

MASTERING THE CHISEL *p.48*

WOODCRAFT[®]

Projects, Techniques, and Products

magazine

Easy-to-Build

Adirondack Glider *p.24*

SPECIAL FEATURE:
SPRAY FINISHING MADE SIMPLE

VOL. 8/NO. 46 APRIL/MAY 12

\$5.99US \$5.99CAN



05>

7 25274 02222 9

Display until May 29, 2012

MORE GREAT PROJECTS

- **Kitchen Appliance Cabinet**
- **Three Shop Mallets**
- **Slot Mortising Jig**

~Tom Begnal

"...the saw proved to be a solid performer."

Fine
WoodWorking.com

RIKON

14" Deluxe Bandsaw Model # 10-325

- **13" Re-Saw Capacity**

Largest re-saw capacity for slicing veneers, book matched projects and lumber sizing

- **Quick Release Blade Tension**

Quickly release the blade tension when changing blades or when machine is off, increasing blade life

- **2 Speeds 1445/2950 ft/min**

Allows cutting of non-ferrous materials

- **Hinged Blade Guard w/ Sight Window**

Easy access blade changes and workpiece visibility

- **Powerful 1-1/2 Horse Power Motor**

RIKON
WARRANTY



www.rikontools.com
(877)884-5167

Introducing Quadra-Cut™ Sets

The Most Innovative Bits
Now Offered In Popular
Profile Combinations!



**NO
REWORK
REQUIRED**

Freud's
Exclusive
4 Cutter
Design



Other
Router Bit
2 Cutter
Design

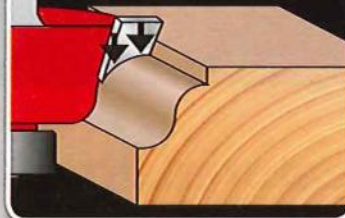


How It Works!

Two large cutter wings shear upward to remove most of the stock for fast, extremely smooth cuts.



Two small cutter wings shear downward for an ultra-fine finish, even when routing crossgrain in delicate materials!



U.S. Patent No. 8,699,252

Look For Freud's NEW Quadra-Cut™ Sets



4 Piece Set

#89-672



- 3/8" Rounding Over Bit, #34-124
- 1/2" Rounding Over Bit, #34-126
- 5/32" Roman Ogee Bit, #38-104
- Classical Cove & Bead Bit, #38-362



3 Piece Set

#89-674



- 5/32" Roman Ogee Bit, #38-104
- Classical Cove & Bead Bit, #38-362
- Classical Cove & Round Bit, #38-614



2 Piece Set

#89-676



- 3/8" Rounding Over Bit, #34-124
- 5/32" Roman Ogee Bit, #38-104

**Ideal for Any Project
that Requires a
Flawless Finish!**

SCAN WITH MOBILE DEVICE



freud®
Precisely the best.

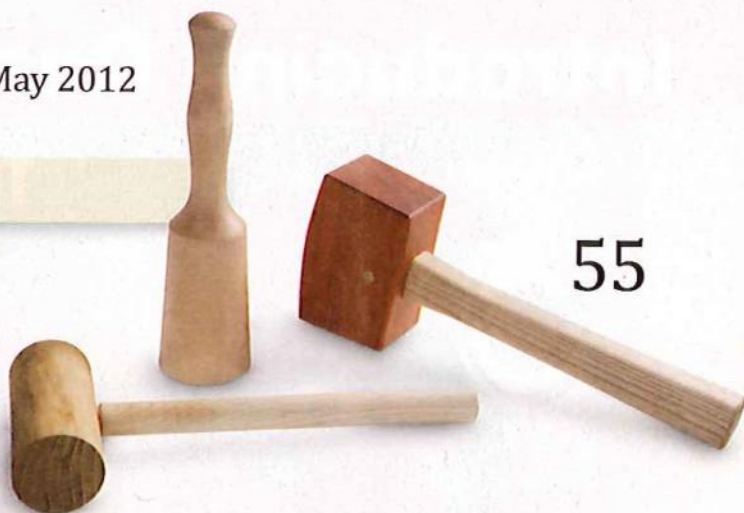
Available for a limited time only. For more information visit: www.freudtools.com/Quadra-Cut

Red router bits are a registered trademark of Freud America, Inc. (US) 1-800-472-7307

Contents



24



55



40

Featured Projects

24 Adirondack Glider

Swing into spring with this easy-to-build relaxation station. Patterns for the arms, splats, and curved seat help speed the work and guarantee success.

40 All-Purpose Kitchen Cabinet

Build this case and put your kitchen gear in its place. Adjustable shelves and a full-extension drawer will help you make full use of the storage space. Two top options provided.

55 Shop-Made Mallets

Every woodworker needs good shop strikers, but why buy them when you can make your own unique versions for less money?

62 Slot Mortising Jig

Rout precision mortises for loose-tenon joints with this rail-guided shop-made design.



62

► INTERIOR CONSTRUCTION

FEIN. Unverwüstliche
Elektrowerkzeuge.



Highest quality for the best results.

FEIN MULTIMASTER – the universal system for interior construction and renovation.

Das Original
FEIN MULTIMASTER

Now even more choices -
Introducing the **NEW FEIN MULTIMASTER START Q Set**
SAME Legendary Quality
SAME Outstanding Performance
SAME Ease of Use

Everything you need at a great price: **FEIN MULTIMASTER START Q Kit**

The FEIN MULTIMASTER START Q Kit includes everything you need for the most frequent renovation and interior construction jobs - from the tool to FEIN original-accessories for work such as:

- Sawing door jambs, expansion joints in laminates/parquet and much more.
- Sanding windows and doors and much more.
- Scraping floor coverings, adhesive residue and much more.

See for yourself! The FEIN MULTIMASTER START Q Kit for only \$199 MSRP.

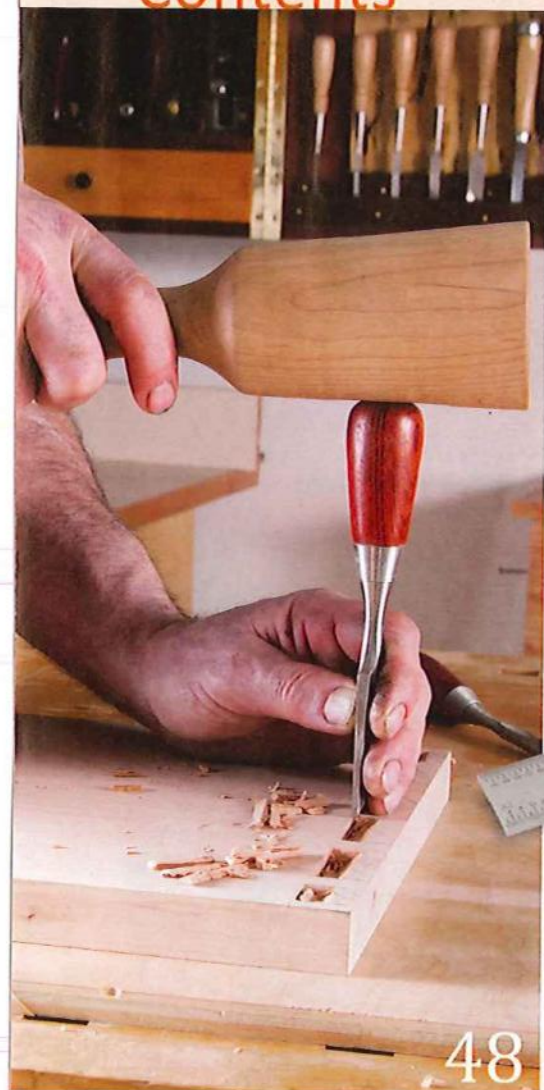
FEIN MULTIMASTER
from **\$199**
MSRP



Order number: **FMM 250 Q START**

\$199

Contents



48



35



72

 Find us on Facebook

Techniques

48 Using Chisels
This picture-rich guide shows you the moves you need to wield these essential tools with precision and confidence.

35 Spraying Made Simple
Before you reach for your gun, read this. Simple steps ensure a smooth spraying session and flawless finish.

Tools and More

- 12 Hot New Tools**
- Work Sharp 3000 Sharpening Bar
 - Forrest Woodworker II 20T Thin-Kerf Rip Blade
 - General Tools Digital Sliding T-Bevel
 - Hock Scratch Stock Kit

72 Well-Stocked Shop: Squares
Don't let crooked creep into your work. Stock up on the tools you'll need for project layouts, project assemblies, and tool setups.

Departments

- 6 Cutting In**
8 Mailbox
18 Tips & Tricks
68 WoodSense: Wenge



12

Trend Varijig Frame System

Item # 152897

Adjustable Frame And Guide For Use With A Router.

- Adjustable Frame For Rectangles And Squares.
- Allows A Router To Cut Recesses, Slots, Face Panel Moulds. Etc.
- Four Lengths Of 27½ Inches Extrusion With Dual Metric/Imperial Measuring Scales.
- Working Area 23½ Inches x 23½ Inches. Includes Router Anti-tilt Block.
- Crosscut Accuracy To 0.1mm. A Square Is Required To Square Frame Before Use.



Squares



Panel Doors



Rectangles



Anti-tilt Shoe

Accessories



Clamp Kit

Pair of sliding friction clamps with 1-1/4" clamping thickness. Fit to extrusions on Varijig System. Extra long size available.



Connecting Block Kit

Jointing block for extrusions. Can be used to join Varijig extrusions together.



Recommended 1-3/16" Guide Bush

Euro Style with extra long 3/8" spigot for U*VJS/JIG or U*VARIJIG

Now Available at Woodcraft!

For a Free Catalog or to find your local Woodcraft store, visit www.woodcraft.com or call 800-225-1153

WOODCRAFT[®]
Helping You Make Wood Work[®]

April/May 2012
Volume 8, Issue 46

Can you sell the projects you find in *Woodcraft Magazine*?

Recently, subscriber Paul Hough of Oregon City, Oregon, asked if he could build several of the holiday tabletop sleighs from the December/January 2012 issue of *Woodcraft Magazine* to sell. It's a good question, and one we get from time to time regarding our more popular project plans. After all, for someone who wants to retire into woodworking, it can prove to be a decent way to pull in side money at a local craft show, through a website, or another venue.

We do have a policy to address the question, and it stems from the origin of the project's design. If the staff assigned a project to be designed and built for use in the magazine and elsewhere (paper plans or books, for instance), then build as many of that design as you want and sell the projects for profit. The sleigh fits that category.

By contrast, if we feature an existing design from a woodworker who already makes and sells the project, and who has given us permission to publish the design for use by woodworkers who want to make it for family and friends, than the answer is "no." Out of respect for the originator of the design and his or her best interest, the design must be off limits for mass production. The stackable wine rack in the August/September 2011 issue fits that category. In this case, you will need to work directly with the originator of the design for permission or you can change the design in a way that makes it your own.

How do you know which is which? Easy. Should you find a design that you want to mass-produce and sell for profit, e-mail me: editor@woodcraftmagazine.com. We'll be glad to tell you. Most of our projects fit the first category. Bottom line, I'm thrilled that you like one of our projects enough to build it in quantity. And when a fellow woodworker asks where you got such an awesome design, return the favor and say you found it in *Woodcraft Magazine*.



Editor-In-Chief
Senior Editors

Jim Harrold
Paul Anthony
Joe Hurst-Wajszczuk

Art Director
Graphic Designer

Chad McClung
Shayne Hiles

Copy Editor
Sharon Hambrick
Proofreader
Lisa Miser

Contributing Craftsmen/Project Designers
Craig Bentzley, Ken Burton, Linda Rowe, Bill Sands

Shop Manager
Shawn Staats

Publisher Jody Garrett

Business/
Production Manager Linda Rowe

Advertising Sales Manager Vic Lombard

Advertising/
Circulation Support Miranda Springer

Circulation
Circulation Specialists, Inc.

Subscriptions
U.S. and Canada, \$19.97 for one year
Single copy, \$5.99
customer_service@woodcraftmagazine.com
(800) 542-9125

Contact Us
Woodcraft Magazine
4420 Emerson Avenue, Suite A
P.O. Box 7020
Parkersburg, WV 26102-7020
(304) 485-2647 Fax: (304) 420-9840
Email: editor@woodcraftmagazine.com
Online: woodcraftmagazine.com

Woodcraft Magazine (ISSN:1553.2461, USPS 024-953) is published in January, March, May, July, September and November and printed in the United States by Woodcraft Supply, LLC, 4420 Emerson Ave., Suite A, Parkersburg, WV 26104. Tel: (304) 485-2647. Periodical Postage paid at Parkersburg, WV, and at additional mailing offices. Copyright 2012 by Woodcraft Supply, LLC. All rights reserved. POSTMASTER: Send address changes to *Woodcraft Magazine*, P.O. Box 7020, Parkersburg, WV 26102-7020. Canada Post: Publications Mail Agreement #40612608. Canada Returns to be sent to Pitney Bowes, P.O. Box 25542, London, ON N6C 6B2

Printed in the USA

Safety First! Working wood can be dangerous. Always make shop safety your first priority by reading and following the recommendations of your owner's manuals, using appropriate guards and safety devices, and maintaining all your tools properly. Use adequate sight and hearing protection. Please note that for purposes of illustrative clarity, guards and other safety devices may be removed from tools shown in photographs and illustrations in this publication and others.

Join Us Online and Share Your Own Woodworking Adventures!

WOODWORKING ADVENTURES

blog.WOODCRAFT.com


facebook.com/woodcraftwoodworking
facebook.com/woodcraftmagazine


[@woodcraft](https://twitter.com/woodcraft)



FREE SAWSTOP UPGRADES.

ONLY FOR A LIMITED TIME.

Free
Mobile Base



Free
Overarm Dust Collection



If you've been waiting, now is the time to buy a SawStop.

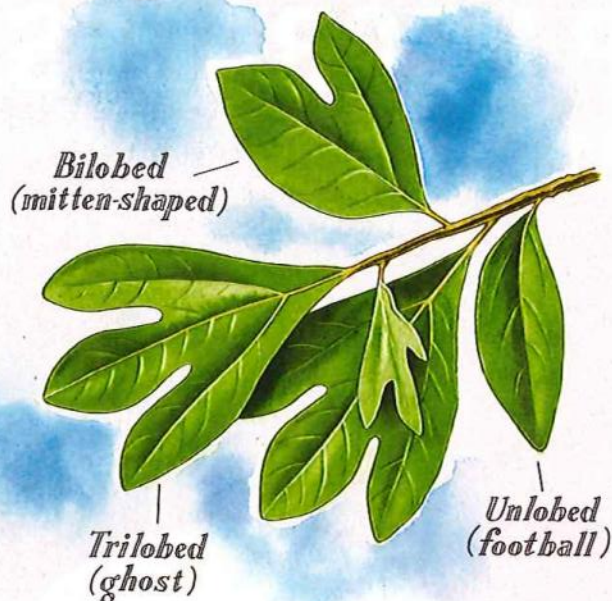
Buy a 3.0HP or 1.75HP Professional Cabinet Saw before April 30, 2012, and we'll offer you an Integrated Mobile Base or Overarm Dust Collection*, FREE!
While supplies last. See website for details.

*Overarm Dust Collection requires a DC Blade Guard, which is included with the 3.0HP Professional Cabinet Saw but must be purchased for the 1.75HP model.



sawstop.com/upgrade

 Like us on facebook



One tree, three leaves

As someone who typically limits their woodworking to the species in their own woods, I appreciate reading about the use of various species in the "WoodSense" section of your magazine. The article on sassafras (December 2011/January 2012) was especially interesting, and I wanted to offer an additional fun fact. The sassafras tree bears three distinct leaf shapes on the same tree. The three shapes are commonly described as the ghost (pictured in the article), as well as the mitten and the football. The mitten has a large central lobe with a thumb-like projection, and the football is also shaped like its name suggests. Thanks for a great magazine.

—Kevin Holtz, Farmington, New York

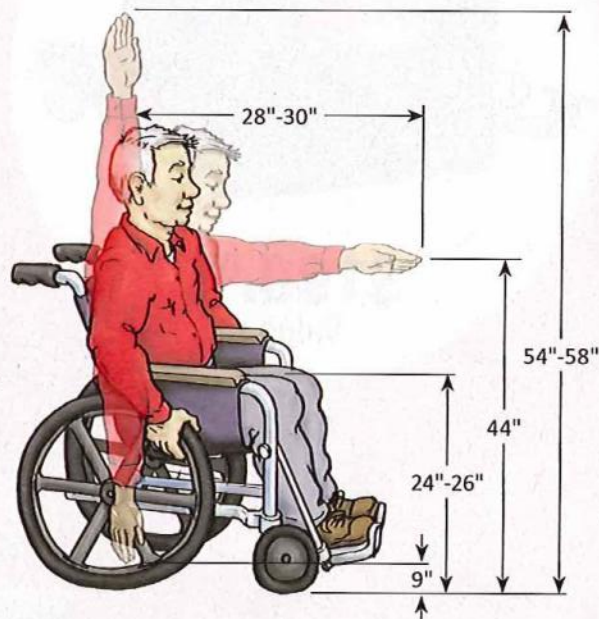
Find a free download here

My woodworker nephew sent us a copy of Pete Stephano's "Shop Setup for the Wheelchair Woodworker" from your December 2011/January 2012 issue. This is a very good articulation of the requirements for such a shop (love Charles Lockhart's well-annotated illustrations!) and the kind of how-to story we are interested in presenting on *AFriendlyHouse.com*, our website dedicated to promoting Universal Design, accessible homes and neighborhoods, and houses appropriate for aging in place. We would love to write a blurb about the article and give our readers a hyperlink to it.

—Lynette Evans, Founder and Editor, *AFriendlyHouse.com*, San Francisco, California

Lynette, thanks for your inquiry. Feel free to spread the word about the story "Shop Setup for the Wheelchair Woodworker" and let folks know that they can download it at woodcraftmagazine.com/onlineextras.

—Jim Harrold, editor-in-chief



Errata

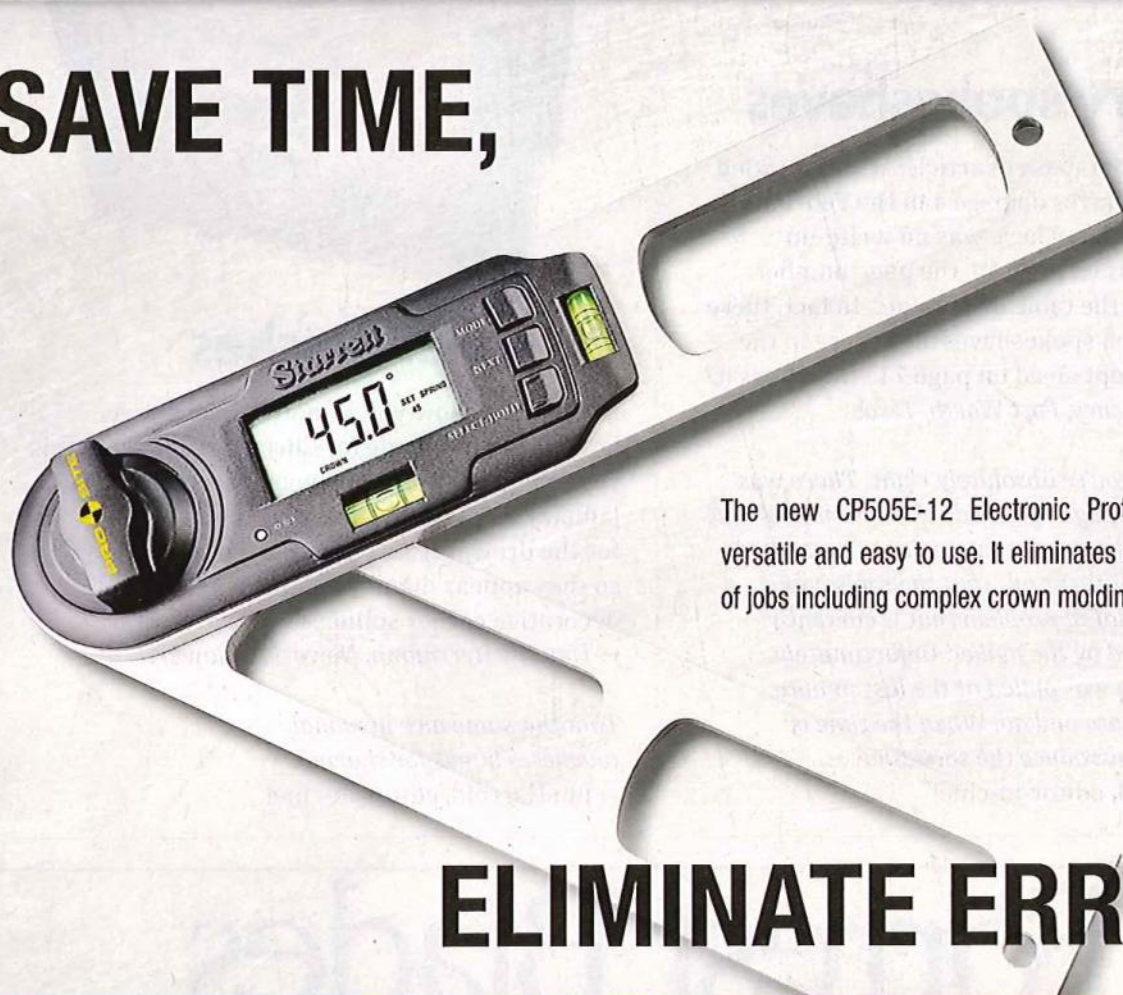
As careful as we are, errors occasionally find their way into articles. If you spy an apparent mistake, particularly in a project article, please visit woodcraftmagazine.com/corrections.aspx for corrections.

Chime In

Have comments about the magazine, questions about an article, or something to share with your fellow *Woodcraft Magazine* readers? Send an email to editor@woodcraftmagazine.com or a letter to **Woodcraft Magazine**, PO Box 7020, Parkersburg, WV 26102.

YOUR ADVANTAGE IS STARRETT INNOVATION

SAVE TIME,



The new CP505E-12 Electronic Protractor is accurate, versatile and easy to use. It eliminates errors from a variety of jobs including complex crown molding work.

ELIMINATE ERRORS.

starrett.com

The CP505E-12 has a full 360° swing and provides direct saw settings for either miter or straight cuts. The versatile CP505E-12 can also serve as a protractor with a choice of output modes and has horizontal and vertical levels.

Includes a step by step guide for crown molding work and provides miter and bevel settings for custom spring angles.

This lightweight and durable tool is made for the demanding requirements of the jobsite and is a must-have for the professional.



Starrett®

Mystery spokeshaves

In creating a database of articles, I was puzzled by the spokeshaves on page 4 of the February/March 2012 issue. There was no write-up about the tools on page 10, the page number referenced in the table of contents. In fact, there was nothing on spokeshaves anywhere in the magazine except an ad on page 71. Did I miss it?
—Winston Barney, Fort Worth, Texas

No, Winston, you're absolutely right. There was initially a half-page review on the new shaves, but it was pulled the day the magazine was readied for the press. It turns out that the tools had a production-related problem that is currently being remedied by the maker. Unfortunately, not everything was pulled at the last minute, such as the photo and ad. When the time is right, we'll reintroduce the spokeshaves.
—Jim Harrold, editor-in-chief



Personal touches

I wanted to show you a photo of one of two jewelry boxes I made for Christmas presents this year using the plan from your December 2011/January 2012 issue. I selected spalted maple for the drawer fronts and rotated the pulls 45° so they appear diamond shaped. I also used decorative corner splines for the drawers.
—Timothy Herrmann, Newark, Delaware

Timothy, some nice personal touches. Thanks for sharing.
—Jim Harrold, editor-in-chief

Forrest Blades

Experienced woodworkers know that Forrest blades are ideal for remodeling high-end kitchens and baths.

Forrest blades deliver smooth, quiet cuts *without* splintering, scratching, or tearouts. Our proprietary manufacturing process, hand straightening, and unique grade of C-4 micrograin carbide are perfect for cabinets, countertops, and flooring. In fact, independent tests rate us #1 for rip cuts and crosscuts.

"Your blades are without question the best by miles, and I have tried them all."
Bob Jensen, Fridley, MN

Our Most Popular Saw Blades:



Duraline Hi-AT—Great for cutting two-sided veneers and low pressure laminates.



Woodworker II—Best rated, all-purpose blade for rips and crosscuts.

Order from any Forrest dealer or retailer, online, or by calling directly. Our blades are manufactured in the U.S.A. and backed by our 30-day, money-back guarantee.



FORREST

The First Choice of Serious Woodworkers Since 1946

www.ForrestBlades.com

1-800-733-7111

(In NJ, call 973-473-5236)

© 2012 Forrest Manufacturing

Code WC

Woodworker II
Fine Woodworking



Chop Master
Woodshop News



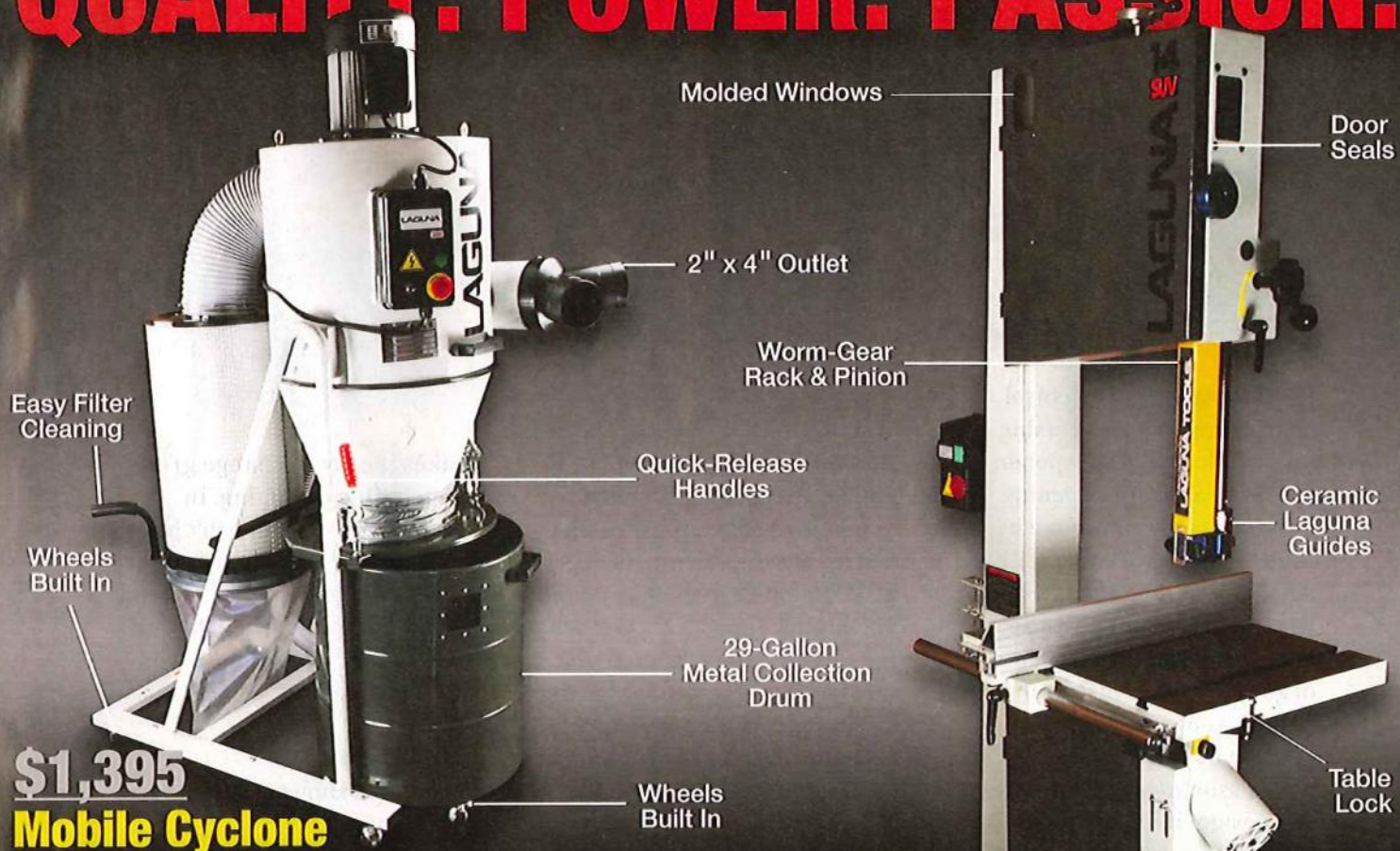
Duraline Hi-AT
Woodshop News



Dado King
Wood Magazine



QUALITY. POWER. PASSION.



\$1,395

Mobile Cyclone

- Quiet & Efficient
- H.F. Remote
- Quick-Release Handles
- 2HP 220 Volt 1 Phase



H.F. Remote

Also Available:

- 1.5HP Mobile Cyclone **\$1,199**
- 3HP Mobile Cyclone **\$1,695**
- 3HP Mobile Cyclone Auto Clean **\$2,195**
- 5HP Stationary Cyclone Auto Clean **\$2,995**
- 10HP Stationary Cyclone **\$3,995**

\$450

Circulator Shop Air Filter

- 1400 CFM, 3 Speeds
- LED Filter Change Alert
- H.F. Remote Control
- 2, 4, 6, 8H + Infinite Timer



LED Lights for Filter Change

\$1,595

NEW FOR 2012

14 SUV Bandsaw

- Worm Gear Rack & Pinion
- Leveling Feet, Bigger Footprint
- Foot Brake Design w/Micro Switch
- 3HP Leeson Motor 220 Volt 1 Phase

2011 WOOD MAGAZINE "Best Overall"
FINE WOODWORKING'S "Readers' Choice"

Also Available:

- 16" 3000 Series Bandsaw **\$1,895**
- 18" 3000 Series Bandsaw **\$2,195**

LAGUNA
WWW.LAGUNATOOLS.COM

Hot New Tools

Raising the sharpening bar

Work Sharp 3000 Tool Bar Attachment

By making plane and chisel sharpening as easy as using an electric pencil sharpener, the Work Sharp sharpening system has found a home in thousands of workshops. The company now offers a tool bar attachment that can be used for freehand sharpening of gouges, skew chisels, and parting tools. Or, if you like, you can partner it with the wide assortment of sharpening jigs designed for wet-wheel

sharpening such as the Tormek and Jet sharpening systems.

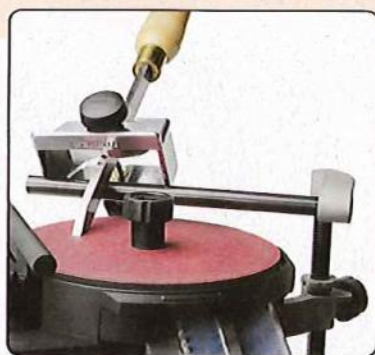
If you already own a Work Sharp, buying the tool bar attachment that enables you to use jigs designed for a wet wheel grinder is a no-brainer. If you don't own one, consider taking the plunge. Compared to wet wheel systems, the Work Sharp's sandpaper-on-glass system

makes it easy to change grits for grinding or honing. In addition, the unit doesn't have a large footprint, or require water. This means that you can keep it near your lathe for quick touch-ups without worrying about spills or rust.

