projects, drawings — while essential — are just part of the process. Mock-ups are the most essential step that you can take before building. As my friend, master woodworker and designer Ian Kirby, has said: "The mock-up makes the transition from what you *thought* might be a well proportioned piece to *knowing* that the real thing will be well-proportioned."

This is true even for dads who have been woodworking for 30 years. In this

case, my original concept was for two four-rectangle-tall freestanding bookcases. When art director Jeff Jacobson and publisher Larry Stoiaken's ideas were added to the mix, there were a few changes. We agreed that three units tall would be more practical. The opportunity to join the two units with a horizontal shelf added even more functionality. (Entertainment center, anyone?) My 20-something daughter's desire for a modern, clean look led us to the choice of ApplePly with solid veneer edges exposed.

And that is how the *Woodworking for Your Home* (actually, Molly's home) project was developed for this issue. Here's to woodworkers' daughters.



Mock-ups allow you to test concept ideas in three-dimension.

NOVEMBER/DECEMBER 2009

Volume 33, Number 6

ROB JOHNSTONE *Editor in Chief*

JOANNA WERCH TAKES *Senior Editor*

CHRIS MARSHALL *Field Editor*

JEFF JACOBSON *Senior Art Director*

JOE FAHEY *Associate Art Director*

MATTHEW BECKER *Content Coordinator*

HALEY ODORIZZI *Editorial Intern*

LARRY N. STOIAKEN *Publisher*

DANA SEVERSON *Advertising Director*

ALYSSA TAUER *Advertising Operations*

MARY TZIMOKAS *Circulation Director*

KELLY ROSAEN *Circulation Manager*

LAURA WHITE *Fulfillment Manager*

Founder and CEO

ANN ROCKLER JACKSON

Editorial Advisors

NORTON ROCKLER JOHN KELLIHER

Contributing Editors

MICHAEL DRESDNER RICK WHITE

GEORGE VONDRISKA

ADVERTISING SALES

J.F. Van Gilder Company
12740 Hillcrest Plaza Dr., Suite 295
Dallas, Texas 75230

DAVID BECKLER david@jgco.com

JACKIE SMITH jackie@jgco.com

JIM VAN GILDER jim@jgco.com

Phone: (972) 392-1892

Fax: (972) 392-1893

Member



Audit Bureau of Circulations

EDITORIAL INQUIRIES

ROB JOHNSTONE

rjohnstone@woodworkersjournal.com
763-478-8255

JOANNA WERCH TAKES

jtakes@woodworkersjournal.com
763-478-8303

CHRIS MARSHALL

cmarshall@woodworkersjournal.com
614-746-2985

SUBSCRIPTION INQUIRIES

(800) 765-4119 or

www.woodworkersjournal.com

Write *Woodworker's Journal*, P.O. Box 8572

Red Oak, IA 51591-1572, email:

WWJcustserv@cdsfulfillment.com. Include mailing label for renewals and address changes. For gift subscriptions, include your name and address and your gift recipient's.

BOOK SALES AND BACK ISSUES

Call: (800) 610-0883

www.woodworkersjournal.com

VISIT OUR HOME PAGE:

www.woodworkersjournal.com

©2009 Rockler Press Inc.

Printed in USA



Funny, the stain that protects family heirlooms can also protect your family business.

- Finest grade pigments and oils.
- ColorFast fade resistant technology.
- Consistent quality and color in every can.
- Innovative products and technology to meet the demands of today's pro.
- To learn more, visit cabotstain.com. Or call 1-800-US-STAIN.



OUR PERFORMANCE IS LEGENDARY.™

(Circle No. 70 on PRODUCT INFORMATION form)

Slick Solutions that Save Time



Slicker Surfaces with Wax Paper

Rubbing wax paper on your table saw, jointer or planer tables will keep them slippery smooth and rust-free. It's a good substitute for paste wax.

*Roger Davidson
Tigard, Oregon*

*Give your stationary
tools a wax paper
massage.*

Web Tool Inventory

We all should take pictures of our tools for insurance purposes, but don't store the photos in your shop or house. Here's a better solution: create an email account on your favorite web browser to use as an online tool inventory. Then, email each of your digital photos to this account, with the name of the tool identified on the "subject" line. Create a spreadsheet that catalogs the photos, and email that to your tool account as well. Now, in the event of a fire or theft, you can access your inventory from wherever you are whenever you need to. Be sure to log in to the account periodically to keep it active.

*Serge Duclos
Delson, Quebec*

Tack Your Tails

When I have a lot of dovetailed drawer boxes to assemble, I use my pin nailer instead of clamps for the glue-ups. I shoot a 1" headless pin through the top and bottom of each dovetailed corner. The tiny pins are barely noticeable, and they hold the joints securely until the glue sets. Works great for me.

*Dennis Madlem
Bristol, Indiana*



*Replace clamps
with tiny nails.*

Take Finishing to the Mat

Instead of throwing away the old plastic carpet protector mat under my desk chair, I cut it into squares for use during finishing and gluing. If you turn the mat upside down, those little plastic spikes are perfect for suspending your project above the bench so excess finish or glue has a place to pool. The spikes won't leave marks, and the mats are easy to clean with a power washer. Or, just flex them to loosen the dried buildup.

*Kenneth Dunlap
Seneca, South Carolina*



*Recycled office mats
suspend your projects
during finishing.*

Freeing Stuck Router Bits

Every so often, router bits get stuck in their collets — especially with older collets that aren't self-releasing. But, don't be tempted to grab a pliers, or you could quickly ruin an expensive bit. Instead, I unplug the router, loosen the collet nut and clamp the bit between the wooden jaws of my bench vise. Then, it's a simple matter of lifting the router carefully up and off the bit.

*Oneil Long
Mound City, Missouri*



WINNER!

In addition to our standard payment (below), Kenneth Dunlap of Seneca, South Carolina, will

also receive a **Stanley-Bostitch CPACK300 Combo Kit** for being selected as the "Pick of the Tricks" winner. We pay from \$100 to \$200 for all tricks used. To join in the fun, send us your original, unpublished trick. Please include a photo or drawing if necessary. Submit your Tricks of the Trade to *Woodworker's Journal*, Dept. T/T, P.O. Box 261, Medina, MN 55340. Or send us an email: tricks@woodworkersjournal.com

NOW AVAILABLE
AT



ROCKLER
WOODWORKING AND HARDWARE



JOIN THE SANDING REVOLUTION!

- **Quick & Simple** — Peel and stick the sanding sheet and you're ready to sand; no clips, nuts or bolts to mess with
- **Innovative & Unique** — Patented system ensures sanding sheet won't slip, rip or move, even when sanding in difficult corners
- **Durable & Effective** — Each sanding sheet can be used several times; it clogs less and works better than other sandpaper

**PEEL
STICK &
SAND**

EASY AS 1-2-3!



SANDFAST
by Red Devil

1-800-423-3845 • www.sandfast.com

(Circle No. 53 on PRODUCT INFORMATION form)



Phil DiMarchi doubted our diameters, and he was right.

Getting Our Facts and Figures Right

Um, How Big?

I appreciated T. C. Knight's article on the red oak species ("The Strong, Popular Type," August, 2009). But, I really jumped when he said some rare examples have been recorded with 20-foot diameters. I am something of a big tree fanatic and thought that 10 feet was nearer the record. Am I wrong? Are there really 20-foot-diameter red oaks?

I sincerely hope he's correct.

Phil DiMarchi
Danvers, Massachusetts

WJ Responds: *As a forester, I am accustomed to dealing in diameter measurements — circumference is of less use in my profession. So, when I found records of red oaks exceeding 20' in circumference, I habitually wrote diameter instead. Please excuse my error.*

As a matter of record, the largest recorded diameter of any Eastern hardwood was an American chestnut located near Waynesville, North Carolina. At the turn of the century it was 17' in diameter or 53' in circumference. The largest recorded red oak is currently a large Northern Red Oak near Rochester, New York, measuring 33' 9" in circumference, or a little more than 10' 8" in diameter. The largest diameter of any living tree in the East that I am aware of is a bald cypress in Holmes County, Mississippi, which is currently 17' 6" in diameter.

— T. C. Knight

No Argument Here

I agree with Russ Veinot's letter in the August *Woodworker's Journal*. I have another reason to buy American. Several years ago, I bought a 14" band saw and a mortiser from a major department store. I spent hours elongating holes and fitting parts so they were aligned. (They were made in China.) Last Christmas I received a Bench Dog router table with lift and Porter-Cable router. In one hour all was assembled and aligned perfectly with no adjustment (made in U.S.A.).

I am not a novice; I started woodworking at 7 years of age and I am now 79.

Charles Dixon
Tucson, Arizona

CarveWright Corrections

In response to "CNC Routers: Ready for Your Home Shop?" by Bill Hylton, in your August 2009 issue, LHR Technologies would like to

express our disappointment regarding the inaccurate portrayal of our products, the CarveWright & CompuCarve Systems.

The article incorrectly states the "Z-axis range of the CarveWright is a mere 1". Actually, the head of the CarveWright can handle up to a 5.5" workpiece with an additional 3.5" of Z travel. In addition, the workable area of the CarveWright is 14.5" x virtually unlimited.

Also, the author says in his piece that the CarveWright is the product of choice "if your interest is simply making signs, carving and/or cutting small parts," and he suggests that the Shark is the machine for "furniture making." In fact, many of our customers use the CarveWright to create furniture.

LHR has long considered *Woodworker's Journal* as "the source" for tool reviews.

Letters continues on page 14 ...

Mail Call! Contact us by writing to "Letters,"

Woodworker's Journal,

4365 Willow Drive, Medina,

Minnesota 55340, by fax

at (763) 478-8396 or by email:

letters@woodworkersjournal.com

We ask that all letters,

including emails, include

a mailing address and phone

number. We reserve the right

to edit for length and clarity.

The folks from CarveWright found important errors in our article last issue.



It's all in the
details



BOSTITCH® 23 Gauge Pin Nailer Kit

- Adjustable high/low power control sets pin depth without changing compressor settings
- Low profile nosepiece tapers down to contact point for a clear line-of-site
- Increased pin capacity accepts a wider range of fasteners (1/2" to 1-3/16" in length)
- Ultra quiet rear exhaust directs air away from user



© 2009 The Stanley Works

www.bostitch.com

STANLEY

BOSTITCH

(Circle No. 64 on PRODUCT INFORMATION form)

35 WORKSHOP PROJECTS

**ALL ON
ONE CD!**



- Easy to search, easy to print
- Over 100 ideas for your shop
- Tips, tricks and much more

Item #32398 ... \$14.99

**Order NOW to
qualify for FREE shipping!**

CALL 800-279-4441 and mention code WD123 or visit us online
at www.woodworkersjournal.com/workshop_projects

RIKON



12" x 16" MINI LATHE • Model 70-100

The RIKON 70-100 Woodfast Series Mini Lathe features a 12" swing, 12-position indexing head, self-ejecting tailstock, and easy access speed changes. Ability to add optional extension beds for increased capacity.



12 Position Index Head



Easy Access Speed Changes



Self-Ejecting Tail Stock

www.rikontools.com

877-884-5167

(Circle No. 79 on PRODUCT INFORMATION form)

Safety First: Learning how to operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary guards have been removed from equipment shown in our magazine. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.

The article was disappointing and not to the standards of journalism we have become accustomed to. We do thank WJ for allowing us to refute these inaccuracies and present the facts to your readers.

Kevin Corcoran
LHR Technologies, Inc.
(www.carviewright.com)

WJ Responds: I believe my article characterized both the CarveWright and the Shark fairly. I do, however, regret my conflation of the CarveWright's Z-axis range with its maximum cut depth. I'm embarrassed by the snarky "mere," and I apologize. I won't apologize, however, for my conclusion (based on actually using both units in my own shop for my own projects) that "... if I could keep just one, it'd be the Shark."

—Bill Hylton



Two of our readers suggest that we left an option out of our discussion about dealing with leftover finish.

A Finishing Thought

In regard to the August 2009 issue [*Finishing Hotline*] — If I'm going to leave my varnish for any length of time, I find the simplest way to avoid a skin forming on the top is to make sure the tin is well sealed and turn it upside down. The skin still forms, but

at the bottom, allowing access to clear varnish at a moment's notice. Just don't use your stirring stick too vigorously.

Drew McEwan
United Kingdom

NOTE: Jim Steffner of Las Vegas, Nevada sent the same advice!

A router table that thinks it's a shaper



ProMaxRT Complete
Stock No. 40-300

What do you get when you put the industry's biggest, flattest, most durable top on a rock-solid base with unrivaled storage space?

The ultimate router station

- Over 5 square feet of cast-iron work surface
- Award winning fence
- Dust collection above and below the table.
- Clever storage including pull-out router bit trays

Learn more at benchdog.com

(Circle No. 55 on PRODUCT INFORMATION form)



With over 30 years of experience in producing
lumber dryers you can count on EIP's
dependability and simplicity.



Mention this ad to receive
10% OFF your total purchase
OR FREE Shipping
Valid until 1/31/2010



We offer four models ranging from
800 BF to 10,000 BF

Ebac Industrial Products Inc

700 Thimble Shoals Blvd, Suite 109, Newport News, VA 23606-2575
Tel 757 873 6800 Fax 757 873 3632

Toll Free 1-800-433-9011 www.ebacusa.com

(Circle No. 22 on PRODUCT INFORMATION form)

CAUTION: FAST, SIMPLE SHARPENING WILL LEAD TO MORE PROJECTS

Drill Doctor
The Drill Bit Sharpener

Sharpens your dull
and broken drill bits

- E-Z Align System — assures correct sharpening alignment
- Patented dual-cam sharpening system — professionally sharpen your bits
- Diamond sharpening wheel — long lasting



See our video demos at
www.DrillDoctor.com

WORK SHARP
The Wood Tool Sharpener

Sharpens your
woodworking tools

- Fast, precise, repeatable results every time
- Air-cooled dry sharpening system — no mess
- Complete sharpening system, no jigs needed

DRILL DOCTOR and
WORK SHARP created
& assembled in the USA



See our video demos at
www.WorkSharpTools.com

(Circle No. 19 on PRODUCT INFORMATION form)

STRONG BOND

WITH LESS CLAMP TIME.



High strength with a shorter
clamp time along with no dyes for
a natural finish makes Gorilla Wood
Glue ideal for your woodworking
and building projects.

FOR THE TOUGHEST JOBS ON PLANET EARTH®

GORILLA TOUGH .COM

1-800-955-3418 Made in U.S.A.

© 2009 Gorilla Glue Company

(Circle No. 33 on PRODUCT INFORMATION form)

Good Bits about Router Bits

THIS ISSUE'S EXPERTS

Rob Johnstone is editor in chief of *Woodworker's Journal*.

Chris Paddock is director of product development (cutting tools) for Freud America, Inc.

Chris Marshall is field editor of *Woodworker's Journal* and author of several books on woodworking.

Contact us by writing to "Q&A," *Woodworker's Journal*, 4205 Willow Drive, Medina, MN 55348, by faxing us at (763) 478-8396 or by emailing us at:

QandA@woodworkersjournal.com

Please include your home address, phone number and email address (if you have one) with your question.

Q My Craftsman router served me well for 20 years, until I began using it upside-down (of course) in a router table. It seems that the clamping action of the base against the motor housing just isn't strong enough to hold the bit at the right elevation against both gravity and vibration. When I turn it on, it vibrates downward about 1/16" to 1/8". No matter how hard I crank down on the thumbscrew clamp or how well I clean the mechanism, it just won't stay set.

Is this a recognized problem with the Craftsman design, or am I missing something?

*Daryl Boggs
Fort Collins, Colorado*

A It sounds to me like your router is getting a bit flimsy in its old age. It's likely that the timing of the problem—that your router base's locking system is failing—is more coincident with your router table use than causative. You may be able to replace the thumbscrew clamp or even the whole base, locking system included, and fix the problem. With a 20-year-old



Anti-kickback design features aid safety in both large and small diameter router bits, but remember, no routing task is without inherent danger.

tool, part availability will be hit or miss. I have a 30-year-old Stanley router that suffers from the same problem. In the absence of replacement parts, I drilled out the lock-system housing and replaced it with a 3/16" carriage bolt and a couple of nuts. It's ugly and annoying to use, but it works.

—Rob Johnstone

Q Is the anti-kickback feature of router bits only important for large bits over 1 1/2" in diameter and less of a factor for smaller bits?

*Steve Frinak
Farmington Hills, Michigan*

A At Freud, we are convinced that kickback-reducing router bit design is a critical safety feature. The concept of our design is fairly straightforward: the body of the bit restricts the "bite" of the cutting edge to 1.1mm per revolution. Although no design can completely eliminate the chance of kickback, our design dramatically reduces the possibility and the effects of such an occurrence. The importance of kickback-reducing design may be greater with large-diameter bits, but it is possible for dangerous kickback to occur



Our editor's low-tech solution to an out-of-stock part.

RECALL NOTICES!

A recall is in effect involving model numbers **D51825 and D51850 DEWALT Framing Nailers** with date codes 20080249 through 20082749. The nailer can eject a fastener unexpectedly and the trigger lock-off may not function properly. For more information, visit www.DEWALT.com or call 877-437-7181.

A recall is also in effect involving the following Heat Gun models: **Milwaukee MHT3300, ACE HT3500 and Wagner HT3500**. Heat Guns continue to produce heat after the power switch is turned off. For more information, visit www.wagnerspraytech.com or call 888-925-6244.

even with relatively small-diameter bits. Therefore, Freud incorporates this feature whenever the bit diameter allows, in many cases including bits with diameters as small as 5/8".

— Cliff Paddock

Q I like to use a pattern bit on my router when making identical parts. One of my tool catalogs lists over 30 of these bits ranging in size from 1/4" to 1 1/2" in diameter. I can understand different lengths of bits to accommodate various wood thicknesses, but what's the advantage of different bit diameters?

Jim Westbrook
Canal Fulton, Ohio

A The plethora of different pattern-bit diameters is more than a marketing ploy.

Pattern bits come in a range of diameters to suit everything from tight-quarters work to heavy stock removal.

I can think of several practical reasons for owning a variety of them. First, small-diameter bits are sometimes your only solution for sneaking into those tight or tiny areas of a template where a bigger bit just can't reach. But, they're no match for making heavy cuts or routing thick workpieces with a long bit. In these situations, larger-diameter bits offer more mass and stiffness as well as a lower exit angle of the cutting flutes.

Those characteristics help reduce chattering and tearout to produce a smoother cut. Whatever pattern bits you choose, look for a shear or spiral geometry when possible. They'll give you a slicing, rather than a chiseling, action, and I've found that they up my odds for a cleaner cut on splintery woods and end grain.

— Chris Marshall

Continues on page 18 with Stumpers ...



WINNER! For simply sending in his question on pattern bits, Jim Westbrook of Canal Fulton, Ohio, wins a Steel City Bench Mortiser (Model 25200). Each issue we toss new questions into a hat and draw a winner.

**YOUR CUTS AREN'T PERFECT
BUT IT'S NOT
YOUR FAULT.**

The modern replacement for your tape measure and pencil.

And it's not your saw's fault either. The real problem... is your tape measure and pencil. Because you're measuring and marking each individual workpiece separately, you're getting small inconsistencies which add up in a hurry come assembly time. Our **Precision Trak and Stop System** eliminates this problem and helps you make perfectly accurate cuts one after another with confidence.

**Unleash the full potential
of ALL your saws!**

**Precision
Miter Gauge**

Precise miter
down to 1/10th of a
degree, right out of
the box.

**Precision
Band Saw Fence**

One simple attachment
means your Band Saw isn't
just for rough cuts anymore!

**To see these products in action,
visit us online at
www.kregtool.com.**

Kreg

www.kregtool.com | 800.447.8638

(Circle No. 41 on PRODUCT INFORMATION form)

Mystery tool's true identity rams its way through the guesses.

The baryard location of **Keith Crowie** of Cheyenne, Wyoming's mystery tool find inspired much speculation about its origin. **Phil Trierweiler** of Rosendale, Missouri, thought it was part of a hog oiler. **John A. Lindholm** of Omaha, Nebraska, guessed "cattle horn weight put on young cattle's horns to eventually make the horn curve downward."

And **Geoff Edgmond** of Americus, Georgia, said, "It's a seat off of farm equipment. I always wondered about the hole in the middle, but the more I thought about it, the more I decided I didn't want to know."

Luckily, others did know —

more than **Geoff Leslie** and **Marion Smith** of Airville, Pennsylvania, in fact, wrote a detailed description of the item: "We believe that the item dug up is a hydraulic ram head. In our area, the ram usually brought water from a spring which was on a lower part of the farm and pumped into a cistern which held the water for use at a later date and was usually around the barn area to water the cows, horses, etc." The Smiths concluded, "No, we are not Amish — just old!"

— *Joanna Werch Takes*

What's This?

Our Seible of Durham, Connecticut, has two of these wedges, one inscribed with the numerals 3002. **Got a number on what it is?** Send your answer to: Stumpers, c/o Woodworker's Journal, P.O. Box 261, Medina, Minnesota 55340. Or email stumpers@woodworkersjournal.com



Through the genius of creative hydraulics, water rams pump water uphill.



WINNER! Jack Raybourne of Mechanicsville, Virginia, wins a Porter-Cable Compressor Combo Kit. We toss all the Stumpers letters into a hat to select a winner.



THE BEST OF WOODWORKER'S JOURNAL

"America's leading woodworking authority"



Desks, Bookcases, & Entertainment Centers

Working Furniture for Your Home
15 classic projects for building handsome desks, entertainment centers and other functional furniture for the home.

\$19.95 + S&H • Item # 28167



Heirloom Furniture Projects

Timeless Pieces for Your Home
Build 20 gorgeous heirlooms that are guaranteed to become cherished keepsakes among family and friends.

\$19.95 + S&H • Item # 24340



Selected from the archives of *Woodworker's Journal*, this new series gathers classic projects and expert instruction into one easy-to-access collection.

Woodworking Techniques
\$19.95 + S&H Item # 38355

Tables You Can Make
\$19.95 + S&H Item # 31332

Workshop Projects
\$19.95 + S&H Item # 35917

Benches, Chairs & Beds
\$19.95 + S&H Item # 39256

Cabinets & Storage Solutions
\$19.95 + S&H Item # 33411

Jigs & Fixtures for the Table Saw & Router
\$17.95 + S&H Item # 26037

Boxes, Clocks, Lamps & Small Projects
\$17.95 + S&H Item # 21855

Craftsman Furniture Projects
\$19.95 + S&H Item # 28120

Order Today! Call Woodworker's Journal at 1-800-610-0883
By Mail: Woodworker's Journal, 4345 Wilow Drive, Medina, MN 55340
Or Visit: www.woodworkersjournal.com/books
(Please mention code: WD122)

GENERAL®**E-Z Pro™****Cut Dovetail Joints
with Your Router!****THE DOVETAILER™**
DOVETAIL JIG

No. 860

**CAN BE USED WITH ALL
HANDHELD ROUTERS
AND ALL ROUTER TABLES**

With THE DOVETAILER™ Jig and your router, you can cut professional Through or Half Blind Dovetail Joints, simply and accurately... **Right Out of the Box!**

- Accommodates boards of any width
- Includes 1/2" Dovetail Router Bit



1/2" Dovetail Router Bit included



Cuts Through Joints



Cuts Half-Blind Joints

EASY TO USE FOR THE BEGINNER AND THE PROFESSIONAL

- Self-aligning design ensures that both ends of the dovetail joint match up evenly every time
- Portable to your work site or work area
- Sturdy machined aluminum construction
- Easily adjust the dovetail interference to create loose or tight joints
- No need to bolt the jig onto workbench like many other expensive Dovetail Jigs
- You bring the jig to the work piece, not the work piece to the jig
- Integrated clamps allow precise clamping of jig to work piece
- Can be used with all handheld Routers or Router Tables

**The Easy Way
to Make Professional
Furniture Joints**

GENERAL®

©2009 General Tools & Instruments™

80 White Street, New York, NY 10013-2567

TEL: 212-431-6100 TOLL FREE: 800-697-8665

FAX: 212-431-5499

sales@generaltools.com www.generaltools.com



(Circle No. 32 on PRODUCT INFORMATION form)

Patent Pending



Woodworking Done Up Big



Texas-Size Mesquite

Big and Burlly

Everything's bigger in Texas, so the saying goes — and the mesquite tree harvested earlier this year near Floresville certainly fits the bill. While it's impossible to say whether it's the biggest mesquite tree ever harvested, according to Bob Brown of the Mesquite Burl company, "we think it's one of the largest."

