

ALL ABOUT:
Wood Fasteners

GUILD ♦ EDITION

**Technique: Band
Sawn Curves**

Woodsmith®

Woodsmith.com

Vol. 46 / No. 275



SMALL SHOP ROUTER TABLE

Step-by-Step Plans:

- **Rocking Chair**
- **Coffee Table**
- **Creative Workstation**
- **Gift Box**

EVERYTHING

for the Woodworker



grizzly.com®

800-523-4777 #GRIZZLYTOOLS



FINANCING AVAILABLE

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

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

⚠ WARNING! †¹: Cancer & Reproductive Harm

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

**Purveyors of Fine
Machinery® Since 1983**

Grizzly Industrial®

**Quality Machines,
Buy Direct & Save**

10" 2 HP 115V/230V Cabinet Saw

Power, precision, and durability

- Blade guard dust collection
- Poly-V drive belt
- Cast-iron tables and trunnions
- Deluxe 2-position aluminum rip fence
- 31 1/2" max rip right of blade
- Footprint: 19 1/2" x 20 1/2"
- Shipping weight: ≈ 450 lbs.



MADE IN AN ISO 9001 FACTORY
G0899 ONLY \$1495

\$249
FREIGHT (containing)

10" 3 HP 240V Cabinet Table Saw

The centerpiece of your shop

- 32" Rip capacity
- Accepts dado blades up to 1 3/16"
- 40" x 27" Precision-ground cast-iron table
- Shop Fox Classic table saw fence
- All machined cast-iron internal structure
- Footprint: 20 1/2" x 20 1/2"
- Shipping weight: ≈ 508 lbs.



MADE IN AN ISO 9001 FACTORY
G1023RL ONLY \$2495

\$329
FREIGHT (containing)

20" 5 HP Planer

Minimize tearout for flawless finishes

- Spiral cutterhead with 98 indexable carbide inserts
- Two-speed automatic board feed
- Four-column support with two positive table locks
- Built-in mobile base
- Top-mounted return rollers
- Footprint: 29 1/2" x 23 1/2"
- Shipping weight: ≈ 932 lbs.



MADE IN AN ISO 9001 FACTORY
G0454Z ONLY \$3695

\$369
FREIGHT (containing)

8" Jointer

Consistent cutting performance

- 4-Row spiral cutterhead with 40 indexable carbide inserts
- Parallelogram table adjustment with depth gauge
- 5" Tall center-mounted fence with angle gauge
- Poly-V serpentine belt and pulley system
- Rabetting table and extra-long infeed table
- Footprint: 44 1/2" x 16 1/2"
- Shipping weight: ≈ 593 lbs.



MADE IN AN ISO 9001 FACTORY
G0490ZX ONLY \$2295

\$329
FREIGHT (containing)

16" x 46" Wood Lathe

Effortless speed changes

- Digital readout for spindle RPM
- 0°, 60°, 90°, 120°, and 180° headstock rotation
- Quick lock/release levers for tailstock and headstock
- Precision-ground cast-iron bed and legs
- Swing over bed: 16"
- Footprint: 54" x 13 3/4"
- Shipping weight: ≈ 354 lbs.



MADE IN AN ISO 9001 FACTORY
G0462 ONLY \$1175

\$249
FREIGHT (containing)

14" Floor Drill Press

Durability with unique features

- 12-speed spindle, 340–2860
- LED light increases visibility for drilling precision
- Push-button spindle depth stop for repeatable drilling
- Crank handle-operated rack-and-pinion vertical table movement
- Cast-iron table with four T-slots
- Footprint: 18" x 10 1/2"
- Shipping weight: ≈ 133 lbs.



MADE IN AN ISO 9001 FACTORY
T33902 ONLY \$565

\$199
FREIGHT (containing)

1 HP Oscillating Spindle Sander

For professionals and serious hobbyists

- Ten spindle sizes, tapered and threaded
- 100-grit sleeve for each spindle
- Cast-iron table tilts 45° front and 15° back
- Built-in 4" dust collection port
- Spindle speed: 1725 RPM
- Footprint: 16" x 16"
- Shipping weight: ≈ 296 lbs.



MADE IN AN ISO 9001 FACTORY
G1071 ONLY \$1450

\$199
FREIGHT (containing)

6" x 48" Belt / 12" Disc Combination Sander

Precision components for maximum efficiency

- 2 Precision-ground cast-iron tables tilt 0–45°
- Belt assembly pivots for vertical, horizontal, or angled sanding
- Includes machined detents for locking - 0, 45°, and 90°
- Heavy-duty miter gauge
- Steel cabinet base prevents vibration
- Footprint: 19" x 21"
- Shipping weight: ≈ 327 lbs.



MADE IN AN ISO 9001 FACTORY
SB1093 ONLY \$1575

\$249
FREIGHT (containing)

2 HP Portable Cyclone Dust Collector

Top-notch dust collection capabilities

- Two-stage operation
- Wireless remote control
- Built-in vacuum equalizer
- Quick-release drum
- Clear plastic adapter for easy visibility
- Footprint: 36" x 26"
- Shipping weight: ≈ 294 lbs.



MADE IN AN ISO 9001 FACTORY
G0861 ONLY \$1650

\$199
FREIGHT (containing)

EXECUTIVE EDITOR Phil Huber
SENIOR EDITOR Erich Lage
ASSISTANT EDITOR Rob Petrie

EXECUTIVE ART DIRECTOR Todd Lambirth
SENIOR ILLUSTRATOR Dirk Ver Steeg
SENIOR GRAPHIC DESIGNERS Bob Zimmerman,
Becky Kralicek
CONTRIBUTING ILLUSTRATOR Erich Lage

CREATIVE DIRECTOR Chris Fitch
PROJECT DESIGN EDITOR Dillon Baker
PROJECT DESIGNER/BUILDER John Doyle
CAD SPECIALIST/BUILDER Steve Johnson
SHOP MANAGER Marc Hopkins
CONTRIBUTING PHOTOGRAPHER Chris Hennessey

ADVERTISING DIRECTOR Jack Christiansen
847-724-5633
jchristiansen@aimmedia.com

AD PRODUCTION COORDINATOR Julie Dillon
GRAPHIC DESIGNERS Julie Green, Anna Otto



SENIOR VICE PRESIDENT, CONTENT Rob Yagid
DIRECTOR, SALES OPERATIONS Heather Glynn Gniazdowski



ACTIVE INTEREST MEDIA

CHAIRMAN & CEO Andrew W. Clurman
CHAIRMAN EMERITUS Efreim Zimbalist III
CHIEF OPERATING OFFICER Brian Van Heuverswyn
CHIEF FINANCIAL OFFICER Adam Smith
CHIEF REVENUE OFFICER Gary DeSanctis
SENIOR VICE PRESIDENT, MARKETING Erica Moynihan
VICE PRESIDENT, MARKETING Amanda Phillips
VICE PRESIDENT, CIRCULATION Paige Nordmeyer
VICE PRESIDENT, SALES OPERATIONS Christine Nilsen
VICE PRESIDENT, EVENTS Julie Zub
VICE PRESIDENT, DIGITAL PRODUCT DEVELOPMENT Ashley MacDonald
VICE PRESIDENT, STRATEGY & RESEARCH Kristina Swindell
DIRECTOR, HUMAN RESOURCES Scott Roeder
DIRECTOR, PRODUCTION Phil Graham
DIRECTOR, RETAIL SALES Susan A. Rose
DIRECTOR, INFORMATION TECHNOLOGY Andrew Shattuck

Woodsmith® (USPS 465-410) (ISSN 0164-4114) is published bimonthly by the Home Group of Active Interest Media Holdco, Inc. The known office of publication is located at 2143 Grand Ave, Des Moines, IA 50312. Periodicals Postage Paid at Des Moines, IA, and additional mailing offices.
Postmaster: Send address changes to Woodsmith, Box 37274, Boone, IA 50037-0274.
Postmaster: Send all UAA to CFS. (See DMM 507.1.5.2); NON-POSTAL AND MILITARY FACILITIES: Woodsmith, Circulation Department, PO Box 37217, Boone, IA 50037 Printed in U.S.A.

Woodsmith® is a registered trademark of Active Interest Media Holdco, Inc.
Copyright © 2024 Active Interest Media Holdco, Inc. All rights reserved.
Subscriptions: \$29/Year, Single copy: \$7.99
Canadian Subscriptions: Canada Post Agreement No. 40038201. Send change of address information to PO Box 881, Station Main, Markham, ON L3P 8M6.
Canada BN 82564 2911

WoodsmithCustomerService.com

ONLINE SUBSCRIBER SERVICES

- VIEW your account information
- PAY your bill
- RENEW your subscription
- CHANGE your mailing or e-mail address

CUSTOMER SERVICE Phone: 800-333-5075 weekdays

SUBSCRIPTIONS

Customer Service
2143 Grand Avenue
Des Moines, IA 50312
subscriptions@aimmedia.com

EDITORIAL

Woodsmith Magazine
2143 Grand Avenue
Des Moines, IA 50312
woodsmith@woodsmith.com

from the editor Sawdust

In past letters, I've shared how I use my "shop notebook" to sketch project ideas, create drawings, and record the items I make each year. Lately, I came across a metric that reveals another dimension of my woodworking journey. Let's call it the "router table principle."

I've had a router table in my shop for more than 20 years. The first was a standalone table in a basement shop. That morphed into a router table built into the wing of my table saw. After I sold my table saw, I used a shop-made benchtop router table. Last year, I made another free-standing table ... which I recently got rid of. Leave aside the idea that I can't make up my mind. The router table represents how I have changed over time as a woodworker. That tool is still vitally important to the kind of work I do (and want to do). However as my workshop has changed, my skills grown, and the projects I make clarified, my needs in a router table change too.

Obviously as woodworkers, we aren't fixed in place. So we shouldn't expect our workshops to be either. Which brings me full-circle to the project I wrote for this issue. Just as I was going through another round of router table angst, Chris Fitch shows up with drawings for a clamp-on router table. The plans start on page 42. That might just be the solution my current shop needs.

Woodworking In America. One more thing. You're invited to a woodworking event here in Des Moines. We're gathering a wide variety of presenters as well as passionate woodworkers from *Woodsmith*, *Popular Woodworking*, and *Fine Woodworking* to learn, share, and get inspired. You can find all the details at Woodsmith.com/article/woodworking-in-america-2024 (or scan the QR code below). In addition to the speakers, there's a marketplace of tool makers to get close looks at woodworking gear. We'll also be hosting an open house here in the shops and studio. I hope to see you there.



▲ Scan this code with the camera on your phone or tablet to find out more about Woodworking in America 2024

contents

No. 275 • Oct/Nov 2024



28

Projects

designer project

Coffee Table 28

Chocolatey walnut together with an airy, angled stance give this living room centerpiece a relaxed look.

heirloom project

Rocking Chair 34

The rockers aren't the only curved part of this comfortable chair. Learn how to shape a stylish, sculpted seat.

shop project

Small Shop Router Table. 42

The clamp-on, stow-away design of this router table provides big-time features without taking up any floor space.

designer project

Creative Workstation 46

Large shallow drawers and an adjustable top are ideal for collectors or crafters of any sort.

weekend project

Keepsake Box 55

The contrasting lid and splined miters draw your attention to this box. What you put inside only adds to its appeal.



34

Departments

from our readers

Tips & Techniques 6

all about

Wood Fasteners 12

woodworking technique

Shaping with the Band Saw 16

great gear

New Saws, Vise Add-ons & Workcenter . . 22

mastering the table saw

Grooves, Rabbets, & Dadoes 60

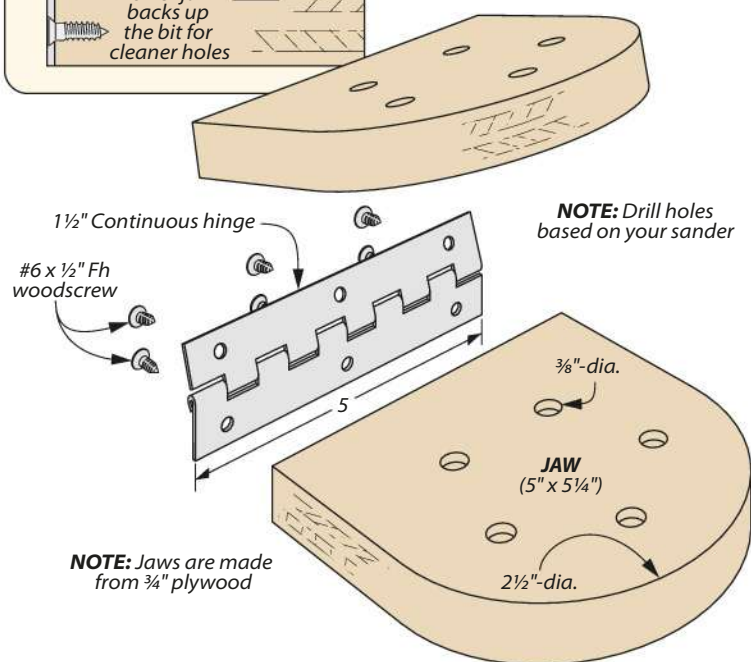
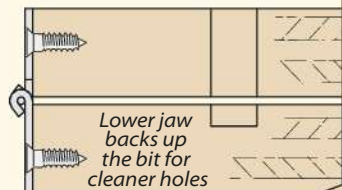
Sources 66



55



a. SIDE SECTION VIEW



Custom Sanding Discs

At a garage sale, I came across a stack of hook and loop sanding discs. The price couldn't be beat. There was just one catch: the discs didn't have holes, as you can see in the photo above. (Turns out you can also purchase disc blanks new online.)

In order to make the most of my haul, I needed a way to make holes that matched my sander. The jig shown at left does the job.

Two hinged plywood jaws sandwich a short stack of discs (about five), as shown in the inset photo. A pattern of holes in the upper jaw serve as drill guides to create the holes in the discs. I used a disc I had on hand, but you could also use the backer pad from your sander to quickly mark the hole pattern.

Use a bradpoint bit to drill the holes. The abrasive on the discs is hard on the bit, but it still lasts a while. The cost savings on the discs makes the effort worthwhile.

*Keith Hoffmann
Afton, Minnesota*

EXCELLENT ACCURACY & RELIABILITY

*Quality machines with
proven performance.*



grizzly.com/shopfox



Available at these fine retailers:

grizzly.com

JB TOOLS

ACME TOOLS

THE TOOL NUT

& MORE!
See website for details

Entry-Level Shop Cart

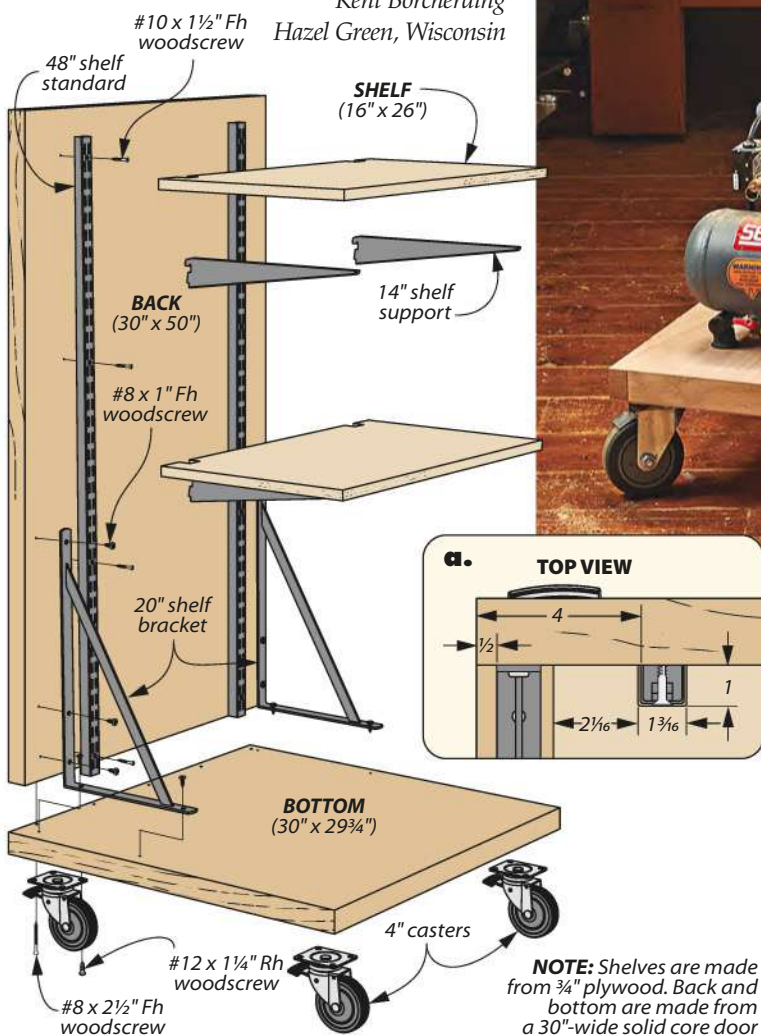
A solid core door and a pair of sawhorses make a great extra worksurface. However, you can do even better. You can make a shop cart like this one in about an hour or so.

Two sections of the door form a back and bottom. These are joined with screws, and large shelf brackets into an L shape. You can see this in the drawing below. A pair of shelf standards, a handful of smaller brackets, and plywood shelves provide vertical storage options. The spacious bottom holds heavy, bulky items. A set of heavy-duty casters makes it all mobile.

There is one detail to point out in particular. I notched the shelves so that they fit tight against the back of the cart (shown in the inset photo), as I didn't want items falling off the back of the shelves. The locations for the brackets, standards, and notches are shown in detail 'a.'

Keep in mind that this works for solid core doors. A hollow core door doesn't have anything substantial for screws to connect to inside. Hence "hollow core."

*Kent Borcharding
Hazel Green, Wisconsin*



Cut a notch in the back of the shelf to wrap around the shelf standards. This keeps items from falling off the back of the shelf.

QUICK TIP



Cafe-CA Knot Filler. *Phil Huber of Urbandale, IA* fills small knot holes and other voids in dark materials with a mixture of coffee grounds and tinted CA glue. When the glue is dry and sanded flush, the mixture looks more like solid wood and blends in with oil-based finishes.

SUBMIT A TIP TO WIN

GO ONLINE

If you have an original shop tip, we would like to hear from you and will consider publishing your tip in one or more of our publications. So jump online and go to:

SubmitWoodsmithTips.com

You'll be able to tell us all about your tip and upload your photos and drawings. You can also mail your tips to "Woodsmith Tips" at the editorial address shown on page 2. We will pay up to \$200 if we publish your tip.



MAKING MONEY SHOULDN'T BE JUST A HOBBY

Turn passion into profit with the Fusion Maker from Epilog:

- Up to 60-inches-per-second engraving speeds
- IRIS™ Camera System for artwork placement
- No Internet connection required
- 2-year warranty
- Direct US-based support via phone, chat, & email

Contact us for more information & **free samples!**

Starting at

\$9,995*



*U.S. Pricing Only
888.437.4564 | sales@epiloglaser.com
epiloglaser.com/woodsmith



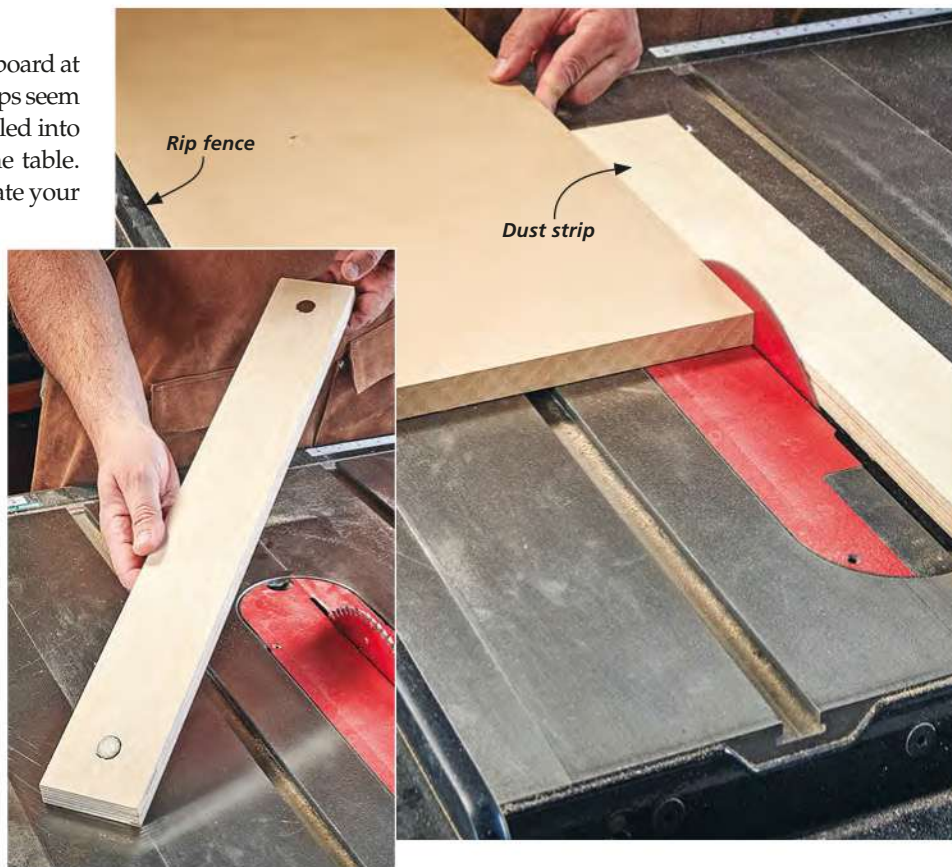
Dust-Free Edge Cuts

When you're trimming the edge of a board at the table saw, most of the dust and chips seem to fly back at you rather than get pulled into the dust-collection shroud below the table. It's annoying. The little particles irritate your hands and make a mess, not to mention the cloud of dust that's now floating around the shop.