#153685 \$49.95

Tester: Joe Hurst-Wajszczuk

Featured products available from Woodcraft Supply unless otherwise noted.



It's time to get out the Good Wood.

Easy Wood Tools Moment #6

When you realize, now you have the confidence to turn that prized piece of wood.

*Visit EasyWoodTools.com for more Moments!

No sharpening.
No complicated techniques.
Just Easy Wood Tools.



(859) 246.0294 www.EasyWoodTools.com
1365 Cahill Drive Lexington, Kentucky 40504

Proud Sponsor of



YOU SHOULD BE LIMITED ONLY BY YOUR
IMAGINATION. NOT YOUR TOOLS.



To be the best woodworker you can, you need the right tools. Like our 24" Horizontal Double Drum Sander with 3HP motor and dual v-belt driven sanding drums. Our steel frame and heavy duty base provide maximum stability. The parallelism between the drums and table is easily adjusted by two convenient screws. And unlike competitors, we found that a high quality conveyor belt provides for longer service life. Imagine that. To learn more about our entire line of woodworking tools, visit your nearest dealer or go to www.general.ca.

Hot New Tools

Built for speed

Forrest Woodworker II 20T Thin-Kerf Rip Blade

Next to a premium 40- or 50-tooth combination blade for making clean rips and crosscuts, a dedicated rip blade is probably the most useful addition to a woodworker's tablesaw blade arsenal. Typically sporting 24 teeth, a rip blade is designed to muscle its way through lumber during initial breakdown into project parts. (It also saves wear and tear on your expensive combination blade.) Because the rough-processed parts are further dressed into finished

pieces later, a clean cut is irrelevant. What matters is efficiency and ease of sawing.

Forrest has designed a real speed demon in this 20-tooth thin-kerf blade with an ATB/R tooth configuration. In my tests, it breezed through 8' of 8/4 hard maple in an impressive 15 seconds (about 45% faster than my go-to 24-tpi, 1/8" blade.) Being a thin-kerf blade, which encounters less cutting resistance than thicker blades, this model is



well suited to ripping on underpowered saws as well as industrial machines.

#153660 \$74.99

Tester: Paul Anthony

Featured products available from Woodcraft Supply unless otherwise noted.

Quality, Made-In-America Dust Collection.

3hp Pro[®]1500
5hp Pro[®]2000

5 Year
Warranty



Shown with
optional stand.

Oneida Air Systems[™] is a unique blend of hand-made and hi-tech. We still believe in the quality, dedication and craftsmanship of American workers. That's why we build every dust collector right here where we live.

One of the reasons we've been the **top award winner** in every independent test we've ever been in is our workers.

- GE[®] HEPA (Certified to H-12) Filter Media. See specs on website. Included most systems.
- Built to last a lifetime. Industrial construction.
- Systems from 1.5 - 20hp. Complete line of ductwork and components.
- Expert help with system sizing and shop layout.



"We two-plane balance every fan wheel to ISO 6.3 specifications. The same as aircraft turbine rotors."

- Greg S., Machinist, Oneida Air Systems

Made By Craftsmen for Craftsmen.



Made in the USA



Like Us On Facebook

Call Today for **FREE** Catalog!

1.800.732.4065

www.oneida-air.com



Dust Collection Since 1993.

ROCKWELL**ROCKWELL**
VERSACUT

A WORKSHOP OF SAWS IN ONE HAND

TILE SAW**TRACK SAW****PLUNGE SAW**

The new Rockwell® Versacut™ mini-circular saw is capable of tackling most tasks handled by traditional circular saws...but without the added size and weight! The compact multi-functional saw is lightweight, well-balanced, powerful, precise, and easy to use anywhere. With the precision depth setting, you can drop what you're cutting on a piece of scrap material and cut it right where you're working!

The VERSACUT comes with three different cutting blades, so you can cut virtually any material, including hardwood, sheet metal, plastics, and even tile anywhere.

WATCH VIDEO

Get the free mobile app at
<http://gettag.mobi>

VERSACUT™**WOODCRAFT®**
Helping You Make Wood Work®www.woodcraftversacut.com

Hot New Tools

Know all the angles

General Tools Digital Sliding T-Bevel

Woodworkers and carpenters alike have long relied on sliding T-bevels for transferring angles. With these, obtaining a measurement of an angle required multiple steps and/or another trip to the toolbox. By incorporating a digital protractor into the head, General Tools has created a tool that's capable of transferring angles and also providing an easy to read measurement enabling users to transfer the angle, or set their saw by the numbers and then make a cut.

I found that the 8"-long blade allowed me to fit the gauge into spots where a standard

non-sliding arm protractor would not fit, such as alongside short lengths of baseboard or the face of my saw blade. The head has buttons for zeroing in the blade, holding the measurement, and obtaining the supplementary angle. Accurate within .3° it's not as precise as my 12" Starrett combination square or drafting triangles, but for angles other than 45° and 90°, it beats my plastic protractor hands down.

The high impact plastic head and digital components within won't outlive my wooden handled



T-bevel, but so far it has survived accidental falls from my bench without a glitch. At this price, the tool has already earned its keep.

#153776 \$34.99

Tester: Joe Hurst-Wajszczuk

Featured products available from Woodcraft Supply unless otherwise noted.

You Asked. We Listened.

Introducing the World's Smallest Round Inflatable Sander!

It's here... your small round inflatable sander, only $\frac{3}{4}$ "x $\frac{3}{4}$ " with a patented dome head, that eliminates hand sanding! This product is excellent for getting into *really, really small* openings like under the rim of a turned bowl or *tight concave* shapes. It's a new must-have to complete your Guinevere® Sanding System. Just ask for Small Round Sander #11341SR, Sanding Sleeve Grips are 80, 150, and 320.

"Any tool that makes sanding and finishing this easy and fool proof should be illegal, or at least a sin!"

Thomas Haapapuro
thaapdesigns.com



800-942-1300

Tools To Bring Your Vision To Reality

katools.com

Profiles unplugged

Hock Scratch Stock Kit

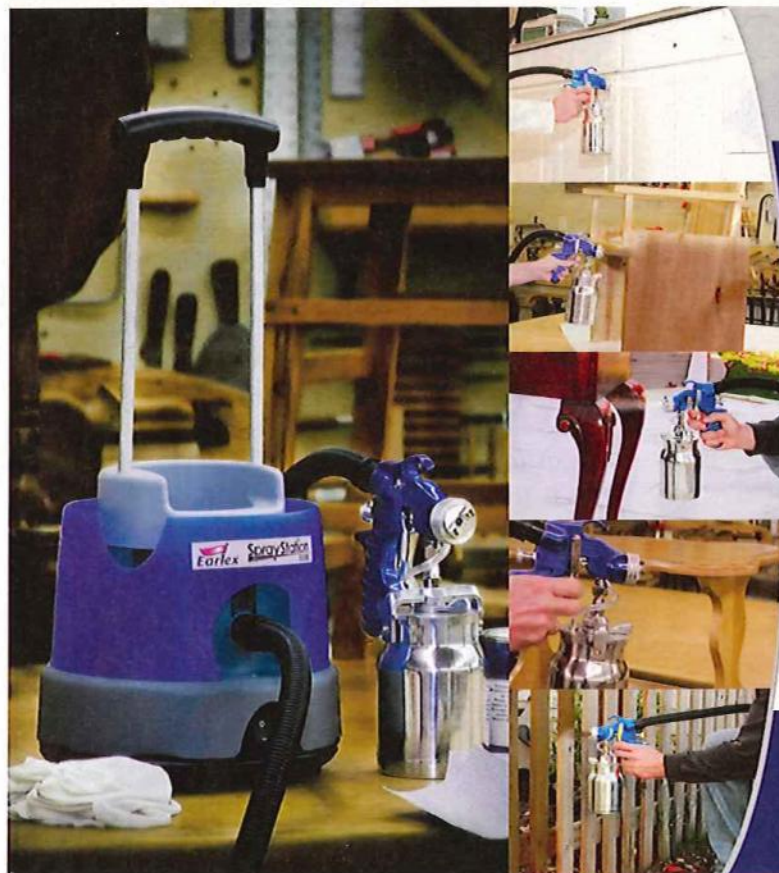
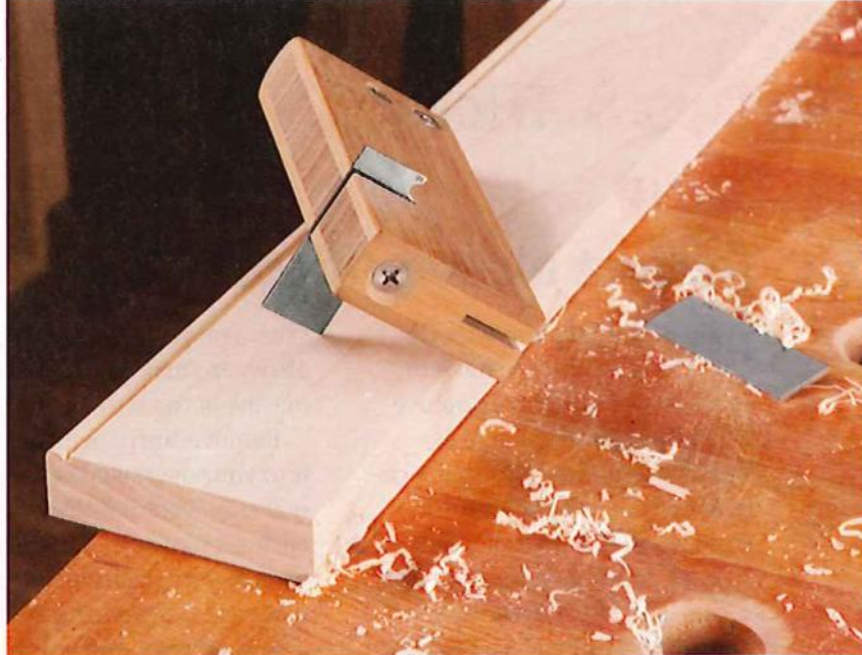
In most workshops, routers rule the roost, but there are times when it makes sense to go old school. A scratch stock is little more than a piece of steel held in a guide block, but this simple hand tool can make cuts that regular routers can't touch, such as crisp custom edge profiles or tiny grooves for string inlays. Simply set the block against the edge of your stock, and pull or push the blade against the wood to scrape the profile. For those curious about these time-honored tools, Hock's kit offers a quick and easy way scratch the

itch. Using the pre-ground quirk profile (shown above) you'll get an immediate feel for this tool. You can grind seven additional profiles on the two blades included with the kit (one on each long edge). Additional spring steel

blades (#153783, \$5.99) are available to create yet more. Note: For further instruction, check out hocktools.com/SC075Instructions.pdf.

#153782 \$29.99

Tester: Kent Harpool



SprayStation 
The modern way to paint

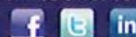
**If you can make it,
you can spray it!**

Spray Stations provide maximum control and minimal overspray for a great finish every time.



It's easy with an Earlex.

Available at your local woodworking store.
www.earlex.com



Tips & Tricks

TOP TIP

Perfect alcove-fit countertops

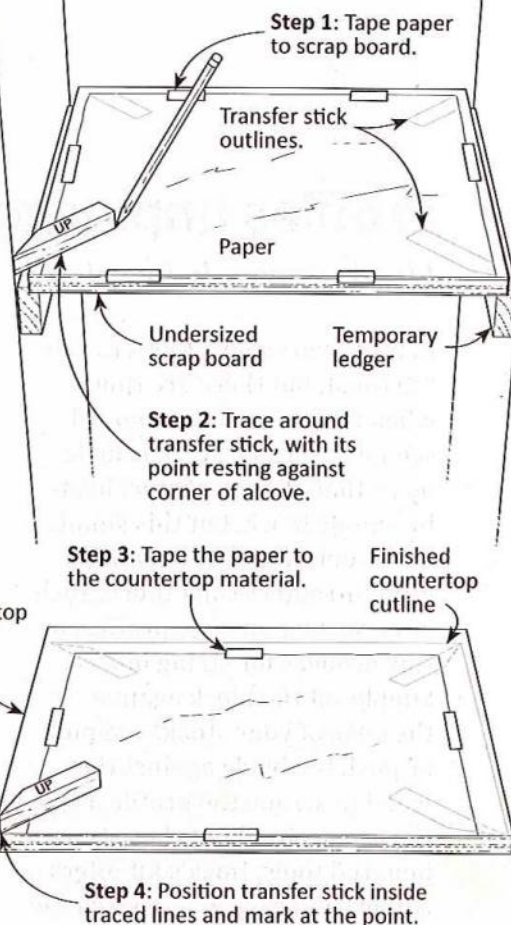
In my finish carpentry work, it's not uncommon to have to fit a countertop into an alcove that's badly out-of-square. That's when I turn to a pattern-transfer trick that I learned from an old carpenter.

First, screw temporary ledger strips to the alcove walls $\frac{3}{4}$ " below the height of the desired countertop. Then cut a piece of $\frac{3}{4}$ "-thick plywood to the depth of the alcove and somewhat shy of the three walls. Place the plywood on the ledger strips, and tape a large piece of paper to it. Next, cut a point on the end of a stick of wood and mark one face as "up." Place the point of this transfer

stick against each corner of the alcove in turn, and trace the outline of the stick onto the paper.

Remove the paper and tape it to your oversized countertop material. Position the stick inside each set of traced lines, and make a mark at the point onto your material. Connect the points with a straightedge, and you've got the shape of your top. If a wall isn't flat, scribe and fit a cardboard template against it, then use the template instead of a straightedge to connect the points.

—Sam Williamson,
Birmingham, Alabama



Imagine the Possibilities!

King ColorCore® is the ideal multi-colored polymer sheet for routed signs.

King CuttingBoard® is blank cutting board material that is FDA & USDA approved.



KING COLORCORE®
Engrivable Polymer Sheets

KING CUTTINGBOARD®



King Plastic Corporation
1100 N. Toledo Blade Blvd.
North Port, FL 34288
www.kingplastic.com

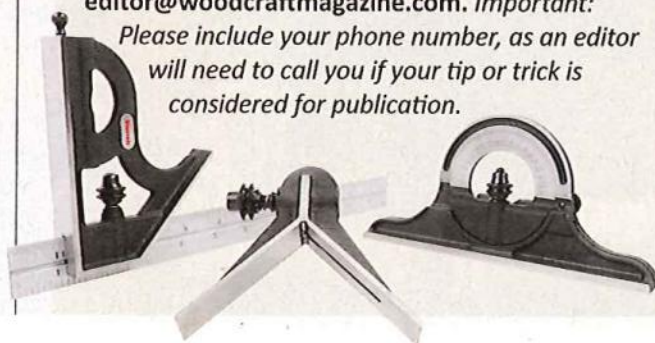
Available at:

WOODCRAFT®

Share a Slick Tip. Win Cash or a Prize!

Here's your chance to help someone become a better woodworker and get rewarded for the effort. Next issue's Top Tip winner will receive the following Starrett precision layout tools: a 12" Combination Square, a Centerhead for a 12" Square, and a Protractor Head for a 12" Square. (Total value: \$215) Runners-up will receive \$125 for an illustrated tip; \$75 for an unillustrated one. Winning entries become the property of Woodcraft Magazine. Send your original ideas to: Tips & Tricks, Woodcraft® Magazine, P.O. Box 7020, Parkersburg, WV 26102-7020 or email editor@woodcraftmagazine.com. Important:

Please include your phone number, as an editor will need to call you if your tip or trick is considered for publication.





The Wera BC Bit Ratchet- A combination of Strength and Style! Drop Forged steel Design will deliver over 65NM of Torque. 60 Tooth design allows return angle of only 6° ideal for precision work. Bit Ratchet set comes complete with 28 quality bits, bit adaptor and 1/4" socket adaptor!



Wera #05346293001

Wera Tools LLC.

www.weratools.com

info@weratools.com or 800-267-5541

Glue wood FAST!

Permanent, clear bonds in seconds, not hours

- Repair broken wood pieces • Mount blocks for turning
- Apply a fast, glossy, durable finish • Fix chips in other finishes
- Seal wood to eliminate pinholing • Soak thin stock for hardening
- Fill and stabilize cracks and voids in furniture and pen blanks
- Bonds with finger pressure- no clamping needed

Also bonds metal, plastic, rubber, vinyl, ABS, PVC, and more!



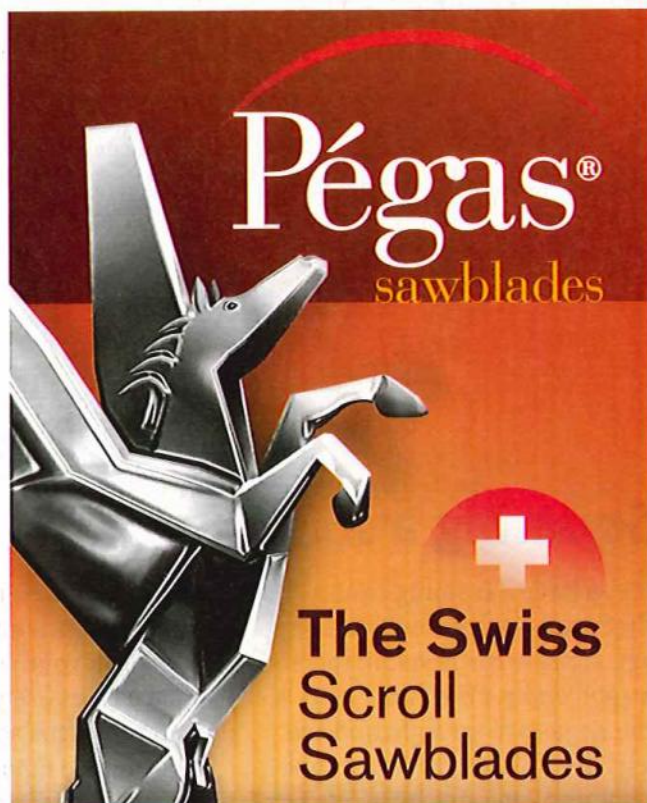
Trusted by professional woodworkers for decades

Buy direct at CAGlue.com
Or visit your local **WOODCRAFT**

See CAGlue.com for a how-to guide on finishing pens quickly and easily!

Satellite City
(800) 786-0062

Proudly made
in the USA
Since 1970!



Skip Tooth

Double Tooth

Reverse Tooth

Double Tooth Reverse

Modified Geometry

Spiral



All Pégas® Sawblades are manufactured in our Swiss factory from the best carbon steel available. Tradition, Precision and Expertise since 1966, are fundamental in the production of these very high quality, world class sawblades.

- Leave a smooth finish • Consistent quality
- Alternatively set teeth • Long lasting



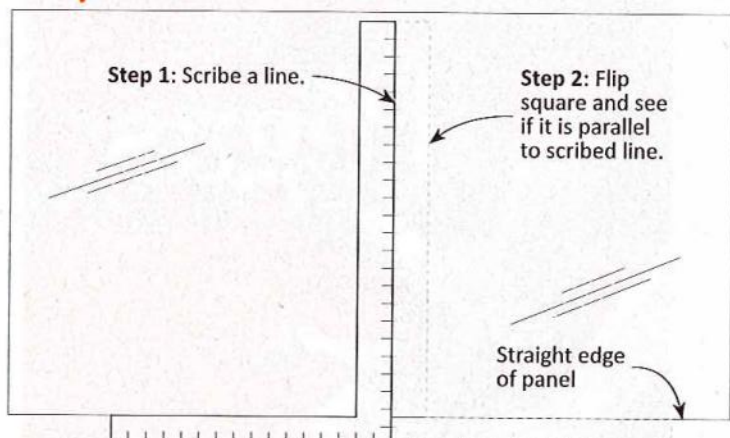
www.grobetusa.com
800-635-2993



www.scies.ch

Mfg. In Switzerland by Scies Miniatures, a Division of Grobet USA, Carlstadt, NJ 07072

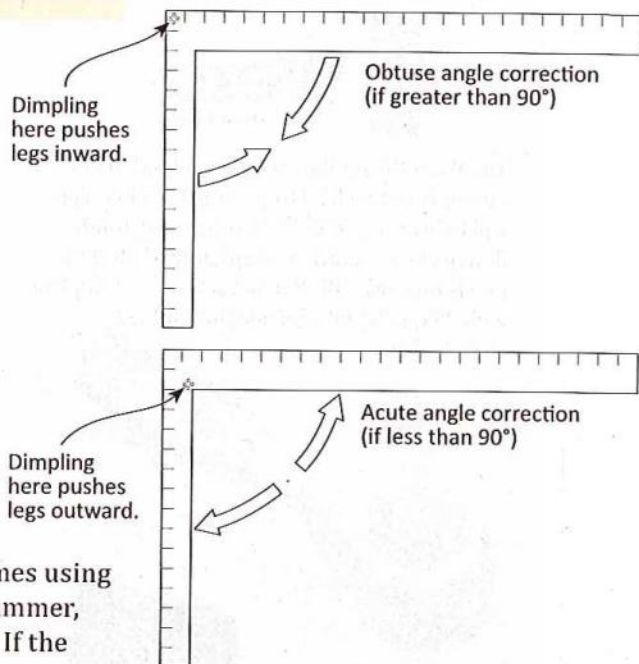
Tips & Tricks



Squaring a square

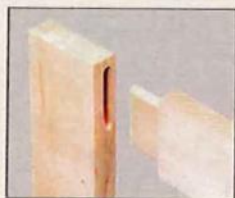
If you have a framing square that's not square don't toss it yet. If the error is small, there's a good chance it can be fixed. If the edges are straight and the legs are uniform in width (not tapered), give this old trick a try. If the square is obtuse (greater than 90°), dimple the outer

corner area a couple times using a center punch and a hammer, and check your results. If the square is severely off, you may need to do this several times. What you're doing is stretching the metal on the outer corner to push the legs towards each other. Conversely, if the square



is acute (less than 90°), you'll need to dimple the area near the inside corner of the square.
—Craig Bentzley, Chalfont, Pennsylvania

This Joint Rocks!



That's what you'll be saying

every time you use General's innovative wood joining jigs to make professional finished joints...right out of the box! For more information about these two jigs and the rest of our E•Z Pro™ line of innovative wood joining jigs, visit: generaltools.com/woodcraft



GENERAL

Specialty Tools & Instruments

Specialty and Innovation...Since 1922.



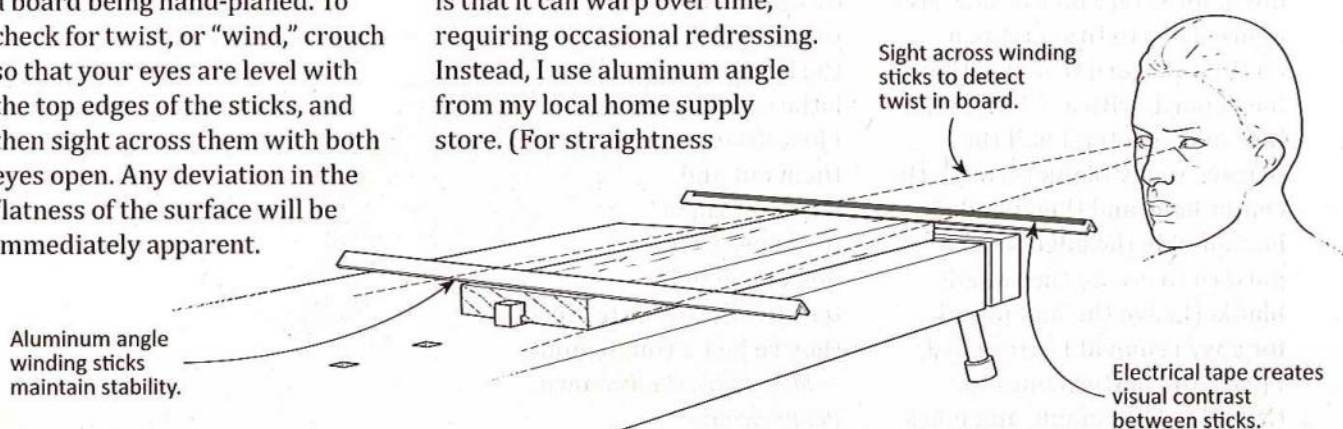
Aluminum angle winding sticks

Winding sticks provide a time-honored way to check the flatness of workpieces or assemblies. Used in pairs, winding sticks are placed parallel to each other at opposite ends of, for example, a board being hand-planed. To check for twist, or "wind," crouch so that your eyes are level with the top edges of the sticks, and then sight across them with both eyes open. Any deviation in the flatness of the surface will be immediately apparent.

Traditionally, winding sticks are made from straight-grained, identically sized pieces of hardwood—often of strongly contrasting colors for easy sighting. The problem with wood is that it can warp over time, requiring occasional redressing. Instead, I use aluminum angle from my local home supply store. (For straightness

and rigidity, get the 1/8"-thick stock.) To provide contrast, crown one with black electrical tape.

—Will Murphy, San Francisco, California



**Makes Money
with Wood**

**Makes Projects
with Wood**

**Make
More!**



12mm (1/2") to 50 mm (2")



12mm (1/2") to 35 mm (1 3/8")

Built In Blowgun • Rear Exhaust
Not Made In China • Dry Fire Lock-out
Shoots 23 Gauge Pins/Brad Nails

604.876.9909



cadextools.com

American Woodshop

Season 19 • Keepers 2012

With Scott & Suzy Phillips



**300 +
PBS Stations**

Underwritten by:



WOODCRAFT



WBGU TV
PUBLIC TELEVISION

Everywhere on PBS & on
WBGU.org/AmericanWoodshop

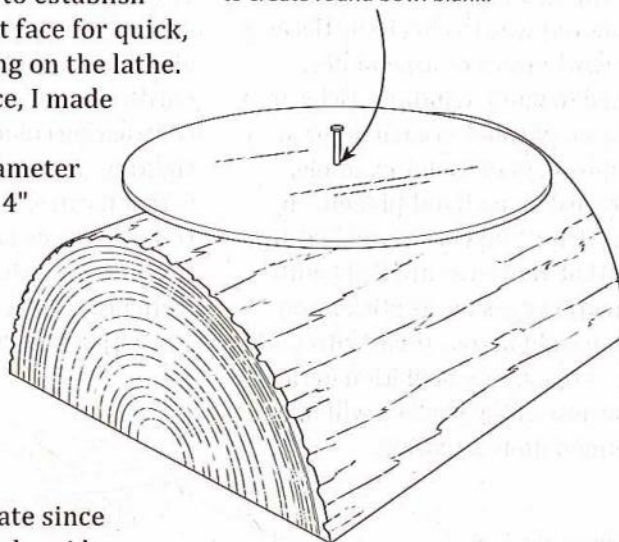
Bowl blank templates

When turning bowls, I like to rough out the round shape on the bandsaw first. The problem is that it's difficult to mark out the shape on a half-round blank that must be fed flat side down for safety on the saw. My approach is to first create a circular pattern from $\frac{1}{8}$ "-thick hardboard, with a $\frac{1}{8}$ "-diameter hole at its center. I nail the pattern to my blank through the center hole, and then bandsaw just outside the edges of the pattern to create the round blank. (Leave the nail proud for easy removal.) Afterward, I place the pattern onto the flat side of the blank, and mark

through the hole to establish the center on that face for quick, accurate mounting on the lathe.

For convenience, I made a series of these patterns in 1"-diameter increments from 4" to 24", which is the limit of my lathe capacity. I just draw them out and bandsaw them to shape. They don't have to be terrifically accurate since they're just a rough guide.
—Mike Kehs, Quakertown, Pennsylvania

Nail template to half-round blank; then bandsaw around perimeter to create round bowl blank.



Precision. Innovation. Simplicity.

Your projects deserve the very best ... why not give it to them?



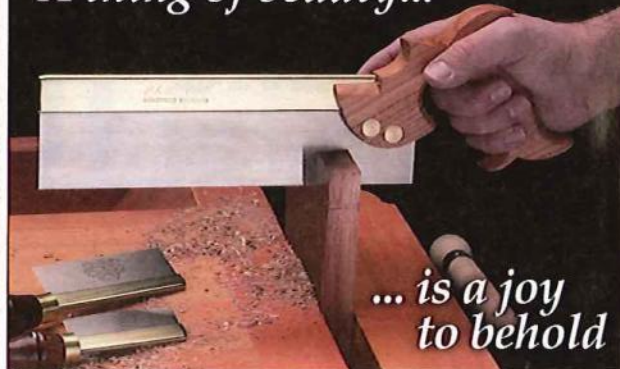
The full lineup of Kreg Precision Routing Products provide the innovative features and incredible precision your projects deserve. Visit your local Kreg Dealer today or see the entire line in action at www.kregtool.com.



Thomas Flinn & Co.

Sheffield Saw Manufacturers since 1923

A thing of beauty...



Pax 1776 and
Lynx Garlick Saws - at a
Woodcraft store near you

www.flinn-garlick-saws.co.uk

Made in Sheffield, England

AFTER 30 YEARS IN THE TRAVEL INDUSTRY, IT WAS TIME TO MOVE ON.

So, I turned my passion for woodworking into a second career.

In Texas, you either go big or you go home. And Mike is living proof. After 30 years in the travel industry, he took a swing at improving his golf game. But when that didn't go as planned, he turned all his attention to his other love – woodworking. An energetic entrepreneur, Mike quickly realized he could turn his hobby into a second career. So when he saw franchise opportunities with Woodcraft, one of the most trusted names in woodworking, he knew he was about to carve out a whole new future for himself. No wonder. From demographic research for a store location to a detailed operations manual coupled with ongoing technical and marketing support, Woodcraft provides a complete franchise system backed by the most recognized brand in the industry. If you talked to him, Mike would tell you that thanks to Woodcraft and a lot of seven-day weeks owning and operating six Woodcraft stores, he is truly living his dream. Which makes you stop and think, when are you going to start living yours?