"It took two forklifts, struggling and grunting, an hour just to get it off the truck," Bob said — not surprising when its estimated weight is around 9,000 pounds.

Measurements of the log put it at 15'6" long, with a top diameter ranging from 23" to 42". A typical mesquite log, Bob said, would get to about eight or 10 feet long before "burling out, branching out."

This big one does have many burls but, unlike in other wood



Stacked and staked rough-cut lumber ready to go into the kiln for processing.



Is this the trunk from the world's biggest mesquite tree? No one is arguing that it is huge or that it will produce a huge stack of valuable lumber. But the record status is likely never to be known.



Growing in a hot and inhospitable climate, mesquite produces lumber unlike "regular" hardwood trees. Mesquite lumber is used with checks, cracks and flaws all in place, like beauty marks.

species, the large rounded out-growths are actually a desirable aspect of mesquite. "A lot of woodworkers and furniture makers, like on the East Coast, strive to find lumber that doesn't have voids or knots," Bob said. "With mesquite, you're looking for the voids and knots."

Mesquite Burl fills those divots with a black epoxy — occasionally with turquoise mixed in — "which makes a beautiful pattern," Bob said. "When we cut into it," the big log "will probably become some of the most gorgeous boards made from mesquite," he said.

The company has not yet cut the large log because they're waiting

for a customer, who might have a specific vision for a project that would affect how the boards are cut. Bob expects the wood to be suitable for fine furniture, rather than the flooring, mantels or basic lumber many of the mesquite trees they process become. When it's cut, it'll either go into the hot-air kiln, where the moisture content of 40 to 60 percent will get reduced to nine or 10 percent in a couple of months, or the vacuum kiln, where the moisture content reduction takes place in about 10 days.

For more information on the big mesquite log, call 512-930-2875 or visit www.mesquiteburl.com.

— Joanna Werch Takes

I Started With One ...

"Cabinet" Cleans Up Garage

Woodworker's Journal reader Dave Wolfe of Yorktown, Virginia, picked up our Fall '08 *Weekend Woodworking* publication on the newsstand, and found inspiration in the "Easy-to-Build Storage Cabinets" article.

He meant to build one. That effort, however, "ended up becoming an all-winter project that eventually covered an entire wall with cabinets and a new workbench, and eliminated years of clutter."

Dave also upgraded his tool collection: "Until I started this project, my entire power tool inventory consisted of a drill, sabre saw and a circular saw. In the process, I've upgraded significantly, adding a table saw, routers and bits, air nail-



Before
A project that grew: Reader Dave Wolfe's intent started modestly but grew with his enthusiasm for the task. It not only cleaned up years of clutter, but provided some other benefits as well.



ers with compressor, and, of course, lots of accessories."

The workbench Dave built is composed of a piece of 3/4" pressure-treated plywood that serves as the base for the oak work surface. He said the oak was leftover oak tongue-and-groove flooring from his father's house that he helped install as a kid. "It's been stacked in his

attic all these years, so it gave me a real sense of satisfaction to tie it into my project."

In fact, Dave says his project is "100 percent functional and eliminated years of clutter and finally gave me a place to work again. I REALLY enjoyed the project."

Shop Talk continues on page 22 ...

GO TEAM

NEW Game Day Chair™



The Game Day Chair™
The portable perch for Tailgates!

These super comfortable chairs fold for easy storage and transportation.



EUREKA helps you build TEAM chairs!
EUREKA helps you sell TEAM chairs!



EUREKA Woodworks, Inc.

EUREKA Woodworks, Inc. is a licensed manufacturer of college and university logo-styled Adirondack furniture through the Collegiate Licensing Company and Licensing Resource Group.



and many more ...

JOIN the EUREKA TEAM and turn your garage or shop into a furniture factory!

EUREKA
WOODWORKS, INC.™

Call 877-731-9303 or go to www.eureka-business.com for all the details!

(Circle No. 27 on PRODUCT INFORMATION form)

Sumac Surprises

Shrub Provides Treasures

At first glance, you may see just a pesky weed growing along the side of the road. But 89-year-old Norman Woodard will tell you sumac is a special shrub deserving a closer look.

His "quiet hobby," as he calls it, began over 20 years ago when he realized that he had no plans after his retirement. So he decided to choose an avocation — woodcarving. He signed up for adult classes at Hennepin Technical College in Minnesota, and has been increasing his skill and deepening his passion for carving ever since. He now meets with his woodcarving groups twice a week.

Photos courtesy of Eden Prairie News



Norman Woodard prefers creating graceful shapes in his pieces, rather than precise detail. The strong visual contrast between sumac's early and late wood growth presents a beautiful opportunity for Norman as he carves. His tabletop carvings average 6" tall.

Norman takes advantage of the sumac that grows naturally in the lowlands of a pond in his own backyard in Eden Prairie, Minnesota. "The difference between sumac and other wood," he explained, "is the appearance and the result." Years ago, he picked up a piece of sumac from a woodpile and completed his first sumac carving — an owl. He has grown to admire the species and now uses it for half of his work.

While most carvers avoid sumac because of its small size and soft center, Norman is attracted to sumac and its unique features. He considers it an extremely attractive shrub, inside and out. Its deep red and orange leaves are especially stunning in the fall, while cutting into the wood reveals its rings. Norman describes them as "uniform, almost perfect — not wavy like other types of tree rings." The "stripes" alternate between dark and light circles. And, according to this woodcarver, "the color is more pronounced; the light is lighter and the dark is darker."

Woodard does more than admire these stripes: he depends on them, because they are always the same

size. He cuts the wood in different ways, based on how he wants to show off the stripes — often horizontally instead of vertically, because it most advantageously enhances the look of the layers.

Norman sticks with clear finishes so the striking natural appearance of the sumac is not hidden by paint or stains. He explained that sumac has an intriguing "glow," which picks up different colors.

To achieve his signature look, Norman breaks his sculpting process down into six simple steps. First, pick the wood. Second, "see" what you can create from it. Next, pencil an outline on the wood and use a band saw to form the general shape. This brings you to the fourth step: carve! "It's important," he says, "to get it the way you like it." The next step is sanding until it's smooth. The final stage is to finish your sculpture with clear lacquer coats, followed by a rubout, to create the perfect look.

Norman's "tabletop" carvings average 6" tall. He prefers creating large, graceful shapes as opposed to tons of detail and facial features.

Norman Woodard sells some of his work, but mostly he loves to give his creations away to his grandchildren and friends or to offer them as prizes for fundraising events. After 20 years of experience in this hobby, he has some advice to offer his fellow woodworkers: "Don't expect it to be perfect, and you have got to have patience."

— Haley Odorizzi



While some may see a nuisance plant, this carver sees a beautiful shrub — both in the field and in the shop.

Picture Frame Moldings on the Table Saw

By Chris Marshall



Step-by-step instructions for building this project are inside!

A table saw is the only tool you need to create a handsome cove-and-dentil picture frame. Suitable for art or portraits, it makes an attractive holiday gift.

Sponsored by

 **DELTA**
The Measure of Precision



Wood Magazine® **TOP NEW TOOLS 2009**

Popular Woodworking® **BEST NEW TOOLS 2008**

Fine Woodworking® **FAVORITE RIVING KNIFE SYSTEM, TOOLS AND SHOPS 2009**

Picture Frame on the Table Saw

By Chris Marshall

Some picture frame moldings are impossible to create without a shaper or a handful of expensive router bits, but, that's not the case with this project. Editor Rob Johnstone, art director Jeff Jacobson and I set out to design a frame that can be milled entirely on the table saw, and I think we've got a real winner! Here's a handsome holiday gift — and a great way to show off a 16" x 20" portrait or art print. All you need is a sharp 10" combo blade and a dado set.

Check out the *Frame Molding* section view at right, and you'll see that the rails and stiles will require 1 1/4"-thick stock to accommodate the deep

dentil inlay and the broad outer cove shape. I bought some 8/4 cherry and

planed it down. Don't try to save a buck by face-gluing thinner stock — you could end up with a glue line in the cove area ... not a good look. After surfacing your stock, crosscut blanks for the rails and stiles four to six inches longer than necessary so you'll have some leeway when mitering the pieces to final length. Make up some matching scrap now, too, for testing your saw setups.

Sawing the rail and stile profiles will remove a lot of wood, and you have to do it in the correct order to leave enough material for successive steps.



Cut a deep groove into your frame stock for the dentil with a dado blade. A scrap hold-down clamped to the rip fence and featherboards on the table will ensure consistent, safe cutting.



**QUICK, EASY
BLADE CHANGES.**

Begin by milling a 3/4" x 3/4" groove along the faces of both the rails and stiles to accept the dentil inlay. Use a featherboard and hold-down to press the stock tightly against the rip fence and saw table.

Shaving the Coves

Next comes the coving operation. Replace your dado blade with a sharp, full-kerf combination blade for this task; a thin-kerf blade is too flexible for coving. If you've never cut coves before, it's actually a shaving process in which you'll run your workpieces at an angle across the blade, raising the blade about 1/16" with each pass. Two scrap fences form a "tunnel" to keep the rails and stiles on track and at the correct angle of approach. Here's how to set it up: With the blade raised to 3/4", clamp the front fence exactly 2 7/16" ahead of where the blade teeth drop into the table. Arrange this fence so it also crosses the saw table diagonally at 50.5°. Lower the blade. Install the rear fence 3 3/4" behind the front fence and parallel to it. This fence should be at least 1 1/4" thick, because you'll gradually bury the blade into it as the cut advances.

Now, you're ready to begin shaving the cove. Raise the blade to about 1/16" for the first pass. Orient your workpieces so the edge closest to the groove is against the front fence. Use a push pad and push stick to feed the wood across the blade (see photo at left).

Then, continue raising the blade a little

Cove-cutting is essentially a shaving process, carried out diagonally across the blade. It works surprisingly well.



Rip a bevel to form a pleasing transition between the dentil groove and the inside edges of the frame. It's a really good idea to use a featherboard to help control these on-edge cuts.



Cut a rabbet along the beveled edge of the rail and stile blanks using your dado blade buried in a sacrificial fence. This rabbet will house the picture frame's photo or print, glass and backer board.

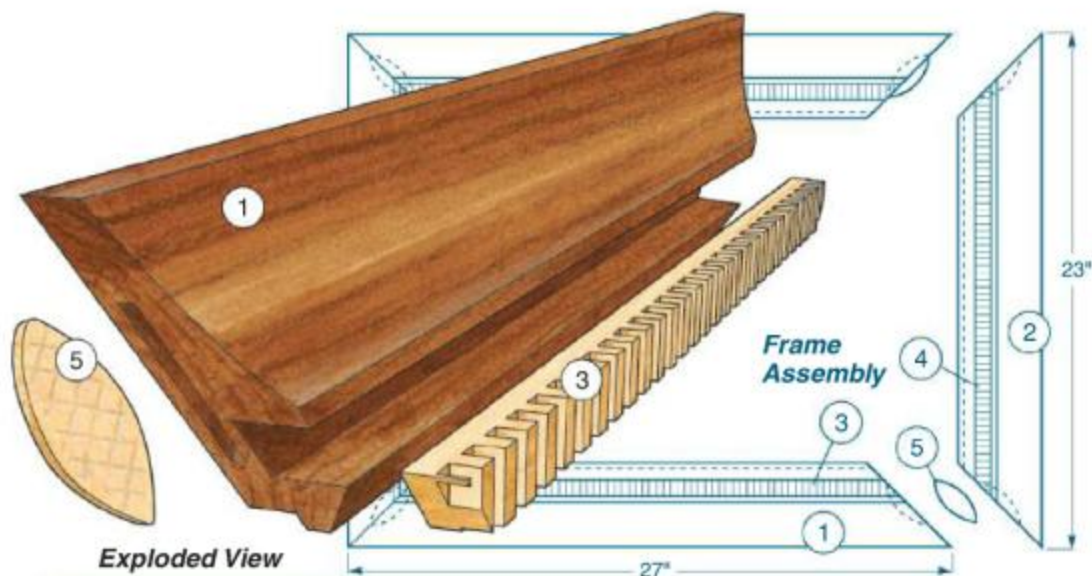
more each time until you've sawn the full cove. Carry out this entire operation first on test scrap to make sure you've got things dialed in correctly, then repeat with the rails and stiles. Pretty cool technique, isn't it?

When the dust settles, remove the coving fences, and reset the rip fence to cut the little bevel adjacent to the groove. Tilt your blade to 35.5° for these cuts. Then, it's back to a wide dado blade, nested partially in a sacrificial facing clamped to your rip fence, to cut the rabbet that will hold the frame's contents. Raise the dado blade 1/2", and project it 1/4" out from the fence to mill these rabbets.

That wraps up the shaping process for the rails and stiles. Before you assemble them, now is a good time to give the parts a thorough sanding or scraping while the surfaces are easy to reach.



**A FENCE ACCURATE
TO 1/64".**



The author reinforced the miter joints on the outside edges of the frame by pulling them tight with a band clamp.

MATERIAL LIST

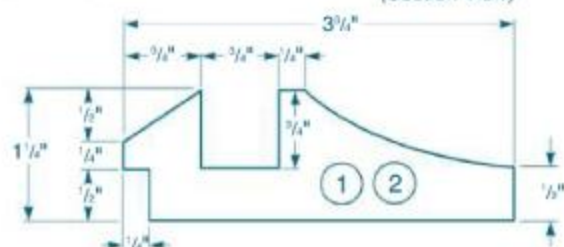
	T x W x L
1 Frame Rails (2)	1 1/4" x 3 3/4" x 27"
2 Frame Stiles (2)	1 1/4" x 3 3/4" x 23"
3 Long Dentil Strips* (2)	5/8" x 3/4" x 22 1/2"
4 Short Dentil Strips* (2)	5/8" x 3/4" x 18 1/2"
5 Biscuits (4)	#20

*Take care to match the dentil strip pattern at the corners when you're cutting them to length.

Dentil Molding (Edge View)



Frame Molding (Section View)



Assembling the Frame

Mitering the rails and stiles is fussy, delicate work if you want them to close tightly. Honestly, these eight cuts will make or break your project. It's critical to adjust your miter gauge for dead-on 45° angles, so spend some time tuning it up and making test cuts. I fastened a long, stiff fence to my miter gauge and faced it with sandpaper to keep parts from creeping during cutting. A long fence will also enable you to use a stop block as an index for setting part lengths.

Although the photo at right shows me mitering both ends of a workpiece, this was actually the fourth and final rail I was cutting to fit. I would suggest you work on one corner of the frame at a time, mitering the parts and adjusting them for square before moving onto the next corner. I applied a piece of masking tape over the moldings before making each cut to keep tearout to a minimum. If a joint doesn't meet squarely, add a few paper shims between the workpiece and miter gauge on one end or the other before re-trimming. It can help you zero in on a partial degree that brings things nicely into square.

When three pieces of the frame are mitered, arrange them on a flat worksurface, and check the opposite rails or stiles for parallelism. The final piece will be the most tricky — it both brings the frame together and requires you to fit two joints at once. Make a test piece



You'll better your chances for perfect-fitting miter joints if you tune up your miter gauge and use a long, stiff, auxiliary fence. Add a sandpaper facing and use a stop block for even more precision.



**A GUARD SYSTEM
YOU'LL ACTUALLY USE.**



red corner joints with a single #20 biscuit. Center these slots 1 1/2" in from the front and inset 5/16" from the back face. Glue up the biscuited frame joints, and clamp until the glue dries.

for this first and refine your settings before committing to the actual frame part.

When my joints fit properly, I cut slots for a single #20 biscuit at each corner, then glued up the frame. After the glue dries, touch up the intersections of your coves and bevels with sandpaper and proceed to finishing. I wiped on a coat of boiled linseed oil first to accentuate the cherry's rich, natural color, then sprayed on several coats of satin lacquer.

Making the Dentil Inlay

Make up a 4" to 6"-wide x 24" blank of 5/8"-thick stock for your dentil so you can rip all four strips from it after the slot pattern is cut. Dentil moldings are easy to make if you use a simple box joint jig: it's just a scrap fence fixed to the miter gauge and outfitted with a 1/4" x 1/4" pin to index each cut. Install a 1/4"-wide dado blade in your saw, and space the indexing pin 1/4" away from the blade. Plow all the 1/4"-deep slots, making sure to push the blank down firmly over the pin every time. Sand the resulting tabs gently and apply finish. I brushed on clear shellac to keep my maple dentil blonde. When the blank dries, rip it into strips that fit the frame grooves.

The trick to great-looking dentil is balancing the pattern at the mitered corners. Start with a rail, fit the two stiles, and finish with the last rail.



It's easy to make evenly spaced tabs and slots for your dentil pattern using a scrap fence on the miter gauge, an indexing pin and a dado blade that exactly matches the pin thickness.

Cut and fit these strips one at a time. Start with a long rail, adjusting the dentil pattern left or right so the miter cuts create matching corners. Move onto the shorter dentil pieces, then finish up with the last rail. Consistency of the pattern is key here to a balanced appearance. Glue the dentil in place.

Now order the glass and cut a hardboard backer to size, and this project will be ready for its portrait or art print. Tack these layers in place with metal window glazing points. Add a hanging wire, and your custom frame is all set for its holiday debut.

Chris Marshall is Woodworker's Journal's field editor.



THE ALL NEW UNISAW.
SEE IT IN ACTION AT
deltaportercable.com/unisaw

 **DELTA**[®]
The Measure of Precision™



A TABLE SAW IS JUST A TABLE SAW UNLESS IT'S A **UNISAW.**

Get ready for something radically different. The new UNISAW[®], redesigned from the ground up and loaded with industry firsts. Like a conveniently located push-button arbor lock for quick, easy blade changes. Or a tool-free, split-design guarding system with a true rise and fall riving knife for through and non-through cuts. There's even a BIESEMEYER[®] Fence accurate to 1/64". Plus the UNISAW is assembled in Tennessee of U.S. and foreign components. See the next generation UNISAW in action at deltaportercable.com/unisaw



Quick, easy blade changes.



A fence accurate to 1/64".



A guard system you'll actually use.

 **DELTA**[®]
The Measure of Precision™

(Circle No. 16 on PRODUCT INFORMATION form)

Queen Anne Highboy (Part 2)

By Kerry Pierce

Last issue, we tackled the base of this classic project. In Part 2, our author builds the upper case and all of the dovetailed drawers.



In an ideal world, I would have limitless space and time to describe the process of building this period-style highboy. As neither you nor I live in that realm, however, a reasonable compromise is this two-part tale of its construction. And this presentation has the advantage of allowing us to draw a breath in the midst of its construction. While my highboy's appearance varies somewhat from its historical predecessor — my moldings are more bold, my hardware of a different style — both the builder of yesterday and I, myself, are, in essence, after the same goal.

One way to look at the upper case and the drawers is that they are a study in dovetailing. A dovetail joint is more than a mechanical union of two pieces of wood. The joint also has a strong aesthetic presence, adding detail and an appealing visual rhythm to a joined corner.

In addition, because it's widely seen as one of the defining characteristics of fine craftsmanship in wood, the joint carries a symbolic significance of great weight in the woodworking world. (Is there any one of us who hasn't pulled a drawer from a chest to look to see if there are dovetails?)

For these reasons, many craftsmen with long personal experience with dovetail joinery have spent at least some time reflecting on the subject, thinking about how dovetails might best be used to join, to add detail and rhythm, to speak about craftsmanship. I



With any project, great or small, it is the details that make the difference — and our author succeeds well in that regard. Starting with high quality stock and stock selection and carrying through with shapely legs, custom moldings and hand-cut dovetails, these refined details are executed with excellent craftsmanship.



The Top



know I have, and the upper case of this highboy is a kind of three-dimensional essay in which I articulate the principles by which I now make use of the dovetail joint in my shop.

There is Strength in Size

High-style period casework features refined dovetail work, which is typically characterized by wide tails and little slivers of pins. Although the aesthetic appeal of these diminutive pins is unmistakable, their size offers little protection against the destructive force of, for example, a drawer being accidentally dropped onto its corner. Therefore, for the most practical of reasons, I prefer more robust pins and tails, which — if executed cleanly — can be attractive as well as resistant to shock.

The upper case of this highboy is held together with hand-cut through dovetails at each corner. Each pin and tail is thick enough in cross-section to individually provide resistance to shock. Plus there are enough pins and tails to provide extensive gluing surface. (Although it's probably unnecessary, I laid out my tails on the top and bottom of the case, rather than the sides, so that the case could better resist separation force in the only direction in which it could occur: laterally.)

The rails separating the drawers in the upper case are fastened to the case sides with oversized dovetails, one of the very few locations on this highboy in which dovetails are visible to the viewer of the assembled piece. Here, too, the tails are robust in size to provide strong mechanical resistance to separation.

Authentic Hand-cut Dovetails

The drawers are constructed with through dovetails at the back and half-blind dovetails at the front. Hand-cut dovetails shouldn't mimic machine-cut dovetails. So, I cut these and all the other dovetails on the case not only by hand but also freehand. That is, I sawed them out without the aid of an angle jig or an angled reference line because, in an era in which handwork is becoming increasingly scarce, I want my joinery to be verifiably the result of the human hand.

Finally, the drawer dovetails — like the drawer dovetails on most of my recent casework — are laid out so that the tails get narrower as they ascend the side of



It's important to test fit a set of dovetails dry before you assemble the case with glue, but it's also important that the tails not be fully seated dry, because you may not be able to get the case apart to apply glue to the joints.





Each of the 2"-wide drawer rails on the upper case is held in place with a 1"-deep dovetail. The author cut the tails by hand with a backsaw, then marked the tails onto the front edge of the case sides and cut the dovetail sockets with a chisel.



Solid wood case sides expand and contract in response to seasonal changes, so the drawer runners must be fastened in a way that permits movement. The front end of each runner's tongue fits a groove milled into the drawer rail. The back end of the runner is secured with a single fat woodscrew turned into the side of the case. The piece of 3/8"-thick scrap holds the runner back as you set the screw (middle photo).

The drawer kicker assembly (photo at left).

The Case

a drawer. In fact, those tails at the bottom of a wide drawer side might be twice as wide as those at the top. Applied consistently, this approach adds a unifying element, not only to the drawers in a single case piece but also to all drawers made by my hand.

Starting with the Big Box

After gluing up and leveling the four panels that comprise the upper case shell, I cut through rabbets on the inside back edge of the top, bottom, and two sides. (Through rabbets were acceptable because the waist and cornice moldings would later conceal the ends of those rabbets.) I next cut and carefully fit the long rows of

dovetails at the corners and glued up the case, pressing each dovetail home with a pipe clamp I moved back and forth across the joinery. After the dovetails were fully seated, I checked diagonals to verify that the case was square, and then I set it aside to cure.

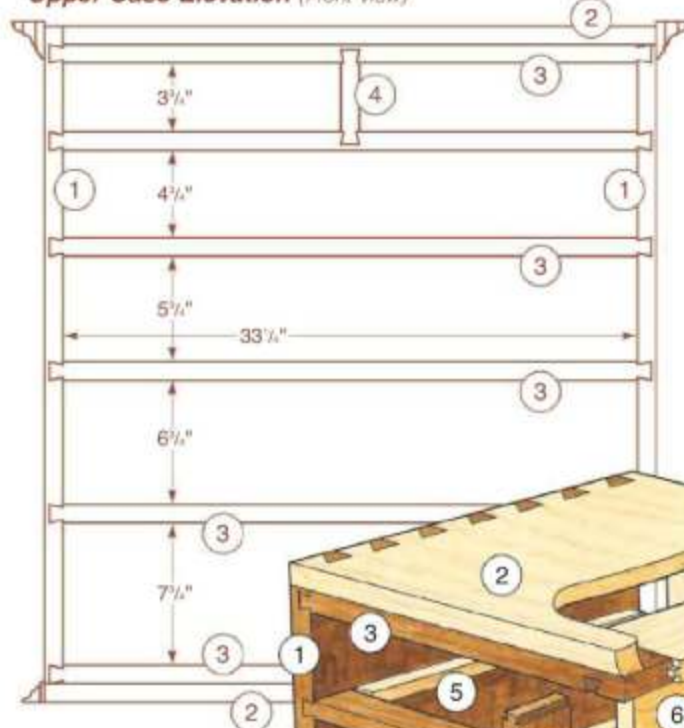
After planing the surplus length from the ends of the upper case's pins and tails, I prepped the drawer rails. First, I plowed grooves on the back side of each rail — grooves which would later accept a tongue on the ends of the drawer runners. I then cut dovetails on the ends of each rail. Finally, I marked and cut the dovetail sockets in the front edges of the case sides to receive each of the dovetails and glued the rails in place.