One effective solution is shown here. A strip of plywood on the other side of the blade channels the dust down below the table where it can get sucked away.

The strip is held in place by a pair of rare-earth magnets embedded in the bottom face, as you can see in the inset photo. This way you don't have to mess with clamps or double-sided tape. The magnets keep the strip from shifting during a cut or catching on the blade. Locate the strip parallel to the blade, but not touching it.

*Charles Mak
Calgary, Alberta*



QUICK TIP



Clamp Head Stop. Bill Cassaday of Woodstown, NJ attaches a binder clip to the bar on his *Microjig* dovetail clamps to keep them from dropping when moving them around or swapping pieces out. This way he can easily reposition a workpiece without the clamp head falling and causing things to bind up. For future use, attach the clip to the bar after lowering the clamp in place.

DIGITAL WOODSMITH

RECEIVE FREE ETIPS BY EMAIL

Now you can have the best time-saving secrets, solutions, and techniques sent directly to your email inbox. Simply go to: **Woodsmith.com** and click on,

Woodsmith eTips

You'll receive one of our favorite tips by email each and every week.



Lathe Story Stick

It's easy to turn a single item at the lathe. However to make several matching items, the layout gets tedious. To increase consistency and speed up the process, make a story stick like you see here.

The story stick is a piece of plywood with a series of nails embedded in the edge. The nails define key details on the turning. Clip the heads and use them to score your blanks for faster layouts.

*Logan Wittmer
Runnells, IA*



- Clipped nails score a round blank to define details for making multiple turnings.



Quick Tenon Sizer

An open-end wrench comes in handy for turning. You can use a wrench as a gauge to accurately size tenons. Gently hold the wrench jaws against the workpiece with one hand. The other guides a parting tool to trim the tenon until the wrench drops over the tenon.

*Logan Wittmer
Runnells, IA*



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

Worth the upgrade

I've been using the unit for about 3 months now and I can say that this is definitely a case of you get what you pay for. This unit is pulling more air through a 4" line than my previous system was pulling through a 6" line. I strongly recommend getting a unit with the Smart-Boost, it makes a huge difference.

FREE DUST COLLECTOR CONSULTATION





Made in the U.S.A.

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

oneida-air.com



ALL
About

Simple Wood Fasteners

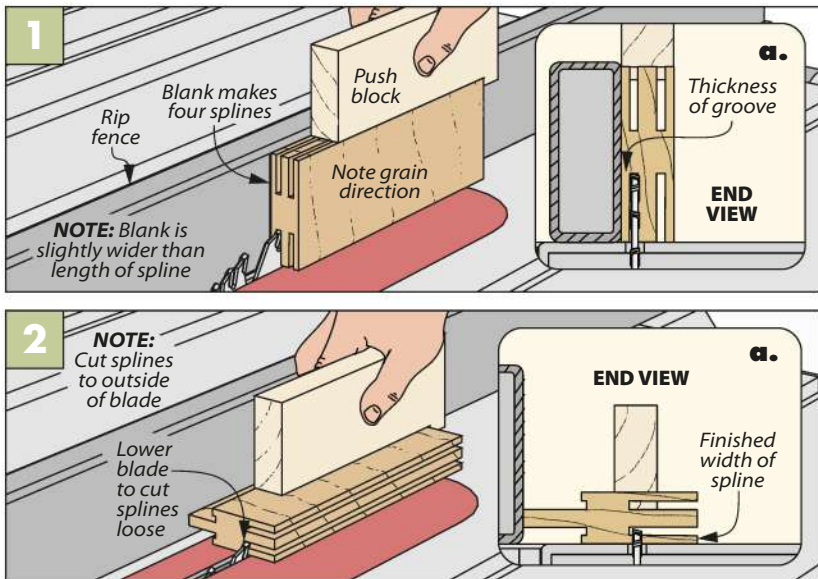
When I consider the fasteners I'll use on a project, it's easy to default to woodscrews. They're simple to install and they're reliable, but they're far from the only fasteners available. In these next few pages, we'll take a look at another set of options: wood fasteners.

WHY WOOD? As useful as screws are, there's a number of places in a project where they're less than ideal. A screw is an inelegant way to reinforce a miter, and they lack shear strength compared to wood. Wood fasteners can also be used as quick alternatives to traditional joinery (for instance, dowels taking the place of a mortise and tenon in a frame, as in the photo at left). Here you'll find the four, simple wood fasteners that I use most in my shop — and which might find their way in to yours.

SPLINES

A spline is simply a thin, long (or wide) piece of hardwood. They're easy to make, and, as long as your splines $\frac{1}{8}$ " thick, all you need to make a groove for a spline is a flat top blade.

USING SPLINES. Splines work best when used to join boards along their edges. They work great for operations like adding edging to a panel, or to align and



▲ Pay attention to grain direction when cutting your splines. Cross-grain makes for a stronger spline.

strengthen miter joints. Using cross-grained hardwood splines in these joints will ensure they last for decades.

MAKING SPLINES. One blank can make four splines. When sizing the blank, you'll usually want it wider than it is long (depending on the orientation of the joint).

A spline is at its strongest when it's supporting the joint with cross grain rather than long grain (upper right photos).

You can see how I make splines in the box above. Two cuts are needed at the table saw for each spline. The first cut is made on-edge, creating a groove down the

width of the workpiece (Figure 1) to section off a small tab. The second cut is made on the face, freeing the newly made spline from the blank as you see in Figure 2. Cut the splines on the outside of the blade to avoid pinning them against the fence and risking kickback.



The Perfect Solution for Custom Doors & Repairs

**Scan,
Learn,
Build.**



www.Milescraft.com

NEW



**1338
LockMatePLUS™**

NEW



**1226
HingeJig™**

LOCKSETS - DEADBOLTS - HINGES - LATCHES

DOWELS

Dowels are another easy, functional fastener. One big advantage I find in using dowels is that a drill bit instantly makes a perfect hole for the dowel — no need to refine the fit of a mortise and tenon. Dowels are also quite versatile. Not only can they function as small, loose tenons, but they're more than sufficient in many places where a screw might go. Depending on the mating pieces, dowels may even be stronger than woodscrews, plus they don't need to be disguised if you don't want to see a screw-head peeking out of your project.

LAYING OUT DOWELS. Installing dowels begins with a good layout. For something like the frame I made below, I use two dowels to join the end of a stile to the edge of a rail. Steps 1 through 3 in the box below

show how I make a reliable layout for the dowels.

DRILLING & CHAMFERING. Drilling out the dowel holes is easy. Set the fence on the drill press to keep the dowel holes even, then drill out as in Step 4.

I follow up the drilling by adding a slight chamfer to the holes (Step 5). This makes it easier to tap in place during assembly. Just use a countersink bit and make slight contact with the hole to create the chamfer.

To make sure the dowel holes will be a perfect match, I use dowel centers (Step 6) for an exact transfer. After drilling and chamfering the stile, the frame is ready to glue and tap together.

PEGGED JOINT. Another common use for dowels when joining boards is to make a pegged joint. As I mentioned earlier, dowels can be used in place of

screws for many operations. For instance, on a case with rabbeted sides you can peg the top in place with dowels for their shear strength. You could also peg a dowel (or dowels) through a mortise and tenon joint for a supremely sturdy connection when you need it, such as in a dining table or workbench.

BISCUITS & DOMINOS

The last pair of wood fasteners to discuss are biscuits and dominoes. Both have their distinct uses, and with the tools you see on the opposite page they're quick and easy to make.

BISCUITS. On the left (opposite page) you can see a biscuit joiner. It wasn't too long ago that one of these was in nearly every shop. Nowadays most of them are tucked away, collecting dust. But not all.

MAKING A DOWEL JOINT



Layout. Begin by marking the locations of the dowels across the jointline on the faces of both workpieces.



Centerline. Score the centerline of the first workpiece on the edge. I add a pencil mark for visibility as well.



Transfer Layout. Use a square to transfer the layout lines from the face to the edge.



Drilling. Head to the drill press to make the dowel holes. Use the fence to keep the holes even.

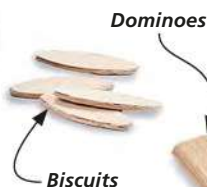
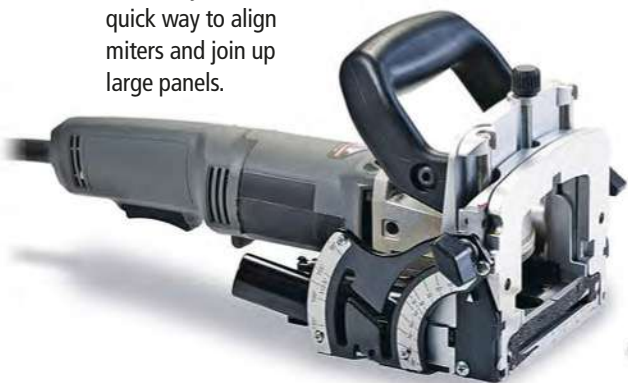


Chamfer. Finish the dowel holes with a slight chamfer. This will make tapping the mating pieces together easier.



Dowel Centers. Use dowel centers to transfer the locations, then drill and chamfer the mating workpiece.

▼ A biscuit joiner is a quick way to align miters and join up large panels.



▲ A Domino joiner makes cutting mortises for loose tenon joints a breeze.

Biscuits are more useful than they may look. They function like small splines, making them great at on-edge joinery. This could be gluing up large panels, helping to align miters, or even joining a whole case together.

A biscuit joiner is really a slot cutter with a fence to keep it aligned. To use one, you simply set the height of the fence, set the depth of cut, and adjust the angle if necessary. After that,

just start the joiner and push it in to make the slot.

DOMINOES. The tool on the right above is Festool's Domino joiner. Although it looks (and operates) similar to a biscuit joiner, this tool actually functions more like a sideways plunge router. As you push forward and cut, a mortising bit in the joiner oscillates to make the mortise.

Dominoes aren't as long as biscuits, but they are thicker, and they extend further into the workpiece. This means they work well on ends, as when making a frame, while also creating a stronger joint. It's not often that you see these two tools in the pages of *Woodsmith*, but don't be fooled — they certainly earn a place in any shop. **W**



FORTISCLAMP

GREATER FUNCTIONALITY THAN TRADITIONAL CLAMPS

Versatile

Strong

Compact

▲ Biscuit and domino joiners are specialized tools — each with their own unique cutters — that can quickly make mortises for a variety of uses, from panel glueups to casework to frames.

INNOVATIVE SOLUTIONS FOR...

JIGS & FIXTURES

VENEER PRESSES

GLUE UP STATIONS

GET 15% OFF
USE CODE **WS11**

WWW.FORTISCLAMP.COM

Band Saw Shaping

If I had to pick a favorite tool in the shop, it might be the band saw. Freehand cutting workpieces is a joy, and it seems there's always a new use to discover. It may not be as clean as the table saw, but it rivals even the router in its versatility. When it comes to shaping workpieces — from curved legs to decorative corbels — the band saw is my go-to.

WHY THE BAND SAW? The unique design of a band saw is what makes it so useful for this. Using a narrow blade with a high tooth count is great for cutting tight curves on smaller workpieces, while swapping out for a wider one limits the blade marks when cutting tapers or long arcs. Plus, the band saw's design allows me to cut some pretty thick workpieces with minimal issues.

In my work, the band saw is almost always a “roughing” tool. It does a great job of removing waste quickly, and in whatever shape I may need it to. However, as you'll see here, it's best used in conjunction with another tool to clean up any blade marks or unevenness. Regardless, I find it to be invaluable when I'm working with oddly shaped pieces (as in the rocking chair on page 36).

Precision Woodworking Squares

- One-piece central core.
- Stainless model includes scribing guides.
- Lip keeps the square flat on your work.
- Guaranteed perpendicular to $\pm 0.0085^\circ$ for life.
- Available in inch or metric.



Precision Woodworking Square

Includes a Woodpeckers wall-mountable wooden case

12"\$129.99

12" Stainless Steel....\$149.99

Other Sizes Available on Woodpeck.com



Precision Woodworking T-Squares

- Scribing guides on 1/16" centers.
- Beveled edge reduces parallax.
- Tight tolerance laser-engraved scale.
- 600mm metric version available.

Precision T-Square

Includes a wall-mountable Rack-It™

TS-12 12"....\$129.99

TS-24 24"....\$149.99

TS-32 32"....\$179.99



in-DEXABLE™ Combination & Double Squares

- Push-button index locks head at any full-inch.
- Laser-cut scribing guides for precision parallel lines.
- Retractable support keeps head aligned to your stock.

in-DEXABLE Squares

Includes a wall-mountable Rack-It™

Double 6"\$129.99

Center Finder 6"\$139.99

Combination 12"\$169.99

Protractor 18"\$239.99

Other Sizes Available on Woodpeck.com



THIN RIP GUIDE®

- Safe, accurate jig for repeat cutting of thin strips.
- Works with 3/8" x 3/4" T-slot table grooves.
- Easily calibrated scales in both inch & metric.
- Ball bearing contact for smooth feeding.

Thin Rip Guide
Includes a wall-mountable Rack-It™
....\$169.99



Rout-N-Plane™ Benchtop Board Mill

- Perfect for end grain cutting boards.
- Adjusts to work with almost any size or style router.
- Two sizes: 15" and 24" wide. Both work from 3/4" to 3" thick.
- When it won't fit your planer, plane it with Rout-N-Plane!

Rout-N-Plane Benchtop Board Mill

15"\$169.99

24" XL....\$209.99

Router not included.

Spline Jig

- Works with both table saw and router table.
- Spline grooves or dovetail keyways.
- Cut splines in projects up to 36" long.
- Stops included for repeat positioning.

Spline Jig....\$159.99



Hold-down clamps sold separately.

ULTRA-SHEAR™ by Woodpeckers

Carbide Insert Rabbeting Bit

This 3-flute rabbeting bit creates smoother rabbets faster than typical 2-flute designs. Inserts can be rotated four times.

Carbide Insert 3-Flute Rabbeting Bit 1/2" Shank
US5RBT.....\$57.99 **\$49.99**

Other options available on Woodpeck.com



FREE SHIPPING
WHEN YOU
SPEND \$50 ON
ULTRA-SHEAR
CUTTERS & BITS
CANNOT BE COMBINED WITH
ANY OTHER PRODUCTS

Flat Top Grooving Saw Blades

When you need flawless, flat-bottomed cuts, our 40-Tooth Flat Top Grooving Blade delivers. The chisel tooth design yields a perfectly square groove.

10" x 40 Flat Top Grooving Blade, 5/8" Arbor

1/8" Kerf.....\$166.78 **\$149.99**

3/16" Kerf.....~~\$186.83~~ **\$179.99**

1/4" Kerf.....~~\$196.96~~ **\$189.99**



ULTRA-SHEAR™ by Woodpeckers



BAND SAWN TAPERS

Tapers are a great way to add a bit of visual interest to a project. A taper jig at the table saw works well, but making the jig can be time-consuming. Instead, I cut many of my tapers at the band saw, as you can see in the legs I cut in the photos below.

LAYOUT. For cutting these tapers, I start with a slightly oversized workpiece. I then mark the start and end points of the taper and connect them using a straight-edge (Step 1).

CUTTING. The best blade to use when cutting a taper is a 1/2"-wide blade with 3 or 4 teeth per inch. To keep the blade as steady as possible, set the guide assembly

just above the workpiece, as in Step 2. Make the cut freehand in one, even pass. In my opinion, it's worth it to make a few practice cuts on scrap boards first. It's pretty easy to get a good cut after you're warmed up. Stay to the waste side of the layout line to keep some extra material for jointing. Once you've done the first side, flip the workpiece and make the second cut (Step 3).

JOINTING. To finish the tapers, joint the tapered faces down to their final size. This will leave you with a smooth, clean leg. Just be sure to joint "downhill" with the grain, as shown in Step 4, to keep from tearing out the tapered faces.

TEMPLATE SHAPING

One of my most common operations at the band saw is shaping a piece using a template. You can see the technique for shaping a set of corbels on the opposite page. It begins with a hardboard template (Steps 1 and 2), but one trick I like to use is a rub block.

RUB BLOCK. This is a piece of hardboard with a rounded end and a notch to accept the blade. The hardboard will register against the template, leaving material for the flush trim bit, as in Step 3. Once you've made the cut, you can flush-trim it to final shape (Step 4). Remove the template and use it to make your next piece.

CUTTING TAPERS



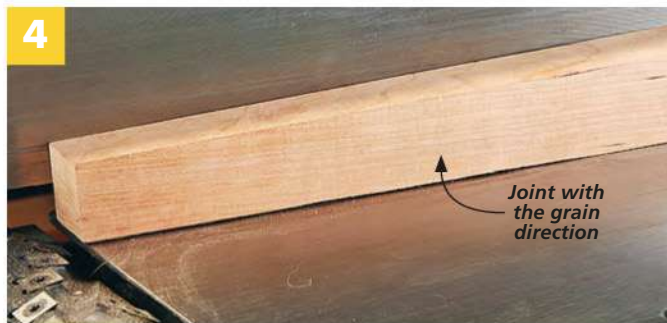
▲ Lay out the start and end points of the taper, then connect them. Transfer these lines across the end for visibility.



▲ Set the guide assembly 1/4" above the workpiece. Begin the cut from the narrow end of the taper for the best results.



▲ Finish the taper with the second cut. Smooth, steady cuts will get you the best results here.



▲ Joint the tapered faces to clean them up. Orient the workpiece so you're jointing with the grain to prevent tearout on the faces.



▲ One or two passes on the jointer will flatten out any unevenness in the cuts and clean off the blade marks.

TEMPLATE SHAPING AT THE BAND SAW



1 When shaping, I create a hardboard template to ensure that all the workpieces come out identical.



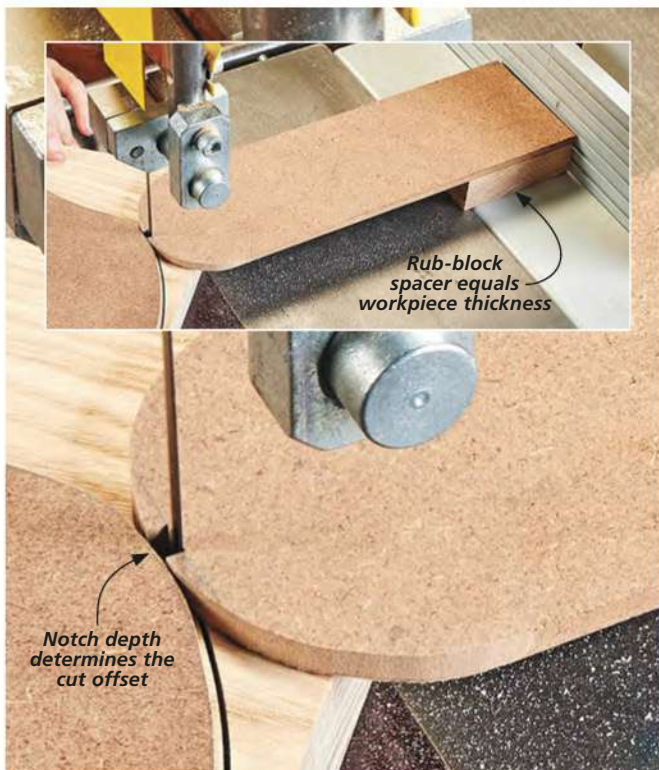
2 Stick the template down to the workpiece. Double-sided tape provides plenty of strength here.