FOR FRANCHISE INFORMATION, CALL

1.855.923.7326

www.woodcraftfranchise.com

P.O. BOX 245, PARKERSBURG, WV 26102

Mike Sauder
Dreamer & Multiple Woodcraft Store Owner
Texas



Adirondack Glider

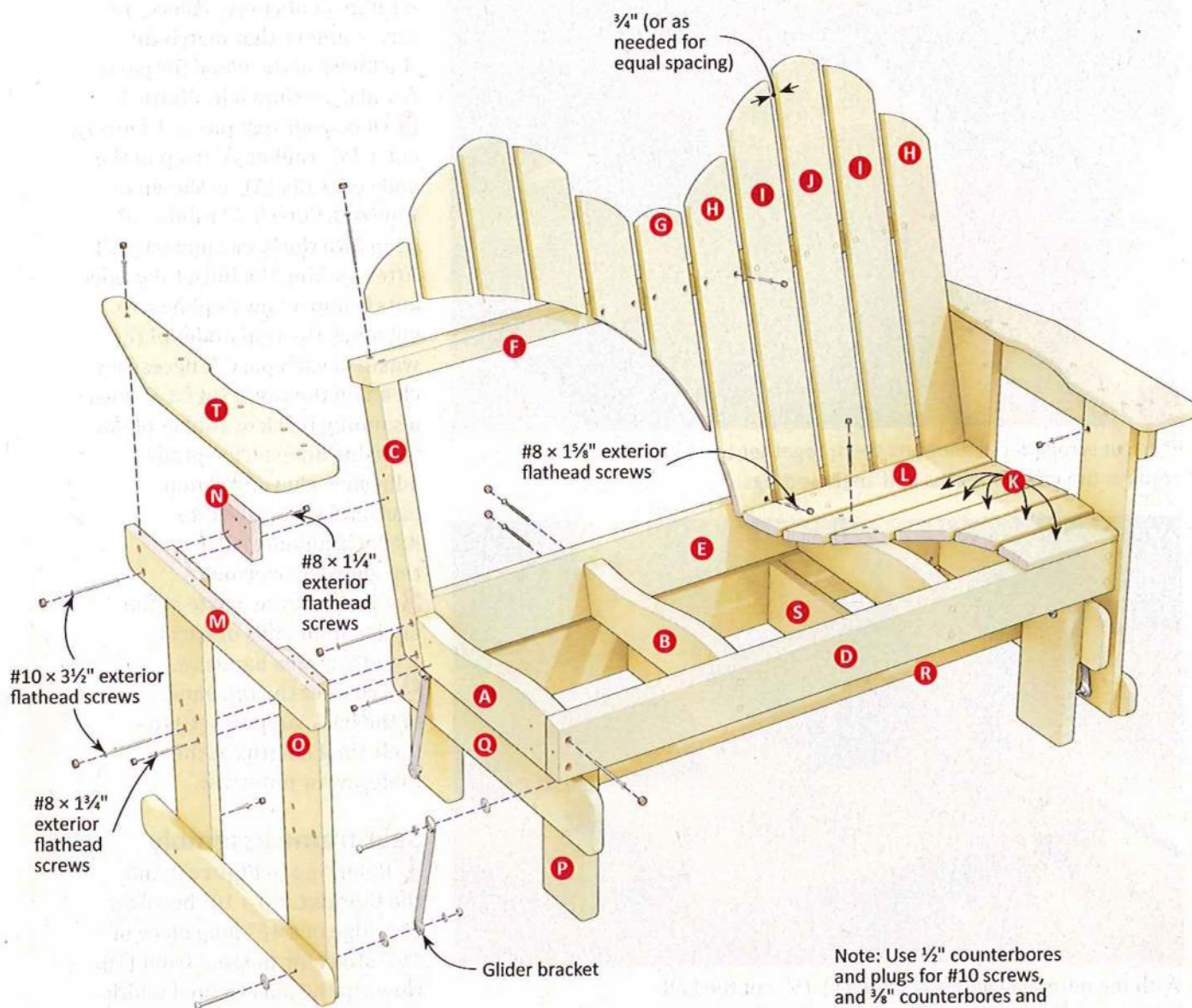
Relax in style with this porch or patio project.

By Robert J. Settich; Builder Bill Sands



Overall dimensions: 55"w x 27¾"d x 45½"h

Figure 1: Glider Exploded View



Note: Use $\frac{1}{2}$ " counterbores and plugs for #10 screws, and $\frac{3}{8}$ " counterbores and plugs for #8 screws.

Glide through a summer evening with a companion and refreshment while seated in this simply constructed American classic. Because I used poplar, which is prone to rot outdoors, I protected the wood with two coats of primer and two coats of exterior paint. For a clear wood look, go with rot-resistant cedar, cypress, or other exterior wood, and apply a clear UV (ultraviolet) resistant finish.

Go with exterior screws and glue to guarantee long-lasting joints. Use the patterns to help you make the shaped parts.

Cut the seat frame parts

*Note: Each of the seat end assemblies (A/C) are cut identically, allowing for fewer setups at the tablesaw. In this case, they are **not** mirror images.*

1 Referring to **Figures 1** and **2**, crosscut 20"-long blanks

from $1\frac{1}{2}$ "-thick dressed stock for the end seat rails (A) and middle seat rails (B). Cut $1\frac{1}{2}$ "-thick blanks to 21" long for the back supports (C).

2 Enlarge and transfer the **Seat Rail Pattern** on page 34 to one of the blanks for the seat rails (A, B). Bandsaw to the waste side of the line. Then sand the curves of one blank to the line, using a disc sander for the convex curves and an oscillating spindle sander for



A Test-cut scrap pieces and hold them together to confirm the rabbet depths and angle settings.



B With the miter gauge fence angled at 15°, cut the half-lap joints with a dado set, starting at the shoulder cutline. A stopblock ensures consistent results.

the concave curves, taking care to keep the edges square. You cut the waste at the back end later.

3 Using this first rail (A) as a template, trace the curve onto the remaining blanks. Bandsaw the blanks, again cutting to the waste side of the line.

4 Adhere the completed rail (A) to one of the remaining bandsawn blanks with double-faced tape, aligning the bottom edges and front ends. Chuck a flush-trim bit into your table-

mounted router, and smooth the bandsawn edge, guiding off the template. Flush-trim the other blanks to create identical curved edges.

5 Install a $\frac{3}{4}$ " dado set into your tablesaw, and set it for a $\frac{3}{4}$ "-deep cut to make the half-lap joints for the end seat rails (A) and the back supports (C). (See the **Seat Rail Assembly** in Figure 2.) Attach an extension to your miter gauge and angle the gauge for a 15° half-lap cut. Confirm

the height and angle settings with test cuts in two pieces of scrap lumber that match the thickness of the wood for parts A and C, as shown in **Photo A**.

6 Once your test pieces fit nicely, cut a $2\frac{1}{2}$ " rabbet $\frac{3}{4}$ " deep in the end seat rails (A), as shown in **Photo B**. Cut a $3\frac{5}{8}$ " rabbet $\frac{3}{4}$ " deep into the back supports (C). After making the initial shoulder cuts, remove the stopblock to cut away the remainder of the waste of each part. If necessary, clean up the sawn surfaces with a sanding block or rabbet plane.

7 Using an exterior-grade adhesive, glue and clamp each end seat rail (A) to its back support (C). Let the glue dry overnight.

8 Flush-cut the waste at the angled joint ends of parts A and C with a handsaw.

9 Crosscut the top ends of the back supports (C) to their final lengths at the tablesaw or miter saw.

Seat frame assembly

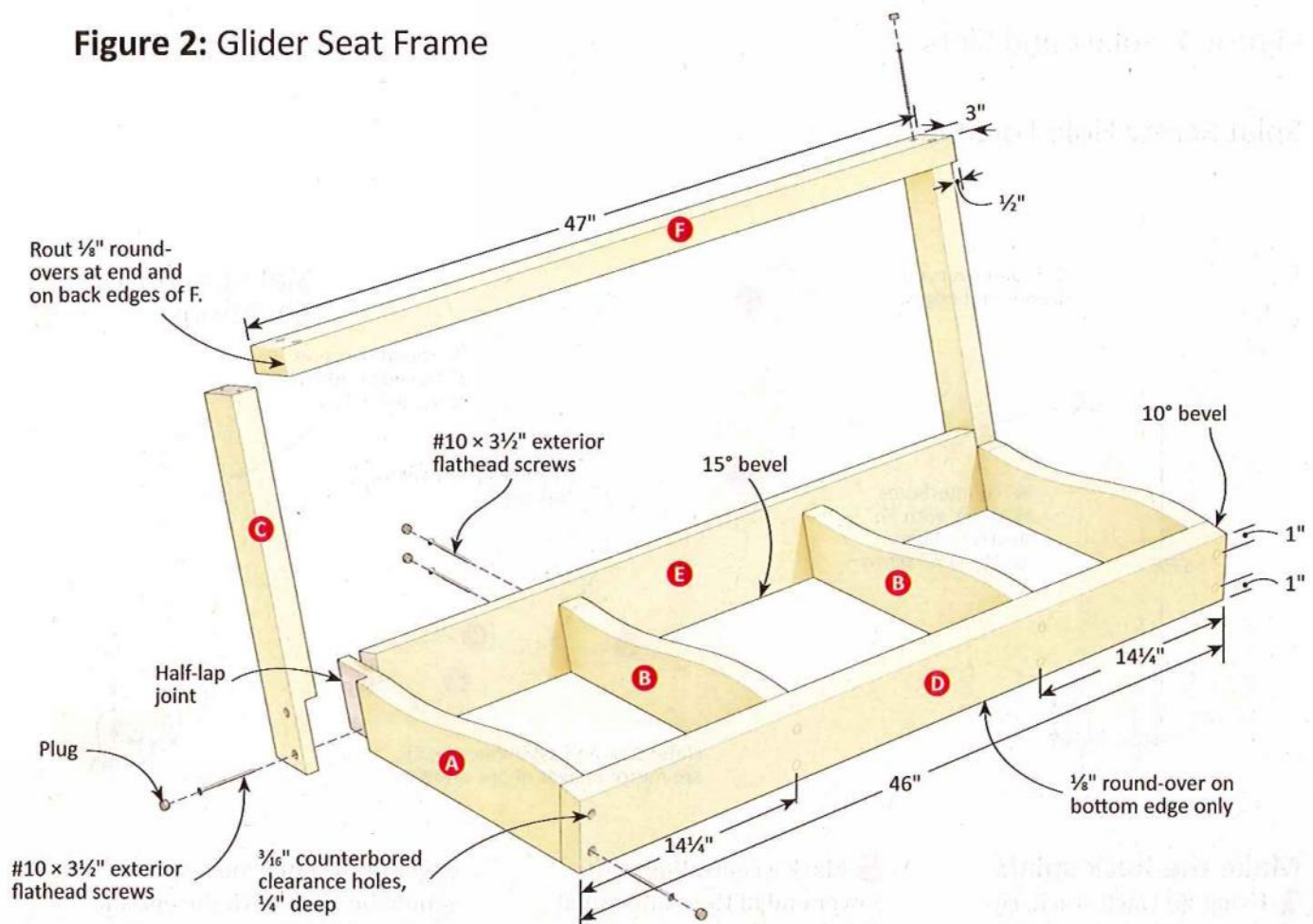
1 Referring to Figure 2 and the **Cut List**, rip a 10° bevel on one edge of a 46"-long piece of $1\frac{1}{2}$ " stock for the seat front (D). Now rip the part to final width, matching the width of the front ends of the end seat rails (A).

2 Drill the counterbores and clearance holes in the seat front (D), where shown in Figure 2.

3 Chuck a $\frac{1}{8}$ " round-over bit into your table-mounted router, and rout the bottom front edge of the seat front rail (D). Leave the router setup, as you'll need it several more times for other glider parts.

4 Clamp the seat front rail (D) to the two seat end assemblies (A/C). (I cut a pair of scrapwood cauls at 15° for use at the angled back end of the assembly to

Figure 2: Glider Seat Frame

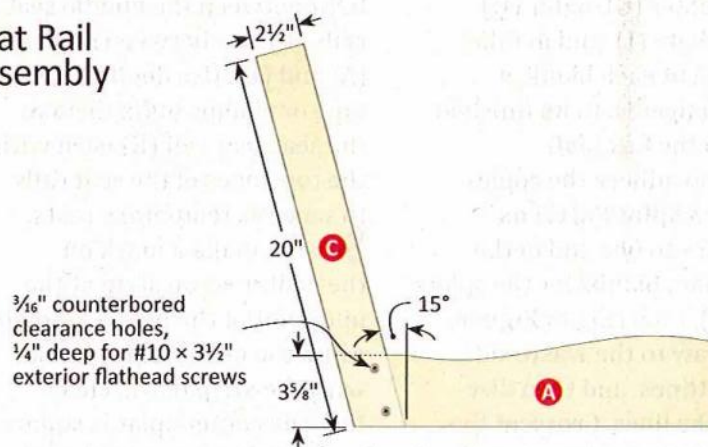


prevent the bar clamps from slipping.) Check for square, and then, using the clearance holes in the seat front rail as guides, drill pilot holes into the seat rail assemblies (A/C). Drive screws to attach the seat front rail to the seat end assemblies.

5 Make the seat rear rail (E) by first bevel-ripping one edge of a piece of 1 1/2"-thick stock at 15°. Next, rip the piece to 4 3/4" wide. Now, crosscut the seat rear rail to the length listed in the **Cut List**.

6 Drill the countersunk clearance holes through the half-lap joints in the seat end assemblies (A/C). With the beveled edge down, align the ends of the seat rear rail (E) with the front edge of the back supports (C) and drive the screws. Trim the middle seat

Seat Rail Assembly



rails (B) to fit, bore the needed holes, and screw them in place, where shown in **Figure 2**, flush with the bottom edges of the seat front and rear rails.

7 Rip and crosscut the top seat rail (F) to size. Drill counterbores and clearance holes on the top face of the piece so they are centered on the back

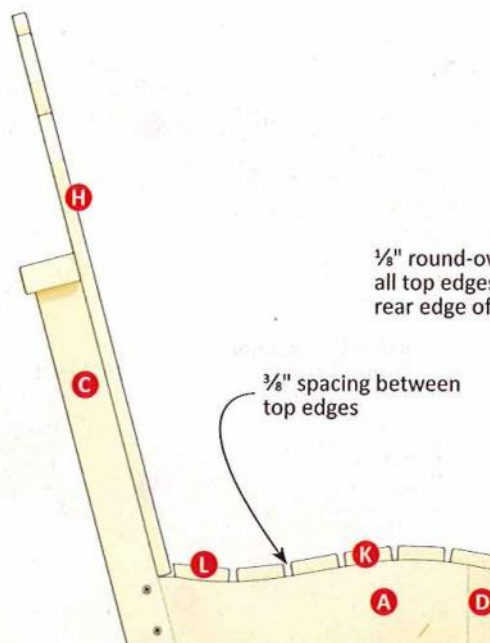
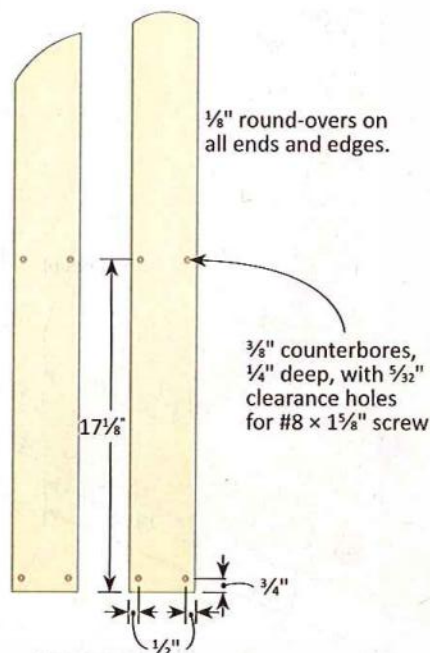
supports (C). Note that the ends of the top seat rail extend 1/2" beyond each back support.

8 With your 1/8" round-over bit setup, rout the ends and rear edges of the top seat rail (F). *Do not rout the front edges.*

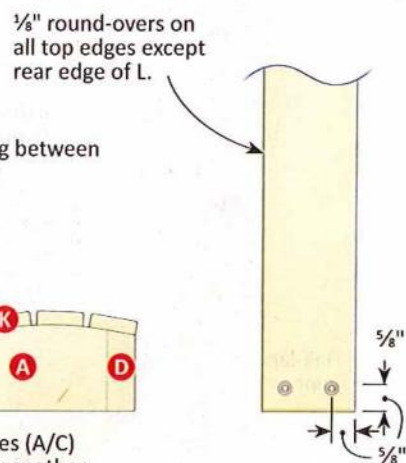
9 Screw the top seat rail (F) to the seat assemblies (A, C), with the front edges flush.

Figure 3: Splats and Slats

Splat Screw Hole Locations



Slat Screw Hole Locations



Note: Seat end assemblies (A/C) are mirror images of one another.

Make the back splats

1 Using $\frac{3}{4}$ "-thick stock, rip blanks to $3\frac{1}{2}$ " wide for the back splats: center (G), outer (H), intermediate (I), and middle (J). Crosscut each blank at least 1" longer than its finished length in the **Cut List**.

2 Cut and adhere the copies of the two **Splat Patterns** on page 34 to one end of the appropriate blanks for the splats (G, H, I, J), referring to **Figure 3**. Bandsaw to the waste side of the cutlines, and then disc-sand to the lines. Crosscut the parts to their final lengths. To form identical rounded and arched ends of the splats, use the flush-trimming technique in the "Speedy Splat Shaping" sidebar.

3 Mark the hole centers on the splats. Drill the counterbores and clearance holes.

4 Break the front ends and edges of the splats (G, H, I, J) with the $\frac{1}{8}$ " round-over bit.

5 Mark a centerline at the lower end of the center splat (G). Cut scrap support strips to fit between the middle seat rails (B) and between seat rails (A) and (B). Use double-faced tape or clamps to fix them to the seat rear rail (E) even with the top edges of the seat rails to serve as temporary rests.

6 Next, make a mark on the center scrap strip at the midpoint of the bench assembly. Align the center splat mark with the strip mark, check that the center splat is square to the seat rear rail (E), and drive screws to secure it to this rail and the top seat rail (F).

7 Rest the bottom end of an outer splat (H) on the strip and, using spacers between the splats (mine were $\frac{3}{4}$ " thick), drive the screws to attach the slat to the rails (E, F). Repeat the process to install the remaining splats. (Note that the

edges of the outermost splats should be flush with the outside faces of the back supports (C).) Remove the support strips.

8 Glue plugs into all of the counterbores in the splat parts (G, H, I, J). Then, flush the plugs to the surface with a plane or sanding block.

Cut the seat slats

1 Rip and crosscut the seat slats (K) and rear seat slat (L) to size. Note in **Figure 2** that the rear seat slat has a 15° bevel along

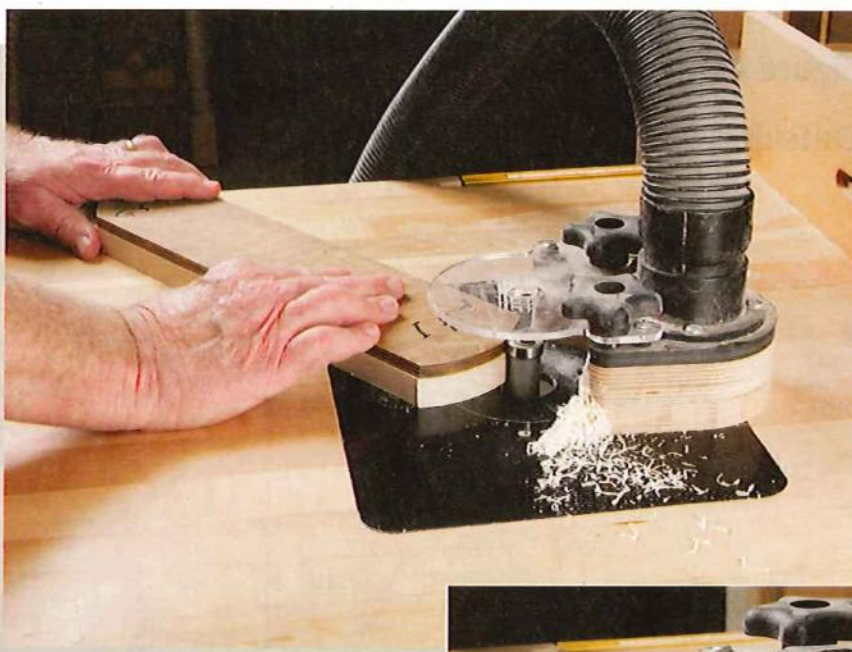
Tip Alert

To ensure even splat spacing, subtract the total width of all the splats from the length between the outer faces of the back supports (C). Divide that number by 10. Use the resulting number to determine the needed thickness of your spacer.

Speedy Splat Shaping

There are a total of 11 back splats, and shaping each one from scratch takes time. By using an over-under flush-trim bit at the router table and a pattern template, you can achieve consistent results in short order.

Begin by adhering a paper copy of the rounded and curved patterns onto the ends of a piece of scrap $\frac{3}{8}$ " or $\frac{1}{2}$ " plywood having the same width as the splats. Carefully cut out and sand the ends of the plywood, making the routing template. Now cut a set of blanks for the splats, leaving the wood about 1" longer than the finished lengths in the **Cut List**. Using your template, pencil the appropriate shape on the ends of the blanks, and bandsaw just to the waste side of the cutline. With double-



faced tape, attach the template to a splat blank, and flush-trim the curved edges as shown.

Flush-trim the ends of the splats using the bit (Inset). Adjust the bit height, and flip the workpiece and template over as needed to rout with the grain to avoid end-grain tear-out.



its back edge. Double-check that the slat lengths are flush to the sides of the bench assembly.

- 2** Rout $\frac{1}{8}$ " round-overs on the upper edges of the seat slats (K). Do not round over the back edge of the rear seat slat (L).
- 3** Drill the counterbores and clearance holes in the slats, where shown in the **Slat Screw Hole Locations Detail** in **Figure 3**.
- 4** Using a $\frac{3}{8}$ "-thick spacer between the slats and starting with the front seat slat (K), screw all the slats in place. Leave a $\frac{1}{4}$ " space between the rear seat slat and back splats to allow for drainage. Be sure that the spacing between the slats appears the same.
- 5** Plug all the counterbores, and flush the plugs.

Make the arm assemblies

Note: You'll make two arm assemblies that are mirror images of each other.

- 1** Rip and crosscut the armrest rails (M) and armrest spacer (N), referring to **Figure 4** and the **Cut List**. Glue and screw the spacer to the top armrest rail, where shown. Mark and bandsaw the radiused ends; then sand them smooth.
- 2** Speed production by making the **Radius Routing Jig** in **Figure 5**. Then put it to work, as shown in **Photo C**. As an alternative, you can bandsaw and sand the radii to final shape.
- 3** Rout round-overs along the edges and ends of the armrest rails (M), where shown in

Figure 4. Do not rout the upper edge of the top rail.

- 3** Cut the armrest supports (O) to size.
- 4** To avoid confusion when marking hole locations, lay out the parts for the two mirror-image assemblies on your workbench. Drill the counterbores and holes in the rails, where shown in the **Inside View** of **Figure 4**. Then square and assemble the armrest rails (M) to the armrest supports (O) with an exterior glue and screws.
- 5** Plug the counterbores, and flush the plugs to the surface.
- 6** Drill the $\frac{1}{4}$ " holes for the glider brackets at your drill press to ensure that they are square to the surface.

Figure 4: Arm Assembly (Right arm shown)

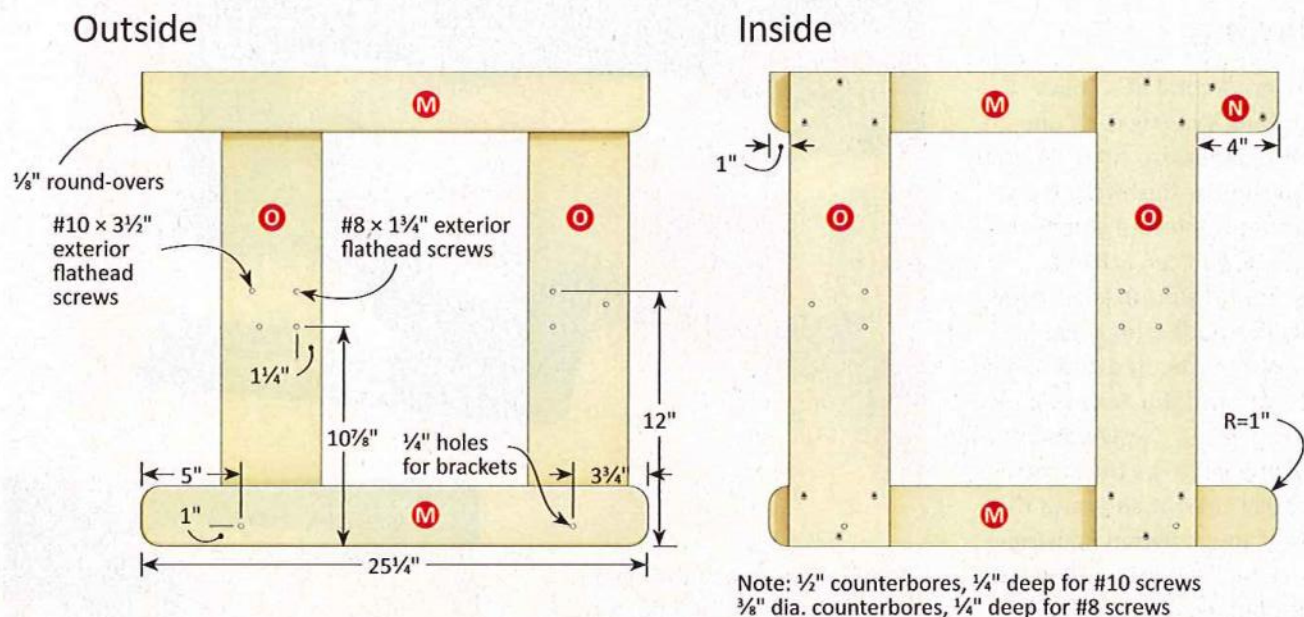
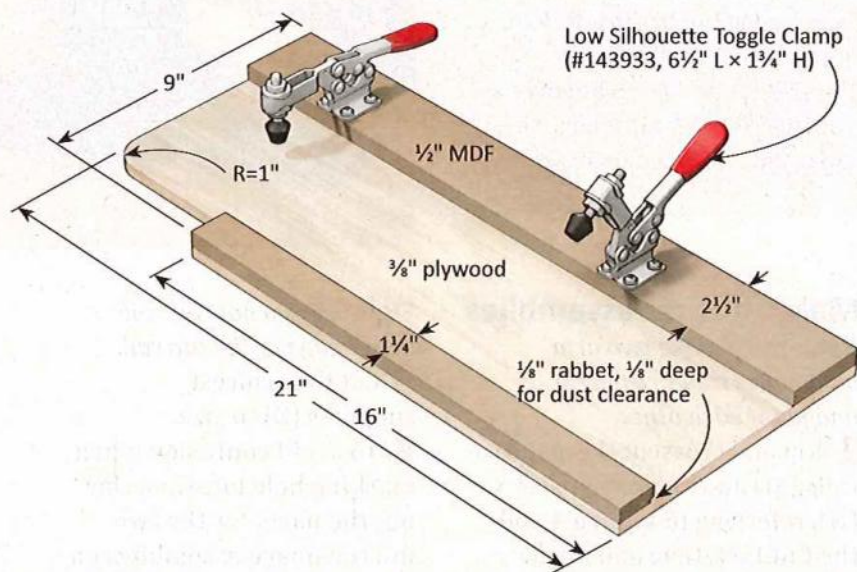


Figure 5: Radius Routing Jig



Clamp the workpieces in the radius routing jig, and flush-trim the rough-cut radii for clean, consistent corners, guiding off the jig's smooth edge.

7 Referring to the **Outside View** in **Figure 4**, mark and drill counterbored holes, where shown. To ensure that the screws will find solid targets, dry-fit the arm assemblies on the seat assembly, as described in **Step 8**, to check the marked hole locations prior to drilling. **8** Stand the seat assembly on end to make it easier to attach the arm assemblies. Now make, and then clamp, a straightedge to an arm assembly, positioning it parallel to the bottom armrest rail (M) with its upper edge 10" above the bottom edge of the arm assembly. Referring to **Photo D**, place the appropriate arm assembly on the seat assembly. Locate the front edge of the forward armrest support (O) 1/4" past the front seat slat (K). With the position confirmed, remove the arm assembly, apply glue to the mating surfaces, and reposition the assembly at the same location. Drill pilot holes, guiding off the counterbored holes, and drive the screws. Repeat the procedure for the other arm assembly.



Position the arm assembly on the seat assembly, using the straightedge, and then use glue and drive screws of three different lengths to secure it.

Build the base

Note: You'll make two base end assemblies that are mirror images of each other.

1 Rip and crosscut the legs (P) and base rails (Q) to form the base end assemblies, referring to **Figure 6** and the **Cut List**.

2 Chuck a $\frac{3}{8}$ " round-over bit into your table-mounted router,

and profile the edges and ends of the legs (P), where shown.

3 Mark the radii at the ends of the base rails (Q), and then cut and smooth them. Rout a $\frac{1}{8}$ " round-over around the perimeter of the outer face of the base rails.

4 Mark the centers of the counterbores and holes in the base rails (Q). Drill the

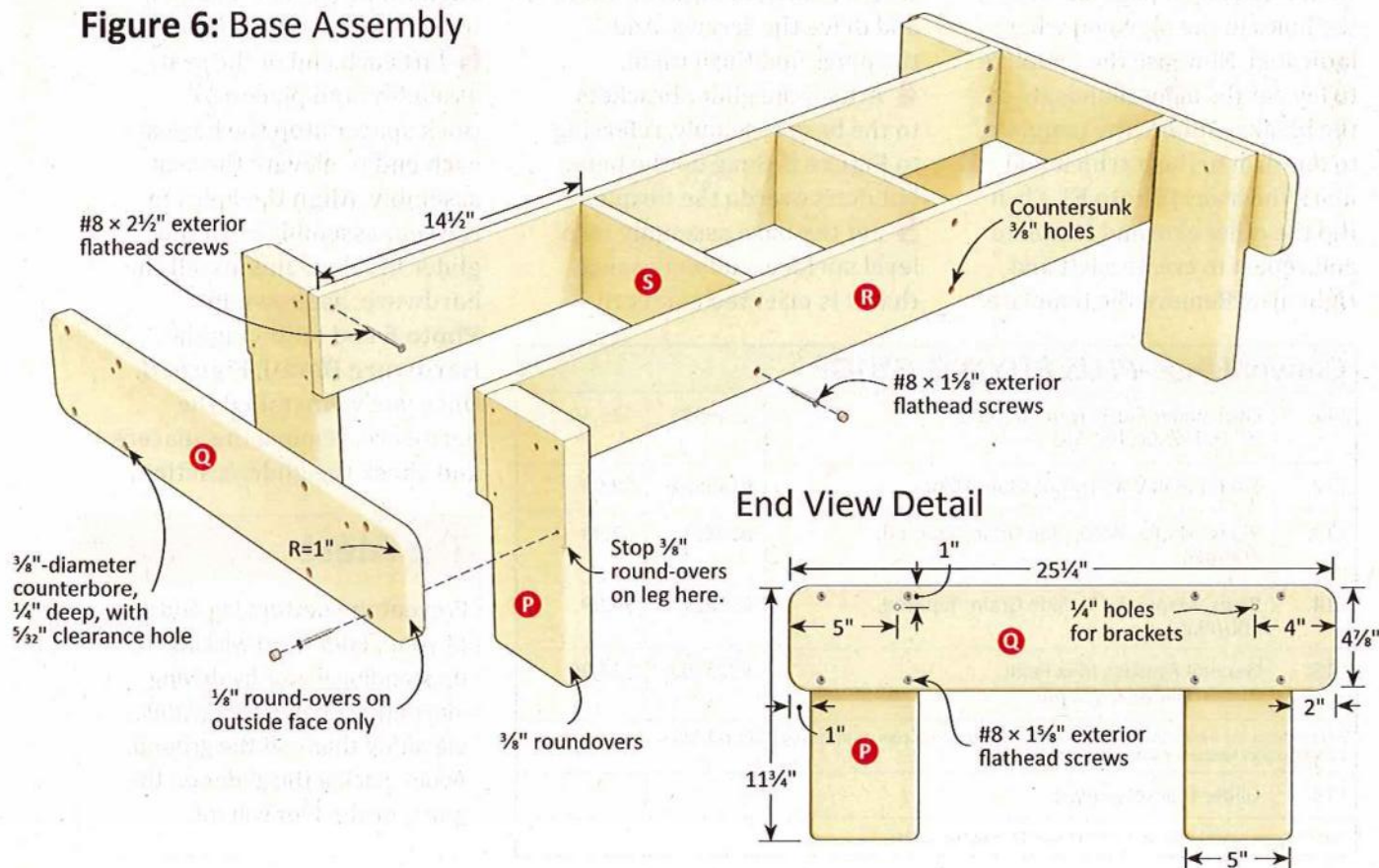
counterbores and clearance holes, but don't drill the holes for the glider brackets yet. Glue and clamp the base rails (Q) to the legs (P), and then drive the screws. Glue in the plugs, and then flush them to the surface.