The drawer runners went in next. I installed them by sliding the tongue on the end of each into its groove on the back side of the drawer rail, fastening the back end of the runner to the case side with a single heavy screw. In the case of the two top drawers, I assembled the drawer runner/kicker strip unit before attaching the whole thing in place with two screws driven up into the top of the upper case, through the kicker strips. Additionally, tenons fit into the backs of the two uppermost drawer rails. When all those members were installed, I went ahead and fit the back.

Adding Various Moldings

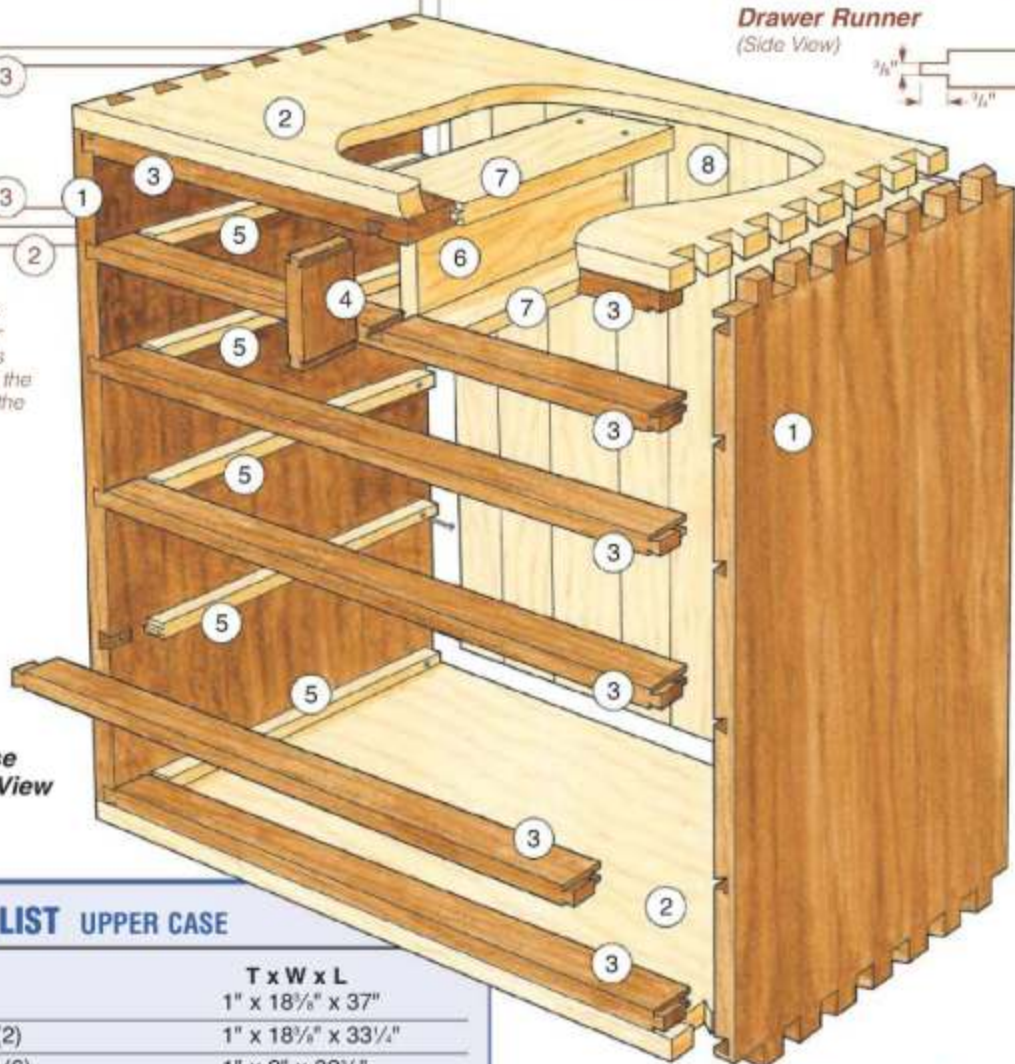
Through the years, I've created moldings with a router, a table saw with molding heads, scratch stocks, bench planes, and so forth. But for the last five years, I've been making them primarily with molding planes because, first, I think antique molding planes offer modern makers the richest available variety of shapes. Second, these antique

Upper Case Elevation (Front View)



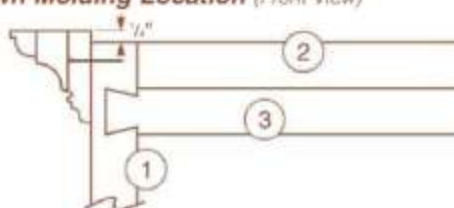
The upper case is joined to the lower case using screws driven up through the webs — found in the lower unit.

Upper Case Exploded View

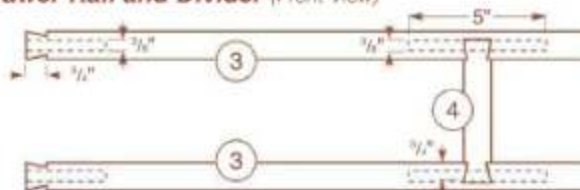


Crown Molding Location (Front View)

On the side of the case, the author nails the innermost strip of the crown molding buildup to the case and then glues the remaining strips in place.



Drawer Rail and Divider (Front View)



Drawer Runner (Side View)

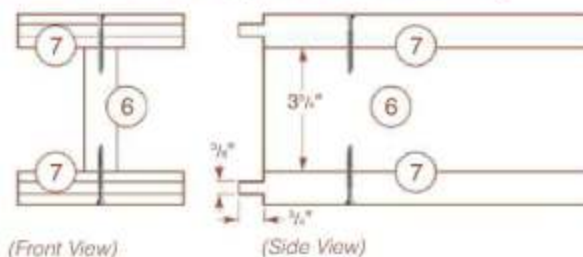


MATERIAL LIST UPPER CASE

	T x W x L
1 Sides* (2)	1" x 18 1/8" x 37"
2 Top, Bottom (2)	1" x 18 1/8" x 33 1/4"
3 Drawer Rails (6)	1" x 2" x 32 1/4"
4 Front Drawer Divider (1)	1" x 2" x 5 1/4"
5 Drawer Runners/Kicker Strips (12)	1" x 1 1/2" x 15 1/4"
6 Drawer Separator (1)	1" x 3 1/2" x 14 1/4"
7 Drawer Runner/Kicker Strips (2)	1" x 5" x 15 1/4"
8 Back: Vertical Random Width	1/2" ship-lap fills back rabbets

*Sides (parts 1) finished length is 36 3/4" after machining

Drawer Kicker and Separator Subassembly





Although the crown and waist molding can be formed in a variety of ways, the author prefers using antique molding planes — he simply enjoys them.

planes are so much fun to play with. But I don't think it much matters how a craftsman arrives at appropriate shapes, as long as those shapes can be arranged into harmonious wholes.

My waist molding, which wraps around the bottom of the upper case, is simply a little bubble of ascending beads marking and smoothing the transition between the lower and upper cases. The cornice molding on top of the upper case is a bit more complicated, consisting of three parts: a narrow cluster of shadow lines at the bottom, a simple cove in the middle, with a thumbnail molding at the top.

Molding installation on a solid wood highboy is inher-



The author first glued and nailed in place the two side sections of molding, resting them on the blocks he'd clamped to the case (process described in the story's text). He then glued the front section into place, clamping it as shown here.

The Moldings

ently tricky because the horizontal grain direction of the moldings is perpendicular to the vertical grain direction of the upper case side to which they must be fastened. Obviously, the moldings can't simply be glued in place, because after six months in a home with forced-air heat, cross-grain shrinkage of the upper case side would cause the glue to fail, and the moldings would simply pop off. This is not a problem on the front of the highboy's upper case, because there the grain in the case and the grain in the moldings run in the same direction. Here, I simply glued the moldings in place.

It is possible to circumvent the cross-grain problem by nailing the moldings to the case side, but that approach results in unsightly nail holes that must be filled. Plus, it puts the craftsman in the position of swinging a hammer at delicate molded shapes, something that should be avoided whenever possible.

I've developed a different approach that allows me to install my highboy moldings securely, without visible nail holes and without any risk of moldings popping off. I do it by combining glue and hidden nails.

Nailing works in a cross-grain application like this because nails are flexible. The shanks of thin nails can bend to accommodate movement, and the holes in the material through which those shanks pass can also enlarge to allow movement. In fact, it would be possible to fasten moldings to the sides of a highboy using a technique known as "blind nailing," which is nailing under a lifted sliver of wood which is then glued back into place over the nail head. (In fact, Stanley once made a plane-like tool — the #96 — for this express purpose.)

But blind nailing alone wouldn't work in this application because movement across the whole width of the highboy side would almost certainly destroy a tight molding miter at the front of the case.

My method involves both blind nailing and gluing. Let me explain by detailing the installation of the waist molding.

The only element of the waist molding that contacts the case side is a strip of 1/4"-thick stock with a half bead cut onto the top edge. (That bead is the only part of this strip that is visible in the completed molding.) The front two inches of that strip are glued in place so that the inevitable cross-grain shrinkage will necessarily occur at the unglued



The crown molding is created from three separate pieces of shaped stock stacked to form the desired profile. The author builds the molding on the case so he can hide the nails that he uses to fight seasonal movement.

back end of the strip, leaving the miter, at the front, tight. The rest of that strip is held in place by eight to 10 small nails, so the case side underneath the strip is free to move. The nails are placed below the visible half bead and are concealed by the next layer of molding which is glued, positioned, and press fitted for a 60 count. From there, the tackiness of the glue holds the molding in place on its own.

Successive layers of molding are then glued to the outside of this first strip.

I used the same attachment process to install the cornice molding around the top of the upper case.

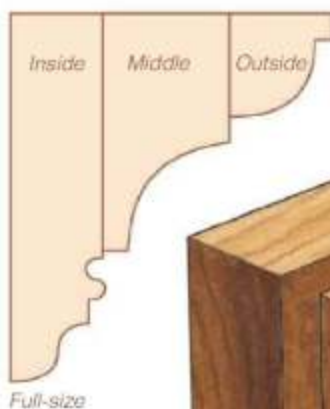
Building the Drawers

The drawers on this case are constructed with (non-period) fitting strips glued to each side. These $3/8"$ x $5/8"$ hardwood strips are glued to both sides of the drawers for two reasons: First, they reduce the friction when the drawers are opened and closed, and second, their presence reduces the amount of material that must be planed to fit when installing the drawers. The presence of these strips means the rabbets on the back side of each end of each of the drawer fronts must be wide enough to accommodate both the drawer lip and the fitting strip.

The front side of each of the drawer fronts has a molded edge all around with a rabbet on the back side on only the top and each end. I assembled the drawers with half-blind dovetails in the front and through dovetails in the back.

The $9/16"$ -thick drawer bottoms are tapered to a $1/4"$ thickness on the front and both sides. These $1/4"$ edges are slid into matching grooves plowed on the inside of the drawer sides and the back of the drawer fronts. The bottoms are held in place with screws that pass through

Crown Molding



MATERIAL LIST MOLDINGS

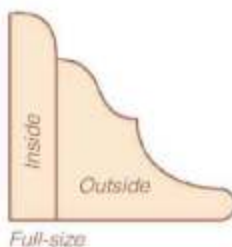
Crown Molding

Inside Side (2)	$1/2" \times 2" \times 19\frac{1}{8}"$
Middle Side (2)	$11/16" \times 1\frac{1}{16}" \times 19\frac{5}{16}"$
Outside Side (2)	$9/16" \times 9/16" \times 20\frac{5}{8}"$
Inside Front (1)	$1/2" \times 2" \times 34"$
Middle Front (1)	$11/16" \times 1\frac{1}{16}" \times 35\frac{5}{16}"$
Outside Front (1)	$9/16" \times 9/16" \times 36\frac{7}{16}"$

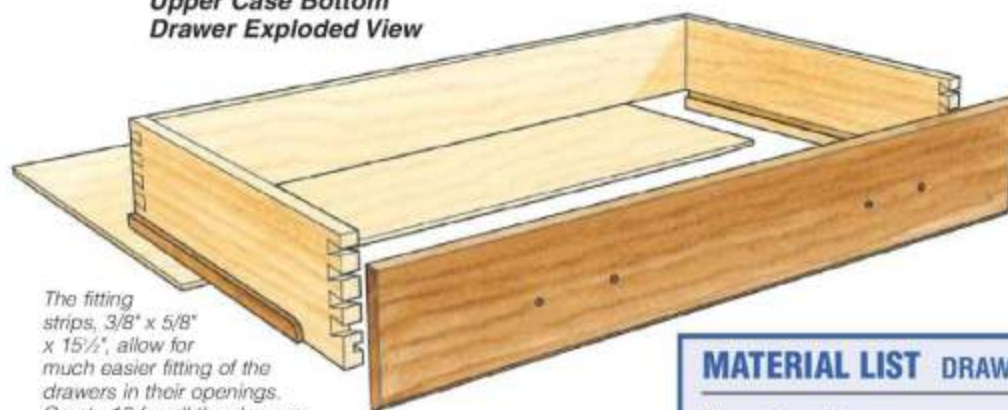
Waist Molding

	T x W x L
Inside Side (2)	$1/4" \times 1\frac{1}{8}" \times 18\frac{5}{8}"$
Inside Front (1)	$1/4" \times 1\frac{1}{8}" \times 33\frac{3}{4}"$
Outside Side (2)	$7/8" \times 1" \times 19\frac{5}{8}"$
Outside Front (1)	$7/8" \times 1" \times 35\frac{5}{8}"$

Waist Molding



Upper Case Bottom Drawer Exploded View



The fitting strips, $3/8" \times 5/8" \times 15\frac{1}{2}"$, allow for much easier fitting of the drawers in their openings. Create 18 for all the drawers except G; its 2 strips are 10" long.

Half-Blind Dovetail Detail



Drawer Dovetail Layout

(Front View)

There is no specific pattern for the dovetails on these drawers. The author marks them out by hand — using a pattern that has wider tails in the center of the drawer components, getting narrower as they approach either edge.

Drawer Construction

(Back View)

The drawer bottoms are $9/16"$ thick, but are planed on three sides down to $1/4"$ thick, to fit into the groove plowed in the sides and fronts. The drawer backs are held short, so the bottoms can slide into their respective grooves.

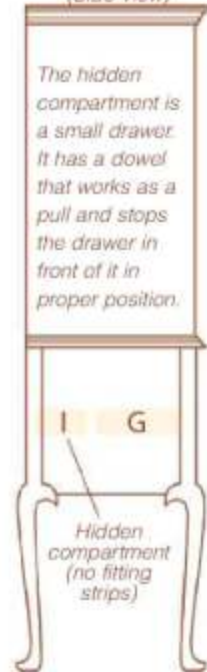
Drawer Bottom

Typical dovetail layout

Typical drawer bottom joint

Drawer Location Key

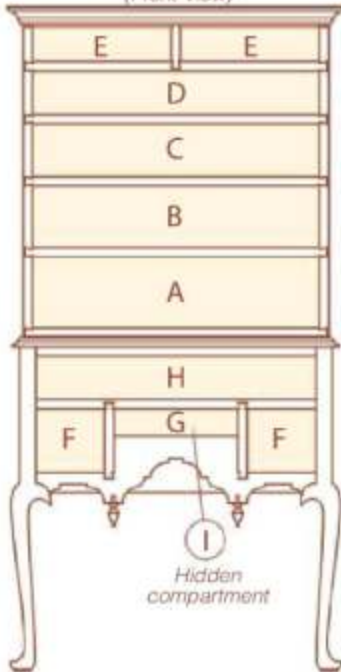
(Side View)



The hidden compartment is a small drawer. It has a dowel that works as a pull and stops the drawer in front of it in proper position.

Hidden compartment (no fitting strips)

(Front View)



Hidden compartment

The hidden compartment sits behind a "short" drawer. It is a fun optional component that is in keeping with the historical design of this project. (See the photo on the first page of the story.)

MATERIAL LIST DRAWERS

Upper Case Drawers

	T x W x L
Front A (1)	$1" \times 8" \times 31\frac{1}{4}"$
Sides A (2)	$9/16" \times 7\frac{1}{4}" \times 17\frac{1}{4}"$
Back A (1)	$9/16" \times 7" \times 30\frac{7}{16}"$
Bottom A (1)	$9/16" \times 16\frac{1}{4}" \times 29\frac{3}{4}"$
Front B (1)	$1" \times 7" \times 31\frac{1}{4}"$
Sides B (2)	$9/16" \times 6\frac{1}{4}" \times 17\frac{1}{4}"$
Back B (1)	$9/16" \times 6" \times 30\frac{7}{16}"$
Bottom B (1)	$9/16" \times 16\frac{1}{4}" \times 29\frac{3}{4}"$
Front C (1)	$1" \times 6" \times 31\frac{1}{4}"$
Sides C (2)	$9/16" \times 5\frac{1}{4}" \times 17\frac{1}{4}"$
Back C (1)	$9/16" \times 5" \times 30\frac{7}{16}"$
Bottom C (1)	$9/16" \times 16\frac{1}{4}" \times 29\frac{3}{4}"$
Front D (1)	$1" \times 5" \times 31\frac{1}{4}"$
Sides D (2)	$9/16" \times 4\frac{1}{4}" \times 17\frac{1}{4}"$
Back D (1)	$9/16" \times 4" \times 30\frac{7}{16}"$
Bottom D (1)	$9/16" \times 16\frac{1}{4}" \times 29\frac{3}{4}"$
Front E (2)	$1" \times 4" \times 15\frac{1}{4}"$
Sides E (4)	$9/16" \times 3\frac{1}{4}" \times 17\frac{1}{4}"$
Back E (2)	$9/16" \times 3" \times 14\frac{1}{4}"$
Bottom E (2)	$9/16" \times 16\frac{1}{4}" \times 13\frac{1}{4}"$

Lower Case Drawers

Front H (1)	$1" \times 5" \times 31\frac{1}{4}"$
Sides H (2)	$9/16" \times 4\frac{1}{4}" \times 17\frac{1}{4}"$
Back H (1)	$9/16" \times 4" \times 29\frac{13}{16}"$
Bottom H (1)	$9/16" \times 17" \times 29\frac{1}{16}"$
Fronts F (2)	$1" \times 7\frac{1}{4}" \times 8"$
Sides F (4)	$9/16" \times 7" \times 17\frac{1}{4}"$
Backs F (2)	$9/16" \times 6\frac{1}{4}" \times 6\frac{1}{16}"$
Bottoms F (2)	$9/16" \times 5\frac{1}{16}" \times 17"$
Front G (1)	$1" \times 3\frac{1}{4}" \times 14\frac{1}{8}"$
Sides G (2)	$9/16" \times 3" \times 12"$
Back G (1)	$9/16" \times 2\frac{1}{4}" \times 12\frac{1}{8}"$
Bottom G (1)	$9/16" \times 11\frac{1}{8}" \times 12\frac{1}{8}"$
Front I* (1)	$1" \times 3" \times 13\frac{1}{2}"$
Sides I* (2)	$9/16" \times 3" \times 4\frac{1}{4}"$
Back I* (1)	$9/16" \times 2\frac{1}{4}" \times 13\frac{1}{2}"$
Bottom I* (1)	$9/16" \times 4" \times 13"$

* Hidden compartment pieces

The Drawers

notches into the bottom edge of the drawer back.

Three of the drawers have locks with escutcheon plates integrated with their respective hardware. If you choose to include this detail, you must lay out the mortise for the lock on the back of the drawer face. (See photo below.) The lock will have a mortise and escutcheon on the adjacent rail to accept the bolt.

When the drawers are complete and fitted, attach the ship-lap back pieces and move on to finishing.

Finishing

A successful finish depends on successful prep work ... in other words, sanding. I think most unsatisfactory finishes are the result of insufficient sanding.

Sanding doesn't begin after the piece is assembled. It's an ongoing process that begins — in the case of this highboy — with the creation of the cabriole legs. After surfacing those forms with a plane, a drawknife, a spokeshave, scrapers and rasps, I sanded them with 100-grit paper, followed by 150- and 220-grit papers, each grit removing the scratches left by the previous grit. Similarly, every other part of the highboy was sanded before installation, and sanding of assembled parts occurred periodically throughout the construction process to clean up the inevitable dings and scratches that occur as a piece is constructed.

Then, when the piece was officially done, every surface was resanded, beginning with whatever grit was necessary, and progressing up through a number of grits, ending with 400-grit paper on exterior surfaces



It's easier to cut the mortises for the lock hardware before the drawer components are dovetailed and assembled. Here, the author is cutting the notch for the key's tooth with a chisel.

It is very important to select your drawer face lumber with an eye to the figure of the wood. The grain should match and flow from piece to piece.



After defining the sides of the tails with a backsaw, the author removed most of the waste with a coping saw before finishing the opening by paring the cut to the baseline. After cutting the tails, the author holds the drawer side in place and marks the pins.

and 220-grit paper on interior surfaces like drawer sides.

I then brushed on and wiped off a blended poly designed for that style of application. When the first coat had dried thoroughly — at least 24 hours in humid Ohio — I sanded again with 400- and then 600-grit paper on exterior surfaces, 220 on interior surfaces. A second coat of finish went on next, followed by more sanding. I then applied the last coat of finish.

Once the finish has cured, I think you have earned a moment or two of proud reflection on a job well done. Like your predecessors in woodworking, you have crafted a significant project.

Kerry Pierce is an Ohio woodworker and author who appears regularly in the Woodworker's Journal.

Horizontal Tilt-top Router Table

By Sandor Nagyszalanczy

This horizontal router table's tilting top puts it in a category of its own. Its versatility will take your routing to the next level.



With its top lying flat, the horizontal router table is great for raising panels and other jobs on large panels. With the top tilted, it excels at angled joinery (center) or for altering the profile of edges with standard bits (bottom).

Sure, a regular router table that mounts a portable router vertically is great for all kinds of shaping jobs. But a router table that mounts the router horizontally is even better for tasks such as panel raising, joinery cutting and other shaping jobs where you'd rather have the work flat on a table than run it vertically against a fence. But this horizontal table has a versatile twist: its table tilts, allowing you to do a variety of work that's diffi-

cult or impossible on a regular flat router table. For example, you can shape angled tenons on the ends of aprons or stretchers that join the splayed legs of a stool or chair. You can also use the tilted table to rout slots for splines that join beveled parts — say, the sides of an octagonal planter. Best of all, by changing the angle between the profile of the bit and the workpiece, the tilt-top lets you rout a variety of new shapes from the router bits you already own!

Versatile Design

Happily, this unique table isn't difficult to build, doesn't require much in the way of materials and is compact, so you can easily stow it away when it's not in use. The table has a cubical base with an oversized bottom that makes it easy to clamp the device atop a bench or work table. A pivoting router plate mounted to a crossmember on the base provides a mount for just about any standard router. Pivoting the plate adjusts the bit's cutting depth up and down (because of the horizontal orientation of the table, the router's regular bit depth adjustment changes the width of the cut). The table's top is attached to the base via a pair of plywood compasses, each with a pair of radiused slots that allow the top to tilt from flat to 45 degrees. A slot in the top accepts a standard miter gauge, which is useful for end-routing.

Kicking Off the Construction Process

To start construction, make the table's base from 3/4" MDF or particleboard. Cut out an 18" x 12" bottom, three 12" squares for the front and sides and a 12" x 3" wide strip for the bottom rear (pieces 1 through 4). On the band saw (or with a jigsaw), cut a 3" high, 3/4" deep notch at the top back corner of each of the two sides for the crossmember that supports the router plate (cut the notch slightly shallower, if your crossmember stock isn't fully 3/4" thick). Make sure the notches' edges are nice and square. Now drill a pair of 3/8"-diameter holes through each side piece, located as shown in the *Drawings* on page 41. These are for studded hand screws that will attach the tilt-top to the base. Install a 1/4" threaded insert in each of these holes (photo, top right), using a short 1/4" bolt, two nuts and a ratchet wrench to drive them in place. Glue and nail (or screw) the sides of the base together, with the bottom strip at the lower edge of the cube (photo right, second from top). Center the sides on the base's bottom piece and glue and nail them in place, making sure the assembly is square and that all the edges are flush.