3 The hardboard rub block registers directly against the template, leaving a small amount of waste to be routed off.



4 A flush-trim bit at the router table is the best way to clean off blade marks, registering the bit against the template.



▲ The gap of the rub block leaves $\frac{1}{16}$ " of material outside the template for the router. I made the spacer from a cutoff piece of my original board so it matched the thickness of my workpieces.

I USE A WAGNER MOISTURE METER BECAUSE:

These are family heirlooms



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



(877) 721-8872 | WagnerMeters.com



BAND SAW COMPOUND CURVES



▲ To ensure an identical layout on the two sides, I use a hardboard template when marking the curves.



▲ Make the first cut in one, even go. Getting close to your layout lines is ideal, but be sure to stay on the waste side.



▲ Tape your cutoff back on for support when making the second cut. A few pieces of double-sided tape secure the workpiece and cutoffs.



▲ Finish out the shape of the curves at the spindle sander. Long, even motions will make for smooth, elegant curves.

BAND SAWN CURVES

When I first watched someone pull this little trick, I was amazed that I hadn't thought of it first. The photos above show how to cut compound curves — that is, curves across multiple faces. The leg above is one that I intended to carve, but I'm no Michelangelo, and I don't want to spend my whole shop day chipping away at one chunk of wood. Instead, I let the band saw do the work so I could get to the fun parts.

LAYOUT. When laying out a compound curve, I use a hardboard template. This ensures an

identical shape on both faces. When marking the second face, be sure the flat side of the template is registering against the same corner as it did on the first cut. Otherwise, your leg won't come out as planned.

CUTTING. Make the first cut in one, even go. As you can see in Step 2, I started from the end to avoid any skipping across the side as the cut began. After finishing the first cut, tape the cutoff back on to use as a support for the second pass. A few strips of double-sided tape work well, as they'll hold both

the workpiece and cutoff piece together throughout the cut. After the second cut, remove the cutoff and tape so you can sand your roughed-out blank.

SPINDLE SANDING. With a piece that's curved on two adjacent faces, a flush-trim bit isn't an option (not to mention the thickness of leg I had above). Instead, I use the spindle sander to clean up the blade marks and achieve the final shape (Step 4). Even strokes across the whole curve will yield the best results. After some sanding, you'll be left with smooth, clean curves. 

WOODWORKING IN AMERICA

An AIM Woodworking Group Event

Woodworking event returns for instruction, demos, and more in

Des Moines, Iowa at The Franklin Center

PRESENTERS

Patrick Edwards, Wilbur Pan,
Rollie Johnson, Amanda Russell,
Phil Huber, Logan Wittmer,
Ben Strano, Chris Fitch,
Dillon Baker



Scan to Learn More!
woodsmith.com/wwa

**JOIN US
OCTOBER
11 & 12
2024**



Cool Saws & More

If I were to restart my journey in woodworking, building, and remodeling, it would be a tough choice as to which tandem of circular saws shown

here I would choose. The photo below shows the pair of saws that I still have, and they work just fine. But they don't have the ergonomics and flexibility of the two cordless options from Milwaukee that we're talking about on this spread.

▲ Wherever you're working, the rafter hook is a convenience that I would have loved back in the day.

M18 FUEL 6 1/2" SAW

The circular saw you see on this page is a new release from Milwaukee that I would be tempted



Comfortable grip for less fatigue

High-capacity 18-volt lithium battery



▲ The new 6 1/2" circular saw offering from Milwaukee sports a magnesium shoe and blade guard that are designed to take job-site punishment.

Porter Cable 6 1/2" circular saw



Skil worm-drive circular saw



▲ Vertical cuts are a breeze with the new version of the 5 3/8" circular saw. Plus it has plenty of power to cut two-bys when called upon to do so.

XC HO5.0 battery. Both saws come with a blade that will get you by — but you'll want to upgrade shortly.

Will these saws still be going strong in 40 years like my corded versions? For that you'll have to check with my grandchildren.

to replace my old Skil 7 1/4" worm-drive. The saw has plenty of power to make the kind of cuts you see in the main photo on the previous page.

Milwaukee suggests using the mid-range High Output XC6.0 battery with this saw (the battery is not included with the saw). There are other battery options to fit your budget.

M12 FUEL 5 3/8" SAW

This saw would quickly replace my 6 1/2" corded saw (sorry *Porter Cable*) based upon what I used the saw for. Which is a mode of "taking the saw to the cuts," that's more like you see in the photo at the right.

The lightweight saw comes in the kit you see above left and is charged by M12 battery system's



Make
Great
Gifts

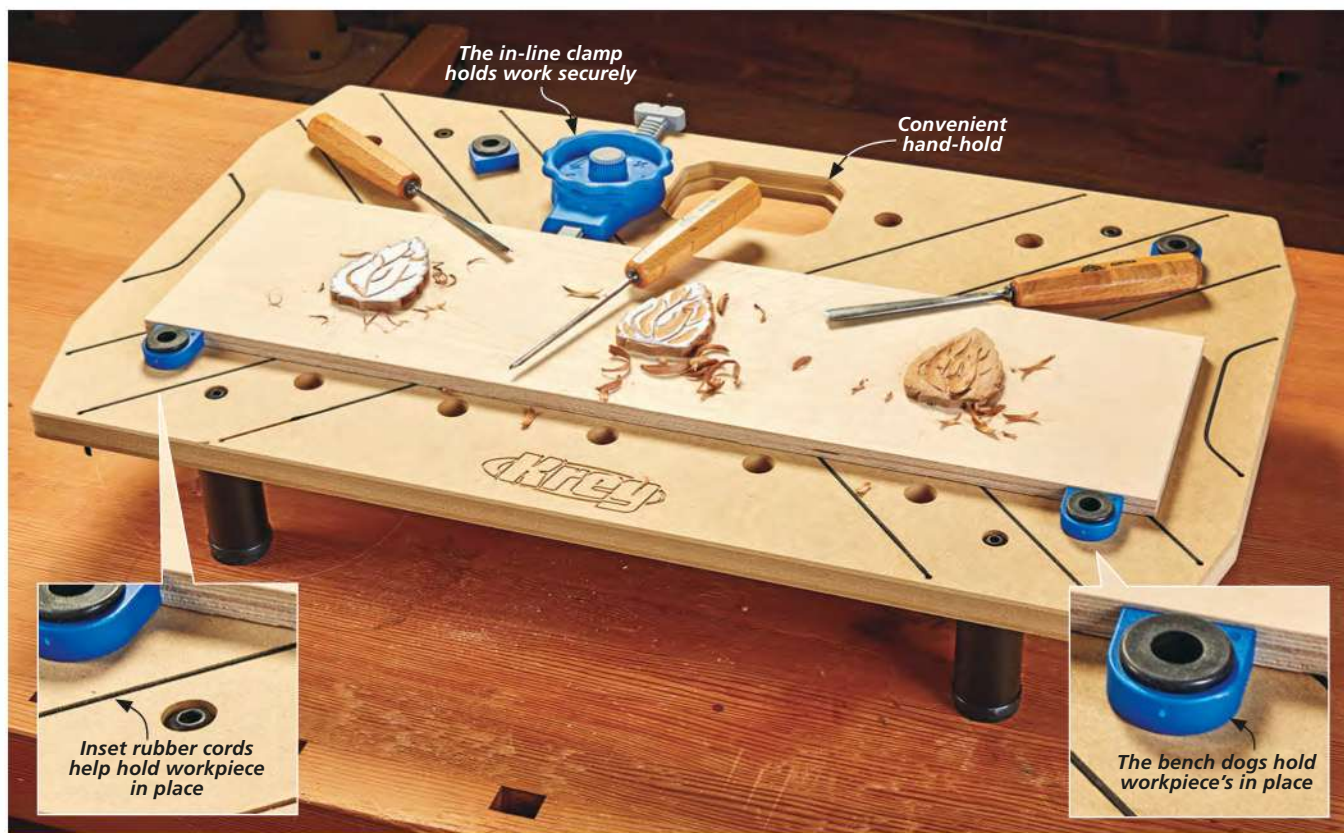
EST 1928

WOODCRAFT®
HELPING YOU MAKE WOOD WORK®

Scan to be inspired.

To find your local Woodcraft store, visit woodcraft.com or call 800-225-1153.





KREG PORTABLE WORK SURFACE

The woodworker's maxim of "you can't have too many clamps" is followed closely by "there's no such thing as too many worksurfaces." There was a time I had an old, fold-up

card table that I used as a pinch hitting surface. It was an ideal staging area for gluing up sub assemblies of larger projects, or a place where painted items could dry while other work at the main bench went on uninterrupted.

The Portable Work Surface from Kreg you see here is an upgraded version of that old card table (one of the legs pulled free from the table, ending its shop life). It comes bundled with some helpful accessories.

WHAT'S IN THE BOX. The MDF top, four legs with adjustable feet, four bench dogs, an in-line clamp, and a trigger clamp are what you'll find when you open the lid. The MDF work-surface that you see in the photo above has a lot of clever features.

For example, the tapered corners are an ideal way to prevent you from banging up the sharp corners

of a mobile surface. At the top of the table is an opening that does double-duty as a hand-hold and a place that can store one of Kreg's hardware containers.

DOG HOLES. There are four rows of standard sized dog holes that accommodate the bench dogs. This array of holes provides you with a lot of options when the task at hand is clamping a workpiece in place.

The last detail of the top is the pattern of thin grooves that ripple out from the ends. These grooves are designed to hold a rubber cord that Kreg is calling a GripMaxx cord proud of the surface (left inset photo above). The cord fits into the holes at the end of the grooves. From there you'll need to stretch the cord so it's thin enough to drop in the groove. To be honest, this detail doesn't impress me that much, but you might find it handy.

THE LEGS. The legs that come with the Work Surface are shown in the photo to the left.



- ▲ The kit comes with adjustable legs and shock-absorbing self-adhesive pads that attach to the foot of the legs. They're easy to install and adjust.

They're easily installed under the table with provided screws that sit in recessed holes in the top. The adjustable feet allow you to fine-tune the stability of the Work Surface.

BENCH DOGS. Now for the accessories that partner with the work surface — starting with the bench dogs. As shown in the photos on the previous page, the bench dogs are pretty straightforward. But, there's an "Easter egg" feature to the bench dogs. It's the rubber pad that fits in the top of the dog (right inset photo, previous page). If you find yourself needing to paint or apply finish to the edge of a workpiece you can place it on top of the dogs and the non-slip rubber inserts will hold it in place while you work.

CLAMPS. The Work Surface comes with two clamps: the in-line clamp you see in the main photo on the previous page, and

the trigger clamp you see to the right. Kreg refers to the latter as the 6" member of its "VersaGrip" line of clamps. This works great for clamping larger things to the surface — like pocket hole jigs.

My favorite is the in-line clamp. At first glance and feel it comes off as a little gimmicky, but I was wrong. It's a great ally when working with the bench dogs to hold most any shape you have firmly in place on the work station. And its low-profile lets you work freely around it. All said and done, the work surface is worth the investment.

- The detachable head of the clamp allows you to integrate it into the surface of the table.



WOODLINE USA

800-472-6950

www.woodline.com

Whether it's CNC, router table or handheld, we've got the bits you need.

Need to flatten a board?
We have your sled & bits!

Get precise dados with your router & our Dadoright™ Jig. Works with ProGrip™ style clamps, Festool™, Makita™, Kreg™, TrueTrac™, and more.

TIMBER WOLF BANDSAW BLADES

We have Maloof bits!

A great holiday project!

Request a copy of our free catalog

What can we help you make today?

WORK IQ CONNECT PORTS

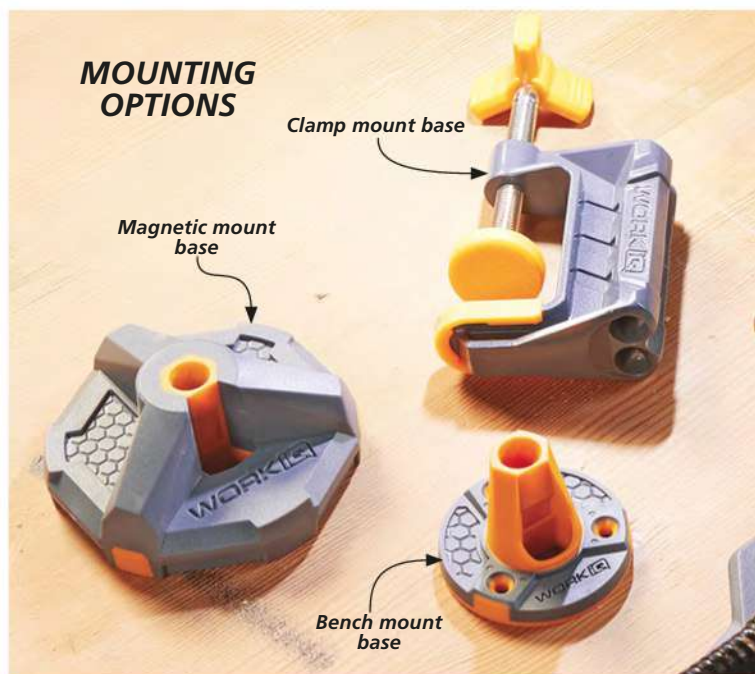
The vise I reviewed back in issue 273 of *Woodsmith* from *Work IQ Tools* has come to be a well-used part of the shop. Here we're going to look at another side of this system — *IQ Connect* ports.

The ports are designed to receive the shafts of accessories that are locked in place with a clip that latches into a notch on the outside of the port. The photo below shows what this looks like in action. First we'll look at the ports, then review the accessories that are available.

PORTS GALORE. Starting with the vise, you can see in the photo on the far right of the next page there are two ports on each side of the base of the vise. This would allow you to have all three accessories plugged into the vise at the same time. You could record a well-lit session of carving while examining the work with the magnifying glass — if you were so inclined.



- ▲ The shaft of the accessory fits into the hole on the mount and is held in place by the clip locking into the indent on the outside.



- ▲ In addition to the ports on the vise, there are three more options to use with the accessories. Each option allows you to expand the potential of the system throughout and beyond the shop.

BENCH MOUNT. Next in line is the bench mount. You can take a gander at it in the photos on this page and the top left of the next page. As it's shown in these photos, it's mounted to the surface of a piece of plywood that has a cross piece screwed to it for mounting in a vise. But this can be screwed to a stud in a wall, or any place where you want to use the accessories.

MAKE IT FLUSH. The bench mount can also be flipped over and mounted flush in a surface by drilling the appropriate sized holes and screwing it in place. I could not find the hole sizes required to install the bench mount flush to the surface on the *Work IQ Tools* web site. But you can drill a 2½" diameter hole 7/16" deep for the flange. Add a 1¼" diameter hole 1¾" deep for the shaft and you should be good to go.

MAGNETIC MOUNT. Another option that is handy is the magnetic mount. It's the large disc you see in the photo above. On the underside of this mount you'll

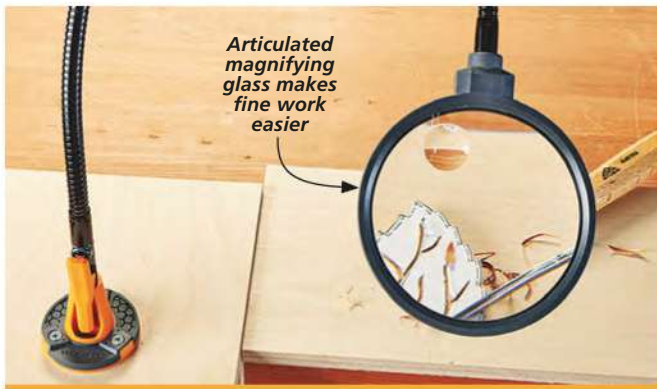
find six N52 magnets. These are some of the strongest rare-earth magnets available.

This mount will grab on to any ferrous surface like a black Friday shopper looking for deals. It will let you take the accessories out to the garage to shed light exactly where you want it if your working on the car or lawn mower. The photo at the bottom of the next page shows it and the work light, ridding you of the excuse of the hole drilled in the wrong place due to lack of light.

CLAMP MOUNT. The clamp mount is also shown in the photo above. It's the most versatile of the three mounts and allows you to take the accessories on the road and anywhere a good, old fashioned C-clamp will work. Like the vise it has two ports in the top by the fixed jaw, and two in the bottom by the handle. Now let's look at the accessories.

ACCESSORIES

There are three accessories that you can use in the ports. All of them have the shaft and clip that



▲ The 5" magnifying accessory is a generously sized glass that has two levels of magnification. It's great for easing eye-strain.



▲ The ports in the side of the vise allows you to incorporate the cell phone holder so you can record your process or share photos.

fit into the ports we just looked at. And all of them have a 26" flexible gooseneck that lets you position it to suit your needs.

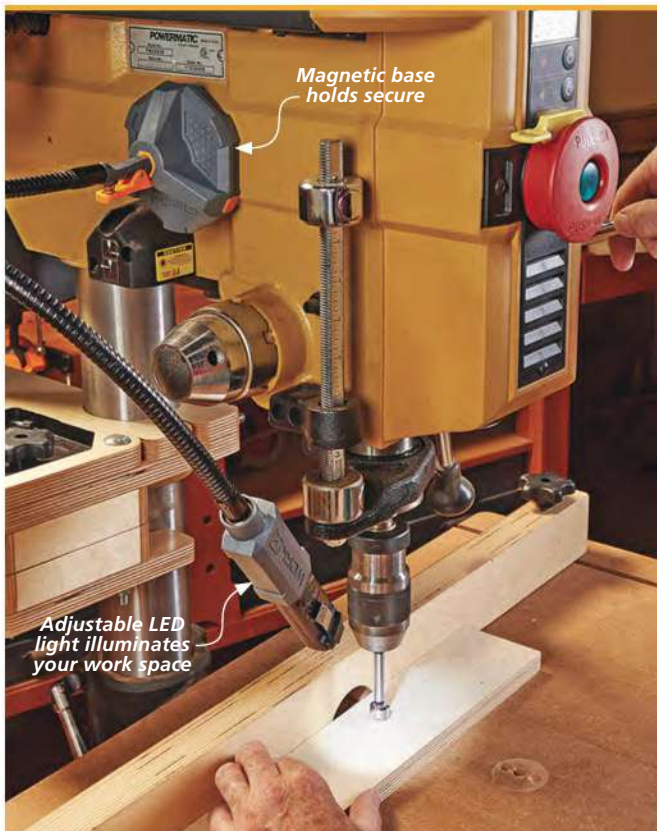
MAGNIFYING GLASS. When you've got to get close up to focus on the details of the work at hand, the magnifying glass shown above is the perfect aid. It's ideal for carving and small parts assembly. Or reading impossibly small text on some manuals.

CELL PHONE HOLDER. The cell phone holder you see above right lets you record your work. Or watch the game while finishing a project.

WORK LIGHT. The work light shown in action below has a rechargeable, removable LED light with three brightness settings. There's also a light in the end of the tool that works like a

small flashlight. It comes with a USB charging cord.

All of the accessories and mounts shown here come bundled in a kit you can get at workiqtools.com. **W**



▲ The magnetic base combined with the work light means you'll never be in the dark wherever the two of them are put to use.

The Woodworker's Choice: Lignomat Moisture Meters

With Lignomat you have a choice, **pin** or **pinless**.
Built-to-last for a lifetime of woodworking.
Best quality available at a great price.

Scan for more info or
call us at:
800-227-2105
Lignomat.com





Designer Coffee Table

While the look of Mid-Century furniture is energetically sleek, the joinery is devilishly simple. So there's great return to be had on your woodworking investment.

Post-war American culture had lots going on. As the thoughts of conflict receded in the rear view mirror of that flashy-finned car rolling down the new interstate highway, everything was moving fast.

Building booms in housing for the young families of returning soldiers meant a need for furniture as well. The coffee table you see here haunts of that time. It's a reflection of the confident, fast-moving moments that many of us remember as the children that were along for the ride.