5 Take the completed base end assembly to your drill press, and drill the holes for the glider brackets.

6 Rip and crosscut the base stretchers (R). Drill countersunk screw clearance holes into these parts, where shown in **Figure 6**. (The fasteners will be hidden, so there's no need for counterbores.) Glue and screw the stretchers to the base end assemblies (P, Q).

7 Measure between the base stretchers (R), and use the dimension to cut the base spacers (S) to length. Screw the parts in place to further stabilize the base assembly, and check them for square.

Figure 6: Base Assembly





Use a scratch awl to mark the holes in the arms, guiding off the $\frac{1}{8}$ " holes drilled in the plywood template.

Add the arms and hardware

Note: You'll make two arms that are mirror images of each other.

1 Cut the blanks for the arms (T) to size. Make a plywood pattern template using a copy of the **Arm Pattern** on page 34. Drill the holes in the plywood where indicated. Now, use the template to lay out the arms. Bandsaw the blanks. Adhere the template to one arm to flush-trim it and mark the holes (**Photo E**). Then flip the other arm and template and repeat to create a left and right arm. Remove the template.

2 Drill the counterbores and clearance holes in the arms

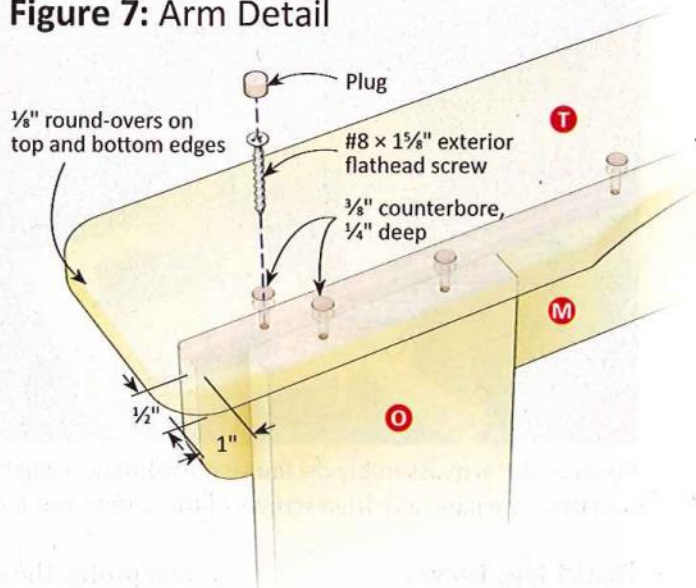
(T), where marked. Rout $\frac{1}{8}$ " round-overs along the perimeter on both faces.

3 Next, position the arm on the arm assemblies (M, N, O), where shown in **Figures 1 and 7**, and drive the screws. Add the plugs and flush them.

4 Attach the glider brackets to the base assembly, referring to **Figure 8**. Snug up the bolts, but don't overdo the torque.

5 Set the base assembly on a level surface, and make sure that it is oriented correctly—

Figure 7: Arm Detail



with the 2" projection of the base rails toward the front. Put the seat assembly in front of the base, and tilt it forward as you push the base assembly beneath it. Slide the two assemblies together to align them. (Or use a helper to set the seat on the base.)

6 Lift each end of the seat assembly, and place a $\frac{1}{2}$ "-thick spacer atop the base at each end to elevate the seat assembly. Align the holes in the seat assembly with the glider bracket, and install the hardware, as shown in **Photo F** and following the **Hardware Detail, Figure 8**. Once you've installed the hardware, remove the spacers and check the glider's action.

Convenience-PLUS BUYING GUIDE

☐ 1.	Over-under Flush-Trim Router Bit, $\frac{7}{8}$ " D, $1\frac{1}{2}$ " CL, ($\frac{1}{2}$ " SH)	#149528	\$36.49
☐ 2.	Titebond III Waterproof Glue, 16 oz.	#145562	\$8.99
☐ 3.	Plugs, Maple, $\frac{3}{8}$ " D, Side Grain, Tapered, 100/pkg.	#50K11	\$2.99
☐ 4.	Plugs, Maple, $\frac{1}{2}$ " D, Side Grain, Tapered, 100/Pkg.	#50K21	\$4.99
☐ 5.	General Finishes Milk Paint, Buttermilk Yellow, 1 pt.	#825753	\$13.99

Above items are available at Woodcraft stores, woodcraft.com or by calling (800) 225-1153. Prices subject to change without notice.

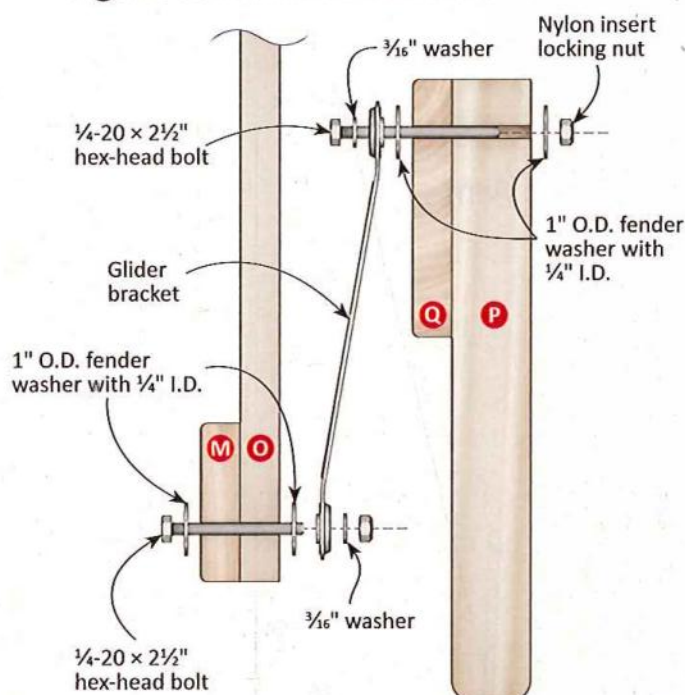
☐ 6.	Glider brackets, qty. 4		
-----------------------------	-------------------------	--	--

Above items available at home centers and hardware stores.

Tip Alert

Prevent the bottom leg ends of your glider from wicking up standing water by driving inexpensive nylon tack glides, elevating them off the ground. Avoid placing the glider on the grass, or the feet will rot.

Figure 8: Hardware Detail



Use a ratchet and wrench to snug up the bolts and nuts that attach the glider hardware.

7 Give the glider a test ride, and then remove the hardware so you can give the wood a final sanding with 220 grit. Wipe or blow off the dust and apply a finish. While you can go with a clear, exterior-grade finish with UV (ultraviolet) inhibitors, I chose buttermilk milk paint. After finishing, move the seat and base assemblies individually to a flat and level location where you intend to use the glider. Reattach the assemblies. ■

About Our Designer And Writer

Robert Settich is a seasoned woodworker and writer, with five books and hundreds of magazine articles to his credit. See more of his work at PlansUnlimited.com.

Adirondack Glider Cut List

	Part	Thickness	Width	Length	Qty.	Mat'l
A*	End seat rails	1 1/2"	4 7/8"	19"	2	P
B*	Middle seat rails	1 1/2"	4 7/8"	16 1/2"	2	P
C*	Back supports	1 1/2"	2 1/2"	20"	2	P
D*	Seat front rail	1 1/2"	4 3/4"	46"	1	P
E	Seat rear rail	1 1/2"	4 3/4"	43"	1	P
F	Top seat rail	1 1/2"	3"	47"	1	P
G*	Center splat	3/4"	3 1/2"	22 7/8"	1	P
H*	Outer splats	3/4"	3 1/2"	25 1/4"	4	P
I*	Intermediate splats	3/4"	3 1/2"	29 5/8"	4	P
J*	Middle splats	3/4"	3 1/2"	30 3/4"	2	P
K	Seat slats	3/4"	2 1/2"	46"	5	P
L	Rear seat slat	3/4"	3"	46"	1	P
M	Armrest rails	3/4"	3"	25 1/4"	4	P
N	Armrest spacer	3/4"	3"	4"	2	P
O	Armrest supports	3/4"	5"	23 1/2"	4	P
P	Legs	1 1/2"	5"	11 3/4"	4	P
Q	Base rails	3/4"	4 7/8"	25 1/4"	4	P
R	Base stretchers	3/4"	4 7/8"	41 3/4"	2	P
S	Base spacers	3/4"	4 7/8"	10 3/4"	2	P
T	Arms	3/4"	5"	27 3/4"	2	P

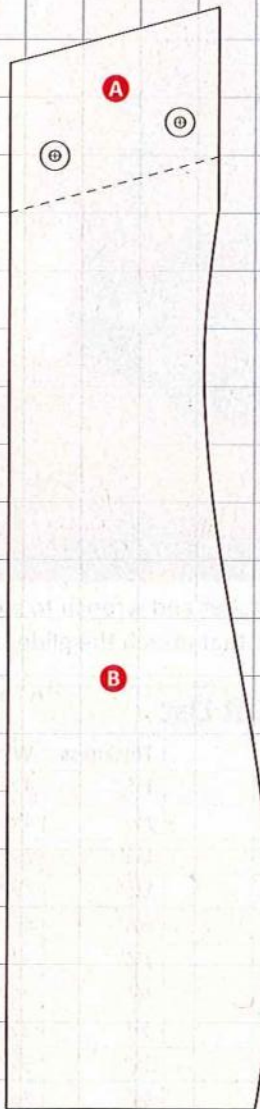
* Parts initially cut oversized and then trimmed to fit. See instructions.

Materials: P = Poplar

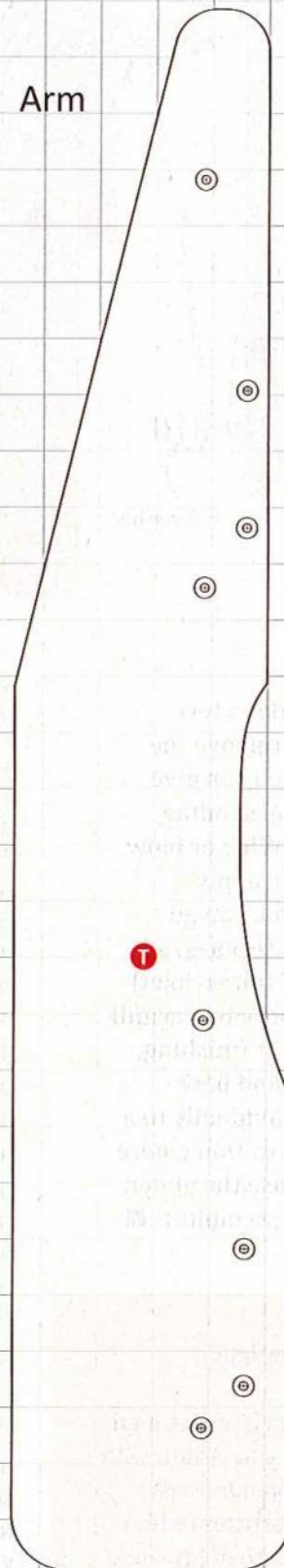
Hardware/Supplies: Exterior flathead screws: #8 x 1 1/4", #8 x 1 5/8", #8 x 1 3/4", #8 x 2 1/2", #10 x 3 1/2"; (4) 1/4-20 x 2 1/2" hex head machine screws; (4) 1/4 x 3" hex head machine screws; 1/4" nylon insert locking nuts; 3/16" fender washers; 1/4" fender washers w/1" O.D.; (1 qt.) general purpose exterior latex primer and sealer

Adirondack Glider Patterns

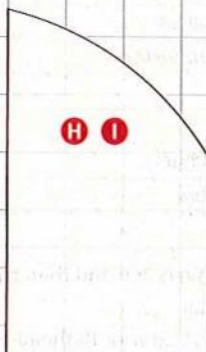
Seat Rail



Arm



Splats



1 square = 1"

Download full-sized pattern at
woodcraftmagazine.com/patterns.

Spraying Made Simple

The right setup and spraying sequence are the keys to success.

By Keith Cochrane with Joe Hurst-Wajszczuk

As most professional woodworkers know, spraying is just about the fastest way to apply a finish. Done properly, it's also one of the cleanest. A spray gun can quickly lay smooth coats on flat surfaces without leaving a stray bristle behind, and it can effortlessly apply finish into corners and crevices that would frustrate the best brush.

Back in the days of solvent-based lacquers, spraying was too much hassle for many garage

and basement woodworkers to consider. Since then, advancements in waterborne finishes, coupled with a wide array of affordable spray guns, have put this professional finishing solution well within reach of almost everyone.

Using a spray gun is easy once you understand the basics. In this story, we'll show you how to prepare your workspace, your finish, and your gun, and how to finish a door and

cabinet in the proper step-by-step sequence. As with any technique, practice makes perfect. Invest a day or two spraying a few workshop cabinets, and you will soon have the skill to tackle other projects.

Note: The following steps focus on spraying waterborne finishes. If you plan to spray lacquer or other solvent-based finishes, you'll need to take additional fire-safety precautions.



Online Extra

For a simple spray booth, check out the plans for benchtop and floor models in "Spray Booths Made Simple" in Issue #36 (Aug/Sept 2010), available online at woodcraftmagazine.com/onlineextras.

fan located behind filters to exhaust the overspray outside as you shoot. However, even a regular box fan covered with a filter will work, just not as well. Keep in mind that you need fresh "makeup" air coming in, which can be provided by an open window at the opposite end of a garage or basement shop. To allow you to consistently shoot toward your fan, set up a support turntable that permits you to rotate a project as necessary while you work.

Light it right. Reflective lighting is indispensable for exposing flaws such as drips, specks, or missed spots. Position the light so that you can see its reflection in the wet finish. Work lights with either fluorescent or halogen bulbs function well, though the latter can burn you if you bump into them.

Getting started

Before you can start spraying, you'll need to do a little prep work to ready your shop, your finish, and your gun.

Set the stage

Cut the dust. A few specks of dust can ruin an otherwise flawless finish. Vacuum your space and project. If you don't have a dedicated finishing room, you can use plastic sheeting or a canvas tarp to

create an area that's suitable for spraying. Cover any walls, floors, and machinery that might suffer from overspray.

Establish good airflow. Your goal is to stand in clean air and to direct overspray away so that it won't be inhaled by you or settle on your project or other items in your shop.

The best approach is to use a high-powered commercial

Prepare the finish

Finishing products may have undissolved lumps or contaminants that can spoil a finish or clog the gun. After stirring well, pour your finish through a paper strainer (Woodcraft #151299), to catch these potential troublemakers.

Stains and waterborne finishes formulated for spraying don't require thinning, but some latex paints may. If your sprayer comes with a viscosity cup, measure the time it takes for the cup to drain, and compare that with the manufacturer's recommendations.



Setting up the gun

Spray patterns

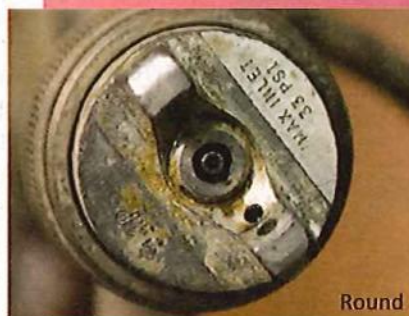
Air caps can be set in three positions—each one creating a different fan pattern. To change the spray pattern, rotate the air cap. The horizontal fan pattern is good for spraying cabinet and furniture sides while moving the gun up and down. Use the vertical fan pattern for tops or for other applications that dictate moving the gun from side to side. The round spray pattern is used to minimize overspray in tight spots or to better target small objects.

Tip Alert

Use cardboard or builder's (rosin) paper to test your gun's settings and to practice your spray technique.



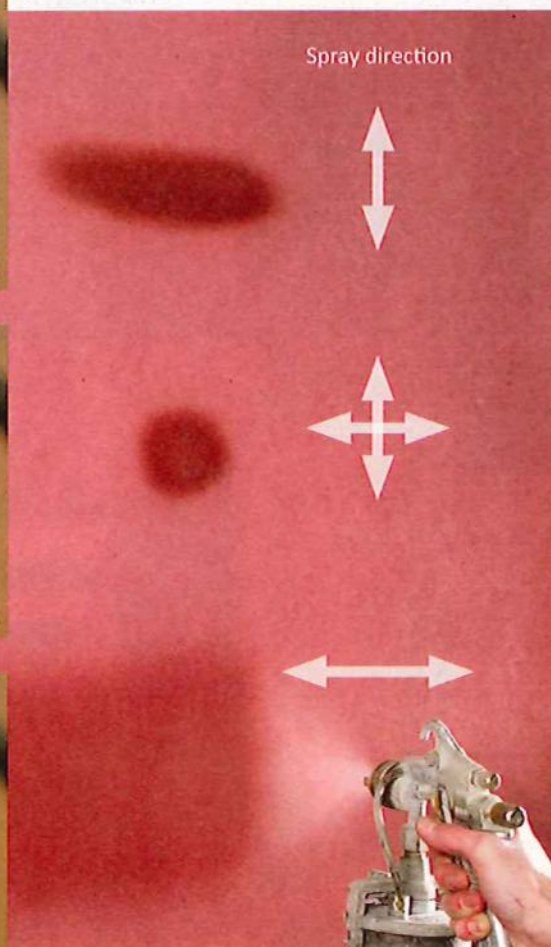
Horizontal



Round



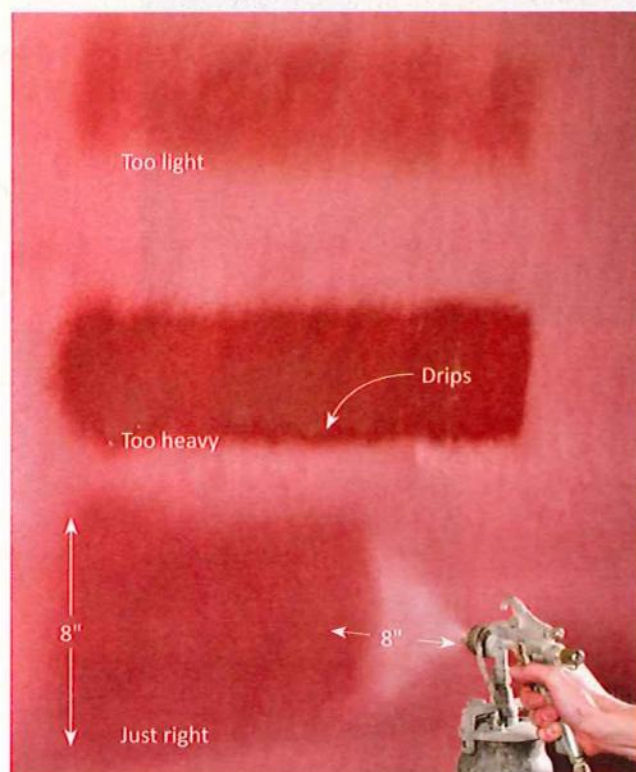
Vertical



Fluid volume

To set the correct fluid volume, first close the fluid knob control. Then pull the trigger and back off the screw until you get an even, wet coat without drips or mist.

Note that fluid volumes for vertical and horizontal settings are about the same. If you switch to a round fan pattern, you'll need to reset your gun for less volume.



Finishing cases

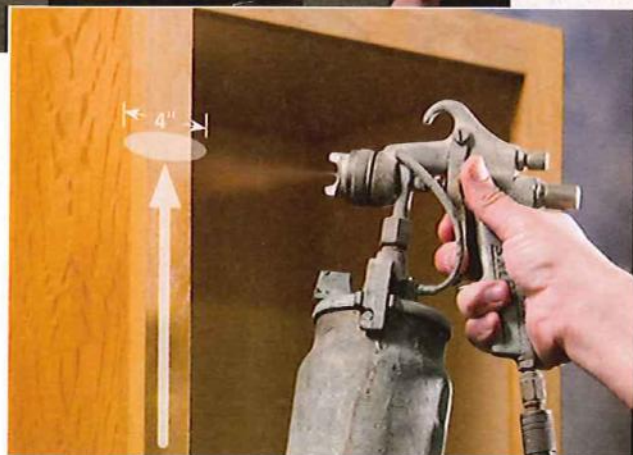
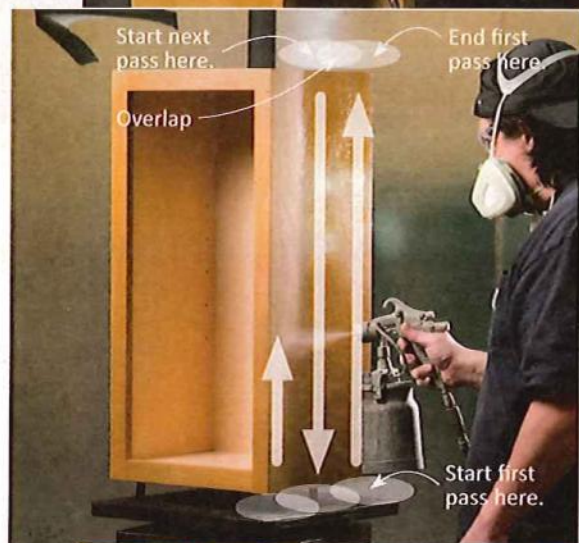
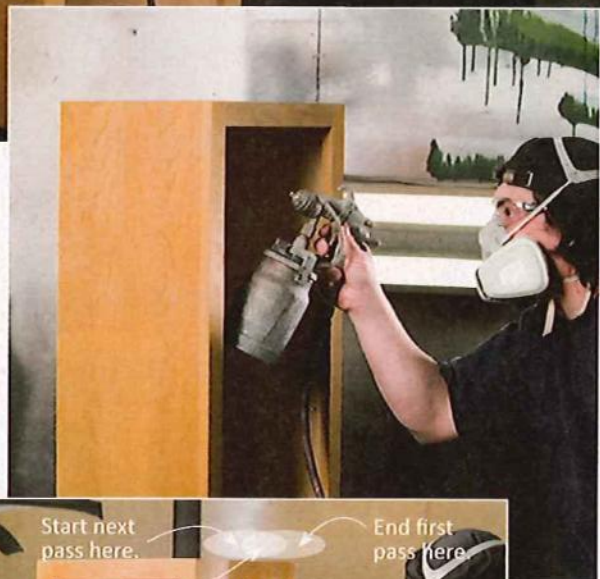
Smooth, consistent finishing requires a plan. The rule of thumb when spraying is to progress from the least visible to the most visible sections. This approach minimizes the amount of overspray that settles on top of surfaces that matter most.

1 Spray under the top. Set the cap for a horizontal spray pattern. Starting at the rear of the case, move the gun to the front. When spraying, you generally want to hold the nozzle perpendicular to the surface being sprayed. Here's the exception to the rule. Pointing the gun straight up could cause finish to sneak into the airflow tube. Instead, angle the gun and spray as shown.

2 Spray inner sides, bottom and back. Set the air cap for a horizontal fan pattern, and run the gun up and down each side, overlapping half of each previous pass as you progress. You may need to adjust the air cap for a vertical fan pattern to lay finish in behind the face frame. Avoid spraying directly into the corners, as finish will tend to drip or bounce back toward you.

3 Spray the outer faces. Set the air cap for a horizontal spray pattern. Start spraying a few inches below the cabinet, and move up the face, maintaining the same spray angle and distance from the beginning to the end of the pass. Release the trigger a few inches past the top of the cabinet. Repeat the up and down sequence, overlapping each previous pass by about 50%, until the side is covered. Rotate the cabinet as you work, so that you are always spraying toward your exhaust fan.

4 Finish the face frames. With the air cap set for a horizontal fan pattern, reduce the spray pattern either by reducing the fluid volume or by moving the gun closer to your work. Hold the nozzle perpendicular to the face frame, but angle the case slightly so that the spray hits the inside edge and does not deposit any overspray on the cabinet's outer face. As when spraying the cabinet sides, begin and end the pass slightly past the ends of the face frame.



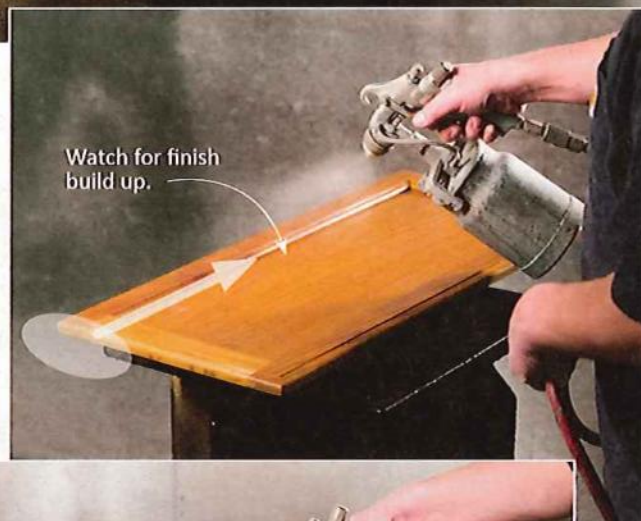
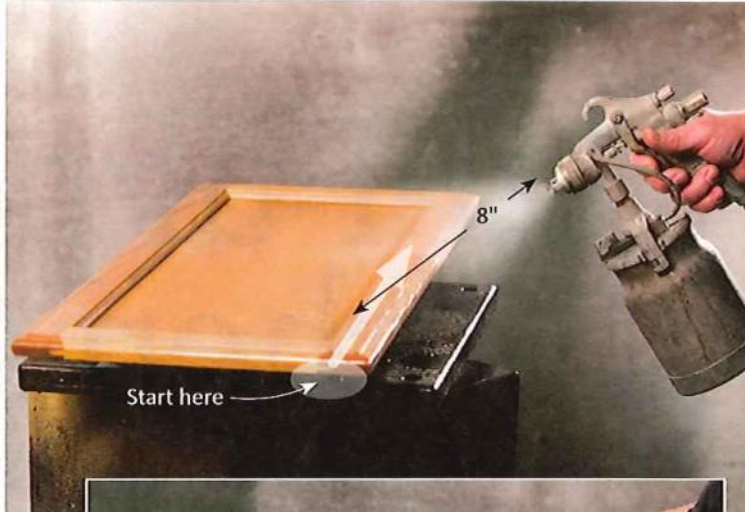
Spraying doors

These photos focus on the front face of a door, but you'll actually want to finish its back first, following this same three-step sequence. If time allows, let the back dry before tackling the front.

1 Start with the outer edges. Set the air cap to a vertical fan pattern. Hold the gun about 8" away from the door, and spray all four outer edges. Begin spraying a few inches before the wood and continue spraying a few inches after the wood.

2 Spray the inner edges. With the air cap set to a vertical spray pattern, hold the gun as shown and make a pass across the edge. To avoid laying too much finish on the center panel, position the gun so that the fan pattern is half on and half off the work. Rotate the door as you work to hit each frame part from the same angle. Pay attention to the inside edges, keeping the gun moving to avoid finish buildup there.

3 Finish with the panel and face. With the gun still set for a vertical spray pattern, hold it between 45° and 90°, and spray from side to side, pulling the trigger a few inches before and releasing it a few inches after each pass. Overlap each previous pass by about half the width of the fan pattern. Plan on a second coat for complete coverage.



Cleaning up

If you leave finish in the gun, it can harden in the cup or nozzle, rendering the gun temporarily useless. The gun can sit idle for a coffee or lunch break, but if you plan to step away for more than a few hours, clean out the cup and run soapy water through the gun.

Remove the air cap and needle and let them soak in soapy water. Clean the cup thoroughly, including the gasket. Spray undiluted cleaning solution

(such as Simple Green) through the intake hose until foam comes out of the nozzle. ■

For a complete gun-cleaning regimen, see "TLC for your HVLP" in Issue 33 (Feb/Mar 2010). The downloadable version (#150848D) can be purchased at woodcraft.com.



All-Purpose Kitchen Cabinet

Build attractive storage for small appliances, bowls, and serving pieces.

By Linda Rowe with Joe Hurst-Wajszczuk; Designer: Craig Bentzley



Overall dimensions: 45"w x 19 1/4"d x 36"h



Stories and catalogs are chock-full of home storage options, but the best-fitting solution is one you build. Sporting sawtooth shelf supports and full-extension drawer slides, this piece will stand up to anything you can stack in or on it. For the cost of some wood, hardware, and a few free weekends, you can make this sturdy cabinet and learn a few tricks along the way.

While it may look like a serious woodworking project, strip it down to its bones, and you'll see that it's just a box—well within the reach of most woodworkers. Plywood and pocket-

hole screws simplify construction and speed up assembly. Solid wood trim strips and full-overlay doors conceal the box's humble beginnings and help hide any minor mistakes.

You can also customize the straightforward design to suit your needs. For example, you can build the wood-edged plywood top shown here, or step up to granite, as shown in the photo on page 2. For stone-buying tips, see "Going with Granite", page 46. By altering the trim or adjusting the dimensions this project can serve as a bathroom vanity or office workstation.

Start with the case

1 From $\frac{3}{4}$ "-thick plywood, cut the sides (A), bottom (B), and center divider (C) to the sizes listed in the **Cut List**. Then, using a tablesaw outfitted with an auxiliary fence and dado set, cut the $\frac{1}{4}$ "-deep dados for the bottom and $\frac{1}{2}$ "-deep rabbets for the back on the sides, where shown in **Figure 1** on page 42. Next, cut a $\frac{1}{4}$ "-deep dado across the center of the bottom to fit the center divider.

2 From $\frac{3}{4}$ "-thick plywood, cut the rails (D) and stiles (E) for the case web frame. Drill pocket holes in the ends of rails to assemble them to the stiles, and along the edges to attach the frame to the sides (A). Assemble the web frame using $1\frac{1}{4}$ "-long washer-head screws.