Cut the router table's 3" x 18" crossmember (piece 5) from a piece of good quality 3/4" plywood. Band saw or jigsaw a semi-circular hole at the center of the crossmember's top edge to provide clearance for the router bit. Next, drill a pair of 7/32"-diameter holes, positioned 16 1/2" apart, as shown in the *Drawings*. These holes are for the two 1/4" x 1 1/2"-long hanger bolts that attach the router pivoting plate to the base. Hanger bolts have a wood screw thread on one half and a machine thread on the other. To install them, lock a pair of 1/4" nuts together (with a washer between them) on the bolt's machine threaded end, and drive the screw-thread end into the holes (photo right, second from bottom). Now glue and screw the crossmember into the notches on the base, centering it side-to-side (photo, bottom right).



After temporarily screwing a bolt into the threaded insert, a socket and ratchet wrench drives the insert into the hole in the side of the horizontal router table's base.



A pneumatic nail gun makes quick work of assembling the router table's MDF base, keeping the glued parts aligned and together while clamps are put into place.



A socket and ratchet wrench, set onto a pair of nuts, drive the hanger bolts into place. These hanger bolts attach the router plate to the crossmember on the base.



Center the crossmember on the notches cut into the base, then glue and screw it in place. The face of the crossmember must be flush with the edge of the sides.

“You’re ready to perform run-of-the-mill routing jobs, plus a host of angled cuts and modified profiles that your ordinary router table just can’t do.”



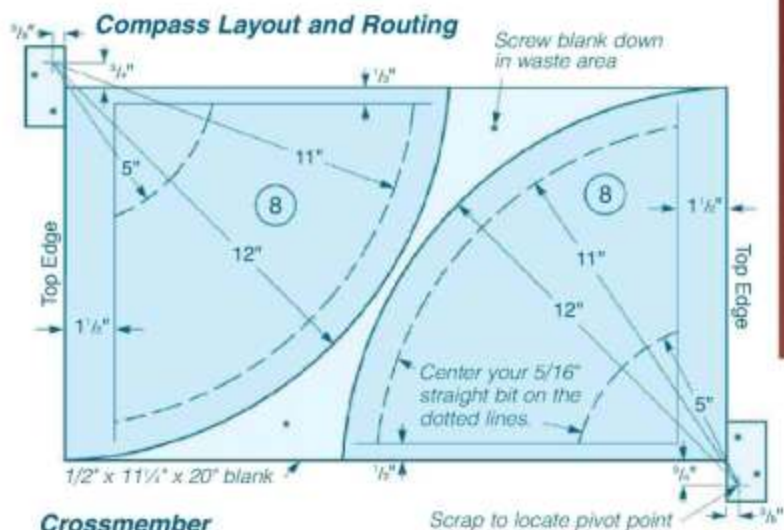
Using the router's sub-base as a template, drill holes through the router plate's face piece with a self-centering bit (center). To make clearance for the router, use a jigsaw to make a circular cutout in the plate's backing piece (top). Cutting a radius slot through the plate will require a circle-cutting jig attached to a router (bottom).



The router plate consists of two 18"-long, 9"-wide pieces sandwiched together: a 1/4"-thick plywood, melamine or tempered hardboard face piece and a 1/2"-thick MDF or plywood backing piece (pieces 6 and 7). In the center of the face piece, drill a 2"-diameter hole for the router bit. Now remove the sub-base of the router you'll use with the horizontal table, center it on the hole in the face piece, and clamp it down (make sure to orient the sub-base so that the router's final mounted position on the router plate will locate the On/Off switch facing upwards, for easy operation). Go ahead and chuck a self-centering bit (these have a spring-loaded guide sleeve that centers the bit in a hole) in an electric drill and, using the sub-base's mounting holes as a template, bore the router mounting holes through the face piece (large photo, left). Countersink the holes for the mounting screws so their heads will be flush with the surface of the plate. After sawing a hole in the center of the backing piece large enough to clear your router's base (photo, top left), carefully align and glue the backing and face pieces together.

Tip: To keep two flat surfaces being glued up from sliding around when you apply clamping pressure, drive a couple of small brads in one surface, then clip them off nearly flush; the nibs "dig in" and keep parts from sliding.

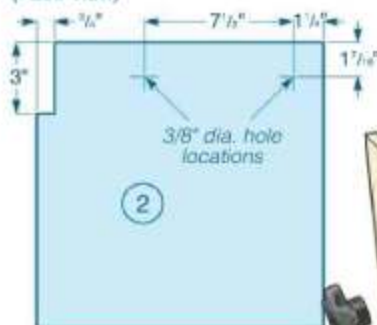
Next, drill a hole in the router plate for the hanger bolt that allows the plate to pivot (located as shown in the *Drawing*). Fit a router with a circle jig and 5/16" straight bit set to cut all the way through the plate. Set the circle jig so that the distance between the pivot pin and the centerline of the bit is exactly 16 1/2".



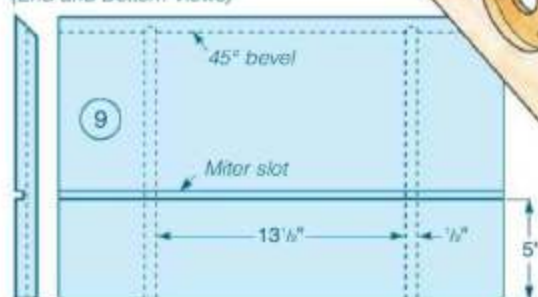
Crossmember
(Front View)



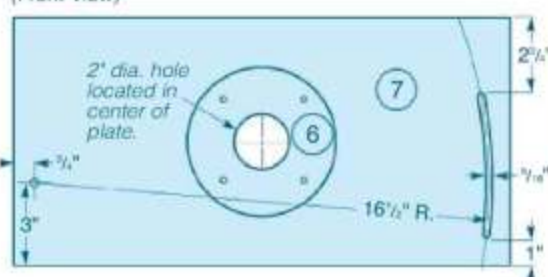
Side
(Face View)



Tilt-Top
(End and Bottom Views)



Router Face
(Front View)



Horizontal Router Table Hardware

These supplies are available from Woodworker's Journal.

Threaded Inserts #28803 (8 pack).....\$5.79

Hanger Bolts #24406 (8 pack).....\$2.29

5-Star Knob #23804 (2 req'd).....\$1.89 ea

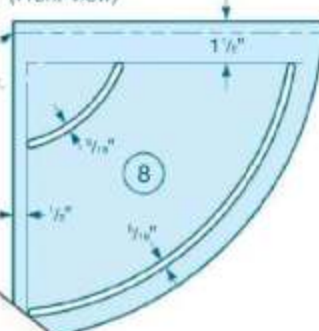
5-Star Stud #23838 (4 req'd).....\$1.49 ea

Miter Track #23880 (optional).....\$29.99

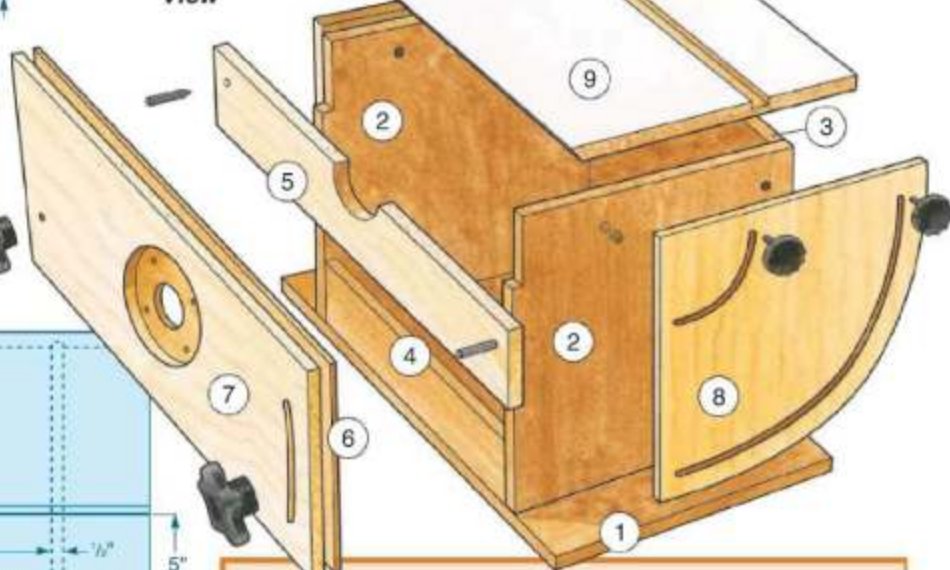
To order your supplies, call 800-610-0883 and mention code WD121.

Or order online at woodworkersjournal.com/hardware

Compass
(Front View)



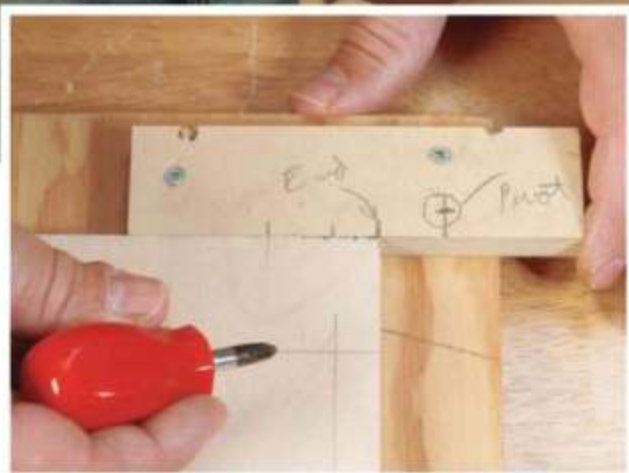
Exploded View



MATERIAL LIST

	T x W x L
1 Bottom (1)	3/4" x 12" x 18"
2 Sides (2)	3/4" x 12" x 12"
3 Front (1)	3/4" x 12" x 12"
4 Rear Strip (1)	3/4" x 3" x 12"
5 Crossmember (1)	3/4" x 3" x 18"
6 Router Face (1)	1/4" x 9" x 18"
7 Face Backer (1)	1/2" x 9" x 18"
8 Compasses* (2)	1/2" x 11 1/4" x 20"
9 Tilt-Top (1)	3/4" x 14" x 22"

* Blank to make a pair of compasses



In the top photo, a pair of threaded hand knobs attach the router plate to the two hanger bolts protruding from the crossmember. Each of the twin compasses that support the horizontal router table's tilt-top has a pair of curved slots. Mill these with a router and circle-cutting jig (bottom photo). A small scrap of plywood (middle photo) provides the pivot point for the circle-cutting jig.

With the router plate clamped atop a wood scrap, rout the curved slot (photo, page 40) following the dimensions in the *Drawings*. Attach the plate to the crossmember (photo, above) with a pair of threaded hand screws.

Getting to Tilt

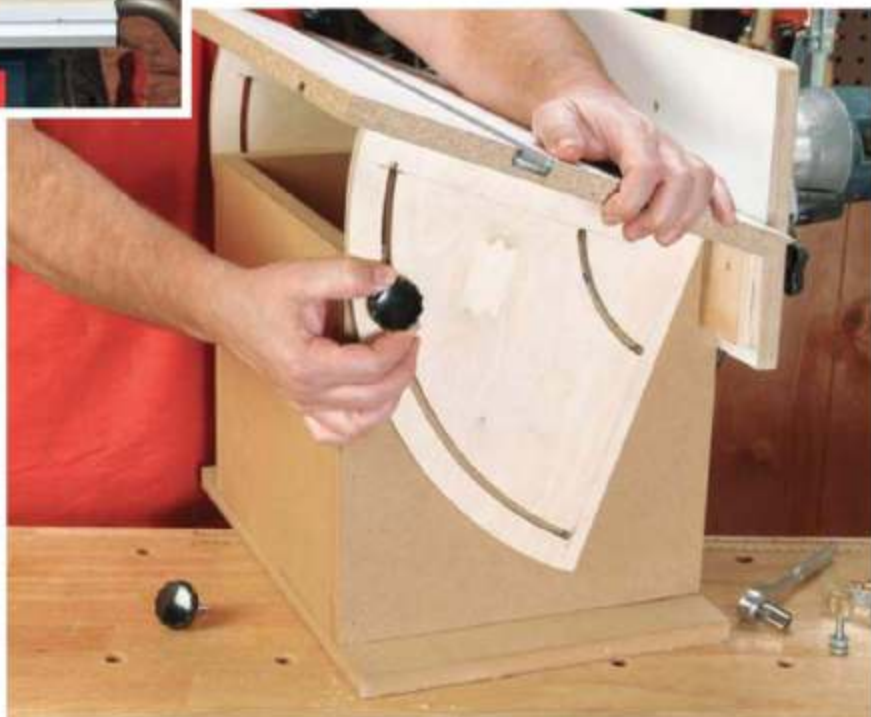
The two compasses (pieces 8) that support the table top and allow it to tilt are the most complicated part of the build. The compasses are necessary, because they allow the top to tilt without being hinged on the router plate — an arrangement that wouldn't allow the plate to adjust up and down for depth of cut. Both compasses are sawn from a single 11½"-wide, 20"-long blank of 1/2" plywood, laid out as shown in the *Drawings*. Use a good quality plywood, such as Baltic birch. Each compass has a pair of semicircular slots routed through it, located as shown in the *Drawing*. Screw the blank temporarily atop a scrap piece of 24" x 14" (or larger) plywood or particleboard. As the actual pivot point of the tilt-top is located beyond the corner of each compass, where the front of the router plate and top meet, you must screw a pair of scrap blocks to the plywood to provide a pivot point for layout and slot routing (photo, center left). The 1/2" x 4" x 1¼" scraps are positioned at opposite corners of the blank, as shown in the *Drawing*. Use a compass set to a 12" radius to mark the outer edge of each compass. Mark the stop lines for the slots, as shown in the *Drawings*.



Cut a pair of grooves into the bottom of the router's tilting table top using a dado blade in the table saw (top photo). These house the plywood compasses. To mount the top to the table's base, studded hand screws are installed through the curved slots and screwed into the threaded inserts you installed earlier.

It's easiest to use a plunge router to cut the two radiused slots in each compass. But by using a little finesse when starting and stopping slots, a regular router or laminate trimmer will work. For the smaller slots, set your router's circle jig so that there's 5" between the pivot point and the centerline of a 5/16" straight bit. Rout these slots on each of the two ends of the compass blank, starting and stopping the bit at the lines you marked. Now reset the circle jig to an 11" arc and rout the two larger-radius slots (photo, opposite page lower left). Band saw the compasses from the blank by cutting out their curved outside edges, and sand them smooth.

Cut the table's 14" x 22" tilt-top (piece 9) from 3/4" melamine or MDF stock, then bevel the lower edge of one of its long edges at a 45° angle (see the *Drawings*). The bevel allows the tilted top to clear the base. Now measure the exact width of the table's base you assembled earlier (it should measure about 13 1/2" wide). Using a 1/2"-wide dado set in your table saw (fine-tuned to fit the exact thickness of the plywood compasses), plow two 3/8"-deep dadoes across the narrower dimension on the underside of the top (photo, above). Space the slots so that their inside-facing edges are as far apart as the width of the base. This will ensure that the inside faces of the compasses will fit snugly against the sides of the base.



Next, set your table saw's dado set to plow a miter-slot groove into the top surface of the top, located as shown in the *Drawing*. You can cut a 3/4"-wide, 3/8"-deep groove to fit the bar of a standard miter gauge. Alternatively, you'll get a more accurate and wear-resistant miter gauge fit by installing a length of aluminum miter slot track. This requires dadoing a larger slot, sized to fit the track you use.

Glue the two compasses into the dadoes in the table top, aligning each compass's square corner flush with the lower corner of the top's beveled edge. Set the top/compass assembly on the base, bringing the top's beveled edge flush to the router plate. Screw the studded hand screws into the threaded inserts (photo, above).

Putting the Router Table to Work

To use the router table, set the table to the desired degree of tilt and tighten the compass hand screws. Next, set the width of cut the bit will take using your router's depth of cut adjustment. Finally, set the actual depth of cut by loosening the hand knobs on the router plate and pivoting the plate up or down. Lock it in place.

Now you're ready to perform your basic run-of-the-mill routing jobs, plus a host of technically difficult angled cuts and modified profiles that your ordinary router table just can't do.

Sandor Nagyszalanczy is a furniture designer/craftsman, photographer and regular contributor to the Journal.

Modular Bookcases

By Rob Johnstone

This geometric design combines modern styling, flexibility of function and durability into one tidy package. At home in a living room, bedroom or dorm room, it even expands to become a home for your flat-screen TV.



A common woodworking misconception is that simple joinery is easy to make. While it's true that dadoes and rabbets are much more accessible than, say, secret miter joints, they must be cut to exacting tolerances to be done well. This is especially true when the joints remain exposed, as in these bookcases. Constructed from ApplePly, the joinery on the built-up shelves and uprights adds visual interest to the project's clean lines. If the joints are really tight, they look great. If they have gaps, well ... not so great.

I say all of this simply to encourage you. Should you decide to build this piece, take your time at each

machining step to fit the parts carefully. Also, be sure to stay focused. There is nothing tricky about constructing these modular bookcases but, as I found out the hard way, a moment's lapse in concentration can necessitate a complete "do-over" on an individual component.

Ripping the Stock

ApplePly has two major advantages for this project (although it can be built from other sheetstock, should you so choose): first, its regular voidless veneer construction creates an attractive

edge for the shelves. Second, it is sold slightly oversized as compared to other sheetstock (48½" x 96½"). That way, you can trim the edges off if they get dinged during shipping and handling.

I started the project by ripping ¾" by 12½" panels, the full length of the sheet. Then I glued and clamped pairs of the long panels into 1½"-thick shelving blanks.



Glue-Up Tip



Gluing and clamping the long, narrow blanks from which the shelves and uprights are cut is time-consuming. The author applied his glue with a water-moistened paint applicator (above) and allowed at least four hours (but preferred overnight) for the glue to cure.

These are really large pieces to handle during a glue-up, so here's how I did it. Grabbing a large glue bottle, I swizzled a wiggly line of glue onto each piece. Then I borrowed a paint-pad usually used for wall painting, and dampened it with water. Using the painting pad, I spread the



“As I found out the hard way, a moment's lapse in concentration can necessitate a complete “do-over” on an individual component.”

— Rob Johnstone

glue into a thin, smooth layer on each piece of plywood (see photo, upper left). Assembling the glue-blank sandwich, I clamped them together and to my assembly table using square-head clamps with additional Jorgensen woodscrew clamps on either end. Clamping to the assembly table ensured that the glue-up would remain flat (see photo, left). Due to the extra moisture content in the glue and the large surface area, I allowed a minimum of four hours for the glue to cure. Most of the blanks I left in clamps overnight.

Square and True

When the glue cured, I returned to my table saw and squared up the edges of the long blanks. With the second slice of the process, I ripped them to their final width. Then I used my power miter saw to crosscut the shelves and uprights (pieces 1 and 2) and even the TV shelf (pieces 3 and 4) to length. I cannot overemphasize how much trouble you will save yourself if these cuts are exactly square and true, so double-check your saw settings for each new cut.

With the components prepared, it was time to start machining the joints. These are straightforward dados and rabbets, but since they're exposed, they need to fit snugly to look good. I decided to

Careful fitting of the bookcases' exposed joints is the key to building this project. It is a good idea to continue to test your machining as you proceed through the building process.

Machine Accurately



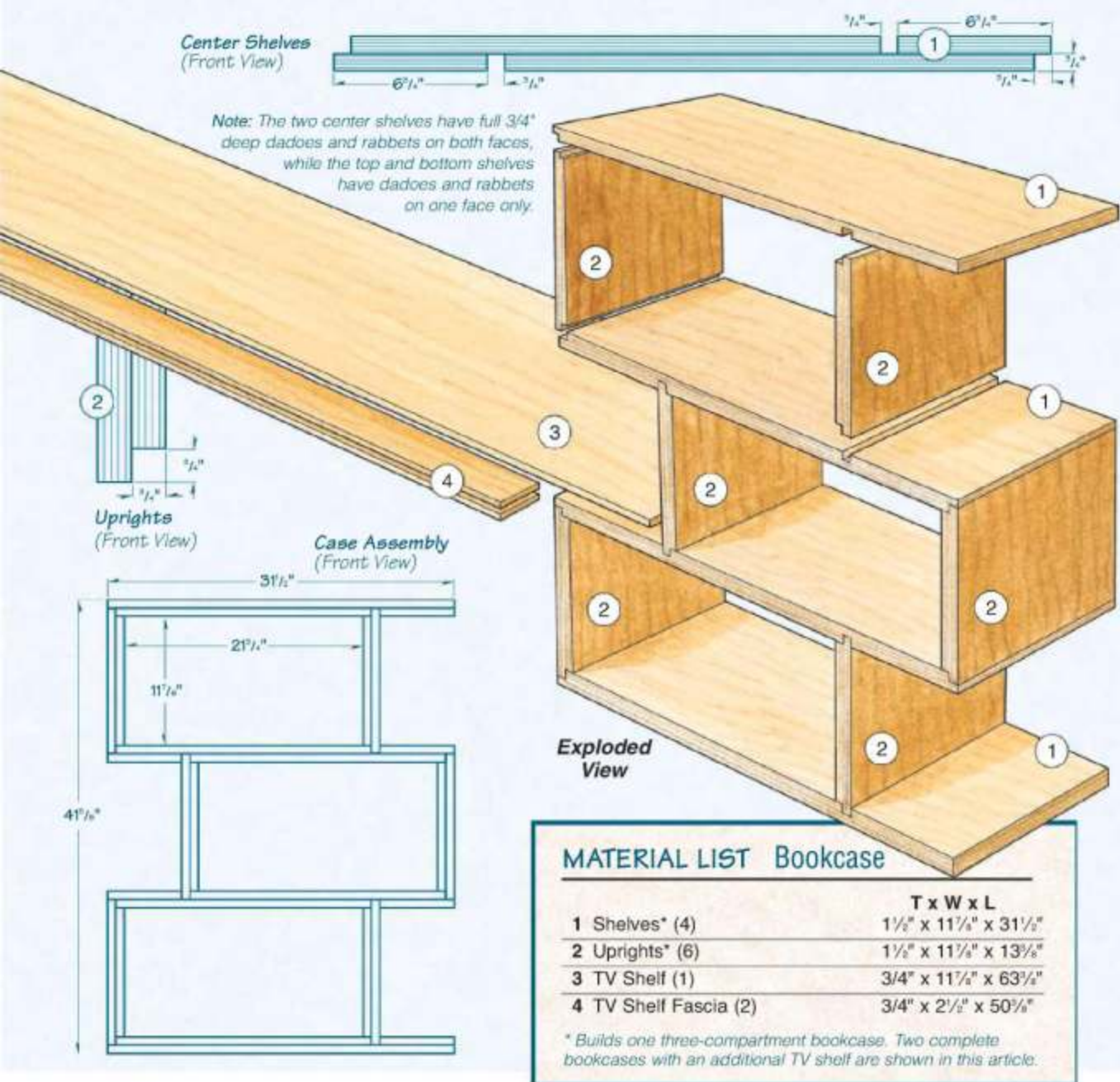
Cut the shelves and uprights to length. They must be dead-square and exact in length.



The author used a plunge router guided by a shop-made jig to cut the dados and rabbets into the shelves. A plunge router makes it easy to take multiple passes on the 3/4" by 3/4" cuts.

use a handheld plunge router to cut this joinery. These rabbets and dados could be formed on a table saw with a dado head just as easily. After I set up my router and made a few test joints using cutoffs from the actual stock (see photo at left), I continued to test the fit of the joints randomly throughout the routing process. Once the joints were all cut, it was time to assemble the bookcases.

I used a foam paintbrush to apply a thin coat of glue to the faces of each joint. I built up one compartment at a time, checked them rigorously for



square and allowed the glue to cure. If your joints are cut well, this process will go very smoothly. I glued the TV shelf and the fascia strips together in the same manner.