MEMORIES. The following is Chris Fitch's memory of his introduction to this genre: "My parents had a Danish-modern coffee table with a walnut finish (or walnut

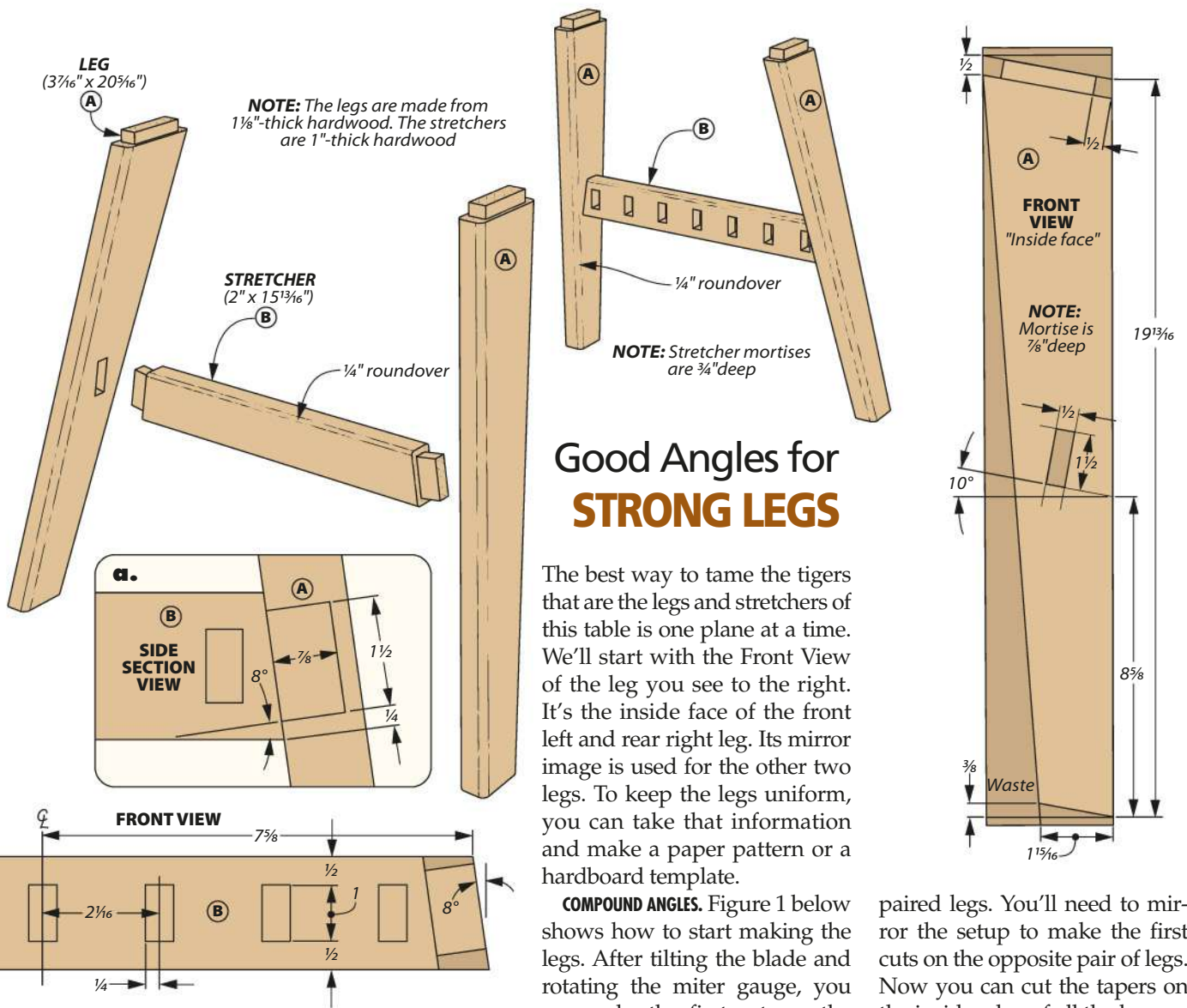
wood), it didn't look quite like this one but I can't help but associate a walnut coffee table with drawing pictures, playing with *Lego* bricks and having the 'Road runner' flicker on a black and white TV. I just think a lot of Mid-Century furniture was meant to be stylish yet practical, hard-wearing furniture for families — it still works that way today."

ENERGY INDEED. The style Chris mentions starts in the legs that appear to erupt out of the floor and are held in check by the thick oval top. This is balanced by the shelf that resides under the top but doesn't challenge its horizontal authority.

All of this interaction is brought to you by — mortise and tenon joinery. As you will see, if nothing else, this project is a primer on making tenons that will let you flex your woodworking muscles.

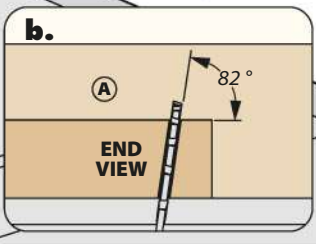
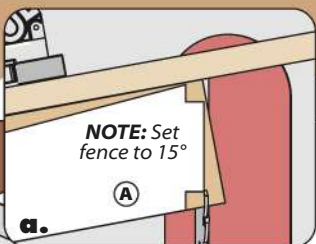
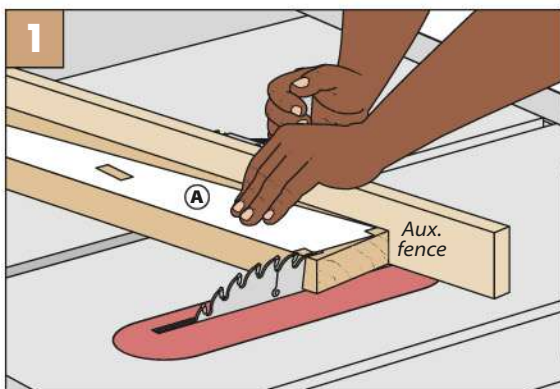
◀ The rails on the underside of the table tackle form and function with efficient elegance. As you see here and in the main photo, it's an airy shelf that catches and plays with the light of the room.



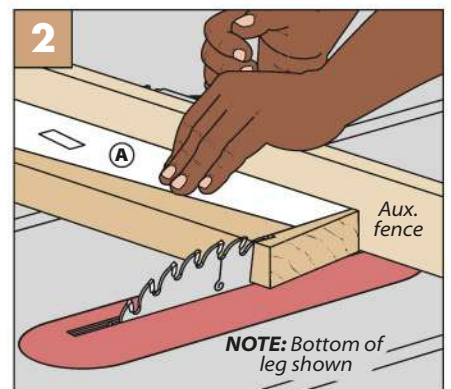


paired legs. You'll need to mirror the setup to make the first cuts on the opposite pair of legs. Now you can cut the tapers on the inside edge of all the legs.

BEVELS TAPERS & MORE

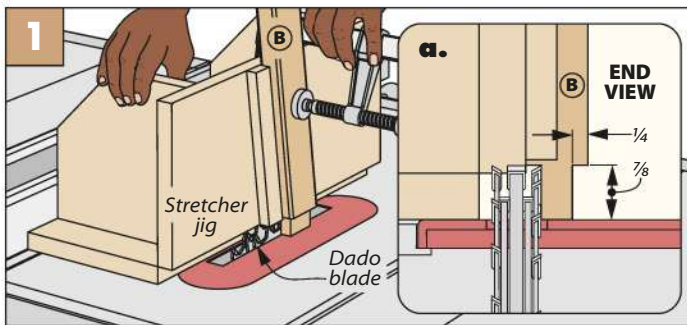


A Compound Angle. The details show the angle of the saw blade and miter gauge. Then adjust the setup for the mirror cuts on the opposite ends.

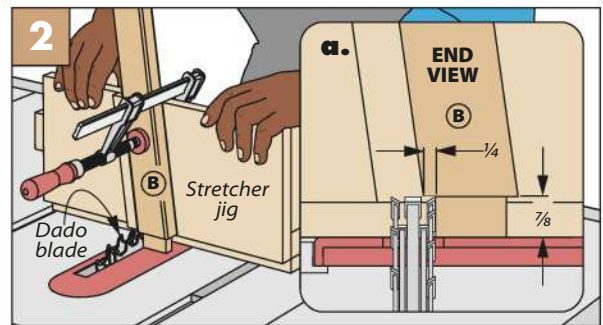


Same Edges First. The patterns guide the way in keeping track of the cuts.

A JIG FOR THE STRETCHER TENONS



Support for Face Cheeks. This jig rides against the rip fence as a partner when making the face cheek cuts.



Edge Cheeks. The edge cheeks are made by using your miter gauge to guide the jig.

STRETCHERS. A simple cut is required on the ends of the stretchers (Front View on the left side of the previous page) for the workpiece to align with the jig that forms its tenon.

THE JIGS

You'll find all the information you need to build the jigs online at Woodsmith.com/275. There are two jigs involved — the one shown above is for cutting the angled tenons on the stretchers. Also, the slightly more complex jig shown below is for the legs.

STRETCHERS FIRST. Figure 1 above shows the stretcher clamped in

place on the jig while making the cut for the face cheeks. To make the other cheek, bump the rip fence back the appropriate distance. As for the edge cheeks, you'll move the rip fence out of the way and bring in the miter gauge to direct the jig (Figure 2).

LEG TENONS. There's no need for hair-pulling or gnashing of teeth while tackling square tenons on angled legs; the jig shown below in Figure 3 does all the work for you. Like the stretcher jig, you'll use it in combination with your rip fence to make the face cheeks on the mirrored

leg, you'll have to bring the jig and the rip fence to the other side of the blade.

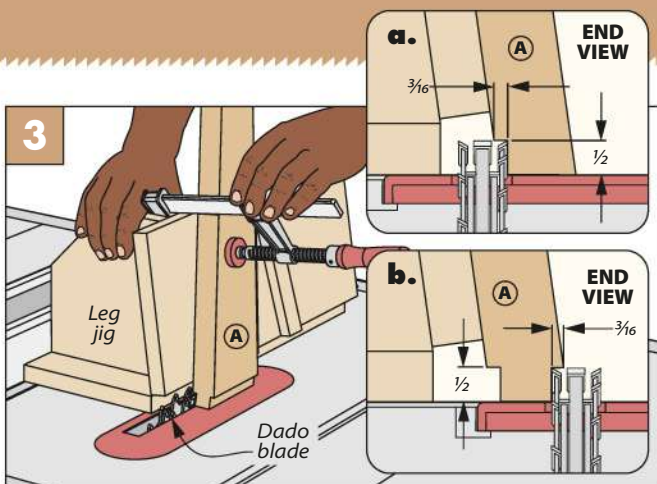
Figure 4 shows the jig set up for making the edge cheeks. It's a similar process to the one used on the stretcher tenons.

MORTISES. Now you can make the mortises in the legs for the stretchers, using your pattern (or template) based on the Front View. The mortises in the stretchers for the rails are shown in the other Front View. They're oriented from the center of the stretcher out. When the mortises are complete, you can glue up the leg assemblies.

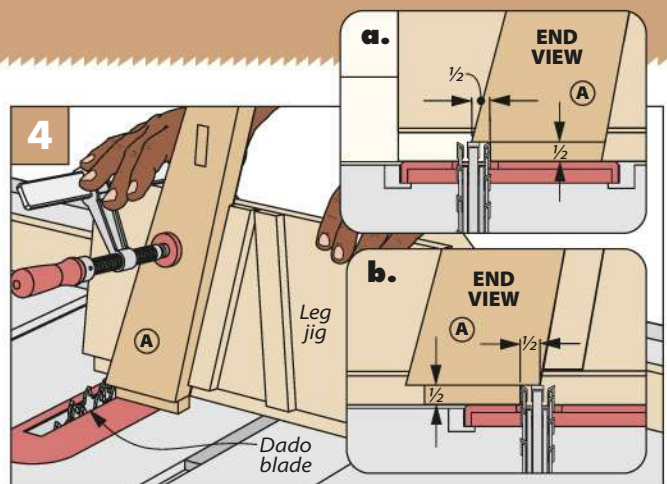


For more on making tenoning jigs go to:

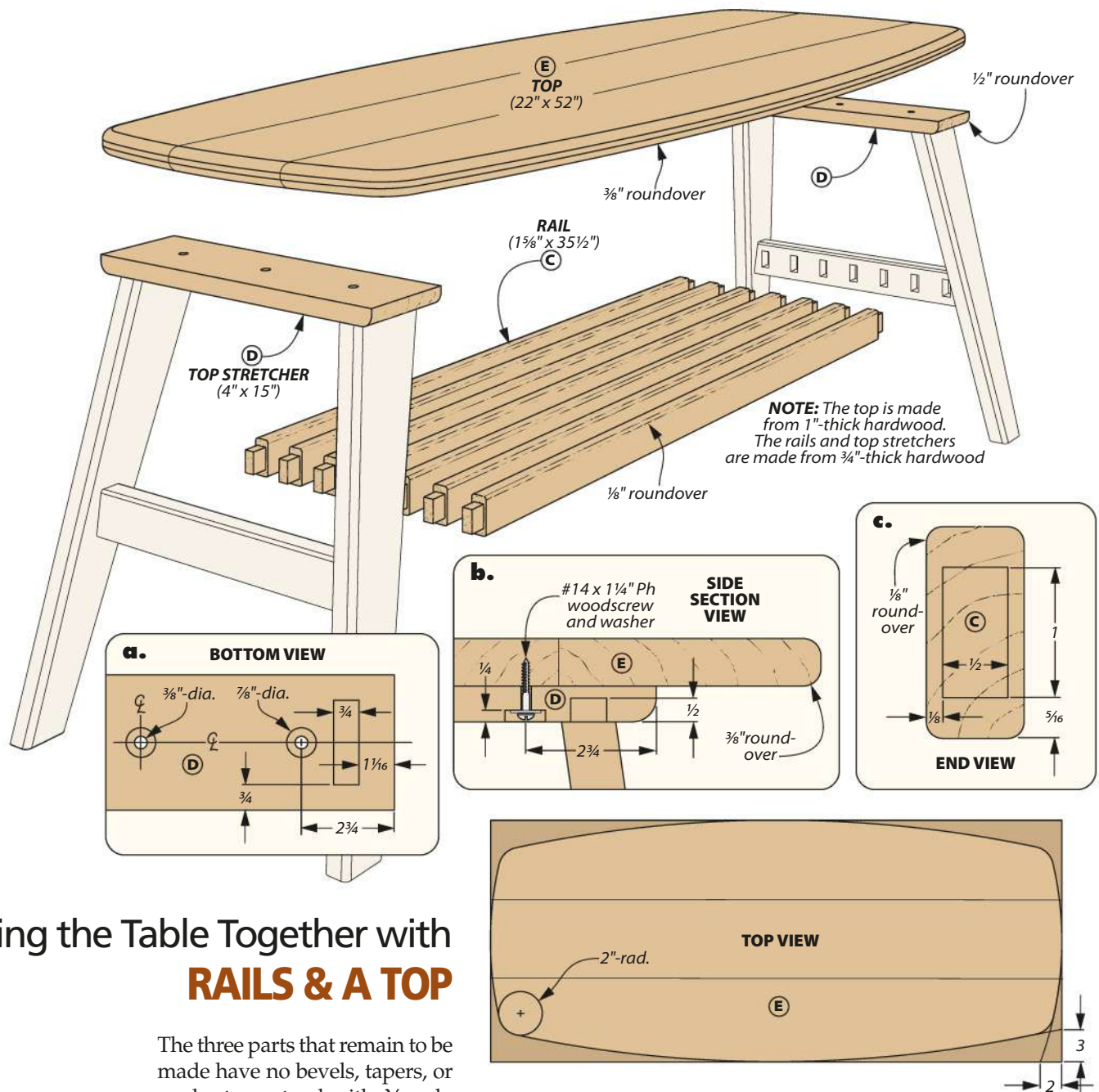
Woodsmith.com/275



A Square Face Cheek. Using the jig with the rip fence lets you make perfect face cheeks on the tenon.



Edge Cheek Also. The jig also works in tandem with your miter gauge to make the edge cheeks.



Bring the Table Together with RAILS & A TOP

The three parts that remain to be made have no bevels, tapers, or angles to contend with. You do have one more round of mortise and tenons to do — but these are a cakewalk compared to the ones you made earlier.

You'll notice in the drawings above that these mortise and tenons aren't mating to each other. The tenons are on a set of long rails and fit the mortises you made in the stretchers to form that airy shelf I mentioned earlier. The mortises are on the underside of a top stretcher to receive the tenons on the legs.

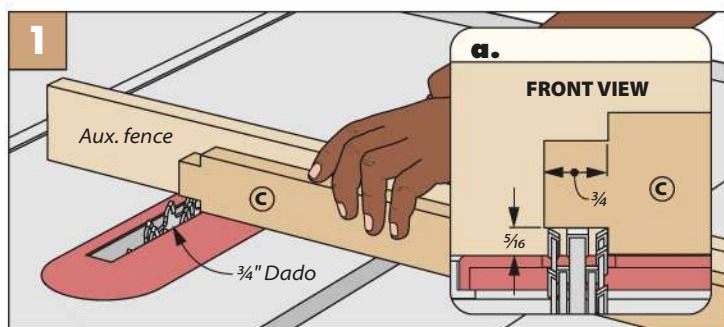
Before we work on those two parts — glue up the panel for the top. Then it's on to the rails.

THE RAILS. The seven rails that you need to make are the simple yet sturdy members that undergird the coffee table. The box at the top of the next page shows how to make the tenons on the ends. It's just a matter of setting up your miter gauge with an auxiliary fence to back the rails while making the cut.

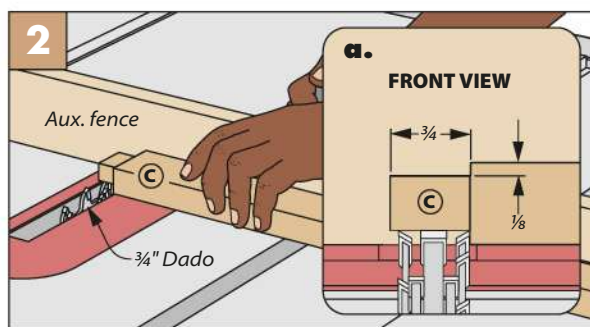
Figure 1 shows making the cut that forms the edge cheek (and shoulder). In Figure 2 you've adjusted the height of the blade to make the face cheek cut. The last bit of work on the rails is to add the roundover on the edges as shown in detail 'c.'

TOP STRETCHERS. The top stretchers bring together the base and the top. Detail 'a' shows the location of the countersunk shank holes for the screws and the location

RAIL TENONS



Edge Cheeks First. A dado blade and an auxiliary fence attached to your miter gauge is the setup needed to make this cut.



Then Face Cheeks. To complete the tenon, lay the rail on its face and lower the height of the blade.

of the mortises. You'll spend some time at the drill press making holes for both. Then a little time at the bench squaring up the mortises. Refer to detail 'b' for the depth of the mortise. Then round over the ends of the outer edges.

GLUE UP. Gluing the stretcher to the legs is the first order of business. The easy way to do this is to cut some tapered wedges

that let you firmly clamp the stretcher to the leg assembly. When the clamps come off, glue the assemblies to the rails.

THE TOP

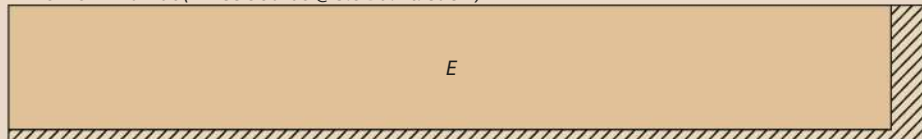
The top is the last piece of the puzzle. The oval profile of the top is fairly simple to create. Notice the dimensions in the corner of the Top View on the previous page. Lay out each

corner this way and use clamps and a thin straightedge to draw the ovals on each edge. Then draw the radius shown on the left at each intersection and cut the shape out at the band saw. After smoothing and rounding over the edges (detail 'b') center the top on the base and screw the two together. Now you'll want to make a set of coasters to protect this fine coffee table. **W**

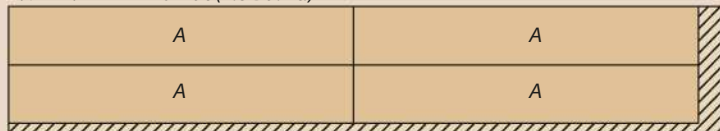
Materials, Supplies & Cutting Diagram

A Legs (4)	$1\frac{1}{8} \times 3\frac{7}{16}$ - 20 $\frac{5}{16}$	D Top Stretchers (2)	$\frac{3}{4} \times 4$ - 15	• (6) #14 x $1\frac{1}{4}$ " Ph Woodscrews
B Stretchers (2)	1×2 - 15 $\frac{13}{16}$	E Top (1)	1×22 - 52	• (6) Washers
C Rails (7)	$\frac{3}{4} \times 1\frac{5}{8}$ - 35 $\frac{1}{2}$			

1" x 8" - 54" Walnut (Three boards @ 3.8 Bd. Ft. each)



$1\frac{1}{8}$ " x $7\frac{1}{2}$ " - 42" Walnut (2.8 Bd. Ft.)



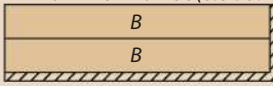
$\frac{3}{4}$ " x 7" - 72" Walnut (3.5 Bd. Ft.)