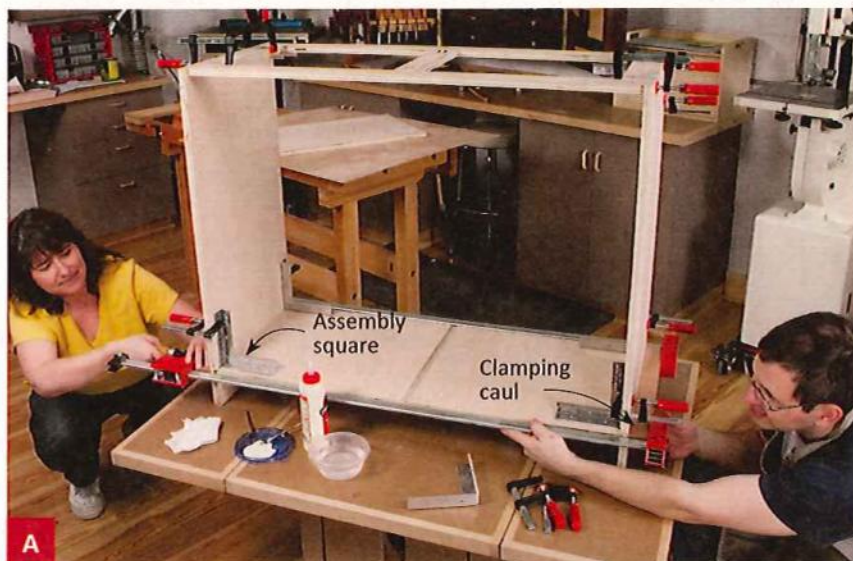
3 Dry-assemble the sides (A) and bottom (B) to verify that the parts fit together correctly. When inset $\frac{1}{2}$ " from the front edge of the sides, the bottom should align with the inside edge of the

rabbets in the side. Now, glue and clamp the parts together, as shown in **Photo A**. (Note: If you're short on long clamps, you can drive screws through the sides to attach them to the bottom. The trim strips will hide the fasteners.)

4 Position the web frame assembly (D, E) so that the top

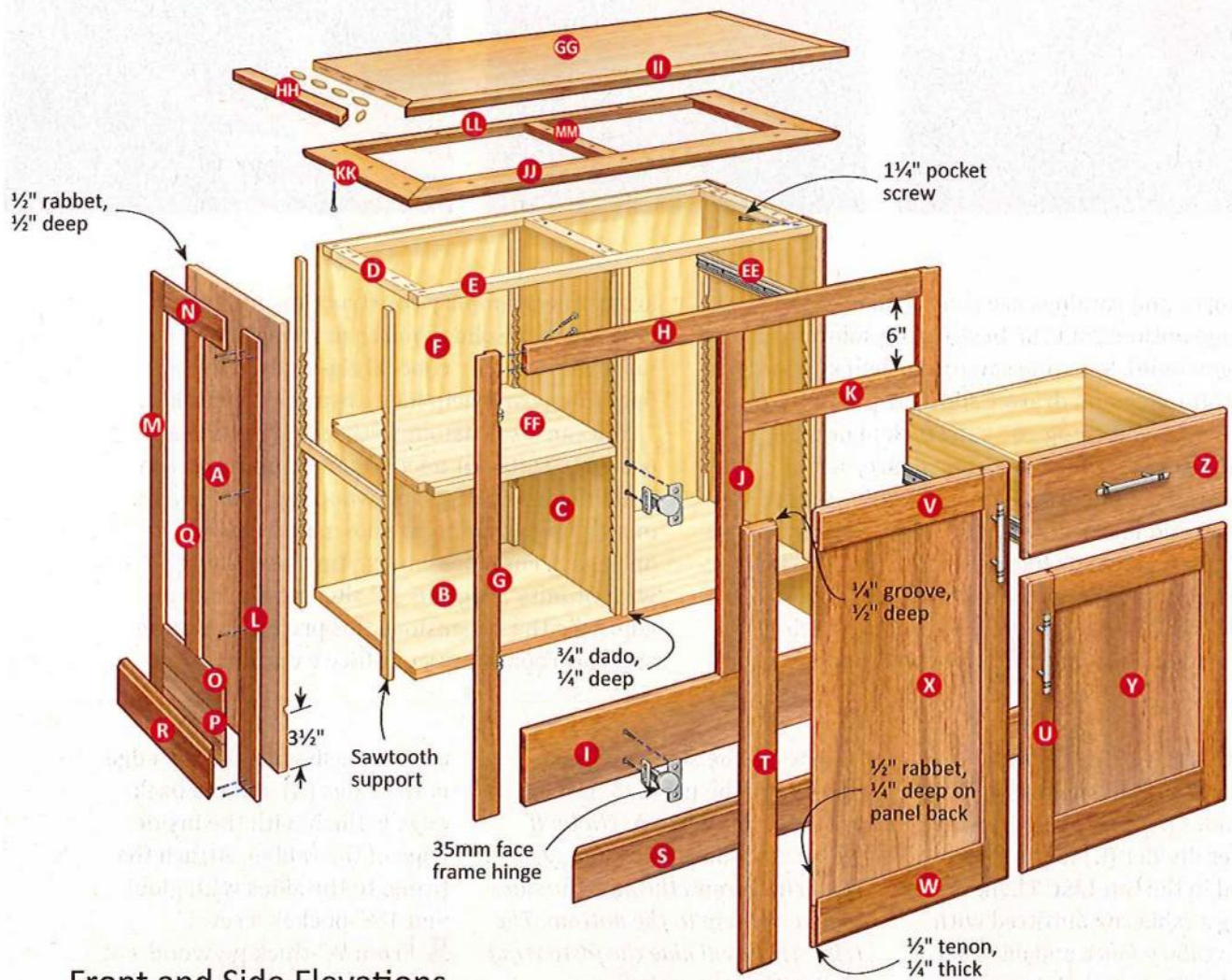
edge is flush with the top edge of the sides (A) and the back edge is flush with the inside edge of the rabbet. Attach the frame to the sides with glue and $1\frac{1}{4}$ " pocket screws.

5 From $\frac{1}{4}$ "-thick plywood, cut the back (F) to the size listed in the **Cut List**. Put it aside for now.

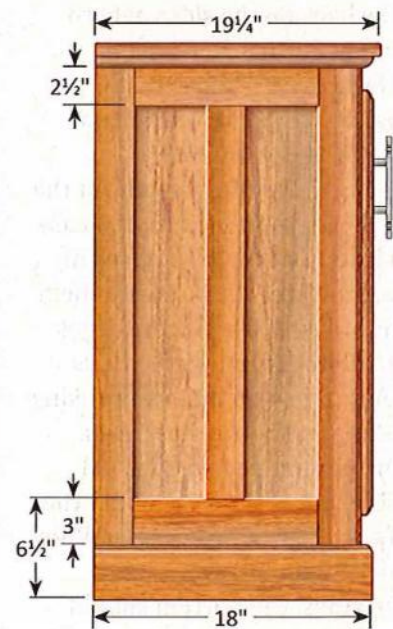
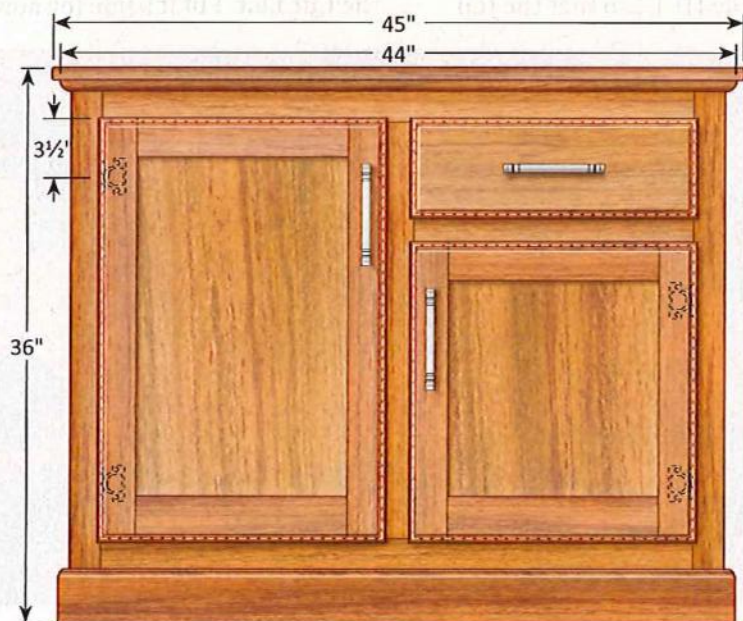


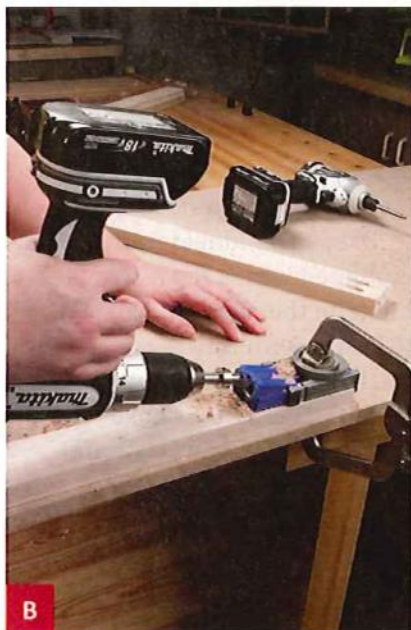
Use the web frame and assembly squares to hold the case together while you attach the sides to the bottom with clamps and cauls.

Figure 1: Exploded View



Front and Side Elevations





B Center the pocket-hole jig on the end of your workpiece, clamp it in place, and then drill the screw holes.

Make the face frame

1 Mill 1" (4/4) stock to make the face frame rails and stiles (Note: Except for the bottom rail [I], all of the face frame parts [G, H, J, and K] are 2" wide.)

2 Using a tablesaw and dado set, cut a 1" rabbet, 1/2" deep along the edge of the outer stiles (G). (When placed against the side [A], the stile's edge should protrude a bit more than 1/4".) Trim the outer stiles to length.

3 Cut the top and bottom rails (H, I) and center stile (J) to fit. Next, cut the inner rail (K) to fit. Make pencil marks where the parts meet to facilitate later assembly.

4 Using a pocket-hole jig, drill a pair of angled holes on the ends of the three rails (H, I, K) and the center stile (J), as shown in **Photo B**.

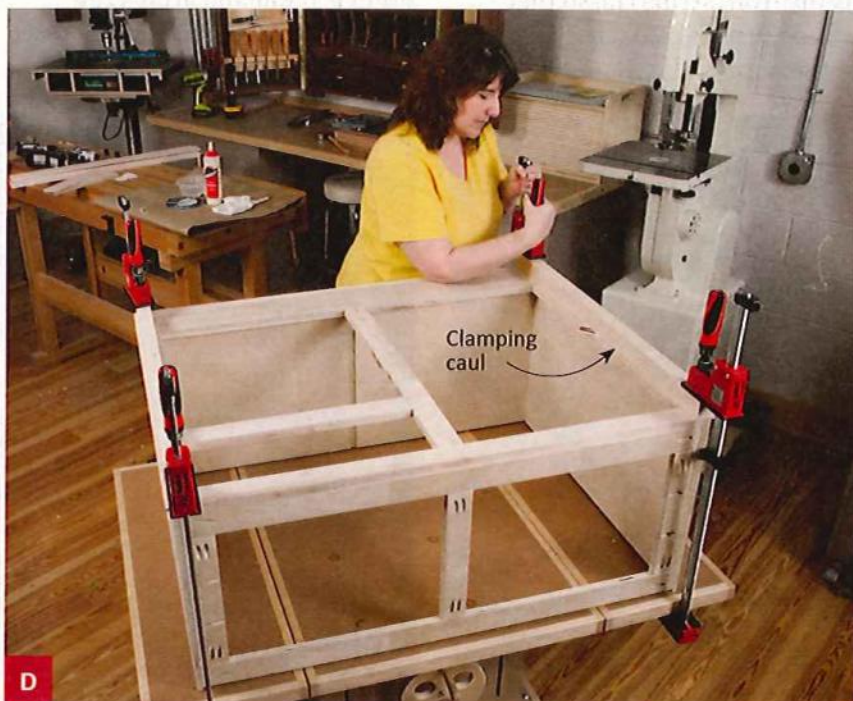
5 Assemble the face frame from the outside in. First, screw the top and bottom rails (H, I) to the outer stiles (G). Next attach the center stile (J) between the rails, and then attach the inner rail (K), as shown in **Photo C**.



C Clamp the pieces flat against a work surface as you drive the screws to ensure flush joints where the rails meet the stiles.

6 Test-fit the assembled face frame (G, H, I, J, K) on the case. Note the locations where you need to use more clamps to ensure a gap-free joint. Apply glue and then clamp in place (**Photo D**).

7 Apply glue to the dado on the bottom (B) and slide in the center divider (C). Clamp the divider to the center stile (J), check for square, and then attach the web frame to the top of the divider with 1 1/2" screws.



D Using clamping cauls to distribute pressure across the joint, glue the face frame to the case. The frame helps square and solidify the cabinet.



Use guide blocks to establish the correct spacing and to ensure that the center strip is parallel with the front.

Trim the case

1 From $\frac{3}{4}$ "-thick stock, rip 8 strips, approximately 3" wide and 36" long. (To be safe, rip an extra strip or two.) Using a tablesaw equipped with a thinner kerf blade, resaw the strips in half and then thickness to $\frac{1}{4}$ ". Rip two pieces to $2\frac{1}{4}$ " for use as the front strips (L), so that when butted against the edge of the outer stile (G), the front

strip will appear to be as wide as the other vertical strips.

2 Cutting the trim strips to fit as you go, glue and pin the front strip (L) and the back strip (M) flush with the front and back edges of the sides. Next, cut the top and bottom cross strips (N, O) to fit where shown in **Figure 1**. Cut and attach the bottom filler strips (P) to serve as backer for the base molding.

3 Cut a center strip (Q) to fit vertically between the cross strips (N,O). Center this strip on the side, and make a pair of spacer blocks to position it while nailing (**Photo E**).

4 Using a handheld router equipped with a flush-trim bit, trim the outer stiles (G) flush with the face of the front trim strip (L).

5 Mill stock for the base molding. Rout your desired profile along the top edge. Leaving all three pieces a few inches long, miter the ends of the side pieces (R) and one end of the front piece (S) section.

6 Clamp the side base molding pieces to their respective sides of the cabinet. Next, fit the mitered end of the front section against the matching end (**Photo F**), mark the

Tip Alert

Miter scrap pieces to test the fit of the joint at the front corners before cutting the actual molding.

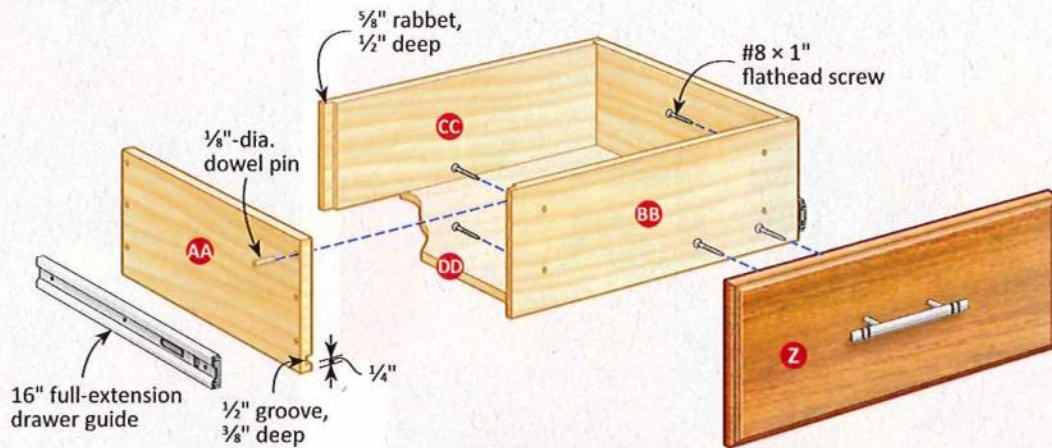


Practice fitting the baseboard miters before cutting the side pieces to length.



For tighter miters, fit the pieces together and mark the exact length of the center section.

Figure 2: Drawer Detail



length on the square-cut end (Photo G) and cut to length.

7 Attach the base molding to the case. Attach one side with glue and nails, then center, and then the remaining side.

Make the doors and drawer

1 Prepare enough $\frac{3}{4}$ "-thick stock to make the door rails and stiles (T, U, V, W). Cut the parts to the widths listed in the Cut List, but leave them long for now. Arrange the parts for the best grain match, and label them accordingly, noting the inside and outside edges.

2 Outfit your tablesaw with a $\frac{1}{4}$ " dado set. Using a piece of scrap, adjust the cutter to make a centered $\frac{1}{2}$ "-deep cut along the inside edges of your stock, running the "show" face against the rip fence.

3 Cut the long stiles (T), short stiles (U), and the top and bottom rails (V, W) to length. Now using your tablesaw and miter gauge with an auxiliary fence and stop, cut $\frac{1}{2}$ " long tenons on the ends of your rails. Adjust the cut so that the tenon fits snugly in the groove.

4 From $\frac{1}{2}$ "-thick plywood, cut door panels (X, Y) to size. Cut

$\frac{1}{2} \times \frac{1}{2}$ " deep rabbets along the back face so that the panel can fit into the rails and stiles.

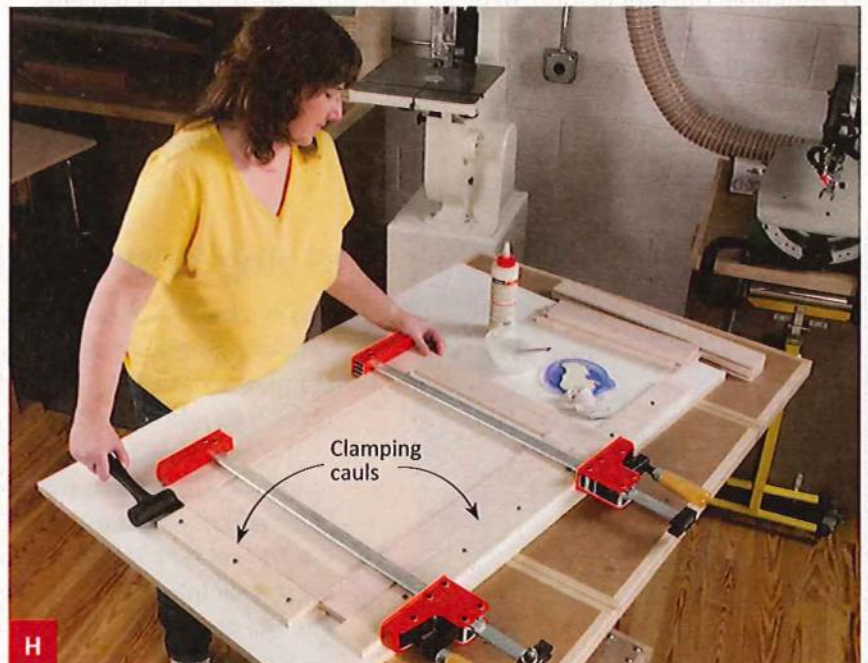
5 Assemble the long door using a flat assembly table, like the one shown in Photo H. Test-fit the parts and adjust the tenons as necessary with a shoulder plane or sanding block. Now, using Titebond 3 or similar slow-set glue, assemble the door.

6 After the assembly cures, remove it from the frame.

Repeat the assembly process with the short door (U, V, W, Y).

7 Using a drill press and 35mm Forstner bit, drill the doors, where shown in Figure 1, for the cup hinges. Set the doors aside for now.

8 Mill the drawer false front (Z) to the size listed in the Cut List. Next, mill stock to $\frac{5}{8}$ " thick, and then cut parts to make the drawer sides (AA), front (BB), and back (CC). Cut a $\frac{1}{2} \times \frac{3}{8}$ " groove on the



Clamp the rails and stiles against a pair of right angle fences to ensure a square glue-up. Squeeze-out will not stick to the melamine surface.



I Attach the glide supports $\frac{1}{4}$ " above the inner rail. Then, screw the metal hardware flush with the bottom edge.

bottom edges of the side and front. Next, cut a $\frac{3}{8}$ " deep $\times$ $\frac{1}{2}$ " wide rabbet on both edges of the front and back as shown in **Figure 2**. Dry-fit the parts together, and cut a drawer bottom (DD) to fit.

9 Assemble the drawer with glue. To reinforce the rabbet joint, drill $\frac{1}{8}$ " holes through the sides, where shown in **Figure 2**. Brush glue onto $\frac{1}{8}$ "-dia. dowels, and tap them in place. When dry, trim flush.

10 Cut the glide supports (EE), and test-fit them in the case. Adjust the thickness so that they sit flush with the inside edge of the stiles. Install them $\frac{1}{4}$ " above the inner rail, as shown in **Photo I**.

11 Cut the sawtooth hangers to fit in the case. Now attach them to the sides (A) with $\frac{3}{4}$ "-long nails (**Photo J**). Cut the included hanger brackets to fit snugly between the hangers. Cut plywood shelves



J Pin the hangers inside the case. Trim the same amount from each end so that the teeth line up.

(FF) to fit. (Edge the shelf with wood or veneer banding to suit.) Notch the corners of the shelves to fit around the hangers.

Finish and final assembly

1 Inspect all parts, finish-sand where needed through 220 grit, and stain and finish with products of your choosing to match your décor.

2 Clamp the back (F) in place and install with #8 $\times$ $\frac{3}{4}$ " screws.



Going With Granite

You can build a wood top, but there are plenty of reasons to consider granite. It cleans easily and shrugs off hot pots and staining agents that could trash finished wood. Plus, it can make a simple cabinet resemble a high-end kitchen cabinet.

The only downside is price; granite countertops can run as high as \$100 per square foot. To save money, ask about "remnants," pieces left over from other jobs. These scraps can be had for a lot less. To select the right piece of stone, bring a sample finished in the same manner as your cabinet and the desired dimensions. The dealer may suggest edge treatments or protective finishes that can affect the total cost.

3 Mount the drawer slides flush with the bottom edge of the glide supports (EE). Then mount the slides on the drawer sides (AA). Install the cup hinges in both doors, and attach the matching clip to the outer stiles. Attach the doors to the cabinet.

4 Install the drawer pulls on the drawer front and both doors. Then clamp the front on the front of the drawer. Drill pilot and countersunk shank holes through the drawer box and into the drawer front. Secure the front to the drawer with #8 x 1" screws.

5 Referring to the **Cut List**, cut the parts for the wood top and assemble as shown in **Figure 1**. Fasten it to the web frame with #8 x 1½" wood screws. If you opted for granite, apply a bead of silicone caulk to the web frame and rest the stone in place. ■

Convenience-PLUS BUYING GUIDE

□ 1.	#147643	\$39.99
Kreg Jig Jr. Pocket-Hole Jig		
□ 2.	#142246	\$4.69
Kreg Pocket-hole #8 x 1¼" Long Screws, Coarse Thread (100)		
□ 3.	#143958	\$10.99
DrillRite 35mm Hinge Jig and Bit		
□ 4.	#131197	\$18.50
16" Accuride 3732 Full Extension Drawer Slides, pair		
□ 5.	#24E18	\$37.49
Whiteside Roman Ogee ½" R x ¼" CL (½" SH)		
□ 6.	#02R85	\$6.99
Blum 110° Face Frame Euro Hinges, ½" Overlay Edge Mount, pair		
□ 7.	#153504	\$29.99
Sawtooth Shelf Supports, Poplar		
Above items are available at Woodcraft stores, woodcraft.com or by calling (800) 225-1153. Prices subject to change without notice.		

All-Purpose Kitchen Cabinet Cut List

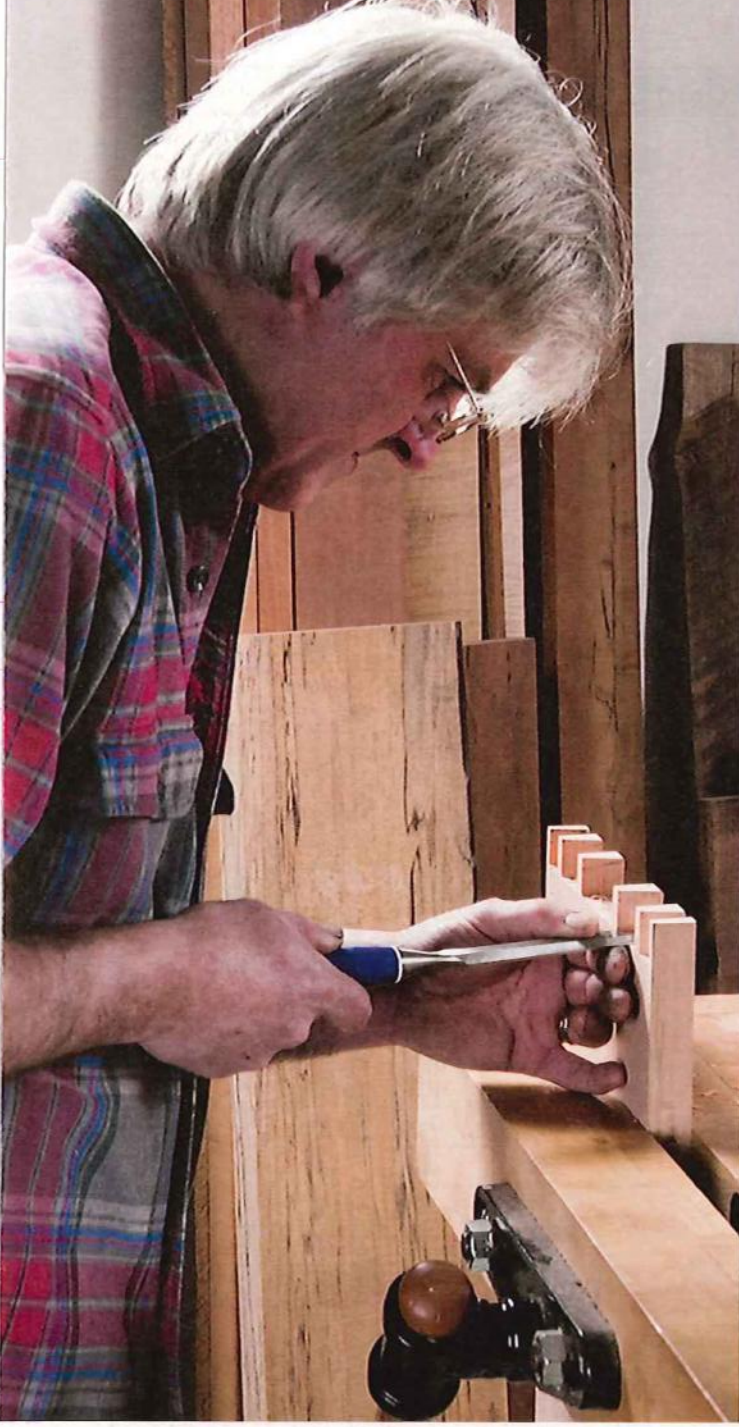
	Part	Thickness	Width	Length	Qty.	Mat'l
A	Sides	¾"	17"	34½"	2	Ply
B	Bottom	¾"	16¼"	40½"	1	Ply
C	Center Divider	¾"	16¼"	29¾"	1	Ply
D	Web frame rails	¾"	2"	12¼"	3	Ply
E	Web frame stiles	¾"	2"	40"	2	Ply
F	Back	¼"	41"	31"	1	Ply
G	Outer stiles	¾"	2"	34½"	2	M
H*	Top Rail	¾"	2"	38"	1	M
I*	Bottom Rail	¾"	5½"	38"	1	M
J*	Center Stile	¾"	2"	27"	1	M
K*	Inner Rail	¾"	2"	18"	1	M
L*	Front strip	¼"	2¼"	34½"	2	M
M*	Back strip	¼"	2½"	34½"	2	M
N*	Top cross strip	¼"	2½"	12¼"	2	M
O*	Bottom cross strip	¼"	3"	12¼"	2	M
P*	Filler Strips	¼"	1¼"	12¼"	4	M
Q*	Center strip	¼"	2½"	25½"	2	M
R*	Side base molding	¾"	3½"	18"	2	M
S*	Front base molding	¾"	3½"	44"	1	M
T	Door stile (long)	¾"	2½"	27½"	2	M
U	Door stile (short)	¾"	2½"	19½"	2	M
V	Door top rail	¾"	2½"	15"	2	M
W	Door bottom rail	¾"	3"	15"	2	M
X	Large panel	½"	15"	23"	1	Ply
Y	Small panel	½"	15"	15"	1	Ply
Z	False front	¾"	6½"	19"	1	M
AA	Drawer side	⅝"	5½"	15½"	2	M
BB	Drawer front	⅝"	5½"	17¼"	1	M
CC	Drawer back	⅝"	4¾"	17¼"	1	M
DD	Drawer bottom	½"	16¼"	15½"	1	M
EE*	Drawer glide supports	¾"	2½"	16"	2	P
FF	Shelves	¾"	16½"	19"	2	Ply
+GG	Plywood top	¾"	17¾"	42"	1	Ply
+HH	Top edging ends	¾"	1½"	19¼"	2	M
+II	Top edging front	¾"	1½"	45"	1	M
+JJ	Subbase ends	¾"	3¾"	18¾"	2	M
+KK	Subbase front	¾"	3¾"	44"	1	M
+LL	Subbase center support	¾"	1½"	15"	1	M
+MM	Subbase back support	¾"	1½"	36½"	1	M

*Indicates parts that are initially cut oversized. See instructions.

+ indicates parts used to build optional wood top.

Materials: Ply=Plywood, M=Maple, P=Pine

Hardware/Supplies: (3) #8 x 1½" flathead screws, (4) #8 x 1 flathead screws, (16) #8 x ¾" flathead screws



Using Chisels

The mastery is all in the basics.

By Paul Anthony and Geoff Noden

A chisel is a simply remarkable tool. Basically just a piece of steel with one sharpened end and a handle, it can perform the coarsest work to the most refined. You can use it to rough out shaped parts, fine-tune joints, pare plugs, and chop out mortises, among myriad other things. It's all in how you wield the tool.

Mastering the chisel is all about learning a handful of basic maneuvers, but learning them well. Here, we'll show you how to grip, power, and guide this invaluable tool to ensure the kind of clean, accurate paring and chopping that leads to tight joinery and precise detailing. To wrap things up, we'll show how these techniques can be best employed, using as examples typical operations you're likely to encounter in your own workshop.

Note: For the sake of brevity and clarity, throughout this article we'll regard the right hand as the dominant hand. Apologies to our lefty friends, who will have to reverse the instructions.



Paul Anthony



Geoff Noden

About Our Authors

Senior editor Paul Anthony and furnituremaker Geoff Noden drew on their combined 72 years of woodworking experience to produce this article. Surprisingly, they had very few arguments about proper technique—a good thing, considering they were both armed with keenly honed weapons. Contact Paul at Paul_Anthony@woodcraftmagazine.com. For more on Geoff, visit geoffreynoden.com.

Basic maneuvers



Press the chisel face flat against the surface to be trimmed.



Back up while maintaining the angle of the blade.



Apply pressure against the blade and pare forward.

Powering and guiding

When maneuvering a chisel, use your right hand to power it, either by grasping the tool handle or by tapping it with a mallet. Use your left hand to register the blade against the work and to provide fine control. The left hand generally leads the dance. That is, you use it to locate the chisel tip on target before driving the blade into the work using your right hand.