The Finish Line

You can't escape it: now it's time to sand. The maple veneer faces of the ApplePly need very little sanding, but the edges are a different story: they need to be sanded smooth right through to



In this photo, the two bookcases minus the TV shelf come together to create a clean-looking place to display books and other items.

180-grit. With that done, I applied three coats of dewaxed shellac and a final coat of wipe-on polyurethane.

And even if I am forced to say it myself, I'm very pleased with the results — full-sized mockups (see editor's note on page 8), basic joinery, sound design and good material combine to create a lovely little bookcase set.

Rob Johnstone is the editor in chief of Woodworker's Journal.

From Hobbyist to Industrial
**Oneida Air Systems is
#1 in Dust Collection.**



- Top Award Winner in All Independent Tests Since 1993.
- Built to Last A Lifetime.



D.I.Y. Dust Deputy Systems
Start at \$59.00
Dust Deputy Deluxe System
Shown Here \$86.00

- Invented and Made in the USA.
- 1.5hp and Larger Systems.
- **FREE** Design Consultation
- Cyclonic Retrofits for Your Existing System.
- Talk Directly to Technical Staff & Engineers.



Dust Collection Since 1993.

Order Online!

See Our Complete Product Line & Video
www.oneida-air.com

Call Today for **FREE** Catalog!
1.800.732.4065

(Circle No. 46 on PRODUCT INFORMATION form)

Turn to Quality



**Shop
on-line**



www.hutproducts.com
1-800-547-5461



(Circle No. 37 on PRODUCT INFORMATION form)

DAKOTA ALERT
Wireless Alarms & Security Equipment



**Making what's
important to you
-SECURE**

- Wireless indoor and outdoor sensors
- Wireless driveway alarms
- Wireless ranges from 3000 feet to several miles



WMA-3000



IR-3000

**Know someone is coming,
before they arrive**

DAKOTA ALERT
PO Box 130 ph: 605-356-2772
109 W. Main fax: 605-356-2584
Elk Point, SD 57025 **www.dakotaalert.com**

(Circle No. 13 on PRODUCT INFORMATION form)

Moisture Meters

- Reliable • Accurate • Economical
- 2 Year Warranty



Call for free
information about
moisture
problems.



mini-Ligno E/D
moisture meter

Lignomat
USA LTD

800-227-2105

14345 NE Stormy Ct. Kelso WA 98923
Portland OR 97201 USA • FAX: lignomat.com

(Circle No. 43 on PRODUCT INFORMATION form)

Material Cutting Made Easy!



Horizontal Cuts

**The Panel Pro Saw makes it easy to handle
those big sheets and cut them accurately.**

- Requires Little Space
- Straight & Square Cuts
- Single Person Operation
- Great Price-Only \$799

www.panelpro.com
800-599-1655



(Circle No. 58 on PRODUCT INFORMATION form)

WOOD HEAT

**CENTRAL BOILER
E-CLASSIC
2300**

Outdoor Wood Furnace

- Heat your entire home, multiple buildings along with water and more.
- Adapts easily to new or existing heating systems.
- E-Classic 2300 burns 50% less wood than conventional wood heating.
- EPA Phase 2 qualified.



Central Boiler

Find your nearest dealer at:
centralboiler.com
800-248-4681

©2003 Central Boiler, Inc.



LONG LIFE LESS WASTE

Tired of Changing Worm
Sandpaper & Discs?



TruSander™

90° Carbide Sanding Block
Wood Handle with Dust Trap
#46, 60 & 120 grit

DuraDisc™

5" Carbide Sanding Disc
5 & 8 Hole Compatible - Loop
#24, 36, 46, 60, 80, 120 & 150 grit

"I've been using the same DuraDisc block and disc since 1998!"
John D. (Tadoushan, Toronto)

See Them in Action & Buy Them at:

www.duragrit.com/wj



Carbide Tools That Really Work. And Work. And Work!

(Circle No. 20 on PRODUCT INFORMATION form)



Introducing the W&H Model 209 Molder!

NEW



7 YEAR WARRANTY

Toll Free 800.258.1380
70 Powers Street, Millford, NH 03055

www.williams-hussey.com

(Circle No. 71 on PRODUCT INFORMATION form)

Looking for a concealed,
detachable connection?



CLAMEX

Biscuit-Shaped Connectors
for RTA Applications



- Various angles possible
- Easy installation with any Lamello biscuit joiner
- Aligning pins prevent torsional movement
- Aligns and connects, 2 functions in one
- Aesthetic solution for RTA furniture, closets, room dividers, displays, cabinets and more

Families Have Saved Up To 50% On Heating Costs

And never have to buy fuel — oil, gas, kerosene, wood — ever again!



Your Benefits with Hydro-Sil:

- Slash heating cost with Hydro-Sil
- Furnace free — duct free
- Lifetime warranty. No service contracts
- Safe, complete peace of mind
- Clean, no fumes, environmentally safe
- U.L. listed
- Preassembled — ready to use
- Portable (110V) or permanent (220V)
- Whole house heating or single room

Contact us
today for
info and
FREE catalog!

Lifetime Warranty

Hydro-Sil is a high performance individual room heating system that can save you hundreds of dollars in home heating costs by replacing old and inefficient heating. It can replace or supplement your electric heat, gas or oil furnace and woodstoves.

Hydro-Sil represents economy in heating: inside the heater is a sealed copper chamber filled with a harmless silicone fluid designed for heat retention qualities. The fluid is quickly heated by a varying amount of micro-managed proportional power. This exclusive technology greatly increases energy savings.

Check ■ MasterCard ■ Visa ■ Discover

1-800-627-9276

www.hydrosil.com

Hydro-Sil, P.O. Box 662, Fort Mill, SC 29715

220 VOLT PERMANENT	Approx. Area to Heat	S&H	Discount Price	Qty.
8' 2000 w	250-300 sf	\$25	\$219	
6' 1500 w	180-250 sf	\$25	\$289	
5' 1250 w	130-180 sf	\$25	\$259	
4' 1000 w	100-130 sf	\$18	\$239	
3' 750 w	75-100 sf	\$18	\$189	
2' 500 w	50-75 sf	\$18	\$169	
Thermostats — Call for options & exact heater needed.				
110 VOLT PORTABLES (Thermostat included.)		S&H	Discount Price	Qty.
5' Hydro-Max 750-1500 w		\$25	\$229	
3' 750 w — Silicone		\$18	\$179	
Heavy-Duty 240v		\$25	\$329	
Total Amount				

Name _____
Address _____
City _____ St _____
Zip _____ Phone _____
MasterCard, Visa or Discover Account Information:
Acct # _____
Expiration Date _____

(Circle No. 38 on PRODUCT INFORMATION form)



1-800-A-LAMELLO
lamello@csaw.com

COLONIAL SAW
STATIONERY, SALES AND SERVICE

(Circle No. 10 on PRODUCT INFORMATION form)

Dovetailing Outside the Box

By Chris Marshall

Are clamp-in, template style jigs the only way to make beautiful dovetails? With plenty of practice, you can learn to do it by hand — or perhaps one of these nontraditional jigs could be your ticket.

Bringing perfect dovetails into your woodworking arsenal is one of the top goals of most of the home woodworkers I know. Generally, there are two approaches to making them: using hand tools or a “clamp-in” style template jig and a router. This second approach has plenty of fans, and there are a number of popular router jig systems available on the market. Personally, I’ve had my struggles with some of them (readjusting bit depth, tweaking template offsets and making other adjustments to arrive at the right combination for a satisfactory joint).

There are, however, other styles of dovetail jigs available to use with your router and, as a frequent attendee of woodworking shows, I’ve seen most of them demonstrated. Watching someone who’s made

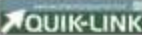
hundreds of dovetails with their jig move effortlessly through the routine, I thought, isn’t the same as getting one of these units in the shop, setting it up and making some pins and tails with no help from the expert.

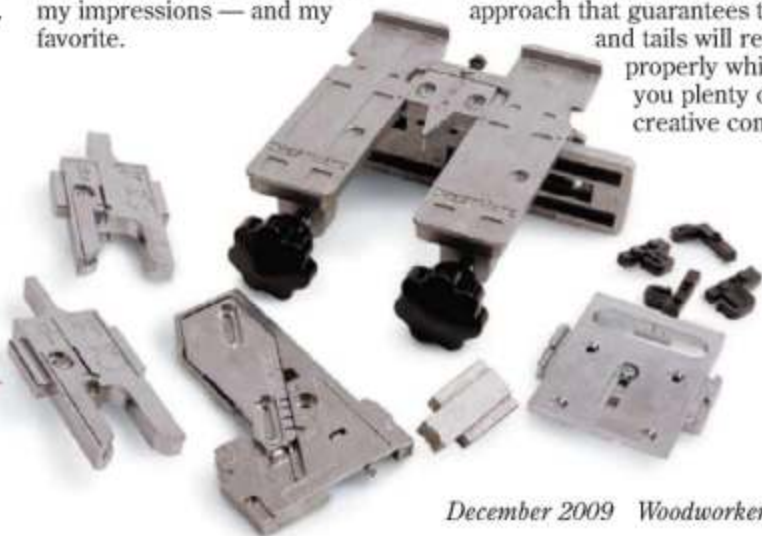
So, in the hopes of finding a better mousetrap, I pushed the usual jigs aside and tried out these six unique alternatives. I’m glad I did: there are some smart solutions here that make dovetailing easy and even fun! You’ll see that there’s a huge price spread, but I didn’t let that derail this test. Repeatability, accuracy and ease of use were my main concerns, regardless of price. Turns out, there’s a good jig for most any budget. Here are my impressions — and my favorite.

Prazi ChestMate \$99

Versatile and modestly priced, this jig makes variable-spaced through dovetails and much more.

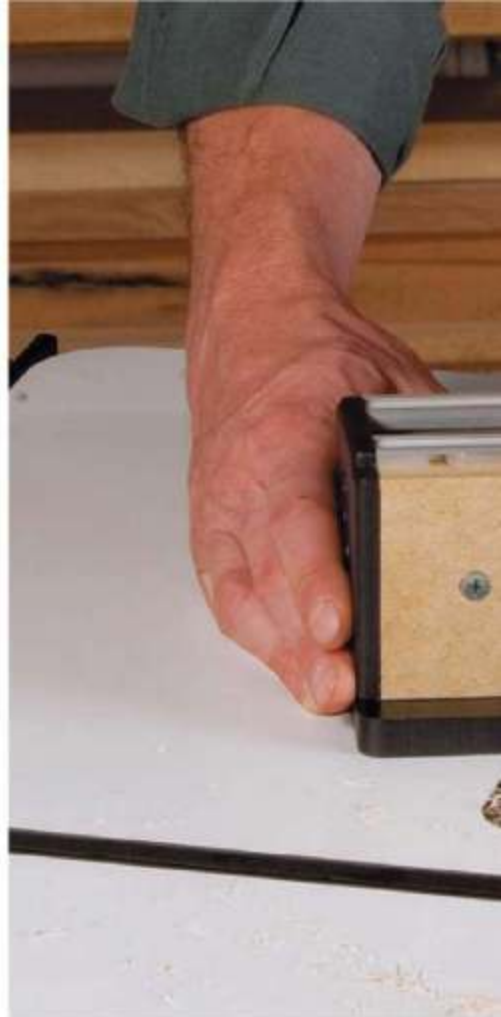
www.praziusa.com
(800) 262-0211

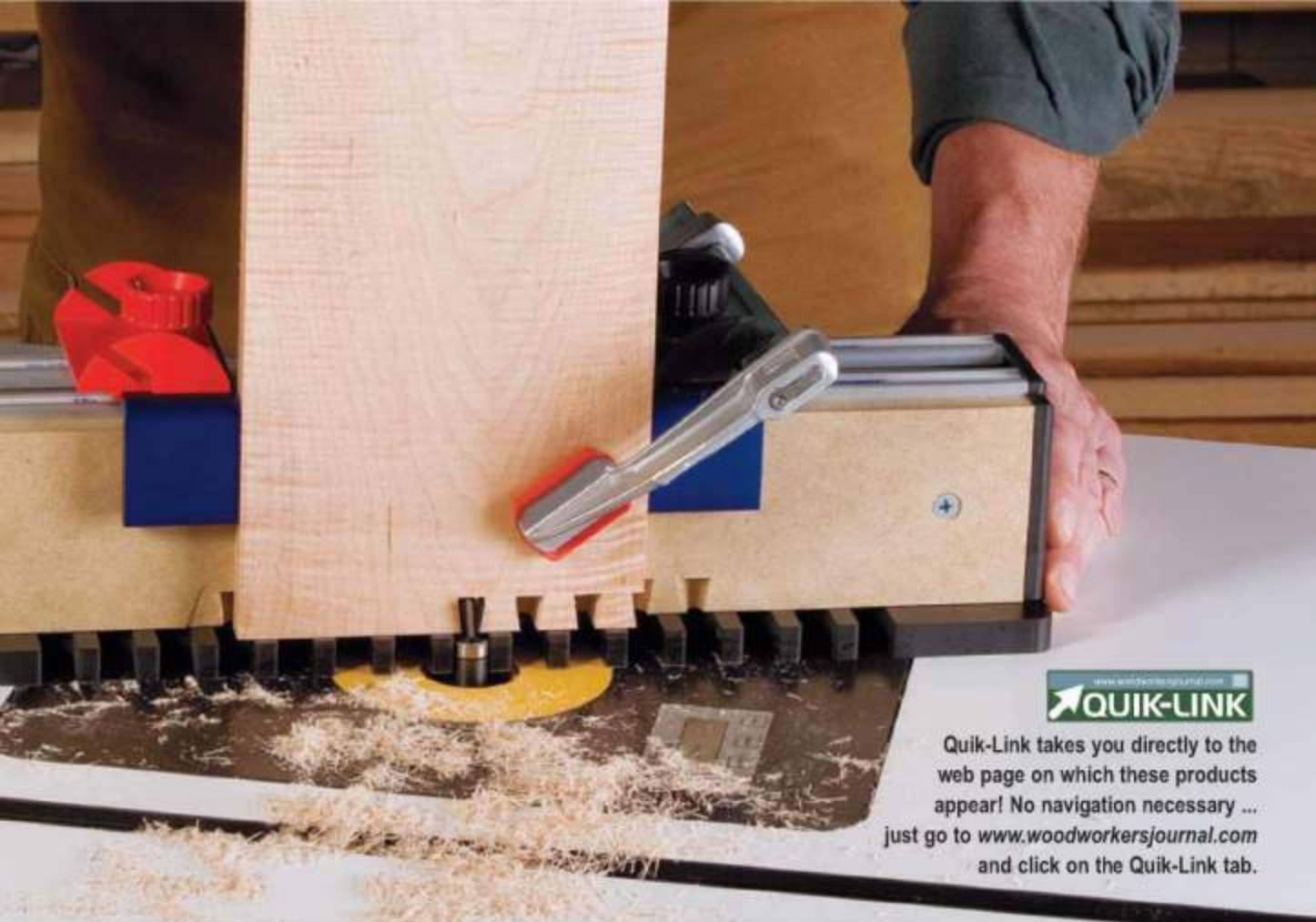
For more info on the web: use our 



ChestMate Dovetail Jig

For \$99, Prazi’s ChestMate jig will enable you to cut through dovetail joints on stock of any width, in any spacing you choose. That’s because this jig employs a pair of interchangeable inserts — one for pins and another for tails — that follow a scrap template pattern you create on the table saw. A tab under each insert fits into a series of shallow saw kerfs you cut in the template to create your own joint layout. It’s an ingenious approach that guarantees the pins and tails will register properly while giving you plenty of creative control.





Quik-Link takes you directly to the web page on which these products appear! No navigation necessary ... just go to www.woodworkersjournal.com and click on the Quik-Link tab.

ChestMate clamps over the workpiece, and you provide a 3/4" dovetailing bit, 5/8" guide collar and a straight bit to carry out the milling steps with your handheld router. The system is very easy to warm up to. After making one adjustment to the pin insert to alter my pin thickness, I was cutting glue-up-ready through dovetails on the second try. Bit depth doesn't

impact the joint fit, just the amount you want the pins and tails to stand proud for final sanding. So, that reduces the possible variables that affect how the joint fits to just one: pin thickness. It's a huge timesaver.

Downsides to the ChestMate? There aren't many. It's designed to cut 3/4", 7° or 14° dovetails. If you want other dovetail sizes, you'll need to experiment with it. The jig

also won't do half-blinds. But, Prazi recently added several more inserts as standard items, so you can now use the same jig for cutting box joints, hybrid box/dovetail joints, mortises and even dowel joints. If variable-spaced dovetails are what you're after, ChestMate's versatility, sturdy construction and ease of use make it an excellent value.

General Tools E•Z Pro Dovetailer

I was introduced to General's new jig last summer at the AWFS trade show, and you can watch a video of the E•Z Pro in use on our website (woodworkersjournal.com). In a nutshell, here's how it works: the jig's aluminum framework clamps to a workpiece with four integral thumbscrews. Fingers on the right half of the jig guide half-blind pin-cutting with an included, piloted dovetail bit. You rout the corresponding tails on the jig's left side with the same bit. The Dovetailer will make half-blinds on

Tool Review continues on page 52 ...



Changing over the ChestMate between pin and tail cuts is easy: loosen the jig wings and slip in the appropriate pin or tail insert.



A tab under the pin and tail inserts locks positively into saw kerfs you cut in your custom template. They index the router cuts.



Teeth on the Dovetailer's gray adjuster plate help you register the tailboard for routing using the pin board as a guide. This ensures that the board edges will line up on the finished joint.

General Tools Dovetailer \$54.96

Economical jig with a built-in alignment feature that cuts both through and half-blind joints.

www.generaltools.com

(800) 697-8665

For more info on the web; use our **QUICK-LINK**

stock up to about 1" thick or even a modified version of a through dovetail on 1/2" or thinner stock.

Aside from its almost pocket-change price (\$54.96), there are several more things I really like about this jig. Since it doesn't capture stock left to right, it will accept workpieces of any width, from drawers to big chests. A little aligning tool clips into the fingers to reset it for each series of cuts.

The Dovetailer is outfitted with a plastic, adjustable depth-of-cut scale, and the bottom of the scale doubles as a toothed adjuster plate. It enables you to register the tail board correctly on the jig's tail fingers using the pin board as a reference. Quite slick.

General suggests that this jig can be used inverted on a router table, but I have concerns with how closely it places your left fingers to the bit. I used it instead with a handheld router at the bench. I found the jig's platform to be large enough for stable routing, and after a few bit-depth adjustments, my joints snuggled up nicely. Bit depth is the only variable you'll need to fuss with. The router bit could really use a stop collar below the bearings to keep them from migrating on the shaft and possibly slipping off the guide fingers. Otherwise, here's a well-designed, affordable jig. If you rout dovetails often or just now and then, the Dovetailer will be easy on your patience as well as your wallet.



Long runs of dovetails are possible with this jig by snapping in an aligning tool to index the jig for each new set of cuts. Blanket chests or deep drawers are fair game.

Gifkins Dovetail Jig \$249

The Gifkins Dovetail Jig hails from Australia, which explains why I had never heard of it before researching this article. I sure wish it were on my radar years ago. It makes through dovetailing exceptionally easy to do on the router table. The system is designed around a thick, one-piece phenolic bottom template that cuts pins on one side and tails on the other. An aluminum spine and pair of replaceable MDF backup boards provide good support over the template to hold workpieces vertically.

Tool Review continues on page 54 ...

Gifkins Dovetail Jig \$249

One-piece phenolic template and wraparound stops make through dovetailing easy on the router table.

www.japanwoodworker.com

(800) 537-7820

For more info on the web; use our **QUICK-LINK**



THEY'RE BACK



NO. 4
SMOOTHING PLANE



NO. 62
LOW ANGLE JACK PLANE



NO. 9-1/2
BLOCK PLANE



NO. 60-1/2
LOW ANGLE BLOCK PLANE



NO. 92
SHOULDER / CHISEL PLANE

Stanley® Revisits A Cherished Era of Quality and Craftsmanship.

Introducing the new line of Stanley® premium hand planes. Their mechanical precision, simple adjustment features, and top-quality materials are once again worthy of the famous Sweetheart™ logo ... a distinction that professionals and serious woodworkers recognize as a coveted symbol of quality. Not only do these hand planes maintain a tradition of quality and craftsmanship, they also offer a Sweetheart™ price as well.

Visit a participating Stanley® dealer near you to own yours today.
(Circle No. 65 on PRODUCT INFORMATION form)



© The Stanley Works 2009

STANLEY

stanleytools.com

The template is engineered with the necessary pin/tail offset already calibrated. Two wraparound stops on top of the jig set your pin and tail board locations automatically. Once the stops are tightened, it's ready to mill both joint parts. The jig is even helpfully labeled to clarify which side of the template does what and with which bit — a piloted straight and dovetail bit are supplied. Gifkins sells clamps and brackets to secure the boards, or use your own clamps.

The only fine-tuning required — a one-time job on this jig — adjusts the pin thickness. It's a simple matter of adding shims behind the pin backup board.

Six dovetail templates are available to rout various pin sizes and spacings. The jig can also make



Gifkins's one-piece pin/tail template and wraparound stops (right photo) form a solid platform for routing perfect through dovetails. The author's first test cuts created the box in the left photo.



box joints but not half-blinds. A standard kit includes the jig, bits and an "A10" template that routs 10mm pins in stock up to 1/2" thick. Other templates and cutters, available as upgrades, mill larger dovetails in stock up to 7/8" thick.

The jig is limited to boards around 12" wide or less.

After I added a few of the included paper shims, this jig cut flawless dovetails. The clearly written manual made my learning curve easy. While \$249 may seem like a lot to pay for one size and style of dovetails, Gifkins will have you cutting them almost effortlessly ... and liking it!



Registering the pin board for accurate joint alignment is as easy as holding the boards together and knifing a pair of tail lines onto it.



Keller jigs have proven themselves in pro shops for more than 30 years. Once they're set, you'll rout crisp dovetails with little fuss.

Keller Model 1601 Pro Series

Keller aluminum dovetail templates have been around since 1976, and now I know why. They're practically bulletproof and are wonderfully straightforward to use. I was sent the Model 1601 template kit, which routs 7°, 7/16" dovetails, spaced 1 1/8" on-center, with a pair of Keller piloted dovetail and straight bits. Two hefty 1/2"-thick templates get that job done — one for pins and one for tails — on any width stock.

Getting the system up and running is quick: you mount each template to a block of wood that becomes a workpiece clamping surface. Only the pin template

Tool Review continues on page 56 ...

Keller 1601 Pro Series \$269

Heavy-duty templates create through dovetails on any part width, quickly and accurately.

www.kellerdovetail.com

(800) 995-2456

For more info on the web: use our **QUICK-LINK**



3 HP Cyclone
2300 MAX CFM
55 Gallon Drum
\$1799.⁰⁰

Superior Air Filtration and Dust Collection



Air-Tech 750-ER
1050 MAX CFM
Remote Control
\$339.⁰⁰



1.5 HP Dust-Force
1 Micron Canister
42 Gallon Bag
\$575.⁰⁰



1.5 HP Dust-Force
1 Micron Bag
1250 Max CFM
\$369.⁰⁰



3 HP Dust-Force
1 Micron Bags
2500 Max CFM
\$869.⁰⁰



3 HP Dust-Force
1 Micron Canisters
42 Gallon Bags
\$1269.⁰⁰



2 HP Cyclone
1700 MAX CFM
35 Gallon Drum
\$1299.⁰⁰

Providing quality
products for over

20 Years!

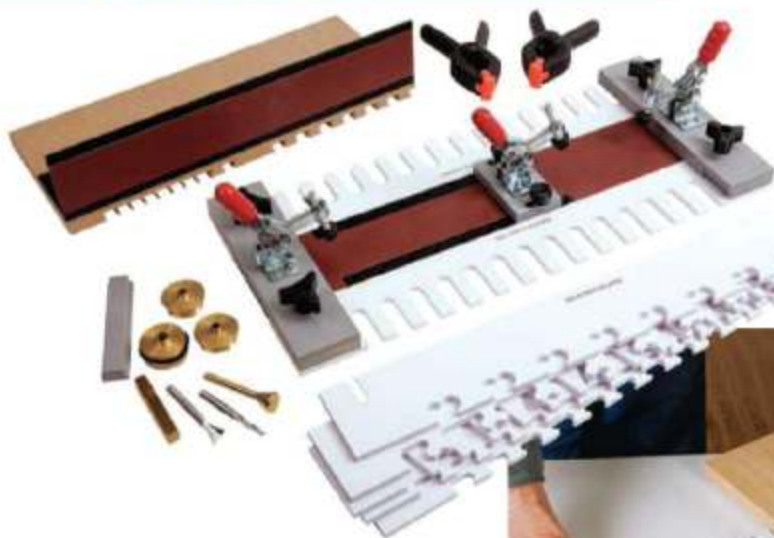
For more information call:

800.480.7269

www.jdstools.com

(Circle No. 39 on PRODUCT INFORMATION form)

JDS
company



requires initial adjustment, and that happens by sliding it back and forth on two slotted screw holes, making a few test cuts and fastening it permanently with heavy screws.