$\frac{3}{4}$ " x 5" - 36" Walnut (1.3 Bd. Ft.)



1" x $4\frac{1}{2}$ " - 16" Walnut (0.6 Bd. Ft.)



Malloof-Inspired Rocker

This gorgeous rocking chair pays homage to one of the most iconic woodworkers of the Twentieth Century — but you won't need to be a master to take on this project.

Sam Malloof was an American woodworker who lived through most of the last century, and one whose work continues to be instantly recognizable. Furniture comprised the vast body of his work — chairs in particular. Sweeping, elegant curves and flowing, organic designs were his trademark, and they live on in a number of styles today.

Some of Malloof's most famous pieces were his rocking chairs. With a deep care in selecting stock, an acute attention to grain, and a technique built up over decades, his rockers are works of art that seemed to be shaped rather than cut from the wood. The chair you see here was inspired by Malloof's designs.

Rather than recreate one of his rocking

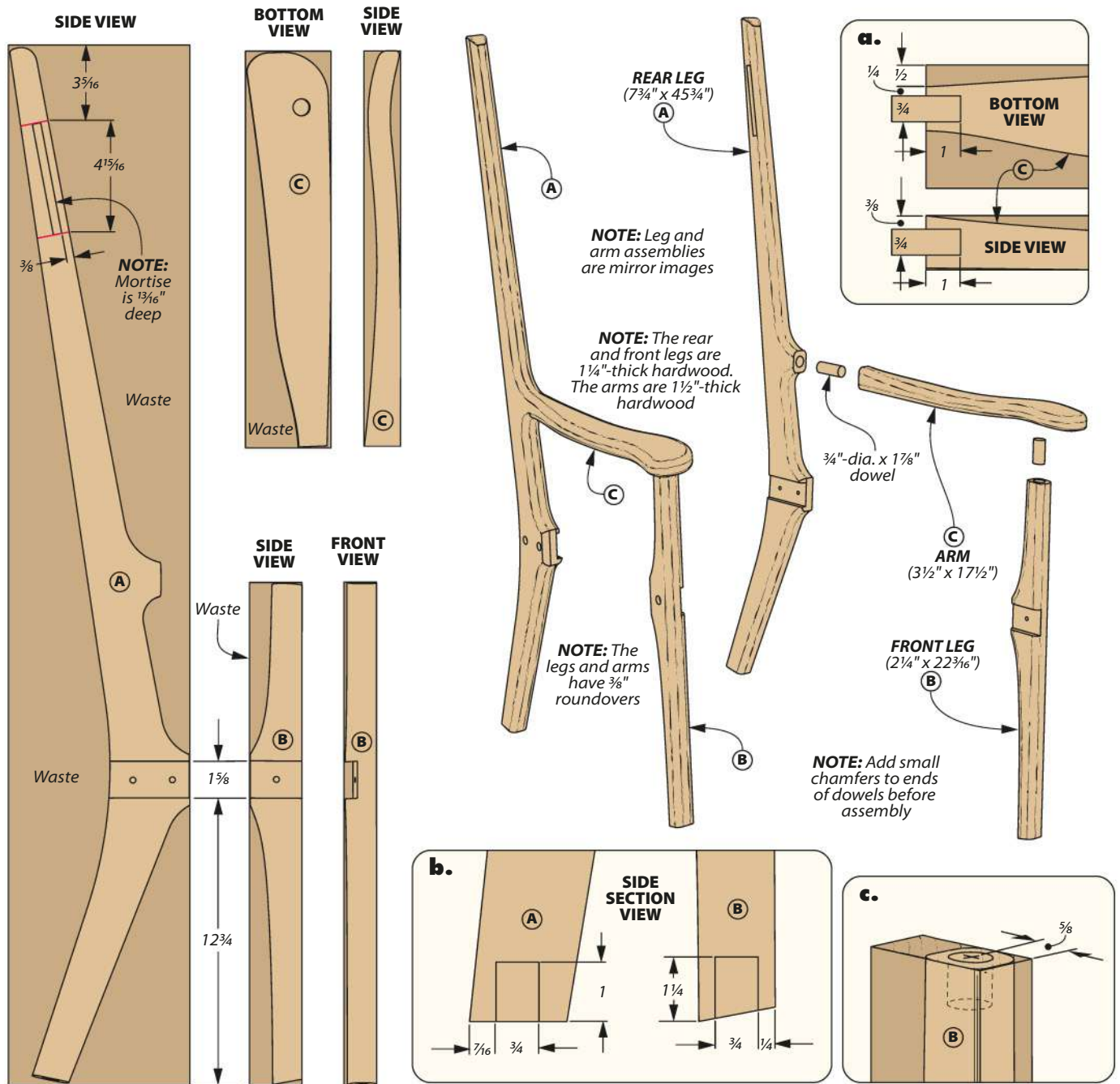
chairs however, our designer, Chris Fitch, created a chair that would be more manageable for woodworkers of various skill levels — and which would still fit in our pages here. The sweeping rockers, the splayed legs, and the ergonomic arms are all details lifted from a variety of Malloof's work, though we've simplified them. The seat itself is fashioned after one of his earliest chairs, which now resides at the Museum of Fine Arts in Boston. These unique inspirations combine with warm, reliable cherry to create an instant classic.



▲ There's nothing quite like the classic comfort of a carved seat. While it may seem like a daunting task to the uninitiated, it's easier than it looks — whether you prefer hand or power tools.

▲ To maintain the organic look of the chair, hardwood plugs disguise the long woodscrews used to secure the seat inside of rabbets within the angled and splayed legs.





Start with a set of **LEGS & ARMS**

The rockers and the seat may be the eye-catchers on this chair, but the subtle legs that hold them together are the best place to begin. The first step is cutting blanks (as you see above) and printing out the patterns for them (visit Woodsmith.com/275).

TEMPLATES. With your blanks and patterns in hand, you're ready to

work on the layout. Since each leg is a mirror image of its opposite, I decided to make a few hardboard templates. These will help me make matching pieces, plus it'll be easier to flush trim them to final shape later.

DADOES. Before addressing the shape of the legs, there are a few bits of joinery to cut. The first is the dadoes in each leg that accept the seat. Because the legs are splayed, I began by

establishing the shoulders of the dado, angling the blade as you can see in Figure 1 on the opposite page.

When cutting these, remember that the dadoes will be angled in opposite directions on each side (Figure 2). After the shoulders are cut, nibble away the remaining waste, chiseling it clean.

DOWELS. Next on the docket are some dowel holes. As you can see in the main illustration, the

legs and arms (and the rockers later) are joined with dowels to give the piece the Maloof-ish, flowing look. At the drill press, use a Forstner bit to drill these out (as in Figure 3).

BACK MORTISES. The last joinery detail is a mortise on each back leg for the backrest (Side View, opposite page). Drill out most of the waste at the drill press. From there, clean up the sides and square the corners with a chisel.

SHAPING. With the joinery done, it's time for some shaping at the band saw. Rough cut most of the waste here, then head to the router table and rout to the templates with a flush-trim bit. Finish the legs up by rounding over their edges and lightly chamfering the dowel holes with a countersink bit.

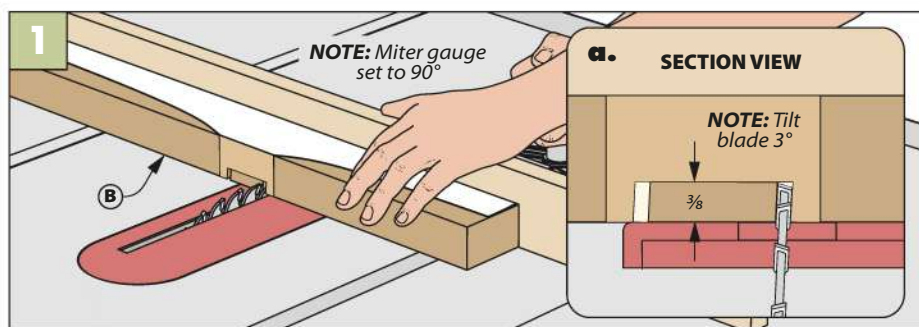
ARMS & ASSEMBLIES

Next up are the arms. These pieces join the legs together and will provide a comfortable rest for your own arms while you enjoy the rocker.

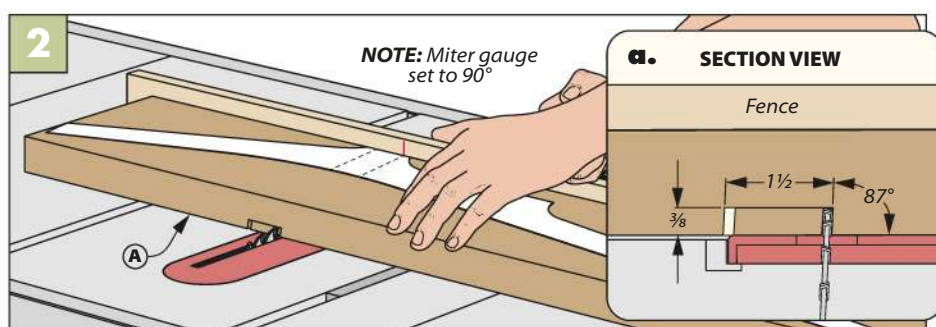
ARMS. After cutting the blanks to size, lay out the locations of the dowel holes, then drill them (Figure 4). I shaped the arms at the band saw, first cutting the faces. To cut the profile, I taped the cutoffs back on as support. You can read more about this technique in the article on page 16, and you can see it in action on the back slats on page 41. I worked the profile to final shape at the edge sander and removed the blade marks from the faces with a card scraper. To finish these up, round over their edges and chamfer the holes.

BRINGING IT TOGETHER. Before putting together the side assemblies, round the tops of the front legs to fit the arms. Then, glue up each side, tapping them together with a mallet and clamping them up. While these dry, you can move your focus to the next pieces: the rockers.

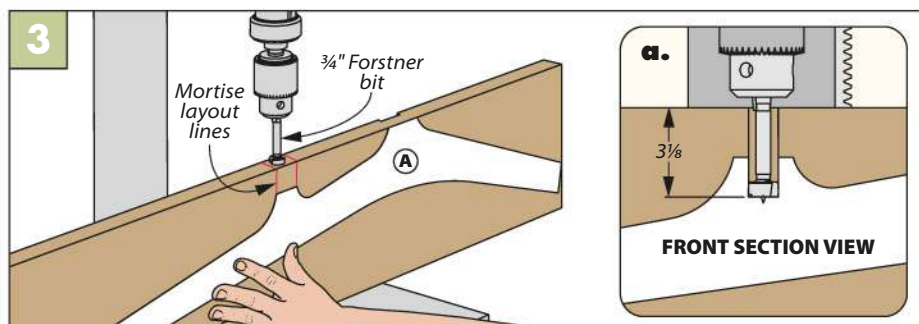
DADOES & DOWEL JOINTS



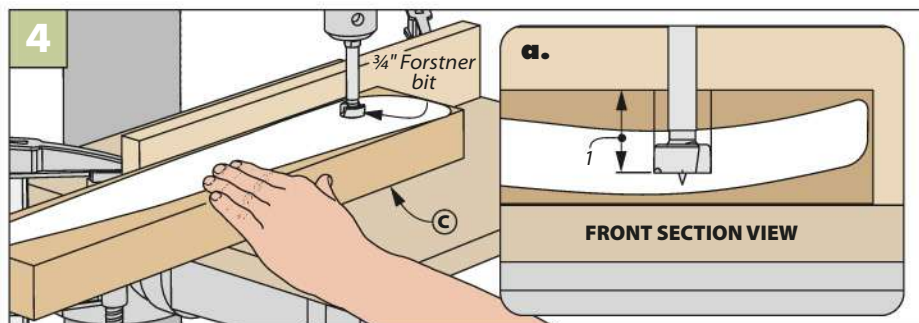
Beveled Shoulders. Use a long auxiliary fence to support the workpiece when cutting the dados in the legs. Establish the shoulders with two slightly beveled cuts.



Finish the Dados. After establishing the shoulders, clear the rest of the waste with a dado blade. Keep in mind these beveled dados are mirrored on the opposite leg.



Leg Dowel Joints. Use a Forstner bit at the drill press to make the mortises for the dowels in the rear legs before completing the final shaping of the legs.



Arm Dowel Joints. Use the same Forstner bit to drill out the mortises on the bottom of the arms before you get to shaping them.

A Fine Pair of ROCKERS

The next pieces are the defining features of any rocking chair: the rockers. After making the legs and arms, shaping a pair of smooth rockers will be a cakewalk.

DOWEL HOLES. After sizing the blanks, head to the drill press. As you can see in detail 'a,' each rocker has a pair of dowel holes to join them to the legs. Note that these holes are made at 85° to accommodate the legs.

SHAPING. Next comes the shape. Again, I created a hard-board template to use on both of them. After sticking it down, I rough-cut the rockers to shape at the band saw. A flush-trim bit at the router table routs the waste away to match the template. Finally, I eased the top edges of the rockers by adding a slight roundover. Now these can be glued up the side assemblies.

BACKREST & SEAT

At this point, it's time to turn our attention inward. The backrest and the seat provide the rocker a unique aesthetic and the classic

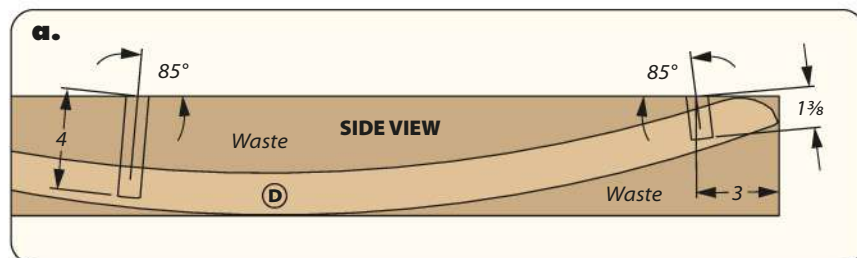
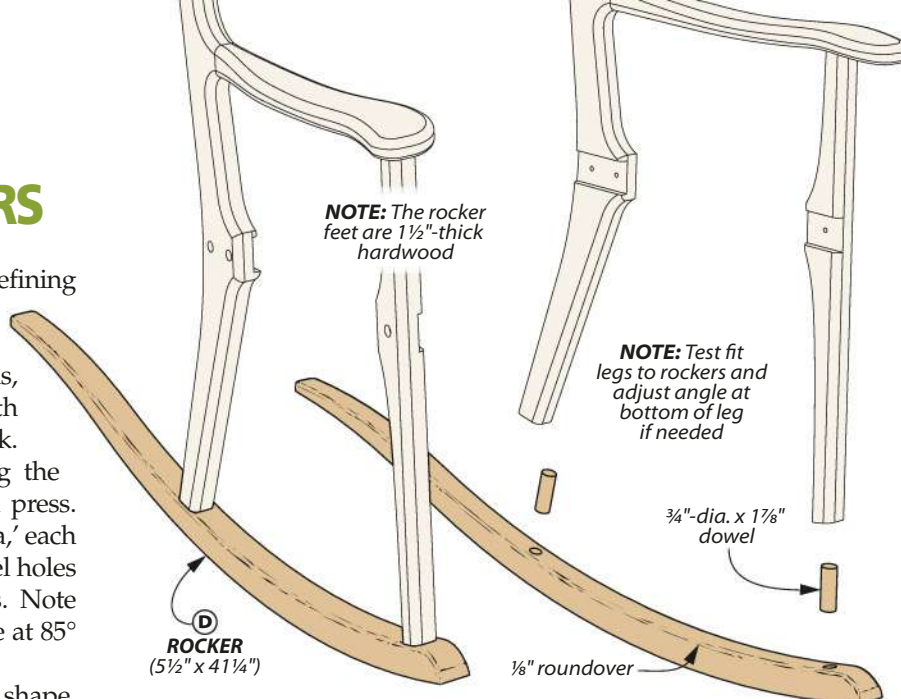
look of smooth hardwood.

BACKREST. You can see the shape of the backrest in the drawings on the opposite page. After sizing the blank, attach the patterns for the backrest to the face and side of the workpiece. With that done, it's time for some joinery.

Figures 1 and 2 in the box

below show how to cut the sides and rabbet the tenon for this backrest. A shoulder plane will finish shaping the tenon later on.

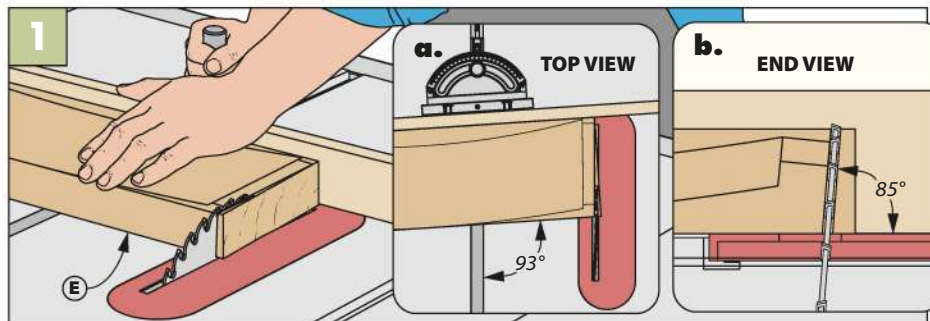
MORTISES. Next up are the mortises. Drill out most of their waste at the drill press and clean them up with a chisel, leaving the ends rounded.



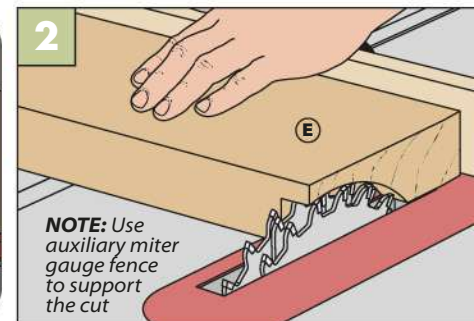
For full sized patterns for chair and more on backrest joinery and seat carving, visit:

Woodsmith.com/275

CREATING A BACKREST



Compound Cuts. First, cut the sides of the backrest. To achieve the compound shape, angle the miter gauge and tilt the blade for a beveled cut.