Your left hand serves as an anchor, as it contacts both the chisel and the work or

adjacent workbench surface. It also provides a fulcrum for fine directional control and braking at the business end of the chisel while your right hand provides general steering.

When possible, establish the direction of travel by using the surface to be cut as a reference, as shown in **Photos A through C**. Learn to guide a chisel as much by feel as by sight. For example, practice orienting the tool vertically (or horizontally),

just as you practice keeping a handsaw properly oriented during sawing. And pay attention to the nuance of a particular cut. For instance, if the wood starts to tear, or the tip of the chisel digs into the surface, you may need to try a different angle of attack.

Tip Alert

Although it may seem counterintuitive, the back of the chisel is actually called the face.

Establishing cut direction

When chopping with a mallet, rest your left hand on the workpiece while pinching the blade between your fingers (**Photo D**). A short chisel works best for this, as a longer tool tends to sway due to its top-heaviness.

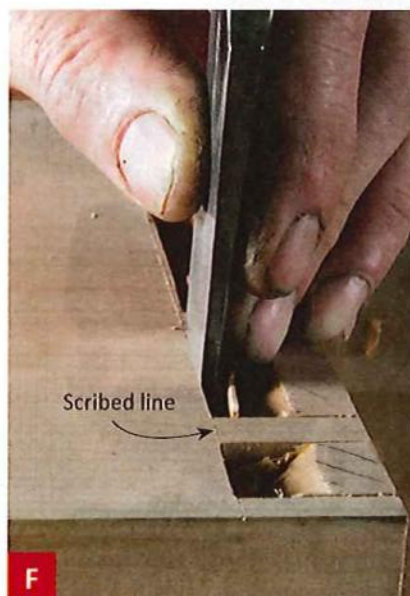
When your angle of attack needs to be absolutely precise, there's no shame in using a guide block. This is particularly helpful when paring miters, as shown in **Photo E**. To clean up squared notches, use a guide block with a squared end.



Pinching the blade as shown affords much better chopping control than holding the chisel by its handle.



A mitered guide block for the chisel ensures precise paring on the ends of mitered moldings or other parts.



After hogging out the waste, insert the chisel tip in the scribed line and make the final paring cut.



For a shoulder cut, align a chisel with the scribed line at the base of the tails (here) or tenon shoulder.

Working to scribed lines

A neatly scribed line—whether made with a knife or marking gauge—creates one of the best guides for a chisel. The scribed line severs the wood fibers at the surface, eliminating tear-out at the joint edge while creating a tiny trough for registering the chisel tip. In a sense, this is the first cut in making the joint.

After scribing the joint layout, the next step is to chop or saw away the bulk of the waste. Ideally, you want to leave just enough waste so that it can be pared away in a single slice

afterward. If there's more than that, pare back to the scribed line taking a series of slices. (Avoid taking too big a bite at once, or the chisel bevel will act like a wedge, forcing the tool backwards and possibly past the scribed line.)

To make the final cut, place the edge of the chisel in the scribed line (**Photo F**), and then drive it with a series of light mallet taps.

Instead of tapping, you can pare by hand, as shown in (**Photo E**). Keep the blade firmly pinched in your left hand, pressing the hand against

Bevel Up Or Bevel Down?

A chisel can be used bevel up or bevel down. It's usually best to work with the bevel up because the back, or *face*, is self-referencing. That is, when the face is contacting the work, it helps guide the blade parallel to the work surface, somewhat like the sole of a plane. Conversely, when the bevel is oriented downward, it has minimal contact with the surface, requiring a steady guiding hand to hold the tool at a consistent cutting angle while preventing the tip from digging in too far.

the workpiece to serve as a brake to keep the chisel from lurching forward. Again, when making the final slice, locate the chisel tip in the scribed line.

When hand-paring to a scribed line, don't just push the chisel straight forward. Instead, wiggle the tool side to side as you apply pressure. At first, wiggle it only slightly to prevent pulling it out of the scribed line. As the depth of cut increases, apply more side-to-side motion while increasing forward pressure, the whole time pinching the blade firmly with your left hand pressed against the work to prevent the chisel from lurching forward.

In addition to locating the chisel tip, scribed lines can also provide a visual bead for aiming your chisel. For example, when paring the shoulder on the edge of a tailboard, mount the work in a vise, and sight down the side of the blade to align it with the scribed line made at the base of the tails (**Photo G**).

Safety Tips

- To prevent slicing the hand that grasps the blade, ease the sides of a chisel with 400-grit sandpaper, beginning about an inch from the cutting edge.
- Always secure work in a bench vise or with clamps to prevent it from slipping during cutting.
- Don't work with a dull chisel, which requires more force and tends to slip in use.
- Never place your hand or other body part in the path of a chisel, in case it lurches forward.



H Because the grain on this tenon cheek rises toward the shoulder, paring inward from the end of the tenon produces the cleanest cut.



I To cut a clean chamfer, slice outward toward the end grain surface.

Cutting cleanly

As mentioned, scribing a layout minimizes tear-out at the wood surface. There are also a few other techniques you can use to ensure that you're cutting as cleanly as possible.

First of all, when paring, cut with the slope of the grain whenever possible, as shown in **Photo H**. If the grain rises in your favor on one tenon cheek, it won't on the opposite cheek, where you'll have to cut across the grain, as shown in **Photos A-C**.

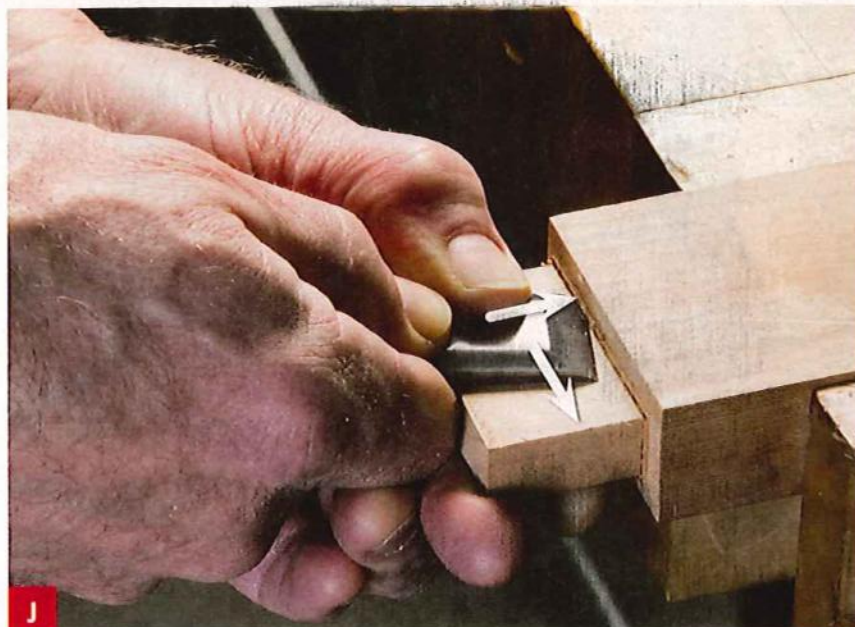
Using a slicing motion can also prevent grain

tear-out. For example, when chamfering the end of a tenon for easier insertion in its mortise, don't just push the chisel straight forward, which will tend to lift the wood fibers. Instead, slice forward and outward toward the end of the tenon (**Photo I**). This will shear the fibers clean because they're supported in the direction of the cut.

There are times when slicing with just the corner of the chisel is the way to go. For instance, you may need to remove a ridge caused by a cut made a hair too shy, like that shown in **Photo J**. By pushing and dragging one corner of the chisel tip through the ridge, you meet less cutting resistance and tear-out than by simply forcing the entire edge forward.

Sharp and Flat

Of course it's important that a chisel be sharp to work properly, and the sharper the better. But it's also crucial that the face is flat. If it's rounded over at the cutting edge, you've lost your reference surface. No matter how you sharpen your chisels, make sure the cutting edge is finely honed and that the bevel meets a flat face.

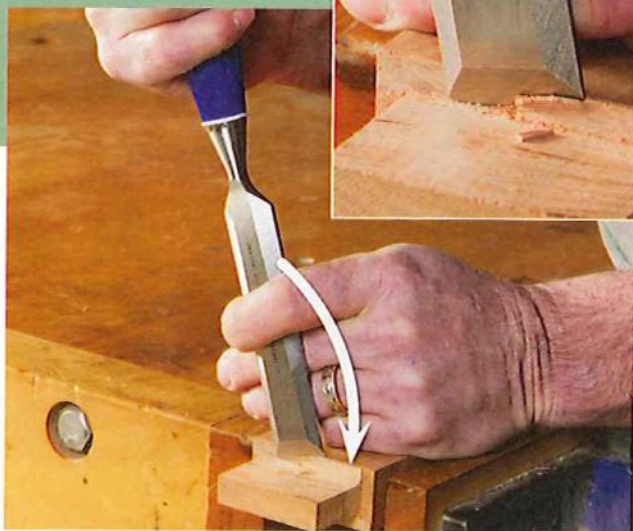


J Slicing with just the corner of the chisel reduces cutting resistance while cleanly severing the wood fibers.

Fine-tuning a hand-cut tenon



Having sawn proud of your scribed shoulder lines, first pare away the waste on the narrow edge of the workpiece. To stay square, sight down the edge of the chisel, aligning it with the shoulder scribed line that runs across the wide workpiece face. Remove any initial heavy waste in a series of paring cuts; then register the chisel tip in the scribed line to make the final cut.



Hold the chisel blade with your left hand resting solidly on the work. Begin the cut by resting the face of the chisel against the previously pared shoulder surface and rocking it into the wide shoulder scribed line. With each subsequent cut, register the face of the chisel against the previously pared surface. Finish up by paring the tenon cheeks as previously described.

Cutting a hinge mortise



After scribing the perimeter and depth of the mortise, chop up the waste for easy removal. Work shy of the scribed lines, leaving a bit to pare afterward for a perfect fit.



Working inward from the open end of the mortise, pare away the chopped waste. Start the final cuts by registering the tip of the chisel in the depth scribed line.



Registering the chisel tip in the scribed lines, pare the ends. Then pare the long edge using delicate cuts to prevent breaking away the thin wall at the rear of the mortise.

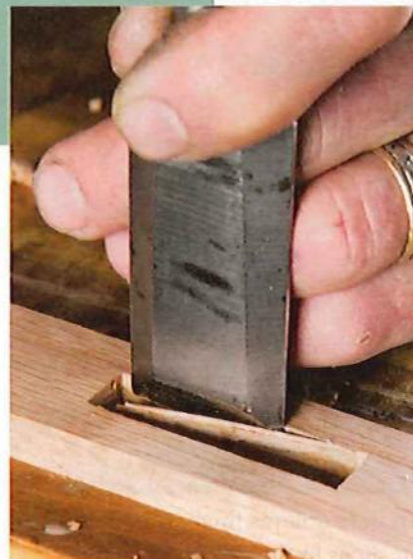
Chopping a tenon mortise



After scribing the mortise perimeter and drilling out the majority of the waste, use a wide chisel to pare away the protrusions, staying a bit inside your scribed lines. Anchor your left hand against the bench, grasping the chisel blade to keep it perpendicular as you push downward.

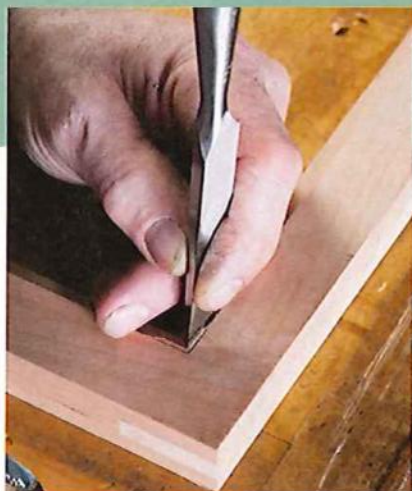


Chop the ends of the mortise, working toward your scribed line in a series of shallow cuts with your left hand anchored on the bench. Make the final cut on each end a light one, beginning with the chisel tip resting in the scribed line.



Finish up by paring the long edges back to their scribed lines. Again, anchor your left hand on the bench with a finger wrapped around the chisel blade to help keep the chisel perpendicular to the surface as you push it downward.

Squaring a routed frame rabbet



After scribing or drawing your layout lines, pare toward the corner in a series of adjacent cuts made at 90° to each other, beginning with the cross-grain cut. Depending on the density of the wood and the depth of cut, you can push or chop, with the latter generally being the faster approach.



For your final cuts into the corner, begin with the cross-grain cut, extending it no further than the layout line. Follow up with an adjacent long-grain cut that perfectly intersects the end of the cross-grain cut.



With its bevel down, slide the chisel into the corner to flatten the surface and remove any residual wood fibers. With your left hand anchored against the benchtop, hold the chisel firmly at the cutting angle while pushing it with your right hand.

Paring projections



To pare splines flush, take a series of slices in the direction of the grain, holding the chisel level with your left hand anchored against the workpiece and your right hand providing the power. Pinching the chisel with your left hand controls forward motion to prevent lurching.



Whenever possible, pare plugs flush with the chisel bevel up so that its face can register against the adjacent work surface. Pare in small slices, as taking too big a bite at once risks tearing out grain or lifting the plug.



When forced to pare bevel down, as near the center of a board, use your left hand to anchor the chisel and to maintain an effective cutting angle. Cut in the direction of the plug grain to prevent tear-out.

Fine-tuning dovetails



After sawing or chopping out the majority of the waste, pare to the baseline. Place the chisel tip in the scribed line and push forward while wiggling the tool slightly side to side. Pinch the blade with your left hand anchored against the workpiece to control the speed and amount of forward motion.



When necessary to fine-tune a pin cheek, use the same basic hand position as when paring to the baseline, but in a perpendicular orientation. To aim the chisel, register its face across the cheek, and then draw it back in the same manner as shown in Photos A-C on page 49.



Prepare to pare the shoulders on a tailboard by inserting the chisel tip in the scribed line and sighting down the length of the chisel to align it with the baseline at the foot of the tails. Then press the chisel downward while maintaining that angle. ■

Shop-Made Mallets

A trio of tappers for your tool chest

By Ken Burton



If you enjoy making your own tools, as I do, you'll find these three mallets to be a great weekend project. They don't use a lot of material, they go together fairly quickly, and the final result yields tools that become a regular part of your shop workforce. The designs include a simple one-piece turned mallet used for striking chisels and carving tools, a cylindrical-head joiner's mallet intended for assembly work, and a square-faced joiner's mallet for both chisel work and assembly purposes.

The first two designs are made primarily on a lathe (a mini lathe works fine), while the third relies heavily on the tablesaw. Note that the 5° taper on the head of the turned mallet and the angled striking faces on the square-faced mallet accommodate the swing of your arm to create a more direct blow

in use. In contrast, the faces of the assembly mallet are parallel to the handle to help keep your orientation square when coaxing joints together.

Making these mallets provides a great opportunity to pull into play those precious wood scraps you've been hoarding, while creating tools that should take care of most of your joint-cutting and assembly needs.

Good Mallet Woods

For good mallet head stock, select heavy, dense material that's resistant to splitting. Many exotic species such as jatoba and bubinga fit the bill nicely. However, there's no shortage of appropriate domestic hardwoods such as beech, hop hornbeam, locust, and dogwood that will work just as well. Many of these aren't widely available commercially, but they're worth searching out, even if it means doing some tree trimming yourself. On the other hand, hard maple will work fine, and it's plentiful from wood suppliers. For mallet handles, use a strong, shock-resistant wood like ash or hickory. In fact, I salvaged a broken hickory axe handle for one of my mallet handles.

Round joiner's mallet



A Drill the handle hole by cradling the mallet head in a V-block that was sawn on the tablesaw.

1 Mount the stock for the head between centers on your lathe. Turn the piece round with a spindle gouge. Part it to length, leaving just enough stock at the bottom of the parting cuts to keep the spinning piece intact. Sand the head to 220 grit before removing it from the lathe. Cut the head free, and sand away the saw marks from both faces.

2 Chuck a $\frac{1}{8}$ "-diameter bit in your drill press, and use it to center a V-block on the drill press table directly below the quill. Clamp the block to the table and swap out the $\frac{1}{8}$ " bit for a $\frac{3}{4}$ "-diameter Forstner bit.

3 Cradle the mallet head in the V-block and drill a $\frac{3}{4}$ "-diameter hole completely through its center, as shown in **Photo A**. For added stability, you can glue 220-grit sandpaper to the faces of the V.

4 Mount the handle blank on the lathe, and turn it to a

Tip Alert

An open-end wrench makes a great caliper while turning tenons on a lathe because its wide, fixed jaws are much easier to hold against the spinning workpiece than the skinny jaws on most calipers.

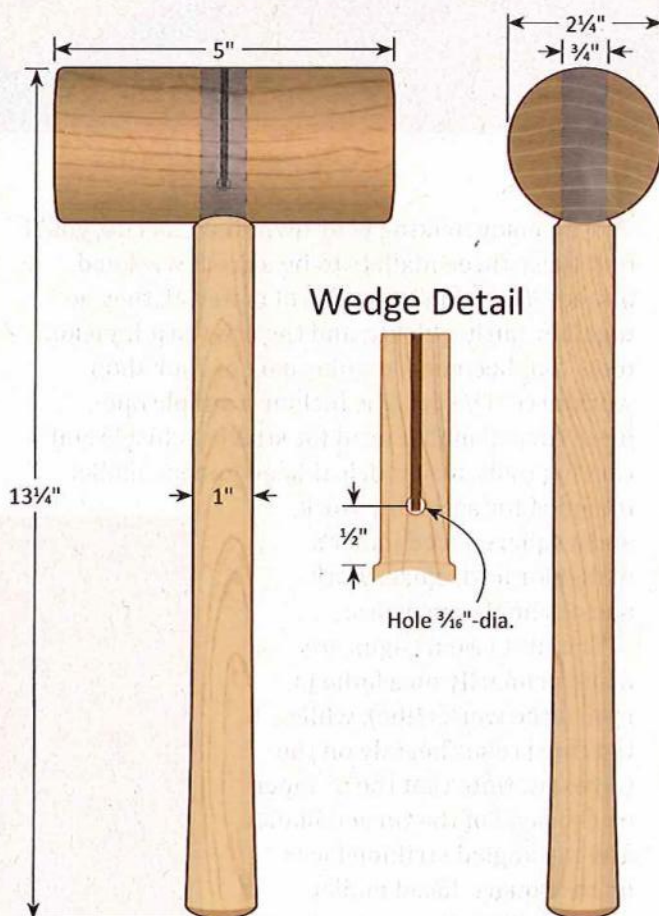


B While turning the handle tenon, you can use a $\frac{3}{4}$ " open-end wrench to gauge the final diameter.



C Start making the wedge with a strip of $\frac{3}{16}$ "-thick scrap that is long enough to provide a good grip. Sand it to shape, making the thin end about $\frac{1}{32}$ " thick.

Round Joiner's Mallet



1" diameter. Sand it, and then turn the $\frac{3}{4}$ "-diameter tenon to about $2\frac{3}{4}$ " long (**Photo B**). Check the fit of the tenon in the mallet head before cutting the handle to final length.

5 Drill a $\frac{3}{16}$ "-diameter hole through the tenon about $\frac{1}{2}$ " from its shoulder. Cradling the handle in the V-block used earlier, make a bandsaw cut extending from the end of the tenon into the hole. (The hole prevents any possible crack from traveling down the handle when the wedge is inserted later.)

6 Cut a strip of scrap about $\frac{3}{16}$ " thick, $\frac{3}{4}$ " wide, and 10" long to make into the wedge.

Create a taper using a stationary sander, as shown in **Photo C**. The finished wedge should taper from about $\frac{1}{32}$ " less than the kerf width to a fat $\frac{1}{32}$ " more than the kerf width along $2\frac{3}{4}$ ". The idea is that the installed wedge should run nearly the entire length of the slot while compressing the wood fibers and expanding the kerf a bit at the top of the handle.

7 Glue the handle in the head, and drive in the glued wedge to reinforce the joint (**Photo D**). Be sure to orient the slot in the handle perpendicular to the axis of the head so the wedge doesn't want to split the head.



Install the wedge perpendicular to the axis of the head; then trim and sand away the tenon waste.

Turned mallet

1 Start with a piece of wood $3 \times 3 \times 12$ " long. (If you can't find a thick enough piece, you can build one up by face-gluing thinner pieces together.) Rip off the corners of the blank on the tablesaw to make the piece roughly octagonal. This



After turning the mallet head to shape, create a smooth transition from the head to the handle.

will make turning the piece round that much easier.

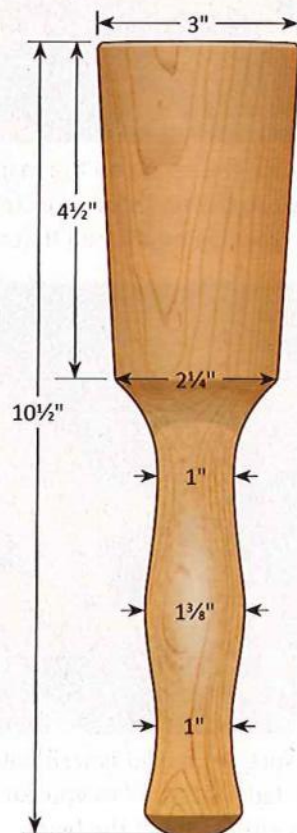
2 Mount the blank between centers on your lathe, and turn it to a cylinder.

3 Turn the head to the shape shown at right. Use a parting tool to establish the diameter at the smaller end of the head; then switch to a spindle gouge to cut the taper.

4 Turn the handle to the shape shown. Feel free to modify the form to suit your hand. Again, use a parting tool to establish the final diameter at the center of the bulge. Then switch to a spindle gouge to do the shaping, as shown in **Photo A**.

5 Sand the mallet to whatever grit you like while it is still on the lathe. Saw away any excess material from the ends, and sand away the saw marks. Finish the mallet with several coats of penetrating oil.

Turned Mallet



Square-faced joiner's mallet



A Cut the handle dado through the center section of the head blank, using stops clamped to an auxiliary miter gauge fence to register the sides of the cut.



B When sawing the tenon on the mallet handle, you can safely use the rip fence as a stop because there is no waste piece being created that could kick back.



C To make sure the mallet is well-balanced, keep the dado centered as you cut the angles on either end of the head.

1 Cut two pieces of $\frac{7}{8}$ "-thick stock and one piece of $\frac{3}{4}$ "-thick stock for the mallet head. Make each squared piece about $\frac{1}{8}$ " wider and longer than the finished dimensions shown in the side view at right. Also cut the material for the handle to the size shown.

2 Face-glue the $\frac{3}{4}$ "-thick piece to one of the $\frac{7}{8}$ "-thick pieces. After the glue dries, sand the long edges of the two-piece blank flush, but don't curve the top edge yet.

3 Set up a dado head for a wide cut on your tablesaw. The exact width doesn't matter, as the cut you'll be making is wider than most dado heads can make in a single pass. Lay out a 1"-wide dado, centering it across the length of the blank. Attach a sacrificial fence to your miter gauge that extends 6" or so past the blade. Clamp stops to the fence at either end of the blank to locate the two sides of the cut, as shown in **Photo A**. Then cut the dado, with the $\frac{3}{4}$ "-thick part of the blank against the saw table. Take a series of subsequently deeper cuts, raising the dado head as you approach the perfect depth.

4 Make a $1\frac{1}{4} \times 1\frac{1}{2} \times 14$ "-long blank for the handle. With the same dado head setup, saw a $\frac{3}{4}$ "-thick $\times 1$ "-wide $\times 3\frac{1}{2}$ "-long tenon on the end of the mallet handle (**Photo B**). First cut across the narrower edges to establish the 1" width of the tenon, and then check its fit in the mallet head dado. Adjust the height of the dado head if needed, and then pare the edges with a wide chisel to fine-tune the fit. Reset the height of the dado to cut the tenon to a thickness of about $\frac{1}{32}$ " fatter than the mallet head dado.

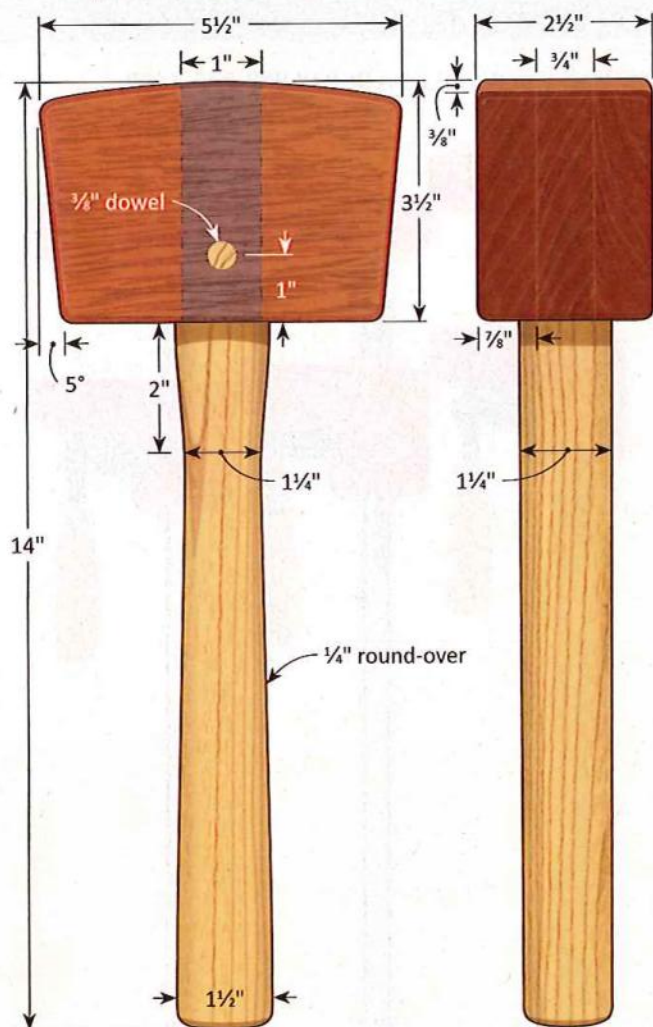
5 Swap the dado head for a regular saw blade, and cut the ends of the mallet head at a 5° angle (**Photo C**). Cut the second $\frac{7}{8}$ "-thick piece to match. (This operation is also easily done on a chop saw.)

6 Place the handle in the head, and pare the tenon flush to the adjacent surface, as shown in **Photo D**. A good fit here is crucial for a proper glue-up that ensures working strength.

7 Lay out the tapered cuts on one side of the handle, where shown above right. Make the cuts on the bandsaw, and then plane, scrape, and sand away the saw marks.

8 Chuck a $\frac{1}{4}$ "-radius round-over bit in a table-mounted router, and shape the edges of the handle (**Photo E**). Afterward, sand the handle thoroughly, avoiding the tenon.

Square-Faced Joiner's Mallet



- 9** Glue the handle in place in between the two head pieces (**Photo F**), carefully aligning the bottom edges of the pieces.
- 10** Drill a 3/8"-diameter hole completely through the head and handle. Then glue a dowel in place to reinforce the connection.
- 11** Lay out the slight arc at the top of the mallet, as shown above. Cut the curve on the bandsaw, and then sand away the saw marks with a stationary belt or disc sander. Also sand the angled faces to flush them up.
- 12** Chamfer the edges of the head with a block plane. This makes the mallet a little friendlier

to handle and helps keep the head from chipping should you strike something off center.

- 13** Finish the mallet with penetrating oil. ■

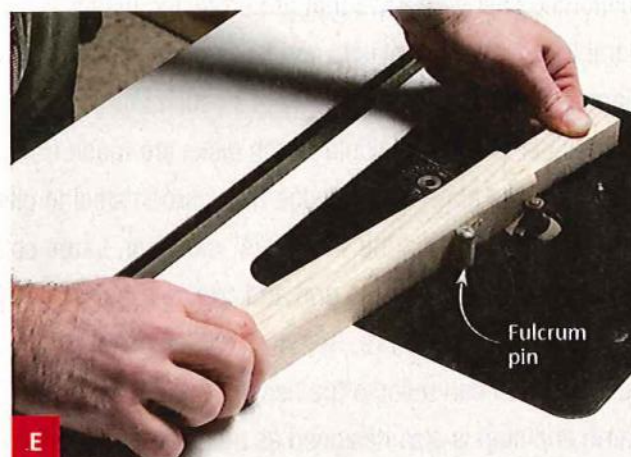
About Our Designer/Builder

Ken Burton has been working with wood for more than 30 years and writing about it

nearly as long. His latest book, *Crafting Wooden Lamps*, is now available from F&W Media. Check out his website at www.woodworks.com.



D Use a wide chisel to pare the handle tenon dead-flush with the interior surface of the mallet head.



E When rounding the handle edges, prevent the bit from throwing the work by beginning the cut while levering against a fulcrum pin.



F Two stout clamps should be enough to glue on the third mallet head piece.

WOODCRAFT®

For A Free Catalog Or To Find Your Local Woodcraft Store, Visit woodcraft.com Or Call 800-225-1153.

Tackle Clamping Projects with Cabinet Master Confidence

These 90° parallel steel bar clamps have more benefits and enhanced features than any clamp on the market today. JORGENSEN® Cabinet Master Clamps have reinforced cast steel jaws that are protected with a durable non-marring plastic and feature a 30% larger clamping area that enables a deeper reach than other parallel bar clamps. Multiple clutch disks are made from hardened and plated round edge high carbon steel to give greater support along the 1 $\frac{3}{16}$ " x $\frac{3}{8}$ " steel bar. Large solid maple handles are easy to grip and can apply up to 1,000 lbs. of clamping pressure. Remove the detachable end stop, and you can reverse the heads for spreading. The same end stop is also designed as a support, keeping the clamp upright for easy, one-handed use.