I followed the manual's recommendations for initial template setback on the blocks. To my surprise, the pin size was spot-on: my first test joint was a pleasing slip fit, ready for glue and clamps.

The process for making a joint involves routing the tail board first on either your router table or with a handheld machine. Then you use the tail board as a pattern to knife a single tail location onto the pin board. No calculations or difficulty to it. Clamp the pin template to these lines, and rout the pins. Careful knife lines will ensure dead-even board edges when you're done.

Keller Pro templates come in three sizes. While they're meant for fixed-space joints, you can vary the pattern by shifting the template during routing. A \$269 price tag may seem high for a jig that only cuts through dovetails. (A lower-priced "Journeyman" series is also available.) Still, these Pro templates carry 20-year warranties and should take a lifetime of hard use.

MLCS Fast Joint System

Want to add some flair to your half-blinds? Here's a jig that will make the conventional wedges, as well as key- and heart-shaped joints, just by

switching between interchangeable templates. Fast Joint will do through dovetails, too. The company also sells a variety of other templates as accessories to expand the options even further.

Here's how it all works: the jig consists of an "H"-shaped platform with stops and toggle clamps on each end. Pin and tail templates bolt in place on opposite sides, which also registers their offset. For half-blinds, you cut the joint pins by standing the workpiece against a right-angle fence that clamps to the jig base. The tail slots are milled with the board lying down and clamped. Both pins and tails are cut vertically for through dovetails. All the milling happens on the router table, using guide collars and bits that MLCS supplies with the system. In fact, MLCS provides everything you need — even spring clamps! — for a convenient, all-in-one package.

Fast Joint will rout boards up to 14" wide in stock from 1/4" to 3/4" thick; through dovetails are limited to 3/8" or thinner material.

This jig took me longer to set up and learn than some others. But, its

MLCS Fast Joint \$169.95

Fast Joint's interchangeable templates produce many unique joint designs on the router table. www.mlcswoodworking.com (800) 533-9298

For more info on the web: use our **QUICK-LINK**



A wide jig base faced with sandpaper and three supplied toggle clamps hold workpieces securely for router table use. A right-angle fence mounts on the jig to rout pin boards vertically.



Fast Joint's interchangeable templates come in several decorative styles. They will add a whole new dimension to your corner joinery.

manual is well written and clearly photographed to explain the step-by-step process. Keep it in a safe place for a refresher course if you don't rout dovetails very often.

Tool Review continues on page 58 ...

HARDWOOD SHOWCASE

Shopping for hardwoods
has never been so easy!

FIND WOOD SUPPLIERS
FAST... ONLINE!

woodfinder

Now over 400
suppliers!

It's fast, easy
and FREE!

www.woodfinder.com

SUPPLIERS: CALL TOLL-FREE 1-877-832-8637 TO JOIN US!

Your Source for Wood

Lumber • Veneer • Turning Stock



Over 100 beautiful woods. Secure online ordering.

www.101woods.com

800.423.2450



(Circle No. 75)



Your source for
quality wood turnings!



ORDER ONLINE:
www.buyislandlegs.com
ORDER LINE:
1-800-849-8876
CALL FOR A CATALOG:
1-800-746-3233

4620 CA Highway 123 • Tiburon, CA 94927 • Email: info@osborne-wood.com

(Circle No. 48)

Badger Hardwoods of Wisconsin, Ltd.

(800) 252 - 2373

17 Species of Hardwood Lumber and Plywood
Free Catalog - No Minimum Orders

www.badgerwood.com

(Circle No. 6)

The World's Router Bit Source

WJ0011



Over 2,000
Router Bits
and Sets

Over 5,000
woodworking
items!



**EAGLE
AMERICA**

- ✓ Exclusive Online Offers
- ✓ Clearance Section
- ✓ New Products
- ✓ Sign up for our eNewsletter

Request your FREE color catalog

EagleAmerica.com • 1-800-872-2511

**Special
Offer**

FREE Shipping

on your internet order of \$75, prior orders excluded
- now through 1/31/10 -

To redeem visit: www.EagleAmerica.com/WJ2911

(Circle No. 21 on PRODUCT INFORMATION form)

Great Investment



Invigorate the economy
while going easy on
your wallet. An
American Steel Span
building with its
enduring quality makes
a great investment -
perfect for a workshop,
ideal for a garage.

Made in the USA • Maintenance-Free
www.steelspan.com

800-891-6733 ext 019



(Circle No. 2 on PRODUCT INFORMATION form)

LOGS TO LUMBER



**MAKE YOUR
OWN
LUMBER
& SAVE MONEY**

**2
YEAR
WARRANTY**

EIGHT Sawmill Models Available

Wood-Mizer

800.553.0182
www.SawBoards.com

(Circle No. 73 on PRODUCT INFORMATION form)

Sommerfeld Tools Katie Jig \$220

Moveable tuning forks give you creative control over dovetail spacing on this heavy-duty jig.

www.sommerfeldtools.com

(888) 228-9268

For more info on the web: use our **QUICK-LINK**

Fast Joint worked well for me, because the guide collar and templates minimize the setup variable that could complicate the process. You'll need to set bit heights carefully, and you may need to make spacer blocks to position workpieces on the jig in order to create a centered pattern.

I wish the templates were made of a more durable material than PVC; they will flex slightly when pressed hard against a guide collar. But that really didn't impact accuracy or joint fit. All in all, \$170 seems a good bargain for a jig that makes four joint styles right out of the box, with a nice bunch of extras.

Sommerfeld's Katie Jig

Like ChestMate, Katie Jig is another unit tailor-made for cutting true variable-spaced through dovetails. You design the pattern by setting and locking nine tuning forks on the bottom of the jig. One side of the forks forms the pins, the other side routs the tails, using piloted straight and dovetail bits that come standard.

Along with the creative potential of this jig, you also have the option of using it either upside down on a router table or bottom-side-up with your handheld router. Those long tuning forks make router table use particularly stable and convenient. Katie Jig will rout workpieces up to 12" wide and 3/4" thick.

You can buy a separate tuning fork/bit package for making box joints or a solid template and "organic" bit for cutting half-blinds. Or combine box and dovetail forks to make a unique hybrid style.



Adjustable tuning forks guide Sommerfeld's piloted bits to create variable-spaced dovetails. The forks set both pin and tail cuts.

I appreciate the heavy-duty construction of this system. Except for the backup boards, most of the jig is made of thick plate- or extruded aluminum. The integral bar clamps are stout and lock workpieces down securely with big wing knobs. Since the tuning forks move, the backer boards get chewed up fast, but they're easy to make and replace.

All this said, in testing, the Katie Jig was a bit more difficult to use accurately. It's imperative that the tuning forks are set and locked squarely against the jig's body, or the edges of your joints can become misaligned. Same goes with the top-mounted stops; double-check them for square. After some time, I was able to get glue-ready joints, but the process required more test cuts and adjustments than other jigs here.

The manual covers setup and use pretty well, but Marc Sommerfeld just released a new DVD that adds helpful information to it. He also provides some tips on shimming the jig to adjust pin thickness — troubleshooting I needed for the test jig but didn't find in the manual. (Incidentally, Sommerfeld Tools said they'll supply this DVD free to *Journal* readers with a jig purchase if you mention this article.)



An optional template and special "organic" bit form these unique, radiused half-blind joints.

Bottom line: \$220 buys versatility and rugged construction — both real pluses — but be diligent and patient with your setup process.

"Best Bet" Honors

Often, choosing a winner is an easy job, but not this time. There are several standout jigs here. General Tool's Dovetailer is priced for anyone and works well. ChestMate is also a steal for its multipurpose capabilities. But my "Best Bet" goes to Keller. It's a little more spendy, but the sheer simplicity of this system makes dovetailing both accurate and fun. I'm confident that with these templates, I could lose the manual and still be cutting perfect joints in minutes.

Chris Marshall is *Woodworker's Journal's* field editor.

Bob Vila endorses and recommends the famous EdenPURE® portable heater

Millions of Americans now saving up to 50% on their heating bills and raving about the "heavenly heat"

Does not get hot, cannot start a fire and will not reduce humidity or oxygen

Never be cold again

The famous infrared portable heater, the EdenPURE®, which can cut your heating bills by up to 50%, has been greatly improved.

The new EdenPURE® GEN3 heater heats better, faster, saves more on heating bills and runs almost silent.

The EdenPURE® can pay for itself in a matter of weeks and then start putting a great deal of extra money in your pocket after that.

A major cause of residential fires in the United States is portable heaters. But the EdenPURE® cannot cause a fire. That is because the advanced infrared heating element never gets to a temperature that can ignite anything.

The outside of the EdenPURE® only gets warm to the touch so that it will not burn children or pets.

The EdenPURE® will also keep you healthy. That is because, unlike other heating sources, it will not reduce humidity or oxygen in the room.

The advanced space-age EdenPURE® Infrared Portable Heater also heats the room evenly, wall-to-wall and floor-to-ceiling. And, as you know, most other portable heaters only heat an area a few feet around the heater.

Unlike other heating sources, the EdenPURE® cannot put poisonous carbon monoxide, any type of fumes or any type of harmful radiation into a room.

Q. What is the origin of this amazing heating element in the EdenPURE®?

A. This advanced heating element was discovered accidentally by a man named John Jones.

Q. What advantages does this advanced infrared heating process have over other heating source products?



Cannot start a fire; a child or animal can touch or sit on it without harm

Pictured above is Bob Vila demonstrating the famous EdenPURE® GEN3 Model 1000 heater with a family. It saves big money on your heating bill while keeping you toasty warm with "heavenly heat".

A. This infrared heating process was designed around the three most important consumer benefits: economy, comfort, and safety.

In the EdenPURE® process, electricity is used to generate a type of infrared heat which, in turn, creates a very safe heat.

Q. How can a person cut their heating bill by up to 50% with the EdenPURE®?

A. The EdenPURE® will heat a room in minutes. Therefore, you can turn the heat down in your house to as low as 50 degrees, but the room you are occupying, which has the EdenPURE®, will be warm and comfortable. The EdenPURE® is portable. When you move to another room, it will quickly heat that room also. This can drastically cut heating bills, in some instances, by up to 50%.

End of interview.

The EdenPURE® will pay for itself in weeks. It will keep a great deal of extra money in a users pocket. Because of today's spiraling gas, oil, propane, and other energy costs, the EdenPURE® will provide even greater savings as the time goes by.

The EdenPURE® heater is now greatly improved. With no increase in price, the new EdenPURE® has been updated with the latest technology, safety, and comfort features to provide you with even greater comfort, more savings, and years of reliability. The EdenPURE® comes with a comprehensive three year warranty along with a 60-day no questions asked satisfaction guarantee - we pay the return shipping.

This product has been listed by Underwriters Laboratories.

Testimonials from a few of the millions of satisfied EdenPURE® customers

The EdenPURE® has cut my gas bill to a third of what it was last year. *Leslie Wilson, Vancouver, WA*

The EdenPURE® really puts out the heat like a little solar furnace. It's below freezing outside and cozy warm in the rather over large living room area where I'm using it. I have already noticed a 40 to 60% drop in the cost of my heating bills. *George B., Triangle, N.Y.*

How it works:



SPECIAL READER'S DISCOUNT COUPON

The price of the EdenPURE® GEN3 Model 500 is \$372 plus \$17 shipping for a total of \$389 delivered. The GEN3 Model 1000 is \$472 plus \$27 shipping and handling for a total of \$499 delivered. People reading this publication get a \$75 discount plus free shipping and handling and pay only \$297 delivered for the GEN3 Model 500 and \$397 delivered for the GEN3 Model 1000 if you order within 10 days. The EdenPURE® GEN3 comes in the decorator color of black with burl wood accent which goes with any decor. There is a strict limit of 3 units at the discount price - no exceptions please.

Check below which model and number you want:

- ☐ GEN3 Model 500, number _____ GEN3 Model 1000, number _____
- To order by phone, call TOLL FREE 1-800-588-5608 Authorization Code EHS1267. Place your order by using your credit card. Operators are on duty Monday - Friday 6am - 3am, Saturday 7am - 12 Midnight and Sunday 7am - 11pm, EST.
- To order online, visit www.edenpure.com enter Authorization Code: EHS1267
- To order by mail, by check or credit card, fill out and mail in this coupon. This product carries a 60-day satisfaction guarantee. If you are not totally satisfied return at our expense, and your purchase price will be refunded - no questions asked. There is also a three year warranty.

NAME _____

ADDRESS _____

CITY _____

STATE _____

ZIP CODE _____

Check below to get discount:

- ☐ I am ordering within 10 days of the date of this publication, therefore I get a \$75 discount plus free shipping and handling and my price is only \$297 for GEN3 Model 500 and \$397 for GEN3 Model 1000 delivered.
- ☐ I am ordering past 10 days of the date of this publication, therefore I pay shipping and handling and full price totaling \$389 for GEN3 Model 500 and \$499 for GEN3 Model 1000.

Enclosed is \$_____ in: ☐ Cash ☐ Check ☐ Money Order (Make check payable to BioTech Research) or charge my:

☐ VISA ☐ MasterCard ☐ Am. Exp./Optima ☐ Discover/Novus

Account No. _____ Exp. Date ____/____/____

Signature _____

MAIL TO:

BioTech Research
Authorization Code EHS1267
7800 Whipple Ave. N.W.
Canton, OH 44767



ROCKLER®

WOODWORKING AND HARDWARE

Create with Confidence™



Lift, grip and protect your projects



26357
Four cookies,
just \$11.99

Our new Bench Cookies are revolutionizing the workshop, allowing for stable routing, sanding, carving and other tasks without traditional clamps. The secret? Non-marring rubber pads that solidly grip both the bench and your workpiece. They also elevate your projects for complete access to every edge, making finishing and edge work easy. Sturdy and simple to set up, Bench Cookies are guaranteed to help you **Create with Confidence.**

(Circle No. 54 on PRODUCT INFORMATION form)



For a store near you or free catalog visit

Rockler.com

1-877-ROCKLER

Find Bench Cookies and other Rockler innovations at a store near you.

Arizona

Phoenix Rockler Woodworking and Hardware
4626 E. Thunderbird Rd. (602) 996-3488
Woodworkers Source
18115 Black Canyon Hwy (602) 504-1931

Tempe Woodworkers Source
645 W Elliott Rd. (480) 355-5090

Tucson Woodworkers Source
3441 S Palo Verde (520) 745-8301

California

Atascadero Outlet Tool Supply
7175 El Camino Real 877-886-1298

Fresno Ideal Saw Works
351 "O" Street (559) 237-0809

Ontario Rockler Woodworking and Hardware
4320 E. Mills Circle Rd. (909) 481-9896

Orange Rockler Woodworking and Hardware
1955 N. Tustin (714) 282-1157

Pasadena Rockler Woodworking and Hardware
83 South Rosemead (626) 356-9663

Pleasant Hill Rockler Woodworking and Hardware
541 Contra Costa Blvd. (925) 521-1800

San Diego Rockler Woodworking and Hardware
8199 Clairemont Mesa Blvd. (858) 268-1005

Torrance Rockler Woodworking and Hardware
20725 Hawthorne Blvd. (310) 542-1466

Colorado

Denver Rockler Woodworking and Hardware
2553 S. Colorado Blvd. (303) 782-0588

Lakewood Tool King, LLC
11111 W 6th Ave. (303) 963-4500

Florida

Davie International Tool
2590 Davie Rd. (954) 792-4403

Naples Presher's Tool & Fastener
2825 Davis Blvd (239) 774-2525

Georgia

Sandy Springs Rockler Woodworking and Hardware
6235 Roswell Road (404) 460-1000

Illinois

Joliet Berlends Inc
1695 New Lenox Road (815) 722-2000

Pekin Woodworkers Shop
13587 E. Manito Road (309) 347-5111

Schaumburg Rockler Woodworking and Hardware
253 West Golf Road (847) 310-0447

Indiana

Indianapolis Rockler Woodworking and Hardware
8452 Castleton Corner Dr. (317) 578-9750

South Bend Johnson's Workbench
51315 West US 33 (547) 277-8350

Iowa

Des Moines Woodsmith
10320 Hickman Road (515) 254-9494

Cedar Rapids Acme Tools
1943 Blairs Ferry Road N.E.
(866) 681-8665

Kansas

Derby Big Tool Store
4640 E 63rd St. South (800) 788-6505

Lenexa Overland Tool
7905 Neilman Rd. (913) 599-4044

Maine

South Portland Rockler Woodworking and Hardware
200 Gorham Road (207) 761-4402

Maryland

Hunt Valley The Cayce Company
221-B Cockeysville Rd. (410) 771-0213

Massachusetts

Cambridge Rockler Woodworking and Hardware
2154 Massachusetts Ave. (617) 497-1136

Fall River Burns Inc
350 Mariano S Bishop Blvd. (800) 341-2200

Michigan

Charlotte Johnson's Workbench
563 N. Cochran (517) 543-1660

Grand Rapids Johnson's Workbench
1038 Burton SW (616) 245-9545

Royal Oak Rockler Woodworking and Hardware
29918 Woodward Ave. (248) 543-5110

Missouri

St. Louis Rockler Woodworking and Hardware
11977 Saint Charles Rock Rd. (314) 209-1116

Minnesota

Burnsville Rockler Woodworking and Hardware
2020 W. County Rd. 42 (952) 892-7999

Maplewood Rockler Woodworking and Hardware
1935 Beam Ave. (651) 773-5285

Minneapolis Rockler Woodworking and Hardware
3025 Lyndale Ave S. (612) 822-3338

Minnetonka Rockler Woodworking and Hardware
12995 Ridgedale Dr. (952) 542-0111

Plymouth Acme Electric Tool
4150 Berkshire Ln. 866-681-8665

Montana

Bozeman Four Corners Hardware
177 Garden Drive (406) 576-4422

New Hampshire

Salem Rockler Woodworking and Hardware
373 South Broadway (603) 898-5941

Brentwood Brentwood Machinery & Tools
313 Rt. 125 (603) 679-8452

New York

Buffalo Rockler Woodworking and Hardware
5085 Transit Road (716) 631-8922

Nevada

Las Vegas Woodworkers Emporium
5461 Arville St. (702) 871-0722

Henderson Woodworkers Emporium
125 N Gibson Rd. (702) 567-8223

New Jersey

Union Force Machinery
2271 Route 22 (908) 688-8270

North Dakota

Fargo Tool Crib
920 36th Ave N (800) 437-4100

Ohio

Cincinnati Rockler Woodworking and Hardware
421 East Kemper Road (513) 671-7711

Columbus WoodWorks Supply, Inc
1181 Claycraft Road (800) 860-9375

Enon The Hardwood Store
340 Enon Rd. (937) 864-2899

Milford Hardwood Lumber & More
848 Molly Lane (513) 553-5800

Strongsville Cleveland Tool & Cutter
14181 Foltz Pkwy. (440) 238-5770

Oregon

Portland Rockler Woodworking and Hardware
11773 SW Beaverton-Hillsdale Hwy.
(503) 672-7266

Pennsylvania

Pittsburgh Rockler Woodworking and Hardware
7402 McKnight Road (412) 364-7751

Southampton Woodworkers Haven
60 James Way Unit 7 (215) 953-1955

Williamsport Hemenace Machine Co.
178 Campbell St. (866) 326-8131

South Carolina

West Columbia Mann Tool and Supply
802 Chris Drive (800) 356-6266

South Dakota

Sioux Falls Stan Houston
501 S Marion Rd (605) 336-3727

Tennessee

Davidson General Industrial Supply
1136 Lebanon Pike (615) 256-2220

Barlett The Woodwork Shop
8500 Wolf Lake Dr., Suite 101 (901) 755-7355

Texas

Arlington Rockler Woodworking and Hardware
4624 S. Cooper St. (817) 417-0070

Houston Rockler Woodworking and Hardware
3265 Southwest Freeway (713) 622-6567

Lubbock SRS Tool & Supply
8116 19th Street (806) 687-4905

Mesquite Rockler Woodworking and Hardware
18661 Interstate Hwy. 635 (972) 613-8848

San Antonio Otto Dukes Machinery
600 San Pedro Ave. (800) 333-8537

Virginia

Winchester McFarlands Mill Inc.
587 Round Hill Rd. (540) 667-2272

Washington

Seattle Rockler Woodworking and Hardware
3823 Stone Way North (206) 634-3222

Sumner Sumner Woodworker Store
908 Cherry Ave. (253) 891-9413

Tukwila Rockler Woodworking and Hardware
345 Tukwila Parkway (206) 244-9161

West Virginia

Princeton Virginia Hardware
1411 N Walker St (304) 425-3570

Wisconsin

Milwaukee Rockler Woodworking and Hardware
845 North Mayfair Road (414) 774-1882

"As a woodworker by trade, I enjoy going to Rockler to get things I need to make the job so much easier. Keep up the great work. Thanks!"

Rich Fleer

Wrangling with Router Tables

By Bill Hylton

There are many options available to woodworkers when it comes to router tables. We decided to ask one of the top authorities in the country to use a couple of top-end models to outline a discussion of features and functions. Our author has his opinions — we know you'll have yours.

The Kreg Precision Router Table and the Bench Dog ProMax RT Cast Iron Router Table are two of the finest options currently available on the market. I picked them to illustrate some of the top-end options for router tables and how various features might serve your needs.

Tabletop

The key element of the router table is the top. To achieve consistent, accurate cuts, your tabletop must be flat and free of obstructions.

Over the years, I've heard of tinkers crafting tabletops of plywood, MDF, MCP, sink cutouts, phenolic, Corian®, heavy-gauge sheet metal and even granite. Daunted by the perceived need to have a

top that's perfectly flat, now and forever, many woodworkers decide simply to purchase one.

The Kreg tabletop is fairly typical of the market's offerings, but it has several nice details that set it apart. Cut from 1"-thick MDF, the top measures 24" x 32". It's got thin plastic laminate faces and plastic edge-banding. The top has a 9 1/4" x 11 1/4" mounting-plate hole in the center, a 7/16"-deep, 1 1/8"-wide groove for an extruded aluminum T-track and miter-gauge slot, and, in the left rear corner, a 3/8"-wide by 8 1/4"-slot for a studded knob that locks the fence.

Here are the distinctions:

- The surface laminate is embossed with a grid of tiny dots, billed as Easy-Slide™

Micro-Dot, that the company asserts makes it easier for you to slide workpieces across the tabletop.

- The edge-banding is actually bonded to the MDF, rather than being T-molding stuffed in slots in the MDF edges.