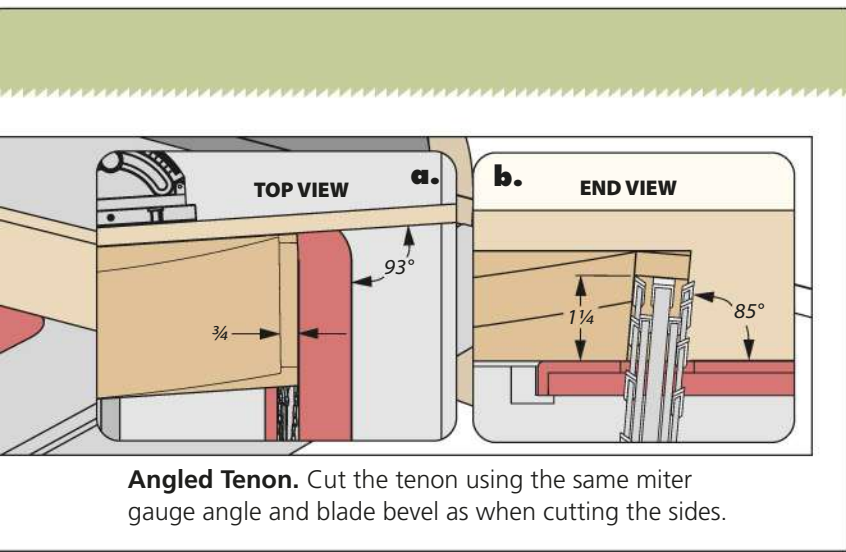
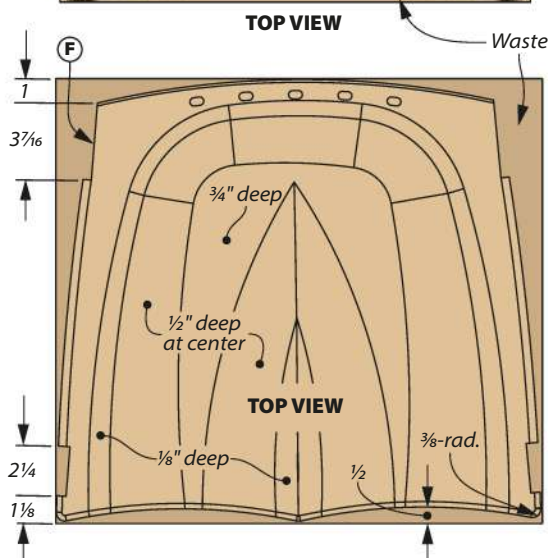
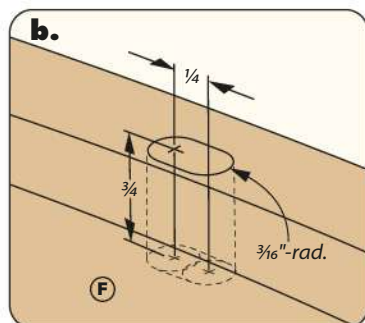
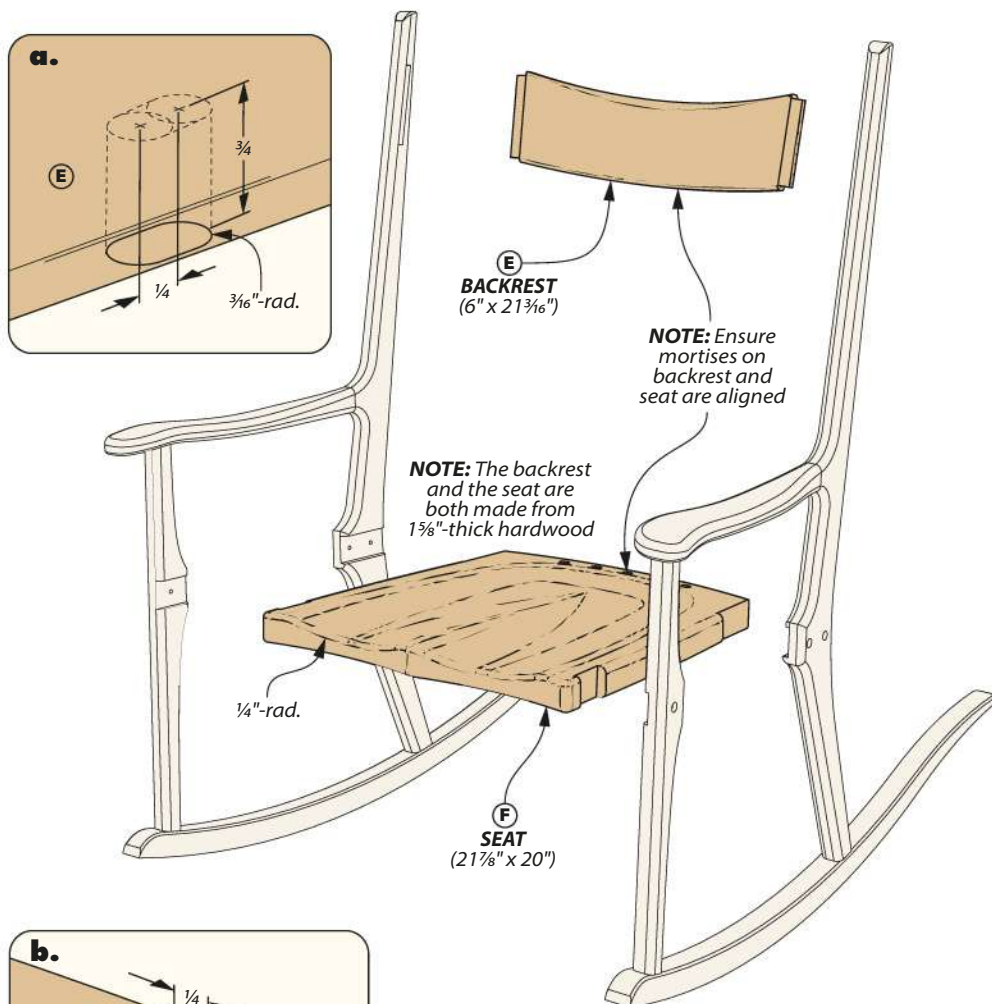
Rabbet. Use a dado blade and miter gauge to cut the tenon.

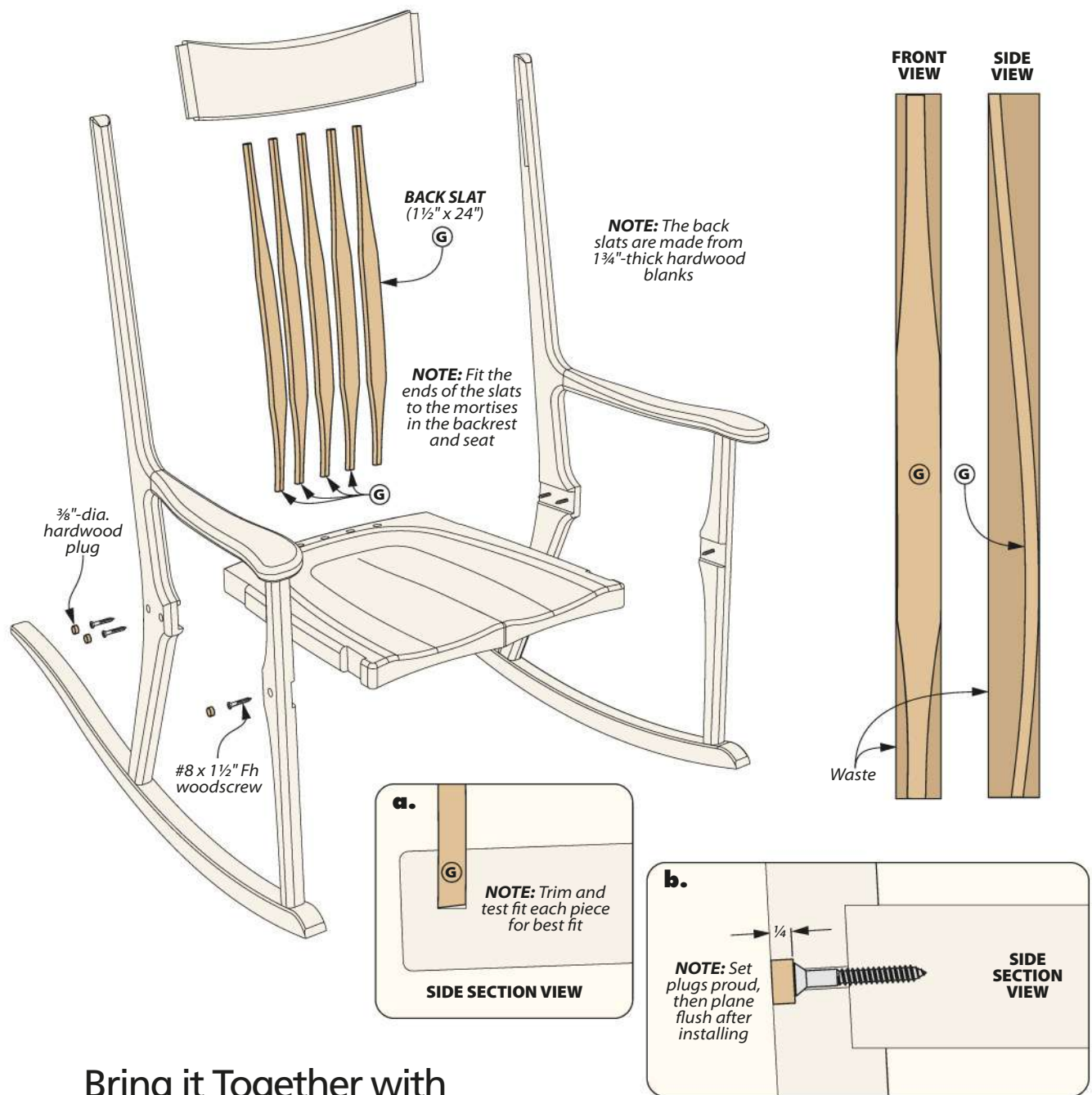
SHAPE THE BACK. Shaping the backrest is similar to the arms. I removed most of the waste on the front and back faces at the band saw, then taped the cut-offs back on to cut the top and bottom of the workpiece. A card scraper works well to clean up the blade marks. I also used a shoulder plane to complete the tenons, testing the fit with the mortises in the back legs.

Lastly, round over the edges. The two lower edges and the upper back edge are simple to rout, but the upper front edge roundover gets deeper at its center. I used a spokeshave to shape this radius by hand.

SEAT. Next comes the seat. After sizing the blank and attaching the pattern, I took care of the notches in the side, the mortises in back, and I rough cut the seat at the band saw.

Scooping out the seat was done by hand. I first drilled depth holes referencing the lower right drawing. Then a curved gouge and mallet make waste removal a snap, working across the grain. After each set of passes, smooth out the leftover ridges. Turn to a curved scraper to blend the small ridges into a smooth even surface. For more on carving a seat, you can visit Woodsmith.com/275.





Bring it Together with **BACK SLATS**

The meat of this project is behind us, but a handful of pieces remain on the home stretch before bringing it all together. Namely, those pieces are the back slats you see above. These fit directly into the mortises in the backrest and seat, and feature a flowing curve for a bit of lumbar support.

SLATS. After sizing the blanks for the slats, either attach the patterns to them or use a template

to lay out the shape on each blank. As we've done before in this project, shaping the back slats is a job for the band saw. Cut the faces first, then use the cutoffs as support when cutting the profiles. Repeat this process for each of the slats.

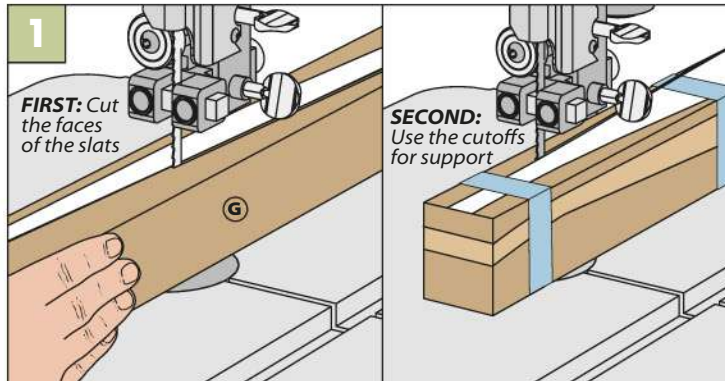
To remove the blade marks for the slats, I used a card scraper once again. Once clean, you can use a roundover bit to soften the

edges on the slats, or you could use a spokeshave. Regardless, as you shape them, test fit the ends with the mortises in the backrest and seat and adjust as needed.

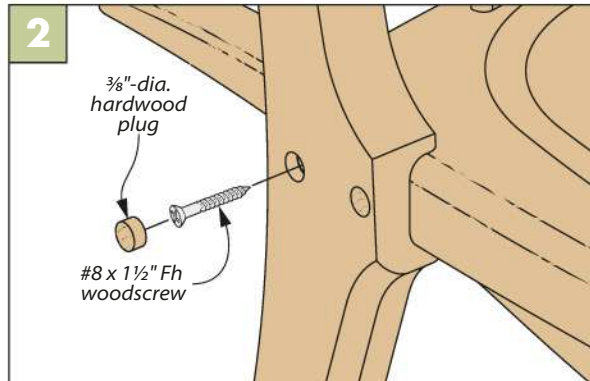
FINAL ASSEMBLY

All that's left is the final assembly for this rocking chair. With the side assemblies already together, the work here will be in joining up those with the central pieces.

KEEP THE CUTOFFS



Shaping the Slats. First cut the faces of the workpiece. Then, to shape the edge profiles, tape the cutoffs back on as support.



Hide the Screws. The seat is attached to the legs with screws, which are hidden with hardwood plugs.

CENTER GLUEUP. I began by bringing together the middle assembly. Start by applying glue to the ends of the slats and inserting them into their mortises in the seat and the back rest. Then add the side assemblies (without glue) as a clamping form in order to ensure the spacing is just right. Once dry, you can glue the sides.

THREE ASSEMBLIES. Bring the sides around the central assembly, fitting the backrest tenons into the rear leg mortises and sliding the legs into their notches in the seat. Be sure to leave enough space between clamps to drill pilot holes and drive the screws.

Now, while everything is clamped, drill out the pilot holes to join the legs to the seat (detail

'a,' previous page). Counterbore those holes as well to fit the hardwood plugs.

Drive in the screws to secure the seat. Dab a bit of glue into the counterbores and tap in the plugs, planing them flush once dry. For finish, I simply used a coat of tung oil and a few coats of lacquer — the result was this gorgeous rocking chair. **W**

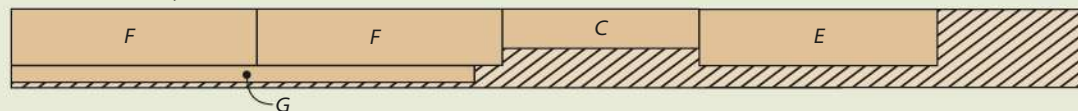
Materials, Supplies & Cutting Diagram

A Rear Legs (2)	$1\frac{1}{4} \times 7\frac{3}{4} - 45\frac{3}{4}$	E Backrest (1)	$1\frac{5}{8} \times 6 - 21\frac{3}{16}$	• (1) $\frac{3}{4}$ "-dia. x 16" Dowel
B Front Legs (2)	$1\frac{1}{4} \times 2\frac{1}{4} - 22\frac{3}{16}$	F Seat (1)	$1\frac{5}{8} \times 21\frac{7}{8} - 20$	• (6) #8 x 1 1/2" Fh Woodscrews
C Arms (2)	$1\frac{1}{2} \times 3\frac{1}{2} - 17\frac{1}{2}$	G Back Slats (5)	$1\frac{3}{4} \times 1\frac{1}{2} - 24$	• (6) $\frac{3}{8}$ " Hardwood Plugs
D Rockers (2)	$1\frac{1}{2} \times 5\frac{1}{2} - 41\frac{1}{2}$			

$1\frac{3}{4}$ " x 6"- 30" Cherry (2.5 Bd. Ft.)



$1\frac{3}{4}$ " x 7"- 96" Cherry (Two Boards @ 9.3 Bd. Ft. each)



$1\frac{3}{4}$ " x 8"- 96" Cherry (Two Boards @ 10.7 Bd. Ft. each)



Small Shop Router Table



▲ A system of braces and cleats elevates the top and allows it to be secured with clamps.

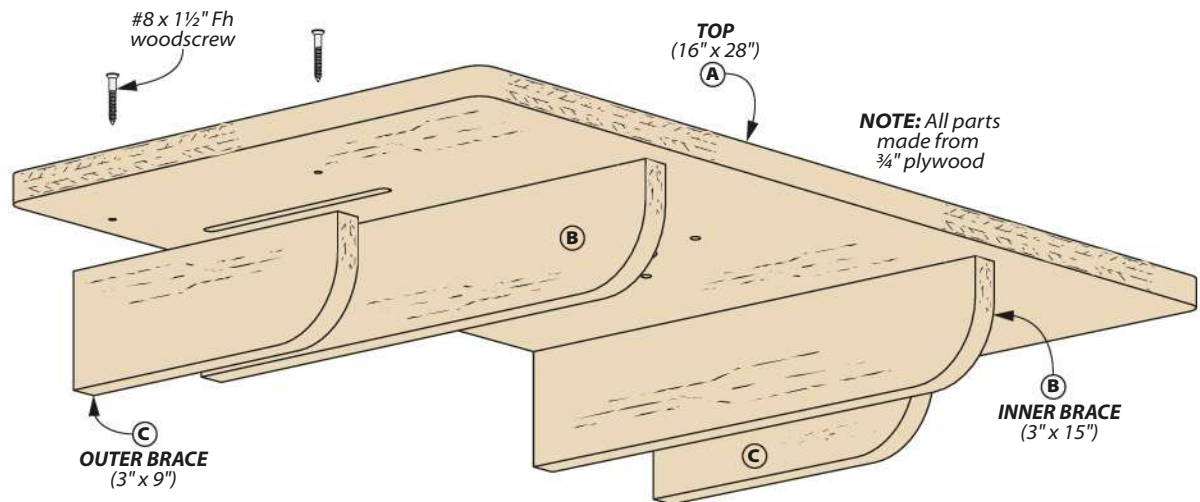
Clever clamp-on design turns any surface into a router table workcenter.

I have too much space — said no one ever. Each tool, storage cabinet, workbench, and machine has to earn its place. One common expectation is that important machines require a permanent position. The second tier of tools can be smaller, bench-top varieties.

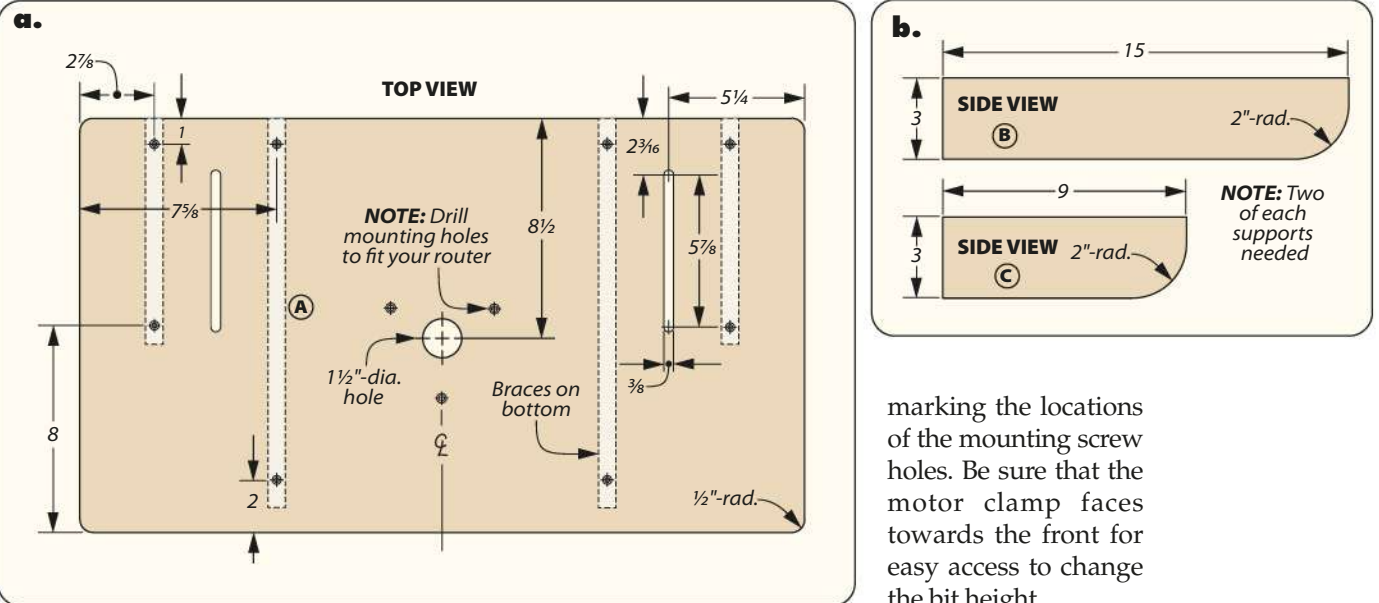
I fell into the permanent tool trap. A router table serves as a joinery station and shaping tool that I use in nearly every project.

The catch: a standalone router table just doesn't fit in the space I have. I've tried several different options. Enter this candidate. Chris Fitch's design works by keeping the top generously sized. Below the surface, the support and clamping system makes setup speedy.

A side benefit: Your router table isn't tied to a fixed location — or even to your workshop. You can take it out for site work.



NOTE: All parts made from 3/4" plywood



marking the locations of the mounting screw holes. Be sure that the motor clamp faces towards the front for easy access to change the bit height.

FENCE SLOTS. A slot near each end of the top accommodates the fence, as in detail 'a.' To create slots like this, you can use a handheld plunge router with an attached edge guide. Work in several passes, lowering the bit between each pass.

BRACES. Two pairs of braces support the top from below. These are shown in the main drawing and detail 'b.' In addition to increasing rigidity, the braces also raise the top of the router table so it's at a more comfortable working height. The lower front corner of each brace is eased with a large radius.

TOP COMES FIRST

Many portable router tables skimp on the size of the work-surface. This one doesn't. For rigidity, the top is made from 3/4" plywood. Baltic birch was our choice, but what's important is that the piece is flat.