- 1,000 lbs. Of Clamping Force
- Solid Maple Handle
- Reversible For Spreading

JORGENSEN® Cabinet Master Parallel Bar Clamps

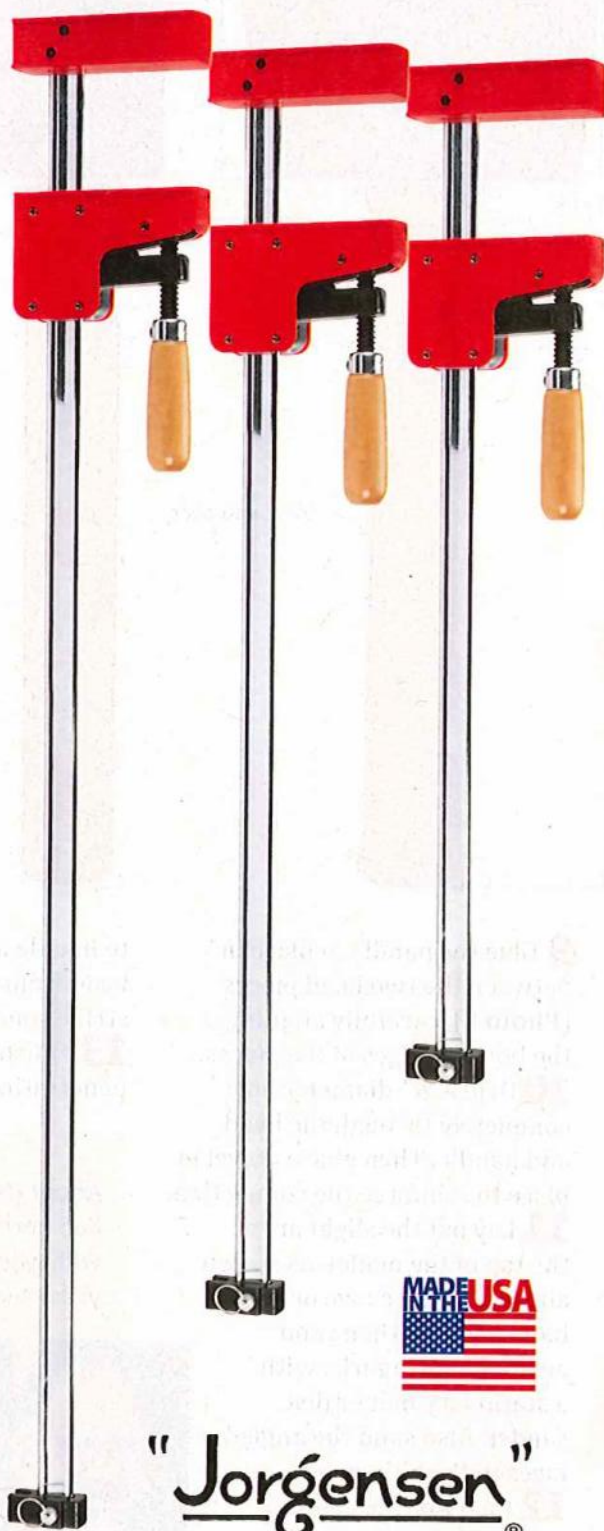
143056	12" Clamp	143059	30" Clamp
143057	18" Clamp	143060	36" Clamp
143058	24" Clamp	143061	48" Clamp



1.855.923.7326

www.woodcraftfranchise.com

Watch the video and find out more about owning a Woodcraft Franchise. Download a QR app to scan this QR code with your Smartphone.



"Jorgensen"®

12WD05P3

QUALITY WOODWORKING TOOLS • SUPPLIES • ADVICE®

A STRONG CASE FOR AMERICAN CRAFTSMANSHIP



Basic 7 pc.
Router Bit Set #401

Tested #1 by Fine Woodworking Magazine in a head to head router bit test of 17 different brands.

Whiteside Machine Co.

Claremont, North Carolina



800-225-3982

whitesiderouterbits.com

- Made from solid alloy steel
- Precision ground for proper balance at high rpms
- Uses the highest quality American made micrograin carbide
- High hook and relief angles make for better chip ejection
- Made with thick carbide for extra sharpenings
- Superior edge quality compared to other manufacturers
- Made with only high quality American made grinding wheels
- Even the storage cases are made in the U.S.A.!

"American Made for the American Woodworker"



Slot Mortising Jig

Rout ends and edges accurately with this rail-guided jig.

By Craig Bentzley

Overall dimensions: 18"w x 5 $\frac{3}{4}$ "d x 10"h

Some woodworkers discount loose tenons as the poor machine-cut cousin of traditional mortise-and-tenon joinery, but I've found the joint useful in many instances. Joining parts using a pair of matching mortises and a snug-fitting wood strip, instead of sawing a tenon to fit a mortise, saves stock. And with the proper setup, loose tenon joinery is just as strong as its competition, but quicker and easier to accomplish.

Wanting a slot mortiser but not willing to spend money for a commercial model, I used leftover material and spare hardware to create a simple

rail-guided mortising jig for my plunge router. Despite my initial success, I further improved the jig by adding Bessey's auto-adjust toggle clamps. Now my revised jig is just as reliable and accurate as its predecessor, but thanks to the new toggles, slippage is a thing of the past. Once set, the auto-adjust hold-downs provide the same amount of pressure on a 2 $\frac{1}{2}$ "-thick leg as on a $\frac{3}{4}$ " rail without needing to adjust the footpad.

The jig can hold stock up to 8" wide and 3 $\frac{3}{4}$ " thick. By adjusting the base dimensions, you can easily mortise still larger parts.

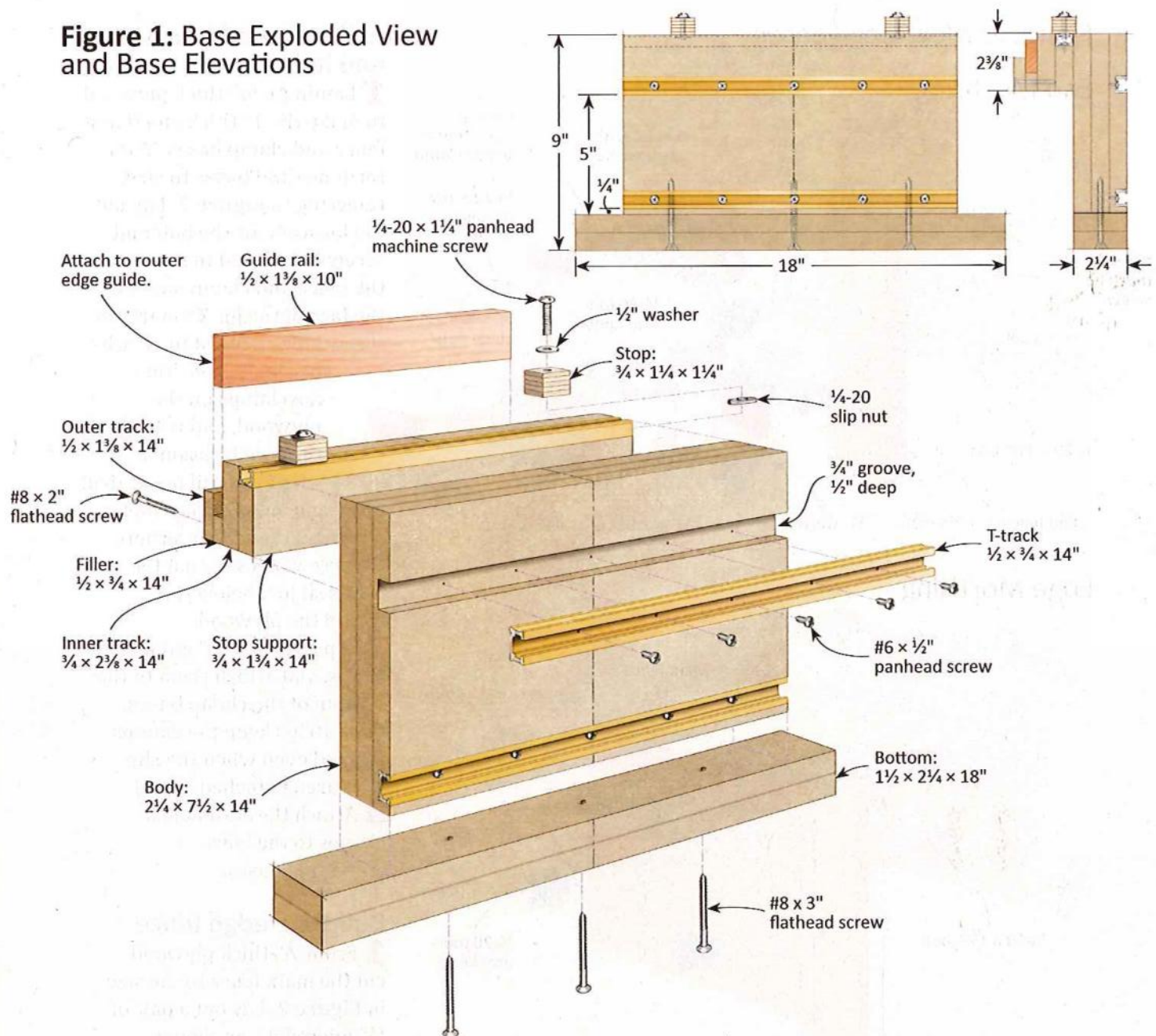
Build the base

1 As shown in Figure 1, make the base in sections, starting with the body. From $\frac{3}{4}$ "-thick MDF, cut three pieces slightly larger than the finished dimensions. Laminate the pieces together, and then trim an edge and end to correct an uneven edge and slice away any squeeze-out. Now trim the uncut edge and end to final

Tip Alert

To prevent MDF from splitting along its edge, drill clearance and pilot holes before driving screws.

Figure 1: Base Exploded View and Base Elevations



dimensions. Cut two 1/2"-deep dadoes across the front face, where shown, to fit the T-track.

2 From 3/4"-thick MDF, cut the stop support and inner track. Glue the stop support to the body, where shown. Use a piece of T-track to ensure that the installed track will be flush with the jig's top edge. Let the glue cure, and then attach the inner track, again using T-track to ensure that the jig's top edge is flush.

3 From 1/2"-thick MDF, cut the filler and outer track to size.

Glue the two together, and then attach them to the inner track with glue and 2" screws. Wipe away any squeeze-out, especially in the groove for the guide rail.

4 To make the bottom section, start with two oversized pieces of 3/4"-thick MDF, glue and clamp the stack together, and then trim to final dimension. Drill clearance holes where shown, and then attach with glue and 3"-long screws. Make sure that the front edge of the bottom is flush with the jig's face.

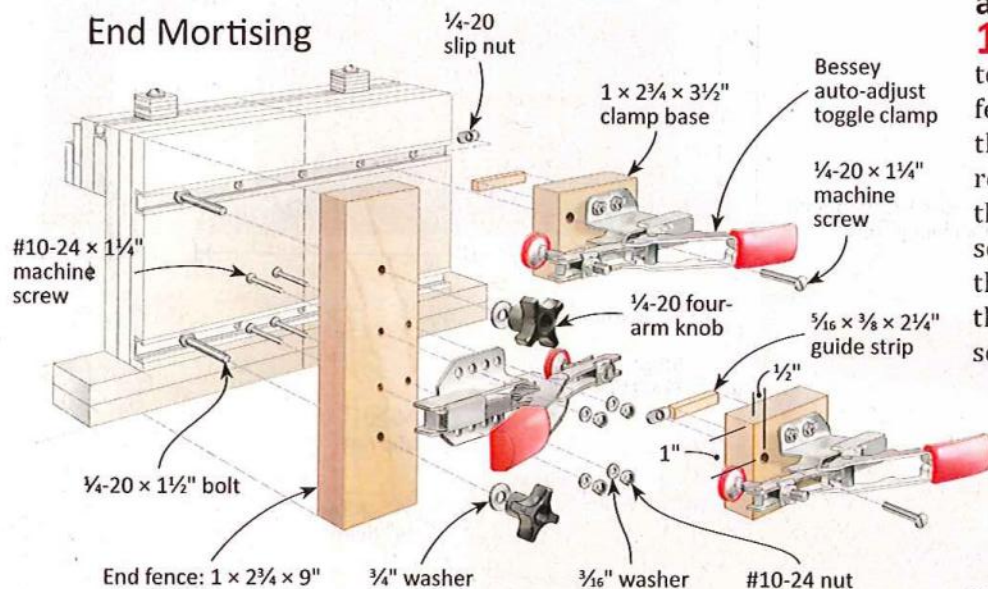
5 Using a hacksaw, cut the T-track into three 14"-long sections, and attach them to the assembled base, where shown, with 1/2"-long screws.

6 Cut the stops from 3/4" plywood, drill holes, and attach to the top T-track, as shown.

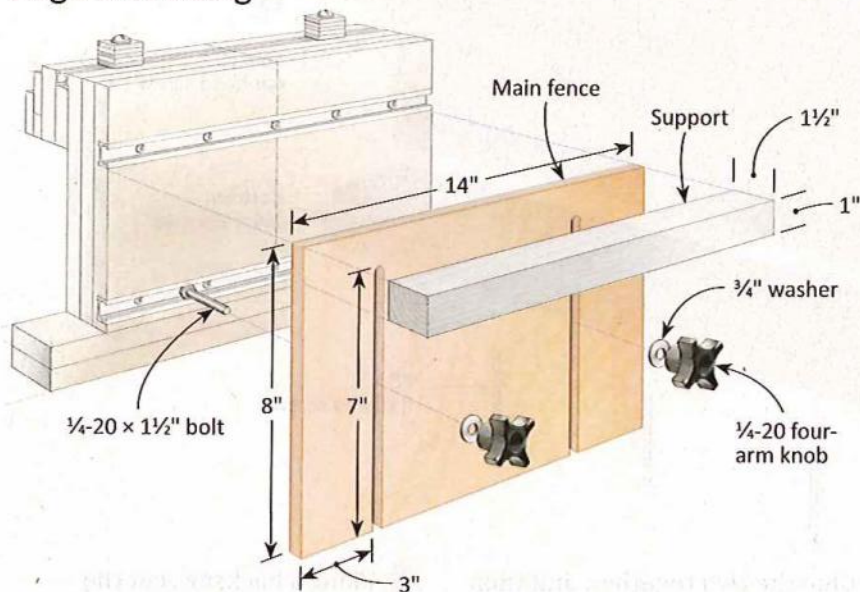
7 Plane a strip of hardwood to fit within the outer and inner tracks to serve as the rail for your router's edge guide. Finally, draw a centerline across the top and front face of the jig.

Figure 2: Mortising Fences

End Mortising



Edge Mortising



Build the end fence and hold-downs

1 Laminate 1/2"-thick plywood to make the 1"-thick mortising fence and clamp bases. Trim the fence and bases to size, referring to **Figure 2**. Lay out the location for the bolt and screw holes used to secure the fence and clamp bases to the face of the jig. To mark the screw holes needed to attach the clamps, position the clamps on the plywood, and transfer the hole locations.

Using a drill press, drill 1/4" and 3/16" clearance holes where marked. Counterbore the screw holes so that the heads sit just below the face of the plywood.

2 Rip two 5/16 x 3/8" guide strips, and attach them to the bottom of the clamp bases. (The strips keep the clamps aligned even when the slip nuts aren't cinched tight.)

3 Attach the auto-adjust clamps to the fence and clamp bases.

Build the edge fence

1 From 3/4"-thick plywood, cut the main fence to the size in **Figure 2**. Lay out a pair of 1/4"-wide slots, as shown.

2 Using a drill press, drill a 1/4"-diameter hole at the top edge of each slot layout. Next, rout the slots using your router table and a 1/4"-diameter straight bit.

3 Rip a strip of 1"-thick hardwood to 1 1/2" wide, and then cut it to 14" long. Glue it to the top edge of your main fence. This strip can serve as an edge for clamping smaller stock or as a support for a longer board, for instance, when mortising the edges of legs or longer stock.

Convenience-PLUS BUYING GUIDE

☐ 1.	Incra T-Track 48"	#142806	\$18.99
☐ 2.	Bessey Auto-Adjust Horizontal Toggle Clamps, qty. 3	#152929	\$22.50/each
☐ 3.	Four-Arm Knob With 1/4-20 Insert, qty. 2	#142230	\$2.99/each
☐ 4.	Sliding T- (slip) nut 1/4-20, qty. 4	#130440	\$1.99/pkg of 10

Above items are available at Woodcraft stores, woodcraft.com or by calling (800) 225-1153. Prices subject to change without notice.

Hardware: (5) #8 x 2" flathead wood screws; (3) #8 x 3" flathead wood screws; (15) #6 x 1/2" panhead woodscrews; (2) 1/2" washers; (4) 1/4-20 x 1 1/2" bolts; (2) 3/4" washer; (2) 1/4-20 x 1 1/4" panhead machine screws; (12) #10-24 x 1 1/4" machine screws; (12) 3/16" washers; (12) #10-24 nuts

Using the Jig

Routing mortises is simple. These instructions will ensure consistent results. First, lay out the mortises. Even if you intend to mortise across the center of your stock, always register your layout tools against the outside (show) face of your workpiece. Draw or scribe a line to indicate the center of your mortise. Next, mark a perpendicular line across the center of the width to position the parts on the jig.

Outfit your router with an appropriate bit (I prefer an upcut spiral), and attach the rail to your router's edge guide.

To set up the jig for end routing, first clamp the jig to your workbench, as shown. Use a clamping base to temporarily register the workpiece in the jig, to align the mortise layout with the jig's centerline. Next, set the mortising fence against the opposite edge, remove the board, and use a square to set the fence perpendicular to the top edge of the jig. Cinch the knobs to secure the fence in place.

Now, clamp the board to the fence, making sure that the end of the workpiece is flush with the top of the jig. Slide the clamp bases against the opposite edge of the work, tighten the locking screws, and engage the toggles.

Adjust your router's edge guide to center the bit on the mortise layout. Set the stops on the top of the jig to match the mortise length.

To rout, plunge the router to full depth at each end of the mortise (**Photo A**). To finish up, work from end to end, plunging in $\frac{1}{4}$ " increments.

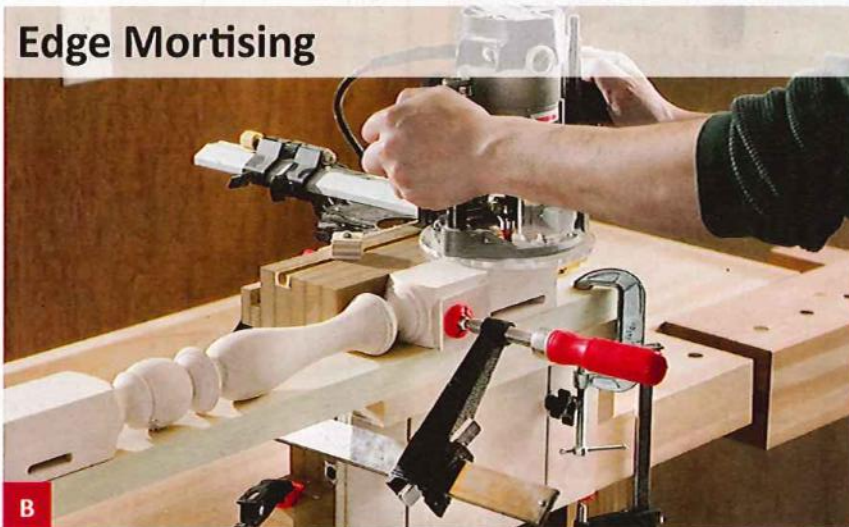
For making edge mortises, replace the end fence with the

End Mortising



Rout the mortise in $\frac{1}{4}$ "-deep increments to avoid overtaxing the router or bit. The trio of auto-adjust hold-downs offers solid support when routing end grain.

Edge Mortising



The edge-mortising fence can support shorter stock, but long parts such as this leg may require additional support.

edge fence. Set the fence so that the top edge of the workpiece is flush with the jig's top face. Align the centerline on the workpiece with the jig, and clamp in place. Lock the stops in their appropriate positions, and rout the mortise (**Photo B**).

To make your tenons, plane hardwood stock to fit the slot, rip to width, and then round the edges with a round-over bit or file to fit the mortise. Crosscut the tenon stock $\frac{1}{16}$ " shorter than needed to allow room for glue.

Apply glue to the loose tenon, slide it into one mortise and attach the mating part. Once the glue dries, nobody will know how it was assembled because no one will be able to pull it apart. ■

Tip Alert

To ensure that the mortises line up, always clamp the "show" face of your parts against the face of the jig.



POPULAR MECHANICS
**BREAKTHROUGH
AWARDS 2010**

**Evolutionary
Performance.
Revolutionary
Design.**

Unquestionable
Breakthrough.



BOSCH

Invented for life

Introducing the Bosch
12" Dual Bevel Axial-Glide™
Miter Saw. Another
game-changing
breakthrough from the
innovation leader.

Learn more at
www.boschtools.com

Popular Mechanics is a trademark
of Hearst Communications Inc.

Looking for

Moisture Meters

Lignomat offers a wide selection of
pin and pinless meters



The
Woodworker's
Choice

Buy
Quality
Accuracy
Professional Customer Service
Protected by a 2-Year Warranty!

??? Check out the new Info-site:

www.moistureproblems.info

Lignomat: 800-227-2105

www.lignomat.com

Email: sales@lignomat.com

mini-Lignos at Woodcraft # 150259

Your Personal Lumber Maker!

Saw Lumber For Your Own:

- Home
- Decking
- Tree Forts
- Stables
- Flooring
- Gazebo
- Fencing
- Barns
- Picnic Tables
- Furniture

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



**MP-32
Portable Sawmill**

COOK'S SAW MFG., LLC

Leaders in Bandsaw Technology

1-800-473-4804

WWW.COOKSSAW.COM



**STAINS,
SEALS,
PROTECTS
IN ONE EASY STEP!**



Watco Danish Oil penetrates deep into wood
pores to protect from within and to enhance
the natural look and feel of the wood. For
nearly 100 years Rust-Oleum's products'
renowned performance, and superior durability
have given you the power to change.

Available at Woodcraft and other fine retailers nationwide.



RUST-OLEUM
THIS CHANGES EVERYTHING

WOODCRAFT®

For A Free Catalog Or To Find Your Local Woodcraft Store, Visit woodcraft.com Or Call 800-225-1153.

The Best Chefs' Tools begin with – ZHEN Premium Damascus Knife Kits

Knives are tools that create culinary masterpieces in the hands of master chefs – whether professionals or amateurs. Woodworkers, now you can craft custom knives for your favorite chef with Woodcraft's new ZHEN Premium Damascus Knife Kits and knife scale stock (sold separately at Woodcraft). Utilizing years of knife making skill and technology, the knife blades are crafted by forge welding 66 layers of steel around a core layer of VG-10 steel (HRC 60–62) to create a unique surface pattern and razor-sharp edge. Made of high carbon stainless steel (HRC 54–56), the bread knife blade features a granton edge (non-stick scallops) for easy slicing.

Blade Length Overall Length

- 153651 Cleaver, 6⁹/₁₆", 11⁵/₈"
- 153652 Nakiri, 6¹/₄", 11¹/₂"
- 153653 Chef's Knife, 7⁹/₁₆", 12³/₄"
- 153654 Santoku, 4³/₄", 9⁵/₁₆"
- 153655 Parer, 3⁵/₁₆", 7¹/₁₆"
- 153656 Bread Knife, 9¹/₂", 14⁵/₈"



1.855.923.7326

www.woodcraftfranchise.com

Watch the video and find out more about owning a Woodcraft Franchise. Download a QR app to scan this QR code with your Smartphone.

12WD05P2

QUALITY WOODWORKING TOOLS • SUPPLIES • ADVICE®

Spotlight on Wenge

A Central African hardwood with attitude

By Pete Stephano

Technical Consultant: Larry Osborn

Wenge (*Millettia laurentii*) and its nearly identical relation, panga panga (*Millettia stuhlmannii*), grow in many of the tropical countries in Central Africa, ranking as a major lumber species there. An attractive dark wood, wenge is hard, heavy, and takes some care when working it. The same applies to the lighter in weight panga panga. **Note:** From here on, wenge will be the primary reference, although all characteristics apply to panga panga as well.

History in woodworking

In its native land, wenge lumber serves utilitarian needs, becoming everything from barns to benches. It also has a loyal following among native woodcarvers. In Europe, wenge has long been used for fine

furniture. However, the recent U.S. market for wenge primarily lies in flooring, veneer, and paneling, although the wood has a growing fan base among furnituremakers, turners, and box makers. It's an outstanding accent wood.

Where the wood comes from

Wenge's homeland includes the African countries of Cameroon, Gabon, the Central African Republic, and Zaire. (Panga panga hails from Tanzania, Zimbabwe, and Mozambique.)

What you'll pay

You'll only find wenge at specialty wood suppliers, and it's quite expensive. The finest boards in 4/4 (1" thick) cost from around \$18 to \$30 per board foot depending on how they were sawn, with quartersawn stock exacting the highest price. A 4x8 sheet of paperback veneer can run \$200 to \$300.

How to select the best stock

The orientation of wenge's grain is the most important aspect of choosing stock for a project. In flatsawn boards, light-colored streaks show up in undulating patterns that look like wavy water. In quartersawn material, thin, light tan lines alternating with nearly black lines give the appearance of evenly spaced claw scratches. Given this dramatic difference, select stock that has been sawn in the same manner for a consistent look.

Working wenge in the shop

Due to wenge's hardness, sharp cutting edges (carbide recommended) and drill points are essential. Because of its brittle nature, the wood tends to split and shed splinters. Nailing requires pre-boring. When the splinters embed in the flesh, they can quickly fester. In such cases, pull the splinters immediately and cleanse. By all means wear gloves while transporting

It's a fact that...

Wenge is well noted for its shock absorption and is said to compare favorably in that respect with North American hickory.

boards to protect against splinters. Remove the gloves when working at machines.

Because the wood's dust can irritate your nose, throat, and lungs, put on proper respiratory protection. Wenge can also irritate the skin with a reaction similar to poison ivy. Consider wearing tight-fitting long sleeves and a shop apron as a guard. Consider, also, these suggestions:

- **Ripping.** The wood's straight, coarse grain offers good ripping using a quality combination blade. When crosscutting, go with a 60- to 80-tooth ATB (alternate top bevel) blade for a smooth, splinter-free finish.
- **Jointing, planing, and routing.** Because of the wood's irregular density and straight yet coarse grain,

tear-out can result. Here, take light machining passes and use a backing board when routing across grain.

- **Sanding.** Various portable sanders and grits do well for prepping furniture projects. Use a sanding block when hand-sanding to avoid contact with those nasty splinters.
- **Assembly.** To prevent joint failure, clean mating surfaces with acetone prior to gluing to remove surface resins.

Finishing wenge

The same resins that resist glue in wenge also cause problems with solvent-based stains. Too, there is little reason to stain wenge. It accepts clear finishes well if the surface is wiped with a fast-drying solvent like acetone. ■

Wenge Quick Take

Cost – High

Weight – High
(25% heavier than red oak)

Hardness – High
(25% harder than red oak)

Stability – Moderate

Durability – High

Strength – Moderate to high

Toxicity – Take precautions

Tool type – Power tools with carbide-tipped blades and cutters

Common uses – Decorative boxes, accents, small cabinets, flooring, fine furniture, and turnings

Connecticut Valley School of Woodworking

LEARNING BY DOING

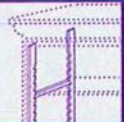
Hands-on woodworking & furniture making classes for all skill levels. Nights, weekends & week-long classes



249 Spencer St.
Manchester, CT 06040
860.647.0303

www.schoolofwoodworking.com





SAWTOOTHTM SHELF SYSTEM

- Cost Effective
- Stronger than Pins
- Easy Installation
- Versatile
- 3-Styles
- 5-Lengths
- 5-Woods



Available at:
tel: 1-908-689-7600
www.sawtoothshelfsystem.com





Garden Fervor



The growing season is just around the corner and, like you, our garden tools can't wait to go outside. The first tool to make its way out in early February is our free 168-page garden tools catalog. It is filled with 1600+ practical gardening accessories for every type of gardener and every garden task, from planning and planting to weeding and harvesting. Order yours today.

1. Micro-Fork 09A04.57 2. Micro-Spade 09A04.55 3. Garden Weasel® PG322 4. Ruby-Color Haws Vase Set of 2 GB403
 5. Light-Duty Anvil Loppers EB301 6. Lee Valley Short-Handled Dandelion Digger PD201 7. 36" Radius® Jr. Spade PG124
 8. 39" Radius® Rake PG125 9. Lifetime Hose, 5/8" x 25' XB106 10. Brass Hose Nozzle AL902 11. Cultivator & Pick Mattock Set PA315 12. Light-Duty Shears EC520 13. Pr. of Long Foxgloves™ Periinkle, medium AH224P 14. Sneeboer Forged Dibber PG405 15. Haws Copper Watering Can XB907 16. Felco® #7 Pruner, right hand AB206 17. Belt Holster AB205
 18. Comfort-Lock Spray Pistol AL850 19. Victorian String Holder 01K26.90 20. Chinese Scissors, set of 4 45K10.10 21. Min-Max Thermometer AB803 22. Digital Double-Outlet Water Timer AL238 23. Dietz No. 80 Hurricane Lantern GL250 24. Original Woodman's Pal® PA409 25. Pruning Saw & Scabbard EC653 26. Haws Brass Water Wand PB312 27. DeWit™ Hand Tool Set of 3 PG138 28. DeWit™ Double-Handle Bulb Planter PG134 29. Sneeboer Perennial Spade PG400

To order these products or for pricing information, call or visit us online.
 You can request a copy of our 168-page garden tools catalog or browse it online.

1-800-683-8170
www.leevalley.com

The Power Carver's Choice.

*"I couldn't make a living
at what I do if it wasn't for
Kutzall products...
I can reduce my work by
at least 60%."*

JAMES ANDISON
Sweetwood Creations

Your work...

You put the best of every
thing you've got into it:
your time, your sweat,
your creativity.

Because
your work
deserves the best,
it deserves Kutzall.

To find out more,
please visit us at
KutzallTools.com/woodcraft
For your best work yet.



KUTZALL®

www.KutzallTools.com/woodcraft
810-765-1000

Turn Any Wet/Dry Vacuum or Single Stage Collector into a

Cyclonic Super Collector!



**No More
Clogged Filters!**

Dust Deputy® D.I.Y.

\$39.00 Cyclone Only

Dust Deputy® Deluxe

\$79.00 as shown here

- ▶ 5 - 30 gal. bins.
- ▶ Portable with casters.

Call Today for **FREE** Catalog!
1.800.732.4065



Super Dust Deputy
Fine Woodworking
Tools & Shops
Winter 2011/12

Shown with
optional drum
and hoses.

Super Dust Deputy® Cyclone Only

- Patented cyclone design keeps 99% of dust from clogging your filter.
- Retrofit HEPA media filter kits for vacs and collectors.

Buy Online!

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



U.S. Patent
#7,282,074

Squares

If the angle ain't right, it's wrong.

By Craig Bentzley

Most woodworkers claim to know the importance of "flat, straight, and square," but I'm surprised by those (including myself) who don't always abide by it. Repeat after me: *A square that is a degree off from 90° isn't square.* That degree (or more) will multiply with each part and procedure, leading to time-consuming fixes and ill-fitting joints.

Over the years, I've discarded my fair share of shoddy squares that weren't up to the job. After many trial-and-error purchases, I've settled on a few proven

performers that I now depend on for laying out joints, setting up machinery, and checking assemblies. Note that, although many of my selections aren't

expensive, a few are quite pricey. But this isn't a place to pinch pennies; buy the best squares you can afford. They will save you time and spare you headaches.

Starrett 12" Combination Square

As the name suggests, the angled head combines the functionality of standard (90°) and miter (45°) squares. Entire articles have been written about the things you can do with this tool. I use mine every day for laying out joints, checking crosscuts and miters, and squaring jointer fences and tablesaw blades.

A high-quality combination square is one of the smartest investments a woodworker can make. (With a little TLC, it will serve several generations of woodworkers.) Some squares are sold with optional center-finder and protractor heads, but I recommend buying only the standard head with a 12" blade. When you can, supplement it with the 24" blade, which will help you lay out stock up to 21¾" wide. It will also serve as a reliable shop rule and straightedge.