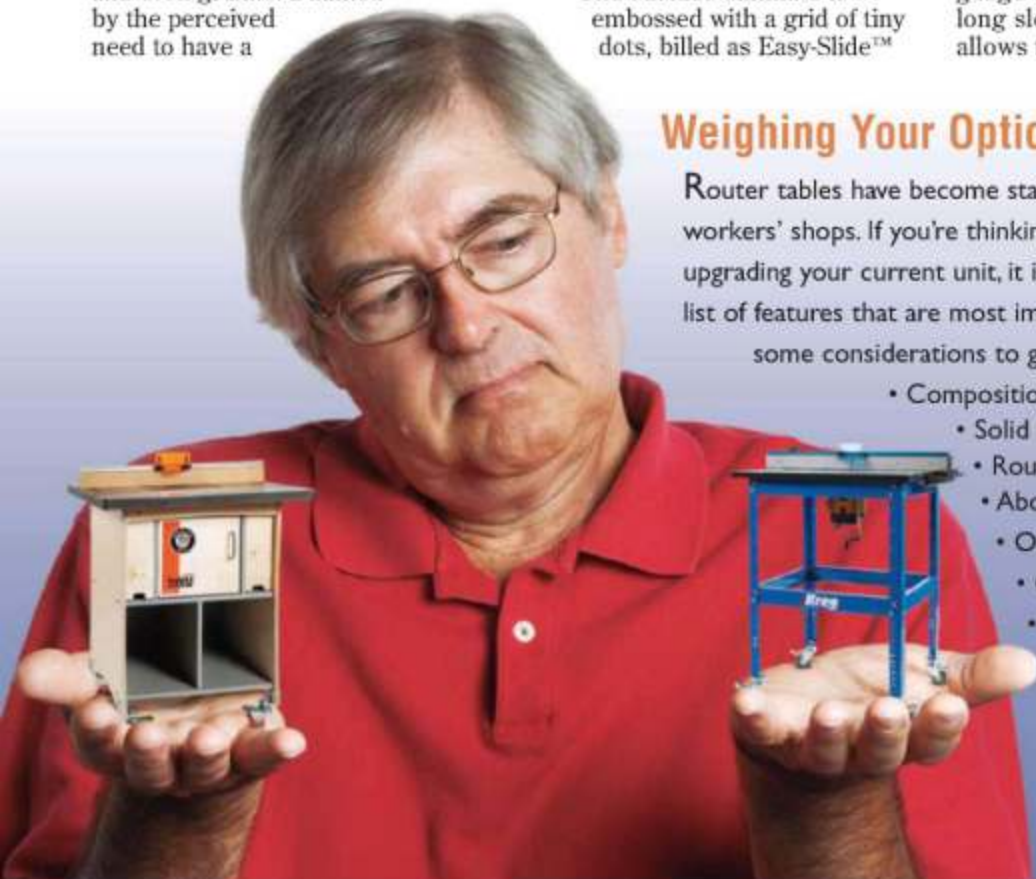
- Two steel U-channel strips fasten to the top's underside on either end of the plate opening, stiffening the top. Pilot holes for all fasteners are drilled, and fasteners are supplied in the package.

Bench Dog's premium tabletop is unique. It's a nearly 100-lb. iron casting, machined flat. There's a centered opening for an 8 1/4" x 11 1/4" router mounting plate, a miter-gauge slot, and a T-slot. A 12 1/2"-long slot parallel to each end allows the fence to be mounted

Weighing Your Options ...

Router tables have become standard fare in most woodworkers' shops. If you're thinking of buying one, or about upgrading your current unit, it is a good idea to create a list of features that are most important to you. Here are some considerations to get you started:

- Composition of the tabletop
 - Solid table or with insert plate
- Router lift
- Above the table adjustment
- Open stand or cabinet
- One-piece or split fence
- Dust collection (4" or 2 1/2")
- Casters
- Benchtop or full-size
- Miter slot
- T-slot hold-downs



Do You Really Need a Router Table?

The fact of the matter is, a router table is stone simple. It's really just a tabletop with a mounting for the router, a fence to guide the work and some sort of stand to support the tabletop while you work.

Router tables turn the portable router into a precision stationary machine. Hanging under a table, they're on standby

for work, just the way your other tools are. Install a bit, adjust the fence, and they're ready to cut.

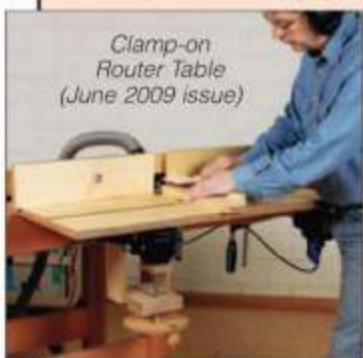
Too, immobilizing the router in a worktable somehow makes it less intimidating, so you'll use it more. And if it's housed in a cabinet, its noise is muffled. Capturing dust is also easier and more efficient.

With that said, router tables

can be expensive. It's easy to drop more than a grand into a router table with an expansive top, a powerful router and lift, a sophisticated fence with micrometer adjusters and lots of attachments — plus a cabinet replete with bit and accessory storage, dust collection and its own electrical system.

Horizontal Tilt-top Router Table (this issue, page 38)

The Journal has many plans for shop-built router tables and accessories. Plans are online at woodworkersjournal.com/store.



and adjusted from a position slightly forward of the bit axis to the back edge.

There are those who might contend a cast-iron tabletop is overkill. Yes, it is flat, smooth and won't sag. But, aside from the benefit of the vibration dampening offered by the heavy top, a workpiece routed on a cast-iron tabletop can't be differentiated from one routed on a flat, smooth, MDF tabletop. Value is in the eye of the beholder, to edit a phrase, but to put it in a useful context — just the cast-iron tabletop costs as much as Kreg's entire package. It's worth noting that Bench Dog offers a nice phenolic top and allows customers to mix and match.

Mounting Plate

Both Kreg and Bench Dog follow the industry convention for mounting the router — an insert plate nestled into an opening in the center of the table. This plate must be flat, of course, and flush with the top.

Kreg includes its plate with the top, while Bench Dog charges extra for it. While the plate configurations are the same, the dimensions and composition differ. Kreg's 9 1/4" x 11 1/4" plate is phenolic; Bench Dog's 8 3/4" x 11 1/4" plate is aluminum. Both plates have a hole for the largest available bits and a reducer or two to use with smaller bits.

Personally, I have issues with

mounting plates in general, and neither of these plates merits an exception. An uninterrupted feed demands the plate be flush with the tabletop surface. As well, the reducer must be flush with the plate surface. To get everything into the same plane, you adjust set screws — lots of set screws. It's not difficult, but it is fussy.

When I build my own router tables, I make a smooth, plate-free tabletop with snug-fitting reducers.

Fence

The most-used guide system on a router table is the fence. To work properly for you, the fence must be perfectly straight from end to end, and its face must be perpendicular to the tabletop all along its length. If the fence facing is split — and it

ought to be — the halves must be coplanar.

In addition, you must be able to move (and even remove) it easily, yet lock it quickly and securely.

Both the Kreg and Bench Dog fences are based on aluminum extrusions with through slots for accessories like bit guards, featherboards and split facings. These extrusions proved to be straight and square. Both fences offer a plastic dust pickup. Beyond these fundamentals, the fences differ significantly.

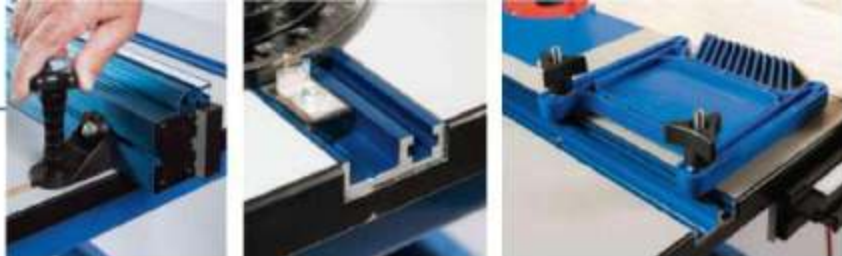
The Bench Dog fence is utterly simple. It's mounted with a bolt at each end that's captured in a tabletop slot. The fence has considerable free move-

ment, and you set it by measuring from the bit to the face, then tightening knobs on the mounting bolts. You make fine adjustments by loosening one end only and pivoting the fence on the still-tight bolt.

Despite being bolted to the table, the fence does come off quickly. The far ends of the mounting slots are enlarged: loosen the bolts, slide the fence back, and lift it clear off the table. The fence is slightly shorter than the tabletop width, so it can't overhang either end.

The Kreg fence is more elaborate. It mimics a table saw rip fence, riding a track fastened to the left end of the tabletop. The face thus is parallel to the table's front edge. Flip up the locking

Today's Shop continues on page 64 ...



Kreg's fence locks securely in place by means of a knob and bolt assembly. In addition to the miter slot, Kreg has a T-slot manufactured into the aluminum extrusion. This allows for accessories like the feather board shown above.



Kreg Precision Router Table as shown: \$499.99

www.kregtool.com

lever and measure the distance you move it on a rule built into the track. You can make accurate position adjustments quickly and don't need a separate rule or tape.

One drawback is that the fence and track lack the rigidity of a rip fence and its rail, so the right end of the fence must be tightened down with a bolt through the tabletop. It's a matter of twisting a knob. But to free the fence from the table, you've got to completely remove the nut under the table from the stud.

Stand

The final component of any router table is the supporting stand or cabinet. While stands tend to be simple to make and assemble, they usually lack two essential features — storage for tools you need close at hand and dust containment.

The Kreg stand exemplifies what I'm talking about. I step to the table to set up. But wait ... I've got to find the wrenches for the router. Forgot the bit. Oh, and the 1/4" collet for it. Hmm, and a rule to set the bit elevation and the fence position. I've got to fetch these items because the open stand has no place to stow them. When my setup

Today's Shop continues on page 66 ...

Independence is right around the corner...

Call your local Premier Care In Bathing office today if you or a loved one is struggling getting in or out of a bath. Our knowledgeable staff live in your community, and will come right to your home to offer expert advice on the best PREMIER WALK IN BATH that is right for you.

There is no obligation, and the visit is free of charge... so call today and let Premier transform your bathroom and transform your life.

Call Now
For Your FREE
Information Kit



Premier
Care in Bathing
"Transform your bathroom
and transform your life."
- Karen Grizzle

\$1,000
In Savings
Available
Today!

Call us today toll free at
1-800-578-2899

SOURCE CODE 49119

☒ **Yes!** Please send me a FREE COLOR BROCHURE about Premier Walk-In Baths.

Name _____

Telephone () _____

Address _____

City _____

State _____

Zip _____

Send to: Premier Care in Bathing Inc.
2330 South Nova Road, South Daytona, Florida 32119

49119

(Circle No. 49 on PRODUCT INFORMATION form)



Create your custom products with an Epilog Laser system!

Systems starting
at \$7,995!

- Custom engrave your products – from cabinet doors, to cigar boxes, to gun stocks.
- Cut intricate models from any type of wood, acrylic, leather, plastic, paper, and much more.
- With lease payments starting at about \$150/month*, Zing laser systems are unbelievably affordable!



Find out how to get your own laser. Call 888-437-4564

MADE IN USA

sales@epiloglaser.com • www.epiloglaser.com/wwj.htm

*With Approved Credit

(Circle No. 25 on PRODUCT INFORMATION form)



The Apollo 1040VR Turbine
and the award-winning
Apollo Atomizer® spray gun:
Precision Partners for the Perfect Finish



DONT SPRAY YOUR MONEY AWAY!

With 80-90% Transfer Efficiency - Apollo Saves you 50-60% on Coatings



Order Yours Today 888-900-4857 (HVLP) www.hvlp.com

Dept. wwj1109

(Circle No. 4 on PRODUCT INFORMATION form)

TODAY'S SHOP

Bench Dog Pro Max Router Table as shown: \$699.99
www.benchdog.com



In addition to the massive cast-iron top, the Bench Dog unit offers storage for bits, wrenches and other supplies. The simple but effective fence system is easy to adjust and, just as important, easy to remove.

is done, but before I can cut, I've got to move the wrenches and 1/2" collet and rule off the table.

When my cut is completed, I've got to sweep up under the table because the dust collection at the fence can't get it all.

To be fair, Kreg's stand does feature holes so you can mount a small cabinet of your own making inside it.

Many manufacturers sell cabinets very much like the Bench Dog unit. It can be assembled in about the same time required to assemble a stand like Kreg's. It provides containment for dust — and a

4" hose port so your dust collector can pull it out of the cabinet. Storage compartments keep bits, wrenches and other essential sundries at hand.

What do you need in a router table? It may be different from what you want, but these two tables give you a taste of what is out on the market, and what it may cost you to purchase them. In the end it is your choice and your pocketbook — make a list of "must have" and "really like" features, and then consult with your checkbook to see which of them you can afford.

Bill Hylton is a regular contributor to Woodworker's Journal.

Leigh Super Jigs!

12" 18" or 24"

FROM **\$219**
Dealers may sell for less

OPTIONAL VRS VACUUM & ROUTER SUPPORT

25 YEARS
of Innovation and Excellence

Super Jigs rout through, half-blind, sliding, single pass half-blind dovetails and box joints. Includes bits, guidebush, DVD and more.

leighjigs.com 800-663-8932

LEIGH
Leigh Router Joinery Jigs

OSBORNE

Wood Products, Inc.

High Quality Wooden Components available in a variety of design styles.

866.849.8876

WWW.OSBORNEWOOD.COM

(Circle No. 47 on PRODUCT INFORMATION form)



CLEARLY **ADVANCED**



Wagner Moisture Meters

- More accurate* and over 10 times faster than pin-type meters
- Full thickness measurements without the holes
- Manufactured in the United States
- Support provided by Wagner's solution-oriented team

Providing fast accurate moisture measurements, Wagner's **clearly advanced** moisture meters have been the preferred choice by professionals for over 25 years.



www.wagnermeters.com 1-800-634-9961

*Accuracy proven by several different university studies.

(Circle No. 78 on PRODUCT INFORMATION form)



Stellite® tip technology for sawing tough wood

- Kiln Dried
- Exotic Species
- Resawing

Wood-Mizer Blades

Your Leader in Blade Technology.

1.800.522.5760 • www.woodmizerblades.com

(Circle No. 74 on PRODUCT INFORMATION form)

Build your Own: Home Cabinets Furniture Stables Barns Fencing Cabin and more!

Saw Your Own Lumber!

Powerful, Reliable, Affordable!
The MP-32 Personal Sawmill
Save with amazing Package Deals Specials!

Cook's Saw Mfg., LLC
1-800-473-4804
www.cookssaw.com

Call or email for your **FREE** Catalog!

(Circle No. 11 on PRODUCT INFORMATION form)

Woodworkersjournal.com

ZAR® ULTRA MAX WOOD STAIN

Let your good taste show



ZAR® ULTRA MAX OIL MODIFIED WOOD STAIN interior formula applies easily and penetrates evenly to achieve a rich, uniform color. It is ideal for furniture, hardwood floors, woodwork and wood, metal or fiberglass doors.

Core/Shell Technology provides the deep tones of an oil-based stain with the low odor, fast drying and easy clean-up of a water-based stain.

In addition, the **Advanced Green Phase Resin Dispersion Technology** utilizes environmentally friendly resins that result in a VOC compliant product.

With its delicious new colors, Ultra Max Wood Stain gives you a great look that is also good for the environment.



For more information or a dealer near you visit www.ugl.com or call 1-800-272-3235.



(Circle No. 69 on PRODUCT INFORMATION form)



Woodworking Tools & Supplies Index • December 2009

To receive information about the products or services featured in the advertisements in this issue, fill in the attached postcard, circling the appropriate number(s). Please allow 4 to 6 weeks for delivery.

For product information in the blink of an eye, visit our website to link to any of our advertisers' sites: www.woodworkersjournal.com/adinfo

ADVERTISER	Reader Service No.	Page No.	Web Address
Affinity Tool Works	1	69	www.affinitytool.com
American Steel Span	2	57	www.steelspan.com
Apollo Sprayers	4	65	www.hvlp.com
Badger Hardwoods of Wisconsin	6	57	www.badgerwood.com
Beall Tool Company	7	69	www.bealltool.com
Bench Dog Tools	55	14	www.benchdog.com
Burgess Edge	8	69	www.burgessedge.com
Central Boiler		48, 74	www.centralboiler.com
Colonial Saw	10	49	www.csaw.com
Cook's Saw MFG, L.L.C.	11	67, 74	www.cookssaw.com
Dakota Alert, Inc.	13	48, 75	www.dakotaalert.com
Dakota County Technical College	15	69	www.woodfinishing.org
Delta Int'l. Machinery Corp.	16	24-29	www.deltaportercable.com
Donjer Products Corp.	17	69	www.donjer.com
Dowelmax		69	www.dowelmax.com
Dremel	18		www.dremel.com
Drill Doctor	19	15	www.drilldoctor.com
Dura-GRIT	20	49	www.duragrit.com/wj
Eagle America	21	57	www.eagleamerica.com
Ebac Lumber Dryers	22	15, 75	www.ebacusa.com
Eden Pure	24	59	www.edenpure.com
Epilog Laser	25	65, 75	epiloglaser.com/wj.htm
Eureka Woodworks	27, 28	21, 69	www.eureka-business.com
Fein Power Tools	30	80	www.fein.com
The Finishing Store		74	www.thefinishingstore.com
Freud	31	5	freudtools.com/architectural
General Tools & Instruments	32	19	www.generaltools.com
Gorilla Glue	33	15, 75	www.gorillatough.com
Grax Power Tools	35	3	www.graxusa.com
Hut Products	37	48	www.hutproducts.com
Hydro-Sil	38	49	www.hydrosil.com
JDS Company	39	55	www.jdstools.com
Kreg Tool Company	41, 40	17, 77	www.kregtool.com

ADVERTISER	Reader Service No.	Page No.	Web Address
Lee Valley Tools, Ltd.	42	73	www.leevalley.com
Leigh Industries, Ltd.		66, 71	www.leighjigs.com
Lignomat	43	48	www.lignomat.com
Master Gage	44	69	www.mastergage.com
Micro Fence		75	www.microfence.com
Mortise Pal	51	69, 75	www.mortiseopal.com
Oneida Air Systems, Inc.	46	48, 74	www.oneida-air.com
Osborne Wood Products, Inc.	48, 47	57, 66	www.osbornewood.com
PanelPro	58	48	www.panelpro.com
Premier Bathrooms, Inc.	49	64	premier-bathrooms.com
Red Devil, Inc.	53	11	www.sandfast.com
Rikon Power Tools	79	13	www.rikontools.com
Rockler Woodworking & Hardware	54	60, 61, 75	www.rockler.com
Routerbits.com, Inc.	56	69, 75	www.routerbits.com
Samuel Cabot Inc.	70	9	www.cabotstain.com
SawStop	59	2, 75	www.sawstop.com
Skill Power Tools	61	7, 75	www.skilltools.com
Sommerfeld's Tools for Wood	63	3	www.sommerfeldtools.com
Stanley Tools	65	53	www.stanleytools.com
Stanley-Bostitch Tools	64	13, 75	www.bostitch.com
Steel City Tool Works		74	steelcitytoolworks.com
System Three Resins, Inc.	66	3	www.systemthree.com
U-bild Woodworking Plans	67	69	www.u-bild.com
United Gilsonite Laboratories	69	67	www.ugl.com
Wagner Electronics	78	67	www.wagnermeters.com
Williams & Hussey Machine Co.	71	49	www.williamsnhussey.com
Woodworker's Journal		13, 18	woodworkersjournal.com
Woodfinder		57, 75	www.woodfinder.com
Woodline USA, Inc.	72	79	www.woodline.com
Wood-Mizer	73	57	www.sawboards.com
Wood-Mizer Blades	74	67	woodmizerblades.com
Woodworkers Source	75	57	www.101woods.com
Work Sharp		74	www.worksharptools.com

**WIN
A FREE
TOOL!**

We give away a free tool in every issue of *Woodworker's Journal*! Just circle the reader service numbers of the companies you're interested in and answer the survey questions on the card at right. Send it in for your chance to win ... we even pay the postage!

The Beall Wizard Raises the art of pen turning to a new level



THE BEALL TOOL CO.

541 Swans Road N.E. Newark Ohio Dept.
1-800-331-4718 www.bealltool.com WJ

(Circle No. 7)

U-BILD.COM

Hundreds of full-size woodworking plans at low prices. Free downloadable mini-plans. Indoor, outdoor, children's and holiday projects at all skill levels. Call (800) 828-2453 for free catalog or visit u-bild.com.

(Circle No. 67)

WOODFINISHING EDUCATION

SHORT-TERM WORKSHOPS OR
9-MONTH DEGREE PROGRAM
WWW.WOODFINISHING.ORG
651-423-8362 | ROSEMOUNT, MN

(Circle No. 15)

The Burgess Edge



A unique, patented edgeworking system—durable and easy to use. Both the shaper and router bits are adjustable for various 3/4" material.

Michael Burgess
www.burgessedge.com
See you at AWFS Booth 1001
802 233-1489 mburgess@verizon.net

Save money—order the 1/2" & 3/4" combination set

(Circle No. 8)

AWARD-WINNING DESIGN

PATENTED, PRECISION
MACHINE ALIGNMENT TOOLS
Visit **MASTERGAGE.COM**
888/893-8300

(Circle No. 44)

RouterBits.Com



Over 800 Router Bits,
Forstner Bits, and Drill Bits!

Email catalog@RouterBits.Com for a free print catalog!

Order online for fast shipping

(Circle No. 56)

DOWELMAX

PRECISION ENGINEERED MULTIPLE DOWEL JOINERY SYSTEM
GOLD MEDAL WINNER AT THE TOMORROW'S WORLD SCIENCE FAIR, LONDON, ENGLAND



- Dresser – 100% dowel construction
- Unrivaled precision
- Quick, easy, accurate and strong
- 20 min. learning curve / 5 min. per joint
- Our Unconditional Guarantee: joints greater in strength than mortise and tenon
- A system more accurate and versatile than any system on the market
- **Astounding** 19 straight 5 star reviews on www.amazon.com

www.dowelmax.com 1-877-986-9400

CLAMP EDGE



TOOL GUIDE

22.5°

AFFINITY TOOL WORKS, LLC
(866) 588-0395
www.affinitytool.com

(Circle No. 1)

STATEMENT OF OWNERSHIP, MANAGEMENT AND CIRCULATION (Required by 39 USC 3685) 1. Publication Title: Woodworker's Journal. 2. Publication No. 0199-1892. 3. Filing Date: October 1, 2009. 4. Issue Frequency: bimonthly. 5. No. of issues published annually: six. 6. Annual Subscription Price: \$19.95. 7. Complete mailing address of the publication office: 4385 Willow Dr., Medina, MN 55340. 8. Complete mailing address of the headquarters: 4385 Willow Dr., Medina, MN 55340. 9. Full names and mailing address of publisher and editor in chief: Larry Stokken, Publisher; Rob Johnstone, Editor in Chief. Rockler Press, Inc., 4365 Willow Dr., Medina, MN 55340. 10. Owner, names and addresses of stockholders: Rockler Press, Inc., 4365 Willow Dr., Medina, MN 55340. 11. Not applicable. 12. Not applicable. 13. Publication Title: Woodworker's Journal. 14. Issue date for circulation data below: September/October 2009. 15. Extent and nature of circulation is:

	Average no. copies each issue during preceding 12 months	Actual no. of single issue pub. nearest filing date
A. Total no. copies (net press run)	250,900	243,420
B. Paid and/or requested circulation		
1. Mail subscription	195,385	194,364
3. Sales: dealers, carriers, counter & vendors	12,938	11,649
C. Total paid and/or requested circulation	208,321	206,013
D. Free distribution		
3. By mail samples, complimentary and other free	1,405	1,366
4. Outside the mail	338	240
E. Total free distribution	1,743	1,606
F. Total distribution	210,077	207,619
G. Copies not distributed	40,823	35,801
H. Total	250,900	243,420
I. Percent paid and/or requested Circulation	99.2%	99.2%

16. This statement of ownership will be printed in the November/December 2009 issue of this publication. I certify that the statements made by me above are correct and complete. Larry Stokken, Publisher - 09/10/09.

Mortise Pal™

PRECISION MORTISING JIG



MORTISES MADE EASY!
WWW.MORTISEPAL.COM
RG JIG CO. TEL: 619-459-7951 FAX: 619-558-2611
4550 ALVARADO CANYON RD. STE. E, SAN DIEGO, CA 92120

(Circle No. 51)

Turn your **Woodworking PASSION** into **BIG PROFITS** with a proven turn-key program from:

EUREKA WOODWORKS, INC.™



Be your own boss! Transform your shop into a furniture factory producing America's most popular Adirondack-style outdoor furniture!

877-731-9303 **www.eureka-business.com**

(Circle No. 28)

LINE BOXES IN SECONDS...
"Suede-Tex" spray-on suede
No skill required • 30+ colors
800-338-6537 • **www.donjer.com**

DonJer Products Corp.
13142 Murphy Rd., Winnebago, IL 61088

(Circle No. 17)

Visit our website to link to any of our advertisers' sites: **www.woodworkersjournal.com/adinfo**

The Many Routes to Great Routing

contact info

Amana Tool:
800-445-0077

Forrest:
800-733-7111

Freud:
800-334-4107

Oneida:
800-732-4065

Rockler:
800-279-4441

Ryobi:
800-525-2579

Smith's:
800-221-4156

Woodline USA:
800-472-6950

NOTE: See Quik-Link
on page 72 for web
links to these tools.