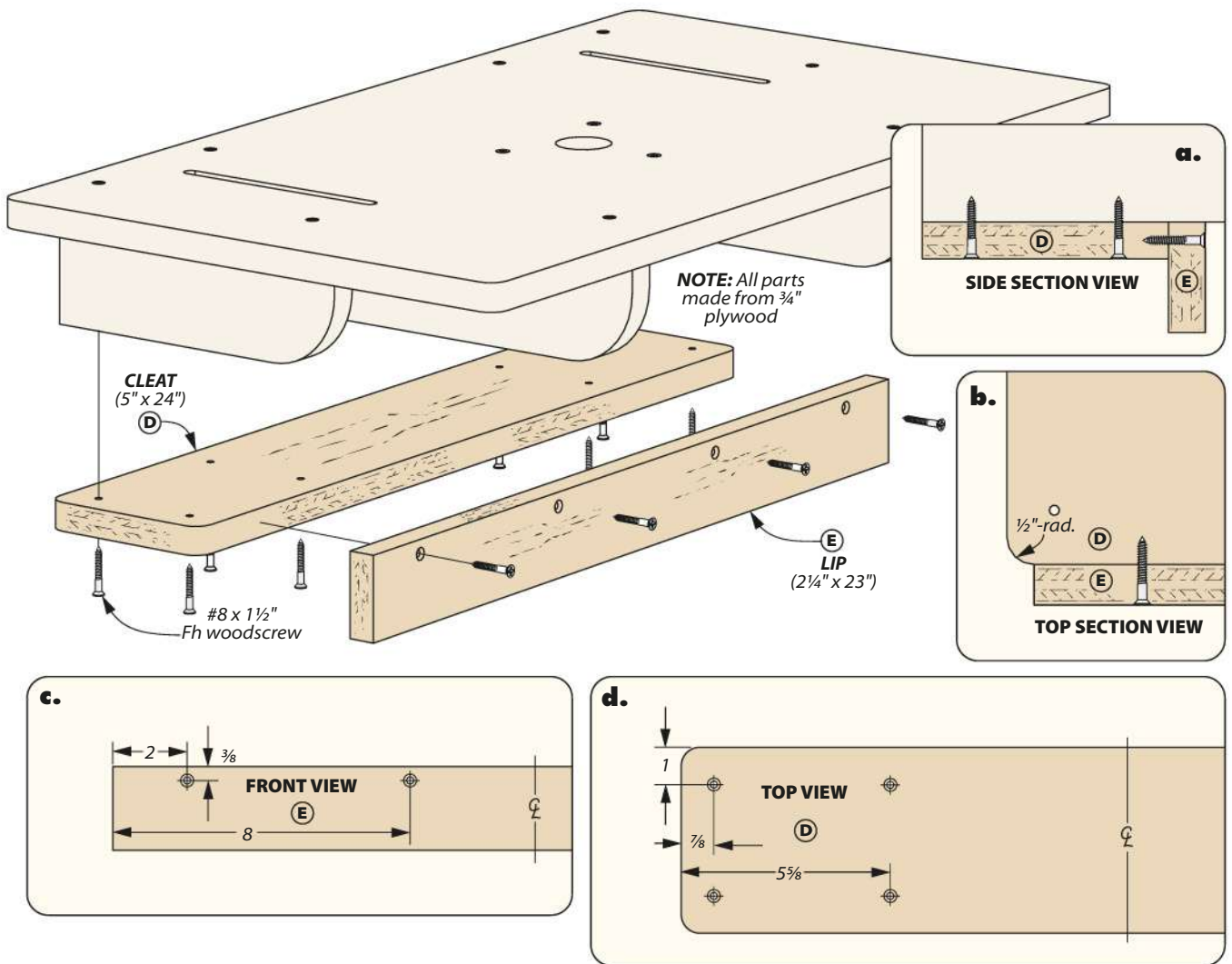
Besides cutting the top to size, it's a good idea to round the corners. These will be less likely to ding your workpieces, as well as being a little gentler should you bump into the table.

ROUTER OPENING. The agenda moves to fitting your router to the table. The first step here is to

locate and drill a hole for a bit to pass through (detail 'a'). The size shown handles most bits. However, if you use a slot cutter or a large rabbeting bit, you may want to upsize this hole.

Allow me to point out that the hole isn't centered. It's offset towards the front of the table. This provides clearance for the router body from the support structure that is coming shortly.

The second part of this is to drill smaller holes to attach your router base (or a lift). I did this from the bottom side by centering the base on the hole and



A Secure ATTACHMENT

A flex-free tabletop is critical to a router table. However, there are other components that are just as important. The first one to tackle is the mounting system. Since this portable table doesn't have a base, you need a way to attach it to another surface.

The drawing above shows the parts required to clamp it to a table. A wide cleat is cut to size. Ease the sharp corners with an edge sander or a corner rounding router template, as shown in detail 'b.'

Woodscrews join the cleat to the braces. Drill two countersunk

clearance holes in the cleat at each brace location. The cleat is centered on the braces side-to-side.

Don't just drive the screws in. The screws could split the braces since they are in the "edge grain" of the plywood. Instead, clamp the cleat to the braces so it's all flush at the back (detail 'a'). Then drill pilot holes in the braces through the clearance holes.

LIP. The cleat allows you to clamp the table in place. To ensure that the table overhangs the surface enough to allow for the router, a lip is screwed to the front of the cleat. The lip is centered on the cleat, as shown in detail 'a.' The clearance hole locations are given in detail 'b.'

I know this is a shop project, but careful placement provides a better look in the finished piece.

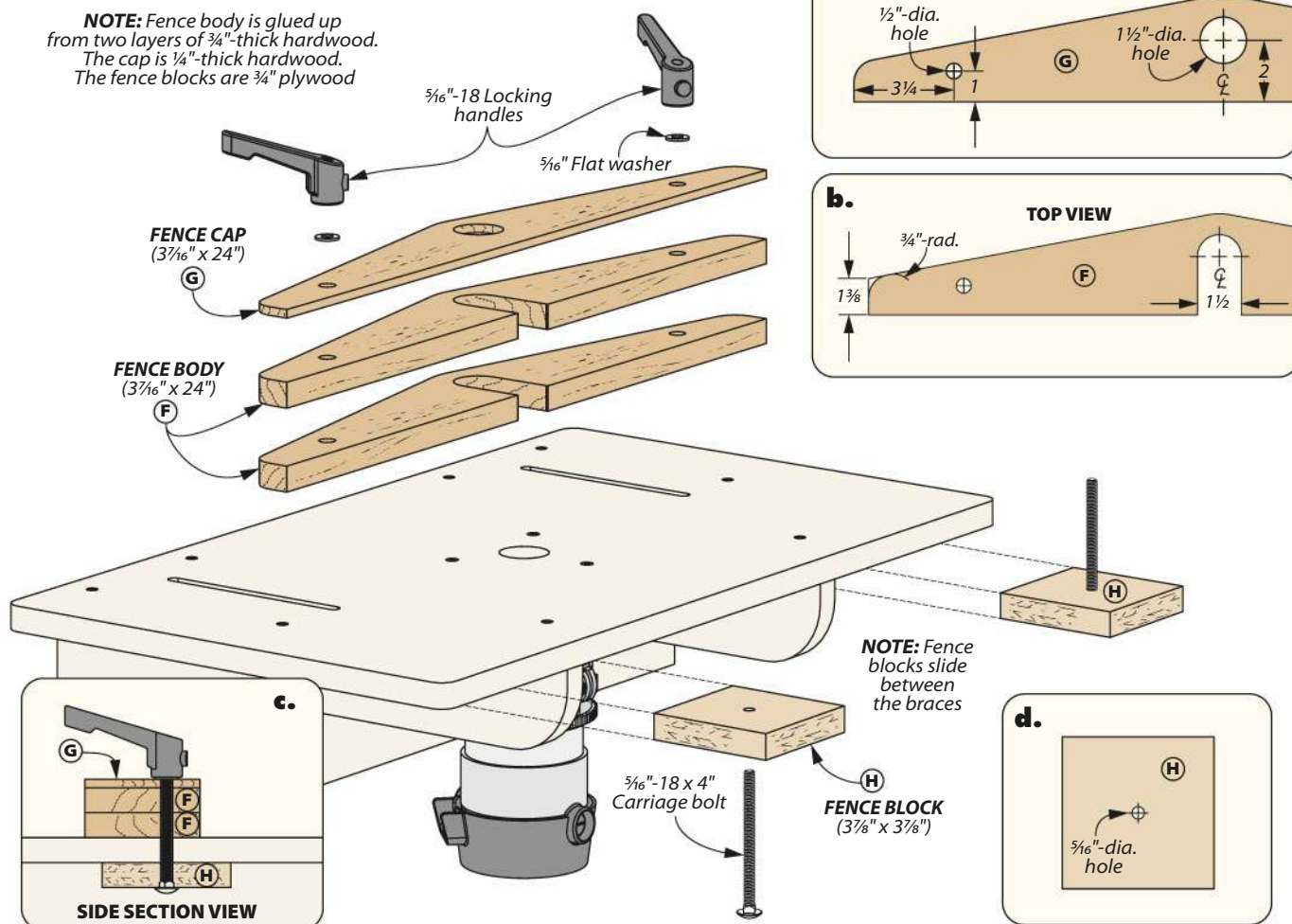
EASY ADJUSTING FENCE

A good router table requires a solid fence to match. The one shown on the next page offers the right balance of features.

FENCE BODY. The body of the fence is glued up from two layers of hardwood. Plywood would work as well, but I like the smooth edge of the hardwood compared to the edge of plywood.

A rounded notch in the center accommodates a recessed router bit as well as dust collection, as you can see in detail 'b.' I drilled out the end of the notch and cut

NOTE: Fence body is glued up from two layers of $\frac{3}{4}$ "-thick hardwood. The cap is $\frac{1}{4}$ "-thick hardwood. The fence blocks are $\frac{3}{4}$ " plywood



away the waste at the band saw. I smooth the edges with a file.

A thin cap layer is glued on top of the body. This piece has a hole to accept the hose from your shop vacuum, as shown in detail 'a.' Size the hole for your vacuum hose. Be sure to center it over the notch you formed in the fence body.

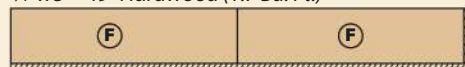
At this stage, drill a hole at each end that aligns with the adjustment slots in the table. Locate the holes so that the bit opening in the table and fence are aligned. At the band saw, cut the tapers on the back edge of the fence, as shown in details 'a' and 'b.' These aren't strictly necessary, but add visual appeal.

CLAMPING BLOCKS. The fence is attached to the table with carriage bolts, washers, and locking handles. The carriage bolts pass through blocks to increase the bearing surface. Size the blocks to slide smoothly between the braces. Just like that, you're ready to clamp this table in place and get to routing. **W**

Materials, Supplies, & Cutting Diagram

A Table Top (1)	$\frac{3}{4}$ ply. - 16 x 28	G Fence Cap (1)	$\frac{1}{4}$ x $3\frac{7}{16}$ - 24
B Inner Braces (2)	$\frac{3}{4}$ ply. - 3 x 15	H Fence Blocks (2)	$\frac{3}{4}$ ply. - $3\frac{7}{8}$ x $3\frac{7}{8}$
C Outer Braces (2)	$\frac{3}{4}$ ply. - 3 x 9		• (20) #8 x $1\frac{1}{2}$ " Fh Woodscrews
D Cleat (1)	$\frac{3}{4}$ ply. - 5 x 24		• (2) $\frac{5}{16}$ "-18 x 4" Carriage Bolts
E Lip (1)	$\frac{3}{4}$ ply. - $2\frac{1}{4}$ x 23		• (2) $\frac{5}{16}$ "-18 Locking Handles
F Fence Body (2)	$1\frac{1}{2}$ x $3\frac{7}{16}$ - 24		• (2) $\frac{5}{16}$ " Flat Washers

$\frac{3}{4}$ " x 5" - 49" Hardwood (1.7 Bd. Ft.)



$\frac{1}{4}$ " x 5" - 25" Hardwood (.87 Sq. Ft.)



ALSO NEEDED: One 48" x 48" Sheet of $\frac{3}{4}$ " Baltic Birch Plywood



Creative Workstation

- ▼ Fine-tuning the angle and height of the top is easily done by loosening the large knobs that lock the adjustable arms in place.



A place to work and store the materials and supplies needed for an artistic adventure has never looked so good.

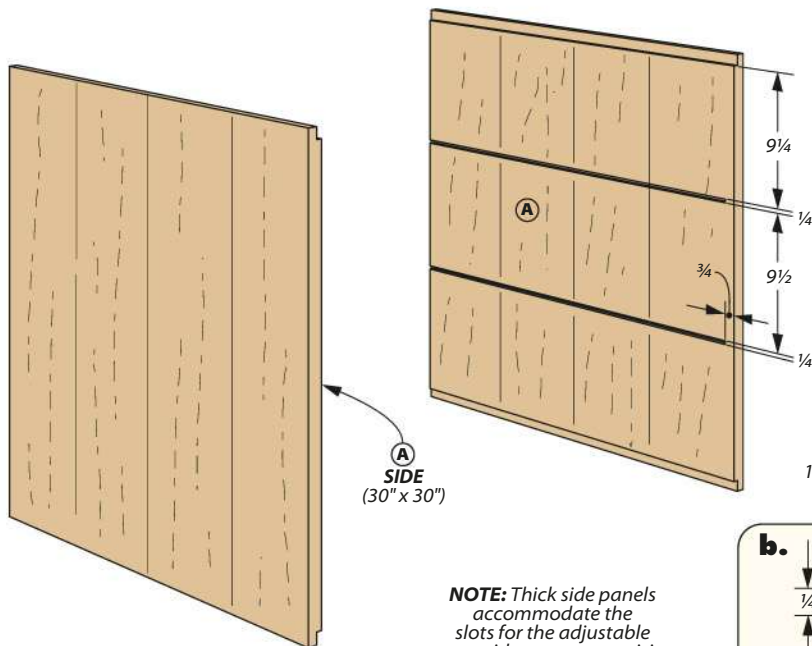
Working on a drawing or painting larger than a standard letter-sized sheet of paper can be a challenge on several fronts. For starters there's the surface area that's required to spread out supplies, as well as big sheets of paper (or canvas). Secondly, where to store the projects during breaks in the action?

You're in luck — whether it's an architectural aspiration like you see in the main photo, or gentle washes of watercolors that are shown below, the top on this workstation accommodates both desires. Meanwhile, the supporting case sports a cool mid-century vibe and loads of storage.

GOOD BONES. To house six large, flat file drawers and be mobile requires a solid case, and that's what you have with this project. A thick, solid oak case divided into three compartments means it's plenty strong to move around the room. All said and done the workstation is also a fine place to display your creative endeavors.

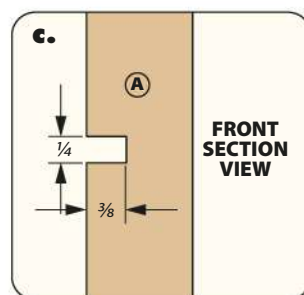
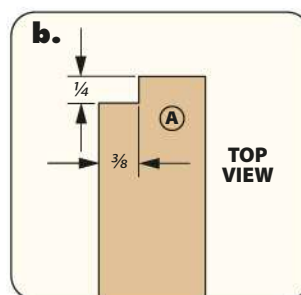
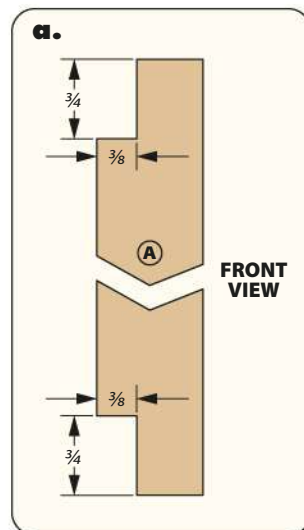
- ▼ There's no lack of storage options in the six large, flat file drawers (left photo). All that space will stow all the supplies needed for any creative discipline (photo below).





NOTE: Thick side panels accommodate the slots for the adjustable arms without compromising the structure of the case

NOTE: The sides are made from 1"-thick hardwood



For more on making the jigs and template for the sides and adjustable arms, go to:

Woodsmith.com/275



Make & shape the SIDES

The sides of the workstation are made of 1"-thick oak — the idea behind this added thickness has to do with the large slots routed into the sides of the case that hold the adjustable arms. The bottom of the slots are visible when the adjustable arms are extended. So making the sides 1" thick is the best answer when considering

the “form and function” question. We’ll get to making the slots shortly — first you need to glue up the panels for the sides. After the glue dries and the clamps are stowed, trim the panels to size.

JOINERY DETAILS. First, let’s tackle what needs to be done on the inside faces of the sides. As shown in the main drawing above, and detail ‘a,’ first on the

menu are rabbets to accept to the top and bottom. A trip to the table saw is in order here. With a dado blade buried in an auxiliary fence clamped to your rip fence, you’ll have these cuts done in no time. Detail ‘b’ shows what’s up next — a rabbet that runs along the back edge to accommodate the plywood back. Doing this

step calls for a quick reset of the table saw rip fence.

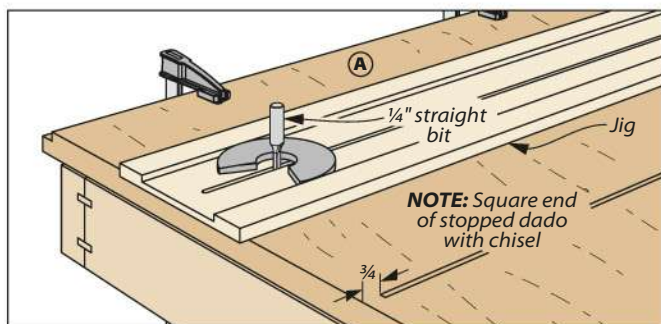
STOPPED DADOES. The last task on the list of interior joinery are stopped dadoes that will house the tongues of the dividers. This step (that’s shown in the box below left) introduces the first of two jigs that you’ll use in combination with your router. You’ll find information for the jigs (and template for the arms) at Woodsmith.com/275.

The jig for making the stopped dadoes is designed to cradle the base of your router. You might need to adjust the width of the jig to fit your router base. After routing the dadoes, and when you’ve finished squaring up the stopped ends, turn your attention to the exterior face of the sides.

MAKING SLOTS

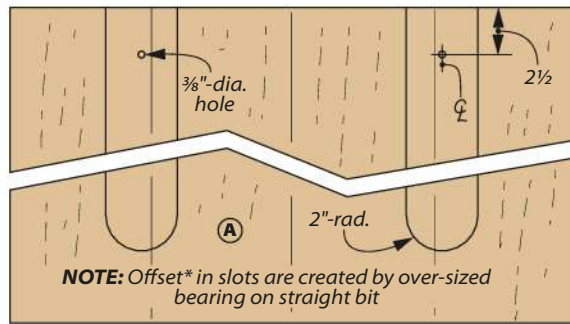
In the Side View at the top of the next page, you’ll find the layout details for locating the slots on the sides. These slots in the sides are a lot easier to execute

STOPPED DADOES

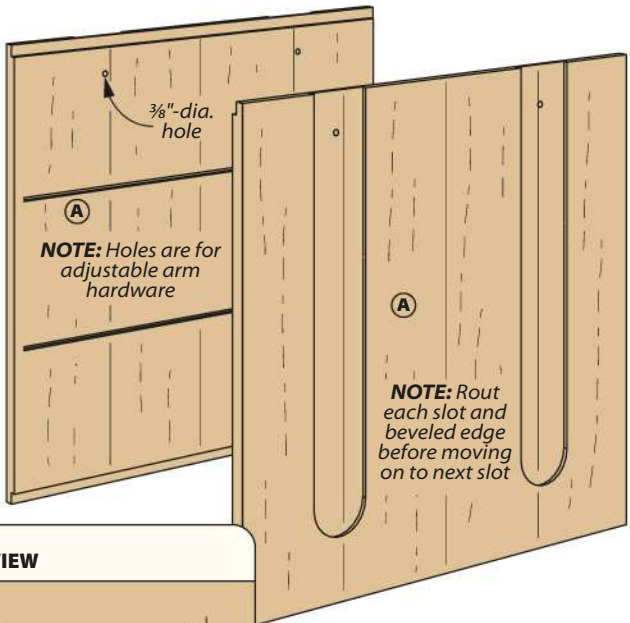
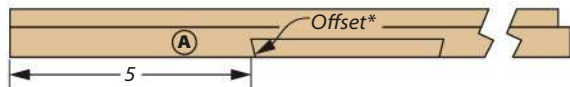


A Simple Jig to the Rescue. Double-sided tape holds the jig in place while routing the stopped dadoes needed for the tongues on the dividers. A little chisel-work tidies up the dadoes.

SIDE VIEW

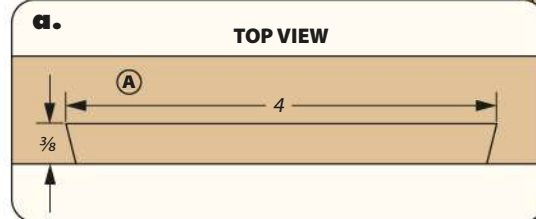


TOP VIEW



with the help of the second jig that you see at the bottom of this page. With this jig you'll use a pair of router bits — the first is a straight bit that has an oversized bearing, the second is a dovetail bit that has a bearing above the bit. The photo in the right margin shows these bits, along with a third bit that you'll use to shape the adjustable arms later.