Starrett 4" Double Square

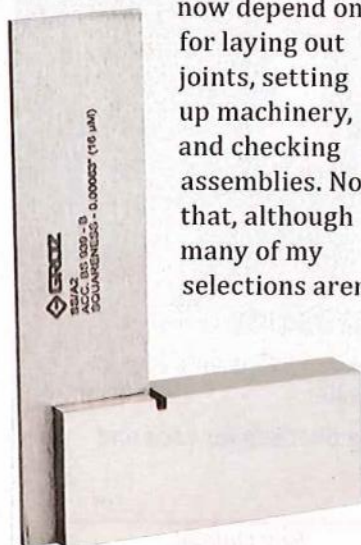
Sometimes less is just right. When laying out joints, measuring mortise depths, and checking jointed edges for square, I prefer using this 4" double square. Like its bigger brother, the machined head can be used without the blade for checking setups on smaller machines and tight spots. I also like how it tucks into my shop apron's front pocket.

2" Engineer's Square

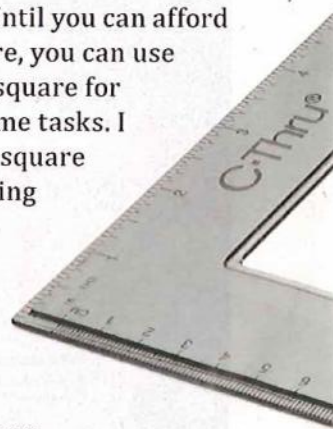
An engineer's square isn't as versatile as some other models, but the simple design—a fixed blade and head—makes accuracy inexpensive. Until you can afford a double square, you can use an engineer's square for most of the same tasks. I now keep this square at my sharpening station for checking the edges of plane irons and chisels when grinding. (A three-piece set of engineer's squares might seem like a bargain, but I suggest saving your money for a 4" double square instead.)

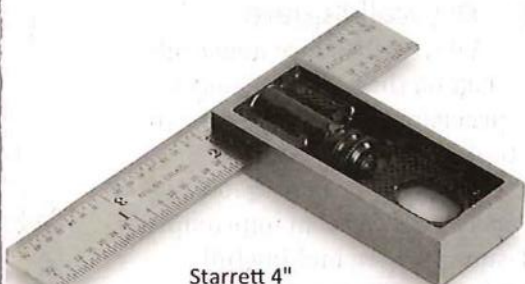


Starrett 12"
Combination Square,
#06R12, \$114.99



2" Engineer's Square
#141013, \$15.99





Starrett 4"
Double Square,
#06E44, \$67.99

Draftsman's Triangles

Don't discount the usefulness of these simple plastic triangles. Despite their low price, they're very accurate. I use mine for those setups that might damage a more expensive square, such as squaring the tables on my sanders.

Drafting triangles are available in various sizes and colors. The best quality triangles have milled edges. I have several sizes and use them all quite often.



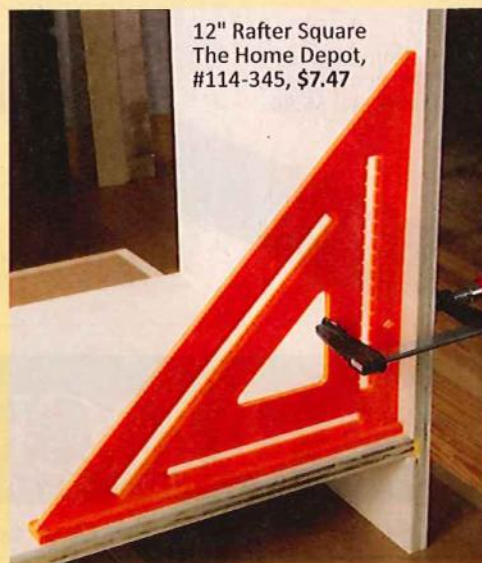
Drafting
triangles
available at art
supply stores

Assembly Squares

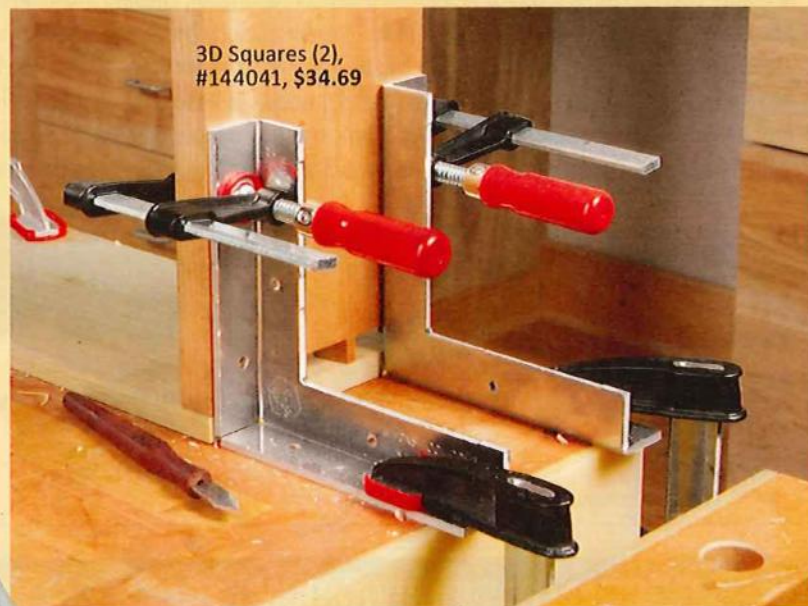
While some squares require careful handling, others are designed to be tough enough to help correct out-of-square assemblies and can even hold their own as clamping cauls. Consider the carpenter's (or "speed") square. The embossed ruler scale and protractor markings are too coarse for furnituremaking, but the body is well suited for checking large cases and frames. The triangle shape that protects the square from jobsite mishaps gives it the strength to double as a clamping caul. Buy a pair of 6" and 12" squares.

Jevons' 3D squares are pricier, but the 6"-long legs sport machined faces and wide flanges designed for

clamp purchase. In addition to assembling cases, I use a pair as a "third hand" when installing hinges on drop-front furniture and to support the pin board on the tail board while transferring the pin locations when laying out hand-cut dovetails.



12" Rafter Square
The Home Depot,
#114-345, \$7.47



3D Squares (2),
#144041, \$34.69

Well-Stocked Shop

Framing Square and Square Fence

Carpenters rely on framing squares for laying out stairs and rafters, but the tool is equally useful in the workshop. Its value will prove itself when working with wide boards and sheet goods.

As with combination squares, you get what you pay for. The best squares

Framing Square
The Home Depot,
#674-842, \$6.96

have machined edges and etched or embossed markings. (Note: A good square can sometimes get knocked out of whack. To learn how to reset your square to 90°, see my tip on page 17)

If you already own a good square, treat yourself to a fence.

The aluminum bar locks onto either edge to provide a positive stop. I find the solid registration very helpful when laying out cuts on sheet goods.

Veritas Square Fence
Lee Valley Tools,
#05N54.01, \$23.50

48" Drywall T-square
The Home Depot, #963-186, \$12.94

Drywall Square

A drywall square may rank last on this list in terms of precision, but this inexpensive tool is accurate enough for rough layout of sheet goods. It can also serve as an impromptu T-square when making full-scale layouts on paper. ■

Tip Alert

To test the accuracy of a square, hold the body against the edge of a straight board and draw a line along the edge of the blade. Now flip the blade over, and draw a second line. The two lines should be parallel.

WOODCRAFT®

To Find Your Local Woodcraft Store Or For A Free Catalog, Visit woodcraft.com Or Call 1-800-225-1153.

Pamper Dad on Father's Day with matching handcrafted razor, shaving brush and elegant storage stand. It's easy with our classic shaving kits. The durable chrome accented razor kit utilizes standard Gillette Mach 3® refills. The 20mm shaving brush insert is made from 100% pure badger hair traditionally known to produce a great lather. The stand's weighted base stays in place with clear grippers that won't harm surfaces. Choose wooden or acrylic blanks from our extensive collection and head to the lathe to create a one-of-a-kind gift or, if Dad is a woodturner, give him one or more of these kits.



Shaving Accessories Kits

Razor Kit -

151092 Chrome
152609 Satin Chrome
152610 Bright Copper
152611 Black Titanium
151093 Bushings For Razor Kit

Badger Hair Brush Kit

153583 WHITESIDE Bottle Stopper
Mandrel 7/32" Bit Size



Deluxe Razor & Shaving Brush Stand Kit -

153292 Chrome
153293 Copper



12WD05H

QUALITY WOODWORKING TOOLS • SUPPLIES • ADVICE®

WOODLINE.COM

800-472-6950

Great Carbide Bits
Great Prices
Free shipping on
orders over \$50

Master Molding Set



1/2" Shank WL-2011

\$99

8pc Picture Frame Set



1/2" Shank WL-2008
1/4" Shank WL-2007

\$75

Multiprofile Bits



WL-1422

856.802.11

WL-CDM



The Woodline Molding CD provides dimensional drawings and will show you how to layer these bits to create unique moldings. For WL-1422, WL-2008, WL-2011 and WL-2016.

Super Joint Set



1/2" Shank WL-1420-4

\$89

Lock Miter Set



1/2" Shank WL-2042

\$89

Miter Frame Bits



WL-1950 through WL-1954
1/2" Shank \$44.95-54.95
WL-MITER all 5 for \$209.95!

Great for
frames,
doors and
moldings.

Bowl & Tray Templates



\$16.95 ea

30+ to choose from

They're SO much easier than they look. View the simple instructions on our website.



Use Coupon Code
WCLOCK to receive
this DVD FREE with
your purchase of
WL-1420-4 or
WL-2042!



Longworth Chuck



5 sizes to choose from
starting at \$130

Woodline.com - your new source for
CMT ORANGE TOOLS™

Plantation Shutter Set



1/2" Shank WL-2055

\$69

FREE
instructions
online



We carry a
Large
Selection of
Turning
Tools &
Instructional
DVDs



starting at \$30

WOODLINE.COM

Request or view
our catalog online.



Ad Index

PRODUCT Website Page

Adhesives

Satellite City	www.coglu.com	19
Titebond	www.titebond/InstantBond	IBC

Bits, Blades, & Cutters

Forrest Mfg.	www.forrestblades.com	10
Freud	www.freudtools.com/quadra-cut	1
Pegas Sawblades	www.grobetusa.com	19
PS Wood	www.pswood.com	78
Whiteside Machine	www.whitesiderouterbits.com	61

Carving

Kutzall	www.kutzalltools.com/woodcraft	71
---------	--	----

Dust Collection

Oneida	www.oneida-air.com	14 & 71
--------	--	---------

Hand Tools

Thomas Flinn	www.flinn-gorlick-saws.co.uk	22
--------------	--	----

Moisture Meters

Lignomat	www.lignomat.com	66
----------	--	----

Power Tool Accessories

Affinity Toolworks	www.affinitytool.com	79
General Tools	www.generaltools.com/woodcraft	20
Grabit Pro	www.grabit-pro.com	78
King Arthur Tools	www.kotools.com	16
Kreg	www.kregtool.com	22
Radar Carve	www.radarcarve.net	79
Woodpeckers	www.woodpeck.com	77

Power Tools

Bosch	www.boschtools.com	66
Cadex Tools	www.cadextools.com	21
Fein	www.multimaster.info	3
General International	www.general.ca	13
Laguna Tools	www.lagunatools.com	11
Jet	www.jettools.com	BC
Rikon	www.rikontools.com	IFC
Rockwell	www.woodcraftversacut.com	15
Sawstop	www.sawstop.com/upgrade	7
Trend	www.woodcraft.com	5

Sawmill & Kiln

Cooks Saw	www.cookssaw.com	66
-----------	--	----

School/Instruction

CT Valley School of WW	www.schoolofwoodworking.com	69
Raquette Lake Camps	www.raquettelake.com	79
The American Woodshop	wbgu.org/americanwoodshop	21

Turning Supplies

Berea Hardwoods	www.woodcraft.com	74
Easy Wood Tools	www.easywoodtools.com	12

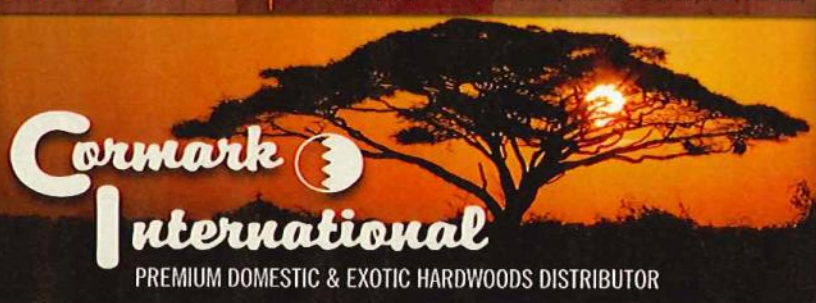
Wood & Veneers

Cormark International	www.cormarkint.com	76
Northwest Bamboo	www.nwbamboo.com	79
Woodfinder	www.woodfinder.com	78

Woodworking Supplies

Beall Tool Co.	www.bealltool.com	78	RoyalWood Ltd.	www.royalwoodltd.com	78
Brand-First	www.brand-first.com	78	Rustoleum	www.rustoleum.com	66
Create-A-Bed	www.wallbed.com	79	Sawtooth Shelf System	www.sawtoothshelfsystem.com	69
Earlex	www.earlex.com	17	Snappy Tools	www.snappytools.com	78
Fortune	www.woodcraft.com	67	Soft Sanders	www.softsanders.com	79
Jevons Tool Co.	www.jevonstoolco.com	79	Starrett	www.starrett.com	9
Jorgensen	www.woodcraft.com	60	Vertex Hinges	www.vertexhinges.com	79
King Plastic Corp.	www.kingplastic.com	18	Wera	www.werootools.com	19
Lee Valley	www.leevalley.com	70	Woodcraft Franchise	www.woodcraftfranchise.com	23
One Time Wood	www.OneTimeWood.com	78	Wooden Gear Clocks	www.wooden-gear-clocks.com	79
PMC Marketing	www.earlexproducts.com	79	Woodcraft Supply	www.woodcraft.com	80
			Woodline	www.woodline.com	75
			Xtreme Tape	www.woodcraft.com	78

70+ SPECIES IN STOCK | LUMBER, TURNING STOCK, BURLS & LARGE SLABS



Cormark International
PREMIUM DOMESTIC & EXOTIC HARDWOODS DISTRIBUTOR

179 Reems Creek Road, Weaverville, NC 28787 • (828) 658-8455 • www.cormarkint.com



AD Link
WOODCRAFT
magazine

Looking for information on a product or company shown in Woodcraft Magazine?

Visit woodcraftmagazine.com/adlink for FAST, FREE information directly from the source.

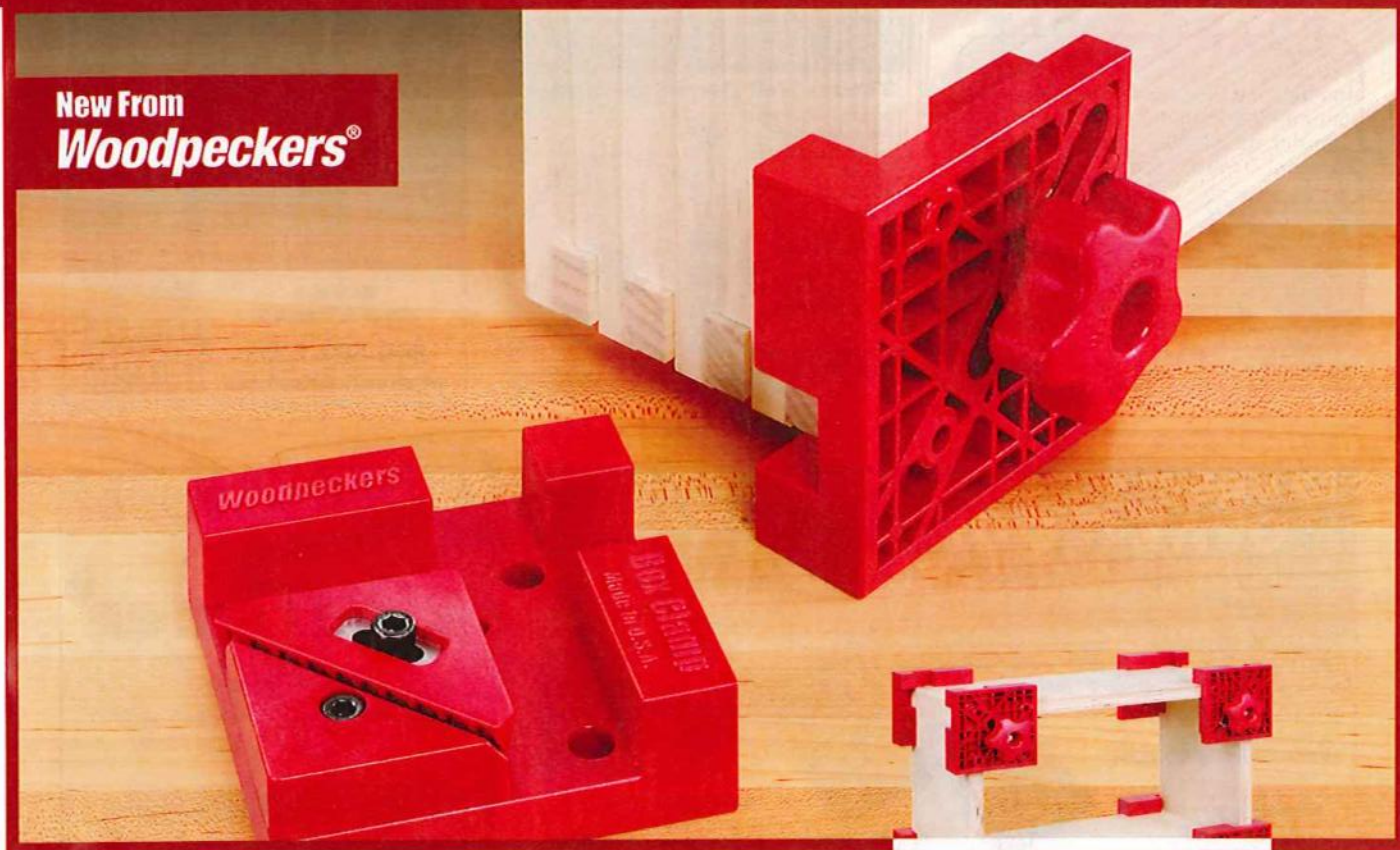
Just one way Woodcraft Magazine puts our readers first.

When you communicate with an advertiser, please let them know you heard about them from Woodcraft Magazine.

Square Up Your Projects

Faster Than Ever

New From
Woodpeckers®



The New Woodpeckers Box Clamp™ is just the ticket for your cabinet and box making projects. This simple tool eliminates the hassle of cumbersome bar clamps and eliminates the need to continuously make adjustments to square the corners.

Imagine being able to dry-fit all parts at the same time without any clamps to interfere with the assembly process. You'll know right from the start if your project is square and be able to confirm part placement and dimensions.

Even better, you can do all that without a second set of hands. Once your project is glued and clamped, you can easily install pocket screws from the inside or any other fasteners from the outside. Both parts will be square and secure from unwanted movement.



Woodpeckers Box Clamps are designed for most 90 degree joints including pocket hole joints, lap joints, dado as well as T-joints. Virtually any joint found in common cabinetry.

The new Box Clamp™ is also perfect for box joints, half-blind and through dovetail joints. Whether the corner is flush or has material extending from the surface, the clearance is there to ensure a square corner.

When you need square corners, you can't beat the Woodpeckers Box Clamp™.

Made in U.S.A.

See our full line of American made woodworking tools at your local Woodcraft store.

11050 Industrial First Ave. • North Royalton, Ohio 44133 • (800) 752-0725

The Market

BRAND-FIRST

Custom & Standard Electric, Flame Heated, and Propane Powered Branding Tools for Work, Home, and Hobby. Tools starting at \$65.00. Quotations within 24 Hours, Tools Shipped in 1½-2 weeks.



Ph: (888)583-5353 Fx: (248)588-0051
www.Brand-First.com Sales@Brand-First.com

PS WOOD MACHINES

Timber Wolf Band Saw Blades

- *Precision milled teeth
- *High-ductile steel
- *Any length available
- *True tracking
- *Low-tension
- *Thin kerf
- *Remarkable turns
- *Warranted welds
- *Electro-heat induction hardened
- *Double tempered weld

www.pswood.com
1-800-939-4414



The LEADER in WOOD Protection

No VOC's
Green APPROVED

866-663-8463

www.OneTimeWood.com



DAMAGED SCREW OR BOLT? GRAB IT OUT!

Get the easiest and most effective DAMAGED SCREW AND BOLT REMOVAL tool on earth...

Save time, effort and aggravation! The Grabit[®] Pro tool lets you remove damaged screws and bolts easier and faster than any other tool available. It's an essential for every toolbox, from weekend warriors to experienced contractors.

FOR INFORMATION VISIT
OUR WEBSITE AT:
WWW.GRABIT-PRO.COM



Superior Removal By Design™



Available at the following retailers:



Pssst! NEED WOOD?

woodfinder[®]

Now over 400
suppliers!

It's fast, easy
and FREE!

www.woodfinder.com

SUPPLIERS: CALL TOLL-FREE 1-877-933-4637 TO JOIN US!

Seat Weaving Supplies

Chair Cane & Splint
Shaker Tape
Fiber & Natural Rush

Complete Line of Basket Weaving Supplies



Royalwood Ltd.
517 WC Woodville Rd.
Mansfield, Ohio 44907
800-526-1630
www.RoyalwoodLtd.com

The Beall
TILT BOX
Magnets on the sides cling to metal surfaces.

Accurately
reads
relative
angles

Also gauges
actual level

THE BEALL TOOL CO.

1-800-331-4718 Fax: 1-740-345-5880
www.bealltool.com Dpt. FW

XTREME TAPE QUICK CLAMP WRAP

Eliminate Special Clamps
Elastic Stretch Tension
No Finish Damage
No Adhesive

No Adhesive
Eliminate Clamps
Seals and Repairs
Better Than Duct Tape



Duct Hose Wrap

www.woodcraft.com
Item # 149888

ADVERTISE IN

The Market

TO PLACE YOUR
2", 1.5" and 1" AD contact:
Woodcraft Magazine at
(866) 382-5566 or
Miranda Springer at
(304) 865-5264 or go to
woodcraftmagazine.com

Make it

Snappy[®]

Proudly
Made in
the USA



Premium
Drilling System
www.snappytools.com



3D clamping square

Used by professionals and nonprofessionals for assembly of boxes, drawers, case work and cabinets.

Over 250,000 sold.

Available in all major woodworking catalogs and stores.

www.jevonstoolco.com

Classic
PROJECT PLANS™

Here's your chance to own and use our new 22" x 34" shop-friendly project plans featuring Woodcraft Magazine's best-ever projects.

See your Woodcraft Sales Associate, visit woodcraft.com/classicplans or call 800-542-9125

VERTEX Solid Extruded Brass Hardware



www.vertexhinges.com

High quality cabinet and door hinges, jewelry box hinges, lid support hinges, surface bolts and cylindrical ball catches

P.O. Box 427, Bowling Green, OH 43402
Phone: (419) 419-1141

CLAMP EDGE

TOOL GUIDE

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

NORTH WEST BAMBOO Inc

LUMBER, PLYWOOD
VENEERS, FLOORING

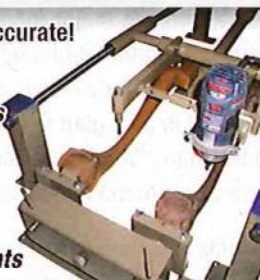
503-695-3283

WWW.NWBAMBOO.COM

WWW.RADARCARVE.NET Wood Carving Duplicators

Incredibly accurate!

- Furniture
- Gunstocks
- Millwork
- Decoys
- Musical Instruments



Thousands of Uses! 505-948-0571

Need more space?
Build your own
murphy bed.



Piston-lift
mechanism kit
includes
step-by-step
construction plans
and instructional
DVD

Create-A-Bed®

Toll Free 1-877-966-3852
www.wallbed.com

Soft-Sanders™

Sanding profiles just got easier!

706-354-6782
www.softsanders.com

Make Time!

Create your own wooden gear clock!

Order the pattern or the complete kit. Build it your way!

Wooden-Gear-Clocks.com
clock kits, and do-it-yourself patterns
715-955-4104
www.wooden-gear-clocks.com

PMC MARKETING AND SALES

Free shipping to lower 48 states! Free Extra Needle!

800-252-1288
www.earlexproducts.com

Spray Stations provide maximum control and minimal overspray for a great finish every time.

SprayStation The modern way to paint **Earlex**

Raquette Lake Camp

Children's Summer Camp –
Adirondack State Park – Upstate NY
www.raquettelake.com
800-786-8373

Help Wanted!

Experienced woodworker to work with children. Top salary, room & board provided, mid June - mid August.
Apply online!

WOODCRAFT®

Woodcraft Stores In Your Area
Offer Classes, Demonstrations & Sales!
Helping You Make Wood Work
From Start to Finish!

For A Free Catalog Or To Find Your Local Woodcraft Store, Visit woodcraft.com Or Call 800-225-1153.

Since 1928, Woodcraft has been committed to providing quality tools, supplies and advice to our customers. From providing in-store classes and demonstrations to funding educational woodworking programming, Woodcraft has remained steadfast in our commitment to the beginner, intermediate and experienced woodworker for over 80 years running.

Woodcraft is pleased to continue sponsorship of *The American Woodshop* with Scott Phillips, now in its 19th season on PBS. We are also proud to provide major funding for the Emmy® Award-nominated public television series, *Rough Cut – Woodworking with Tommy Mac*. Woodcraft is also glad to partner with Rob Cosman, "Your Hand Tool Coach," featured on the educational handtoolworkshop.com.

Buy tools like those used by Scott, Tommy and Rob at any Woodcraft store location nationwide, on our Web site and through our catalog!



Alabama

Birmingham/Pelham:
205-988-3600

Arizona

Phoenix/Chandler:
480-539-9663

Tucson:
520-742-9663

California

Orange County/
Stanton:
714-899-1422

Sacramento:
916-362-9664

San Francisco Bay
Area:

Dublin:
925-875-9988

San Carlos:
650-631-9663

Ventura:
805-658-9663

Colorado

Colorado Springs:
719-266-9889

Denver:
303-290-0007

Loveland:
970-292-5940

Connecticut

Hartford/Manchester:
860-647-0303

Norwalk:
Woodworker's Club
203-847-9663

Delaware

Wilmington/New Castle:
302-323-0400

Florida

Jacksonville:
904-721-9796

Orlando:
407-260-5002

Tampa/Clearwater:
727-532-6888

Georgia

Atlanta:
770-587-3372

Hawaii

Honolulu:
808-841-9876

Idaho

Boise:
208-338-1190

Illinois

Chicago Area:
Libertyville
847-680-9663

Woodridge:
630-435-9663

Indiana

Indianapolis:
317-578-3400

Kansas

Kansas City/Lenexa:
913-599-2800

Kentucky

Lexington:
859-231-9663

Louisville:
502-671-0900

Maryland

Baltimore/Towson:
410-828-7426

Rockville
Woodworker's Club
301-984-9033

Massachusetts

Boston/Woburn:
781-935-6414

West Springfield
413-827-0244

Michigan

Detroit Area:
Canton:
734-981-6808

Sterling Heights:
586-268-1919

Grand Rapids:
616-957-9663

Saginaw:
989-249-6662

Minnesota

Minneapolis/
Bloomington:
952-884-3634

Missouri

St. Louis/
Maryland Heights:
314-993-0413

New Hampshire

Portsmouth/Newington:
603-433-6116

New York

Rochester:
585-292-9690

North Carolina

Charlotte/Matthews:
704-847-8300

Greensboro:
336-235-0900

Raleigh:
919-781-1911

Ohio

Cincinnati/Fairfield:
877-780-9663

Cleveland/Bedford:
440-232-7979

Columbus:
614-273-0488

Dayton:
937-438-1282

Toledo:
419-389-0560

Oklahoma

Oklahoma City:
405-748-8844

Tulsa:
918-384-0100

Oregon

Eugene:
541-685-0677

Portland/Tigard:
503-684-1428

Pennsylvania

Allentown:
610-351-2966

Harrisburg:
717-939-6770

Philadelphia/
Downingtown:
610-873-5660

South Carolina

Greenville:
864-627-8760

Tennessee

Chattanooga:
423-826-0163

Johnson City:
423-282-9973

Knoxville:
865-539-9330

Nashville:
615-599-9638

Texas

Austin:
512-407-8787

Dallas/Addison:
972-241-0701

Fort Worth:
817-569-0777

Houston:
281-880-0045

South West Houston:
281-988-9449

San Antonio:
210-545-5885

Utah

Salt Lake City/
South Jordan:
801-566-5652

Virginia

Leesburg:
703-737-7880

Norfolk:
757-466-1166

Richmond:
804-355-3945

Roanoke:
540-366-7144

Springfield:
703-912-6727

Washington

Seattle:
206-767-6394

Spokane:
509-892-9663

West Virginia

Parkersburg:
304-485-4050

Wisconsin

Appleton/Fox Cities:
920-730-9663

Madison:
608-273-8868

Milwaukee/New Berlin:
262-785-6770

Think Fast!



When your woodworking calls for speed...Think Instant Bond!

Although our core Titebond® Wood Glue product line is ideal for a vast majority of woodworking applications, we realize there is a growing need for faster, and in some cases, "instant" adhesion capabilities. For this reason, we now offer the Titebond Instant Bond line of ethyl-cyanoacrylate-based wood adhesives (a.k.a. super glues), complete with an adhesive activator that accelerates the bonding process.

Titebond Instant Bond is a two-part bonding system that takes between 5-15 seconds to set and 30-60 seconds for initial cure. The adhesives provide a strong, permanent bond and are ideal for hard to reach joints or surface areas that are difficult to clamp. Designed primarily for wood and wood products, Instant Bond adhesives are also very effective on a wide variety of materials and substrates.



1.800.347.4583

For more information and details on the adhesives, visit www.titebond.com/InstantBond

Made in the USA

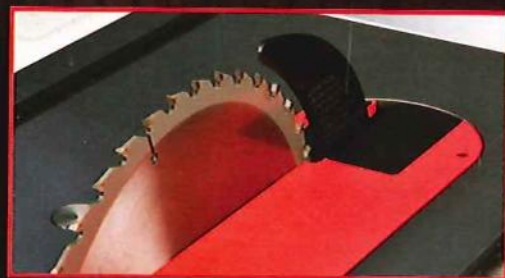
THE BEST JUST GOT BETTER



PRO SHOP™

THE HIGHEST PERFORMING TABLE SAW IN ITS CLASS

The new JET® ProShop™ Table Saw includes the features you've come to expect from a high-end cabinet saw; in the compact design of a contractor-style saw. Whatever your current or future shop needs, the ProShop line of table saws offers you the choice of a saw that will power your shop for decades to come.



NOW FEATURING A RIVING KNIFE

The new JET® ProShop Table Saws are better than ever. Now featuring a riving knife to reduce kickbacks, you'll enjoy an unprecedented level of precision and control in every cut you make!



TO LEARN MORE VISIT JETTOOLS.COM
OR VISIT YOUR LOCAL JET DEALER.

JET®