Rockler Woodworking and Hardware's Box Joint Jig

With our annual focus on one of woodworkers' favorite tools, this issue has us rah-rah for routers — and their accessories. For instance, if your project *du jour* (or, more likely, the month) is making new doors for your kitchen cabinets (or even a new screen door), **Freud's** new *Premium Rail and Stile Bit Set* is available to work with a roundover profile, an ogee, a roundover bead or a bevel. It will accept material thicknesses from 5/8" to 1 1/4",

through use of an adjustable groove. Adjustable shims also allow the bits to fit correctly on panels whether they're thin or thick, while a unique cutter geometry eliminates tearout.

Woodworkers can also choose whether to use long tenons or standard stub tenons in their joints — removing the top portion of the cutter (including bearing and spindle) is what produces the front of the long tenon profile. The Premium Rail and Stile Bit Set costs \$99.99; optional cutters for double-sided and glass doors are also available.

Making boxes instead of doors? **Rockler Woodworking and Hardware's** *Box Joint Jig* fits on any router table with a 3/4" miter slot, where you can attach one of the three indexing keys (they're provided in sizes 1/4", 3/8" and 1/2"), plus a bit and sacrificial fence. After you've tightened the jig, the indexing key is both a spacer and a stabilizer for cutting box joint notches, while the stop dadoes in both grooves engage the sled shortly after the bit clears the cut. The Rockler Box Joint Jig works with stock up to 3/4" thick and sells for \$79.99.

If it's the bits you need for your router, you can now think small: **Amana** has produced a series of 1/4"-shank, carbide-tipped *Miniature Bearing Router Bits* that include a 3/16"-diameter ball bearing guide placed at the end of the bit. The series includes roundover, chamfer, flush-trim, bevel and rabbet profiles which will cut wood and plastic. Pricing starts at \$18.90 for the 3/8" miniature flush-trim bit (MR0102) and varies with each bit.

Freud's new Premium Rail and Stile Bit Set



Amana's Miniature Bearing Router Bits

Sometimes, of course, you need to start a project on a saw, and sometimes the material you're cutting just might be plywood or melamine. **Forrest Manufacturing** was thinking of just such situations when they designed their new *Thin Kerf Dado* blades: the blades are meant to produce thin grooves, and the 24 teeth mean the two outside blades do so cleanly, without

chipping or splintering as you cut on a table saw or radial arm saw. (Standard size is for a 5/8" arbor bore; others are also available.) The three-piece set, which comes with a 1/16" chipper for creating cuts from 3/16" to 1/4", sells for \$209, while the two-piece set, which comes with just the outside blades and the shims for 3/16" cuts, sells for \$189.

No matter what you're doing in the shop, dust collection is always an important consideration. **Oncida's Dust Deputy** gives you a small-sized cyclone collector, whatever size your shop. It's a clear-plastic molded miniature cyclone that can be mounted on or used with any

Continues on page 72 ...

MORE ON THE WEB

For even more tool coverage, go to the Tool Preview section in every issue of our eZine. Sign up for this free email newsletter at: woodworkersjournal.com

Forrest's Thin Kerf Dado blades



NEW Leigh Super FMT Frame Mortise & Tenon Jig



INCREDIBLE
VALUE!

\$449
Dealers may sell for less

Not exactly as shown. Router not included.



One guide, one bit, one setup... it's that easy!

leighjigs.com 800-663-8932

LEIGH
Leigh Router Joinery Jigs



Oneida's
Dust Deputy

standard shop vacuum. It separates over 99 percent of all dust and material and sends it into the container under the cyclone, not the shop vacuum. It minimizes filter clogs and helps the shop vac maintain optimum performance. And, since the cyclone is a clear container, it's also entertainment — kind of like a lava lamp, except with dust. Watch those fine particles swirl, for a cost of \$99 for the kit.

Regardless of which tool you're using, if your joint of choice is the dado, the **Woodline USA DadoMax™** will come in handy. The all-aluminum jig works with any handheld router: no measur-



Quik-Link takes you directly to the web page on which these products appear! No navigation necessary ... just go to woodworkersjournal.com and click on the Quik-Link icon shown above.



Woodline USA
DadoMax™



Smith's Diamond
Tri-Hone

ing, no shims. Just set it over the wood to be inserted and turn the adjustment. The included Porter-Cable style brass guide bushing fits most routers, and the DadoMax also works with a variety of bit diameters. Also included with the tool are a 25" edge guide clamp, 90° head accessory and aluminum carrying case. The DadoMax will also make stopped dados for mortises and dovetail sockets for sliding dovetails. It's priced at \$109.



brushes and water. Turn it on and clean up your brushes for a price of \$29.97.



Ryobi's BC400 Paint
Brush Cleaner

Speaking of clean shops and cleanup, **Ryobi's BC400 Paint Brush Cleaner** makes that task easier after your project is all finished. The BC400 is a one-gallon capacity paint brush cleaning machine. It will clean all paintbrushes up to four inches wide of all kinds of latex paint by swirling them around with soft rotating

Take care of your tools, too, by sharpening your plane blades, perhaps with the **8" Diamond Tri-Hone**, model #500008, this year's addition to the line of sharpening tools from **Smith's**, a company that's been around since 1886. Two Interrupted Surface Diamonds include a Micro-Tool Sharpening Pad for sharpening small edges and tools. The stones in this offering include 8" x 2 1/2" versions of both fine (750-grit) and coarse (325-grit) diamonds and a natural Arkansas stone. The triangular stone holder has knobs on the ends for easy stone rotation. The cost is \$74.99.

— Joanna Werch Takes

Manual Support

Two products that go hand in hand. One provides practical theory; the other lets you grasp it.



Small Shoulder Plane

Veritas® Small Shoulder Plane

Designed to seat nicely in the hand, our smallest shoulder plane is easily controlled using a one-handed grip. At 6 1/4" long by 1/2" wide and weighing 1 lb 2 oz, it is proportioned to handle multiple tasks, from trimming shoulders for a perfect fit to cleaning the bottom of dados. The lever cap wraps around the rear of the body, shrouding the blade adjustment mechanism so it does not obstruct the grip while acting as a comfortable rest for the palm. Textured recesses cast into the side of the body provide grip points for fingers. The ductile cast iron body is accurately machined and ground so that the sole and sides are flat and square, allowing the plane to be used on its side for accurately shooting the shoulder of a tenon. The plane's adjustable toe lets you restrict the mouth for fine shavings with minimum tear-out. The low bed angle of 15° combined with the 25° blade bevel results in a cutting angle of 40° for exceptional end-grain cutting. The lapped blade is 1/8" (0.125") thick, 1/2" wide, and is available in either A2 or O1 tool steel. Made in Canada. Patented.

Small Shoulder Plane, A2 05P47.01 \$169.00

Small Shoulder Plane, O1 05P47.51 \$169.00



Tenon shoulder trimming

Large Shoulder Plane



Medium Shoulder Plane

Bullnose Plane

Handplane Essentials

by Christopher Schwarz

Introductory Special

Packed with techniques and tips, this large volume compiles over ten years of Schwarz's writings into one reference, covering how to choose hand planes and effectively use them. Schwarz's tool reviews discuss the merits of many types of planes, including bench planes and specialty planes. Both a comprehensive how-to guide for woodworkers and an invaluable reference for tool collectors, it includes hundreds of photographs. Cloth-bound hardcover, 8 1/2" x 11", 312 pages, 2009, printed in the U.S. **Until Nov. 23, 2009, we are offering this book at an introductory price.**

Handplane Essentials 20L02.52 Reg. \$34.50 **Intro Special \$26.00**

To order these products, call or visit us online. You can request a copy of our free 284-page woodworking tools catalog or browse it online. A gift card from Lee Valley is always welcome. Shipping and N.Y. sales tax extra.

Lee Valley & Veritas® 1-800-683-8170 www.leevalley.com

(Circle No. 42 on PRODUCT INFORMATION form)

The Woodworker's Journal Holiday Gift Registry is an easy-to-use online tool, allowing you to send your gift ideas in just three easy steps. Log on to woodworkersjournal.com/giftregistry, choose the products you desire, enter in an email address and hit send. An email will be sent, letting the recipient know what you're interested in and where to get it. It's that easy!



Work Sharp

The award-winning Work Sharp WS3000 is a precision wood tool sharpener. This innovative dry sharpening system produces predictable and accurate results every time on a multitude of chisels, plane irons, lathe tools, carving tools and more.

Steel City Tool Works

The world's first portable planer with helical cutterhead. Steel City's 13" Deluxe Portable Planer (no. 40200H) features a patented helical head for superior finish, longer cut time and quieter operation. Backed with a 5-year warranty.



Cook's Saw Mfg., LLC

Manufacturers of portable band sawmills, edgers, resaws, sharpeners, setters, band blades and more. Cook's Saw ships 500-600 blades a day year round, all over the world, providing great pricing and service with each order.

Oneida Air Systems

The Dust Deputy converts any shop vacuum into a high efficiency cyclonic vacuum. It separates 99% of all material before the vacuum. No clogged filters or loss of suction. Easy empty.



Central Boiler

Save big on your heating costs with a Central Boiler E-Classic 2300 outdoor wood furnace. The E-Classic 2300 is EPA Phase 2 program qualified with an efficiency of over 85%. It offers one of the cleanest ways to burn wood. Heat an entire home, water and more. Dual Fuel models available.



The Finishing Store

Where the perfect wood finish begins. Browse over 400 expert products, learn tips and tricks, improve your results with trade secrets and cash in on super savings.

Dakota Alert, Inc.



Dakota Alert manufactures driveway alarms in a variety of ranges and operations with new products coming soon. These products

are designed for easy, do-it-yourself installation.

Epilog Laser

Epilog Laser cutting/engraving equipment adds intricate detail to all of your woodworking projects. Whether you're working with doors, cabinets, shelving or custom furniture, Epilog's equipment lets you easily engrave images, text and more! Epilog's equipment is also ideal for custom wood cutting projects.



Rockler

Bench Cookies™ are the new workshop essential. They lift, grip and protect your projects while you rout, sand, carve and more. Get your hands on the hottest product this season!



Skil Power Tools

SKIL's new 18-Volt Lithium Ion tools deliver professional grade performance and durability at consumer-friendly prices. The lithium ion technology delivers extra power, longer battery life in a more compact and lighter weight package.



Ebac Lumber Dryers



Ebac Industrial Products has produced high quality, energy efficient lumber dryers for over

30 years. Our affordable lumber dryers are capable of drying from 800BF up to 28,000BF with ease.

Micro Fence

A precision measuring system for the handheld router, including micrometer-adjusted edge guides, circle and ellipse jigs, vacuum hold-downs and the Portable Three-Axis Mill plunge base (shown) for laminate trimmers.



Routerbits.com, Inc.



Routerbits.com offers a complete selection of Whiteside router bits including CNC router bits, Fisch Forstner bits, Forest City Tools, Systematic saw blades, Bench Dog products and Miles Craft accessories, as well as a custom router bit service. Plus: a wide selection of woodworking books and videos.

Stanley-Bostitch

The Stanley/Bostitch CPACK3 combo kit is the ideal finish tool kit for pros, DIY'ers and sophisticated hobbyists. It includes everything required to achieve the perfect finish, all in one complete kit.



Gorilla Wood Glue

Gorilla Wood Glue, with high strength, shorter clamp time, and no dyes for a natural finish. Try it today on your next building project.



Mortise Pal

Mortise Pal is a versatile mortising jig that allows you to efficiently and accurately create mortises with your plunge router. The jig is exceptionally useful for doing loose tenon joinery.



SawStop



SawStop makes the industry's highest quality table saws with an exclusive built-in safety system that stops the blade within five milliseconds of detecting contact with skin. Designed to minimize saw-related injuries and the costs associated with them, SawStop's table saws are preferred by thousands of woodworkers.

Woodfinder®

Woodfinder® is the internet's most popular and easy-to-use website for finding suppliers of wood and wood-related materials. Founded in 1999, Woodfinder® currently has over 400 quality suppliers and 35 ways to search, including by keyword, type of business, ZIP code and specialties such as veneer, turning blanks, sawmills, etc.



Getting to the Final Finish

By Michael Dresdner

ABOUT MICHAEL DRESDNER

Michael Dresdner is a nationally known finishing expert and the author of *The New Wood Finishing Book* from Taunton Press.

When not writing about woodworking, he is an active community theater participant.



Contact us by writing to "Finishing Hotline,"

Woodworker's Journal,

4365 Willow Drive, Medina, MN

55340, by faxing us

at (763) 478-8396

or by emailing us at:

finishing@woodworkersjournal.com

Please include your home

address, phone number and

email address (if you have one)

with your question.

Q I am a novice woodworker and do my finishing with tung oil. I'm currently finishing a table for a friend that will be used in a screened porch in the Southeast. I thought that linseed oil might work better than tung oil here, but I have been told that it may grow mold. Do I have to redo all my work with polyurethane, and if so, can I sand the tung oil and then add poly over it?

James M. Ingraham
Greensboro, North Carolina

Michael Responds: Either pure boiled linseed oil or pure tung oil will work fine for interior pieces. However, I'd avoid either, and especially linseed oil, on exterior work, since nut oils tend to be natural foods for mildew and can promote mildew growth. You should be aware that while almost all linseed oil sold is either pure raw or boiled oil, many things called tung oil are actually tung oil finish and not pure tung oil. You must read the label carefully. Some tung oil finishes

will even work outside.

As for recoating oiled wood, just scrub the surface with mineral spirits on nylon abrasive pads, a process that will both clean and lightly abrade the surface, then recoat with an oil-based finish. For outdoor pieces, use oil-based exterior polyurethane, spar urethane or spar varnish, all of which will go over oiled wood without any problems.

Q I have just completed a cherry Shaker clock from your magazine's instructions. I am a capable woodworker, but my finishing skills leave something to be desired. The clock itself looks great, but the finish is dull and not at all smooth. I followed your finishing suggestions, but I just can't get any shine — the finish looks dark and dead. I can feel slight ridges as if I used a bad brush on cheap paint. I don't really want to sand everything off and start over. Is there some next step I can take that will help?

Jack Lavallet
Daphne, Alabama

Michael Responds: Your best bet is to sand the finish just enough to get it smooth and remove the ridges, then add another coat, but a smooth one. To sand, use 400-grit paper and be very careful around any sharp edges.

If you choose a water-based finish apply it with very soft, nylon-bristle brushes or, even better, with paint pads — those rectangular, flat applicators with short white fibers on a blue or green foam backing. Apply the finish as thin as possible. Oil-based varnishes and polyurethanes should be thinned at least 15% and perhaps more, then applied with a high quality varnish brush (as opposed to a paintbrush) made with the softest bristles you can find. I like ox hair, but I'll work with an ox hair China blend when I must. The fiber bundles on varnish brushes taper from the ferrule to the tip. Paintbrushes cut off abruptly and are the same thickness at the base and tip of the bristle bundle. Use the same soft brushes for lacquer or shellac.

Water-based and oil-based polyurethane, shellac and lacquer are also offered in aerosol cans. If your skill with a brush or paint pad is not up to snuff, use an aerosol to apply the last coat. After the finish cures thoroughly, consider rubbing it out, a process we covered in depth in our December 2008 issue, Volume 32 Number 5.

Pure tung oil can promote mildew growth. For exterior use, choose an oil-based spar varnish or polyurethane.



Use the nylon bristle brush (top) for best results on water-based finishes. Natural hair brushes, whose bristles are soft and tapered, apply oil finishes more effectively.



Q I'm building a blanket chest and lining a portion of the inside with aromatic cedar strips. I realize that the aromatic cedar should not be finished, and I have been taught that none of the inside of the chest should be finished because the chemicals in the aromatic cedar will actually soften any finish. Is this still true or are there some newer products available that would be safe to use, particularly on the inside of the lid?

John Blackburn
St. Maries, Idaho

Michael Responds:

Aromatic cedar prevents the hardening of certain finishes, but not others. The ones it prevents from curing are oxygen polymerizing finishes. These include almost all oil-based finishes, such as varnish, polyurethane, Danish oil, teak oil and others. Non-oxygen polymerization curing finishes, such as automotive polyurethanes, and finishes that cure by solvent evaporation, work fine. Solvent evapo-

ration curing finishes are shellac, lacquer and most water-based finishes.

For what it is worth, the curing problem is not the main reason why cedar-lined chests are left unfinished. Cedar emits a chemical that acts like naphthalene, the active ingredient in mothballs, which helps to repel moths. Thus, woollens can be kept safely in the chest. Furthermore, natural unfinished aromatic cedar imparts a very nice aroma to the clothing. Both the aroma and the moth-chasing properties are blocked if you finish the wood.

MORE ON THE WEB

To read our December 2008 article on rubbing-out, or to order our Shaker Clock plan, just go to www.woodworkersjournal.com and click on "More on the Web."



WINNER! For simply sending in his question on shining up a dull finish, Jack Lavallet of Daphne, Alabama wins **Liberon's Repair, Renovate and Revive Furniture Kit**. Each issue we toss new questions into a hat and draw a winner.

Kreg Jig®



The Innovation Continues...

Beaded Face-Frames are a great way to add detail and richness to your cabinetry work. Problem is... they're difficult to build and take a lot of time and effort! Until now. Thanks to our all new Precision Beaded Face-Frame System, anyone can build beautiful face-frames quickly, easily, and more affordably than ever before!

Visit www.kregtool.com/beaded today to watch the video and learn more!

Quick-Change Kit

Switch from drilling Pocket-Holes to driving Pocket-Screws in just seconds! Complete quick change set includes everything you need: quick change chuck, hex shank #2 square drive, hex shank Pocket-Hole bit, depth collar, and allen wrench.

NEW

\$29.99
QUICK-KIT

Micro Pocket™ Drill Guide

With a 25% smaller hole diameter, the Micro Pocket™ Drill Guide lets you create a more compact, low-profile Pocket-Hole. Works perfectly in standard joinery applications, but also tackles smaller projects, thinner stock, and tighter repair jobs where standard Pocket-Holes simply can't go. Perfect for 1/2" Material

NEW

Compatible with #3 / 5/8 Models

\$49.99
KIMC008

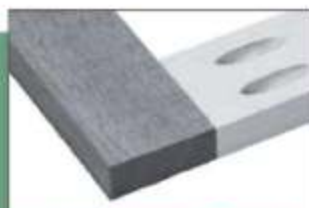


800.447.8638
www.kregtool.com

(Circle No. 40 on PRODUCT INFORMATION form)

Box and Finger Joints

JOINERY FOR EVERYDAY IDEAS



Butt Joints



Miter Joints



Mortise and Tenon Joints



Rabbet and Dado Joints



Dovetail Joints

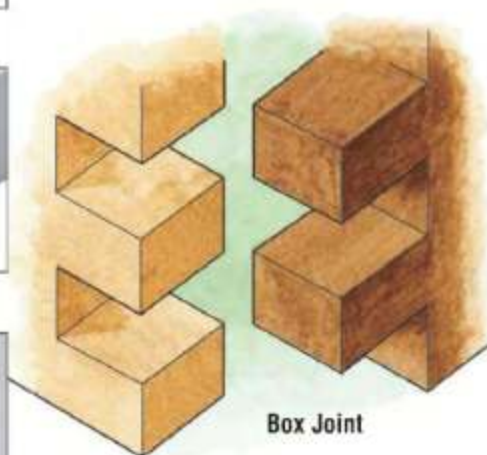


Box and Finger Joints

Although not as dressy as dovetails, box joints are versatile joints great for all kinds of everyday projects. You can use them to build attractive boxes and trays, good-looking drawers and carcasses, and tool totes and chests strong enough to withstand daily use.

Sometimes confusingly referred to as "finger joints" (see below), box joints are best for joining two frame or carcass members to form a corner. With a series of evenly sized pins and notches spaced along the length of a corner, box joints form simple but attractive exposed connections. They don't mechanically interlock like dovetails, but box joints do have lots of surface area, so they're very strong when glued together.

Finger joints feature a series of finger-like pins and corresponding tapered notches that interlock to joint two parts together. They're best used to scarf frame



Box Joint

or panel members end to end, to form longer members. Finger joints are very handy for creating parts longer than the stock you have on hand; say, for a crown molding that traverses the entire length of a kitchen or den. Finger-joined scarf joints



Box joints (top two photos) are used in boxes, trays and drawers. You can purchase box joint jigs for the table saw or router table. Finger joints (bottom photo, above) are another type of strong machined joint.

are also commonly used in boat building; say, for forming the gunwale on a canoe or sailboat.

While you could cut box and finger joints by hand, both joints are most quickly and efficiently cut with power tools, in either solid wood or plywood. The easiest methods include using a sliding jig and a table saw, a portable router and a template-style joinery jig, or a router table and sliding fence jig or dedicated box joint router bit. Cutting finger joints requires a special bit used with a hefty router in a router table, or a finger-joint cutter used with a shaper.

—Sandor Nagyszalanczy

www.woodworkersjournal.com
MORE ON THE WEB
 SKILL BUILDER

For more details about box and finger joints, go to www.woodworkersjournal.com and click on the More on the Web tab. Or send a large SASE to Woodworker's Journal, Skill Builder 12, 4365 Willow Drive, Medina, MN 55340.

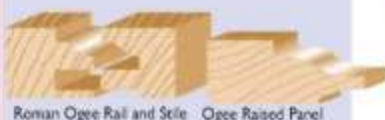
QUALITY CARBIDE ROUTER BITS & SHAPER CUTTERS, CLAMPS & OTHER WOODWORKING ACCESSORIES

6 PC CABINET SET

Build cabinet doors like a pro. Set includes ogee raised panel bit with undercutter, matching 2-piece rail & stile bits, reversible glue joint bit, drawer lock bit and door lip bit to make finger pulls. All bits are on 1/2" shank only.

WL-2020-1 6pc Cabinet Set \$119.00

**Instructional DVD
FREE with cabinet
set purchase while
supplies last thru
10/31/09.
Order WL-WJD**



Roman Ogee Rail and Stile Ogee Raised Panel



**YES,
they're
carbide!**

5 PC SHAPER SET

If you're lucky enough to have a shaper, we've got your cabinet making needs covered. 3/4" bore.

WL-1505 5pc Set \$199.00



3 PC LOCK MITER SET

If you love the look and strength of precision 90° miter joints, this new boxed set is the one for you. The 3 piece set gives you the capability of making lock miter joints from 3/8" to 1 1/4". Instructions are on our website. All bits are on 1/2" shank only.



WL-2042 3pc Lock Miter Set \$89.00

ADJUSTABLE PUSH BLOCK

Safety should always be your first consideration in the workshop. This ultra heavy-duty push block has been specifically designed with the woodworker in mind. With fully adjustable handle position, adjustable material catch stops, and super grip pad, this push block is great anywhere in the shop. You deserve the best!



WL-PB1 Woodline Adjustable Push Block \$29.95

POWER CONTROL SWITCH

Activates dust collector or other accessory while primary tool is operating. The accessory will run approximately 4 seconds after the primary tool is stopped. 120VAC 20Amp maximum.

PB-001 Blue Max Power Control Switch \$23.95



GIFT CERTIFICATES AVAILABLE

FREE CATALOG & 24 hour ordering at

www.woodline.com or call

800-472-6950

(Circle No. 72 on PRODUCT INFORMATION form)

WOODLINE USA
www.woodline.com
800-472-6950

FEIN MULTIMASTER.

The number one tool for remodeling and renovation.

QuickIN tool changing



Comfortable SoftGrip body



Hundreds of accessories



The right kit for everyone



For over 40 years FEIN has been making oscillating tools for professionals and handymen alike. The FEIN MULTIMASTER is the most versatile tool for remodeling and renovation. German engineered and manufactured, the high power motor is designed for heavy duty, continuous use and operator comfort. A wide selection of accessories is available for every application. Change them quickly and easily with the QuickIN tool changing system.

For more information, to receive a free DVD, or to see the complete line at a dealer near you, call **1-800-441-9878** or visit us at **www.feinus.com**.



(Circle No. 30 on PRODUCT INFORMATION form)