CLEARING THE WAY. Figure 1 below shows the jig in place and the large straight bit doing what it does best — removing waste. It's just a matter of moving back and forth from front to back to



clean out the slot. But notice in Figure 1a that it's also setting the stage for what's happening in Figure 2 — beveling the slot.

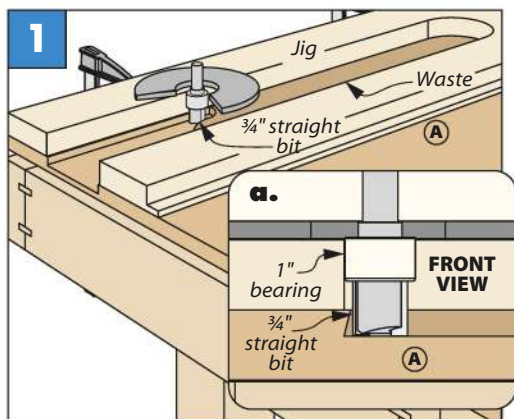
ADDING THE BEVEL. Figure 2a shows the heart of the action when it comes to making the bevel. This step is not removing a lot of material, but what

it is removing is critical to how the adjustable arm will interact with the case so make sure the bearing fully contacts the jig.

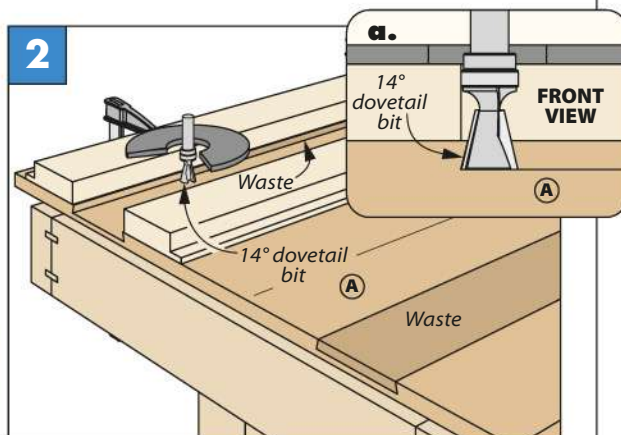
It's best to complete each slot before moving on to the next. So if you don't own two routers, you have a reason to now — you're welcome.



MAKING THE ARM SLOTS

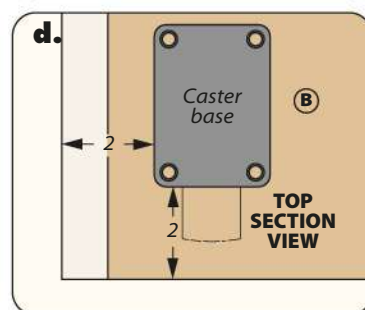
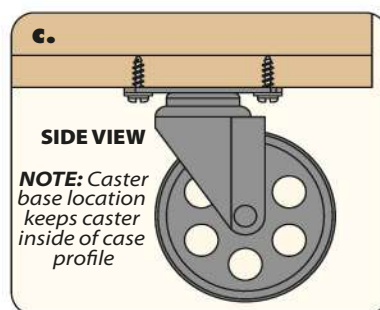
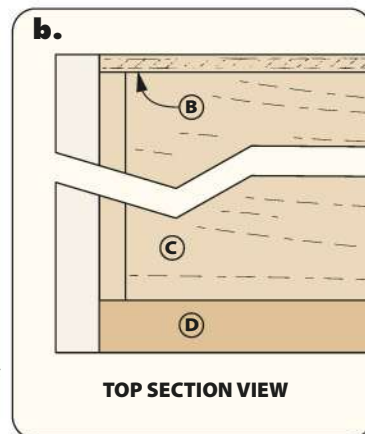
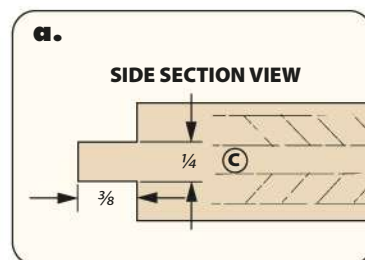
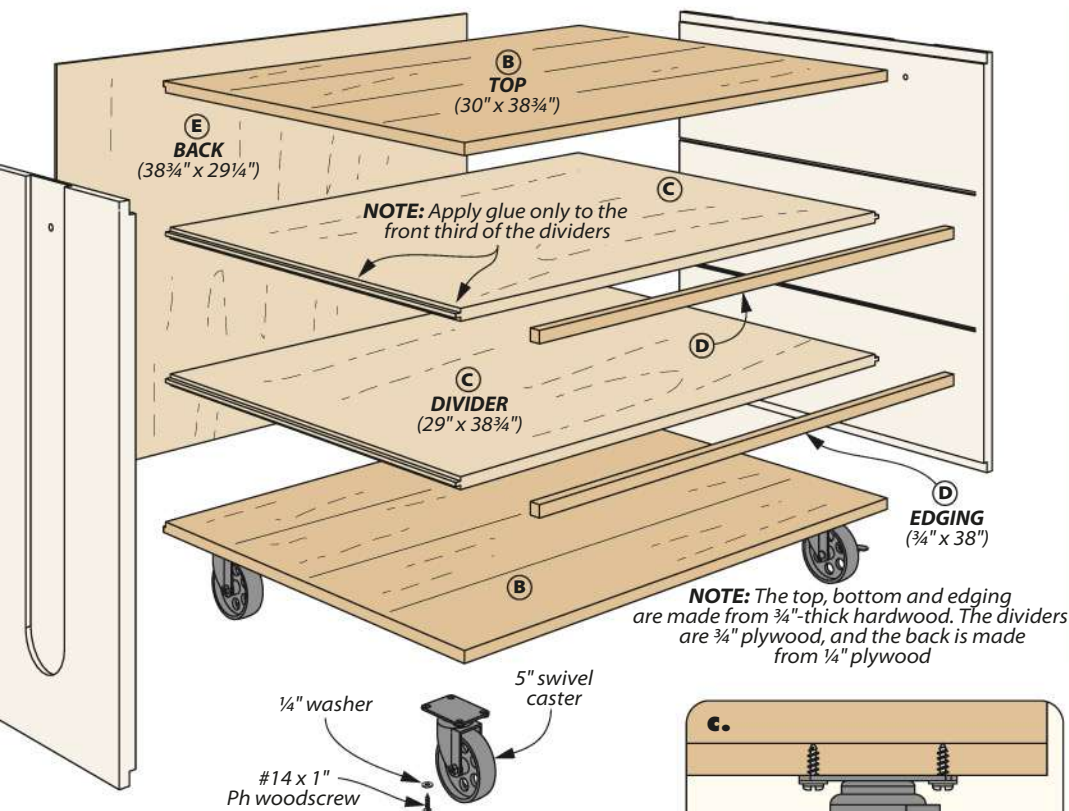


Rough Out. A large straight bit with a slightly larger bearing not only removes most of the waste, it sets you up to bevel the slot.



Rout Bevel. The same jig is used in combination with the dovetail bit you see here. The bit removes a small amount of material to form the bevel.

▲ Sources on page 66 tell you where to find the three bits that are used to shape the slots and adjustable arms.



Throw in some DIVIDERS & DRAWERS

Now you're going to make the parts that bring the sides together to form the case of the workstation. The parts are shown in the main drawing above. The top and bottom are hardwood panels that are standard thickness, while the two dividers are plywood that have hardwood edging glued to the front. To allow for comfortable access, hold off on installing the back until after you install the drawer slides in a little while.

Being the clever shop-rat you are, you've already glued up the top and bottom oak panels while I was carrying on. But, if not, you can glue them up now and turn your attention to making the dividers in the meantime.

DIVIDERS. As I mentioned a moment ago, the dividers

introduce plywood for the first time in this project. Once the pieces are cut to size, set up your table saw to make the tongues on the ends (detail 'a').

GLUE UP TIME. Don't put away the clamps from gluing up the top and bottom just yet — you'll need them again after you've cut those parts to size. You'll also need some clamping squares to keep the case square. Detail 'b' shows that the dividers sit flush to the rabbets in the sides that accept the plywood back. You can use the plywood back to help square the case without nailing it in place. After the glue dries on the case you can glue the edging to the dividers.

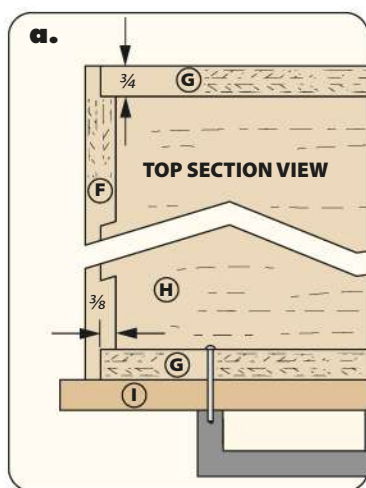
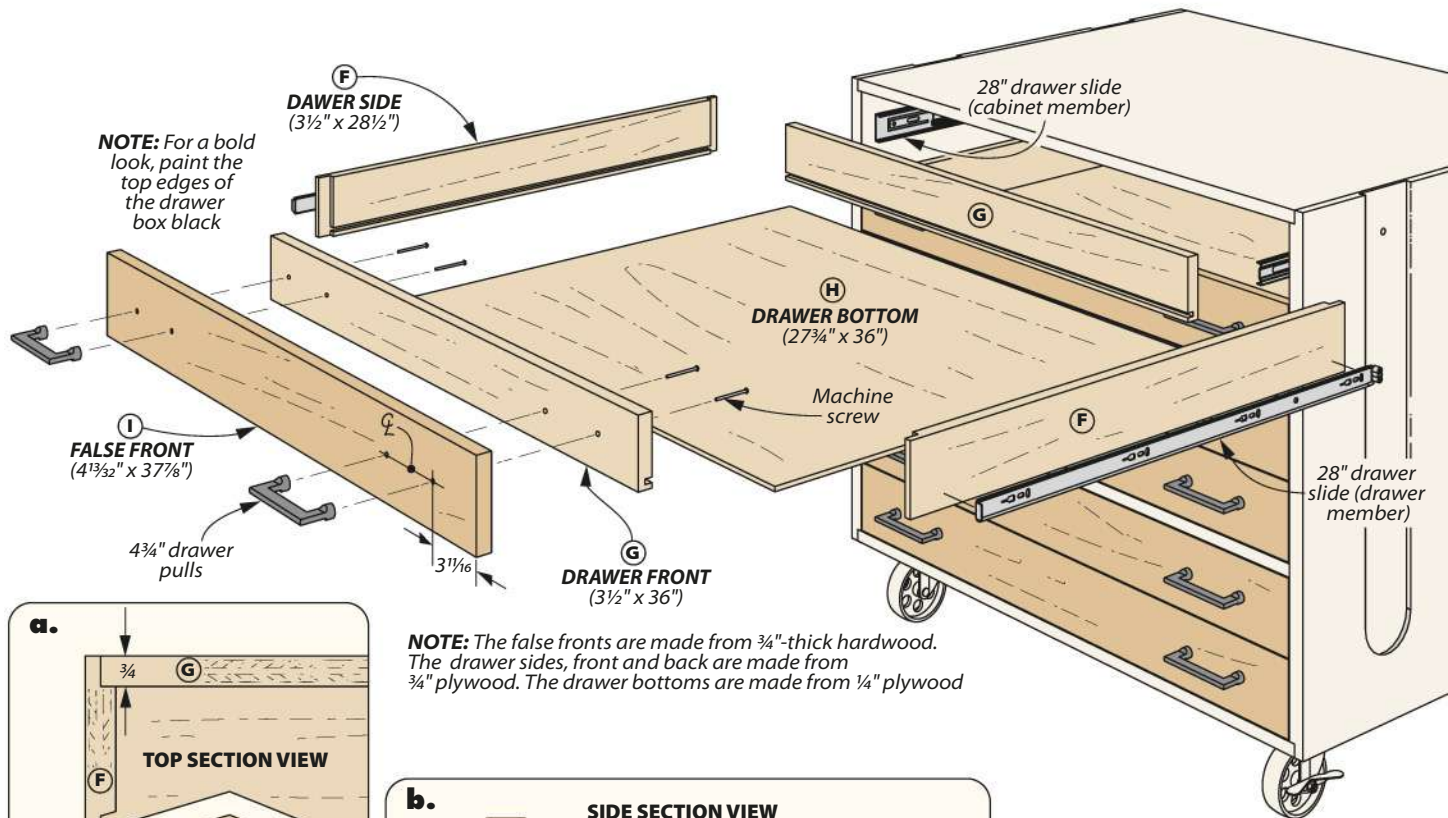
CASTERS. Next on the roster is installing the casters. Refer to detail 'd' for their position.

Setting the caster inside the profile of the case like this prevents you from stubbing your toe when you're moving the workcenter around. Now you can stand the case upright and get to work on the drawers.

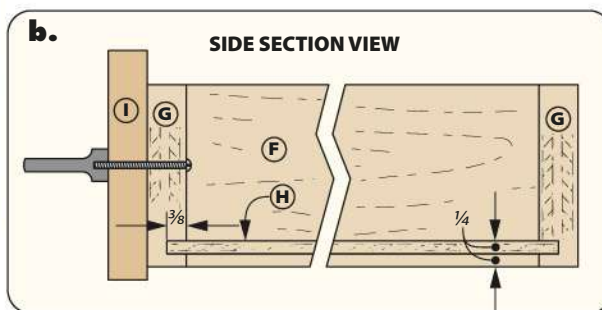
THE DRAWERS

These drawers (in fact, the whole workcenter) are reminiscent of the drawers in the large flat-file cabinet that I have tucked away in the corner of my studio at home. That old cabinet is metal and doesn't have the warmth or charm of this workcenter.

What mine have are metal drawers, which are plenty strong to carry the capacity of paper or any other accessories that need to be stowed. Since metal drawers aren't an option here, we



NOTE: The false fronts are made from 3/4"-thick hardwood. The drawer sides, front and back are made from 3/4" plywood. The drawer bottoms are made from 1/4" plywood



chose to make the drawer boxes with 3/4" plywood instead of the often-used 1/2" material. The added rigidity is worth using the thicker material. Regardless of the size of the drawer, start by cutting the sides, fronts, and backs to size.

JOINERY DETAILS. The drawings above show what's on your to-do list. First, you've got rabbets to cut on the sides for the front and back (detail 'a'). That task calls for a dado blade at the table saw.

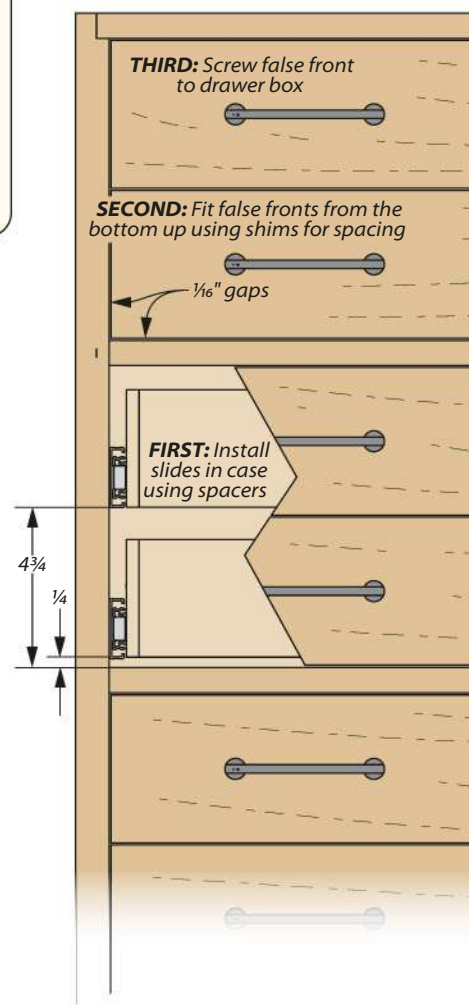
Next up is cutting the groove along the lower edge of all the box parts for the drawer bottom (detail 'b'). You can do that at either the table saw or router table. I chose the latter.

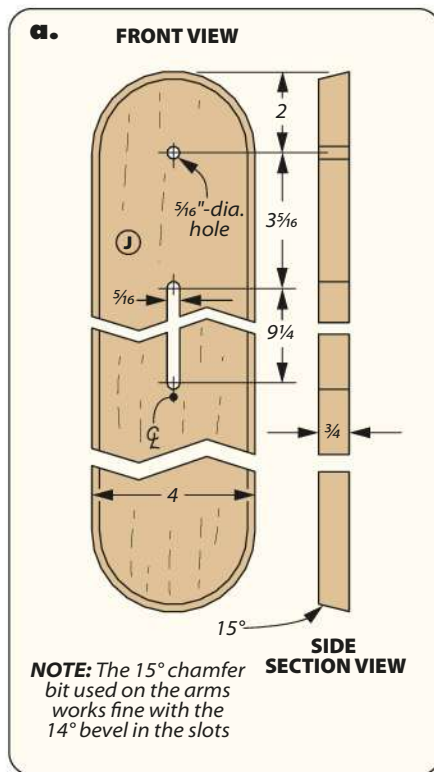
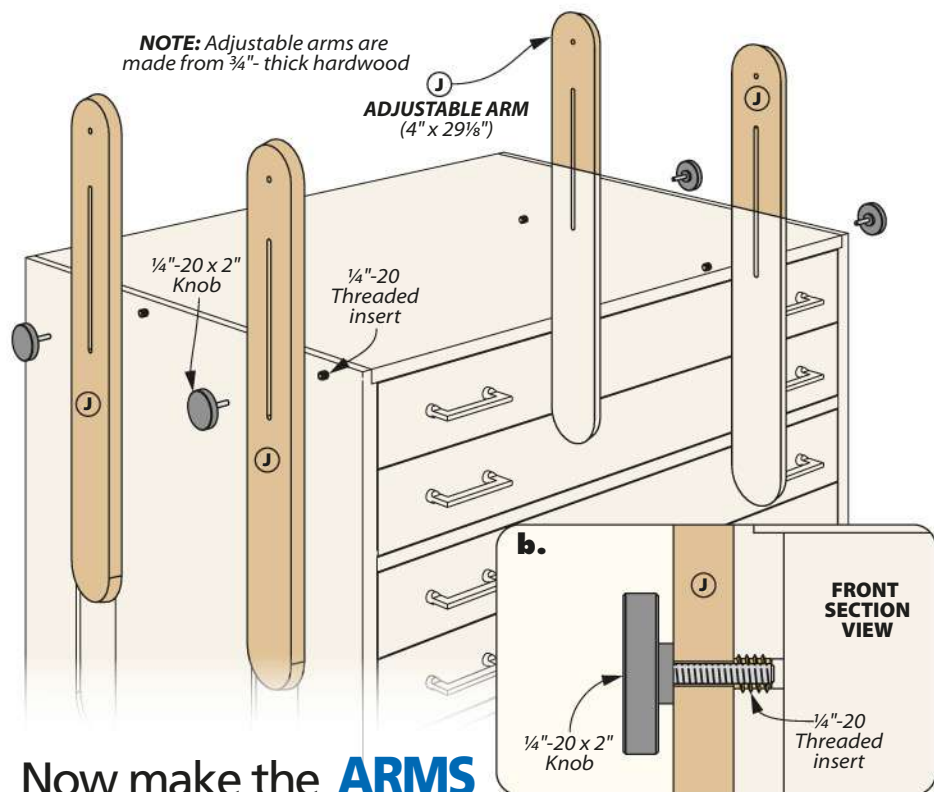
GLUE UP AGAIN. Now you can cut the plywood bottoms to size and glue up the boxes. To ensure each box is square once the clamps are in place, I measure from corner to corner on opposite sides. The box is square when the numbers are identical. If the drawer is out of square, you

can gently draw it back using a clamp diagonally across the top of the box.

DRAWER SLIDES. While the drawer boxes are drying in their clamps you can turn your focus to installing the drawer slides. The case contains three compartments which are close enough in size that you can make cleats the size of the dimensions shown in the drawing to the right. You'll use those spacers to install the cabinet members of the slides in the case.

After the clamps come off the drawer boxes, install the drawer members of the slide on the sides and slip the drawers into the case. To install the false front, start at the bottom and work your way up. Hold the false front in place with double-sided tape while confirming the gaps. When the gap is even around the case, firmly press the false front against the box. Then remove the drawer, drill the holes for the pulls, and install the screws that connect the box to the false front.





Now make the ARMS

With the base of the workstation complete it's time to focus on the adjoining top. Instead of a static worksurface, Dillon Baker (the designer of this project) chose to add the dynamic version you see in the main drawing above.

OPTIONS. It's nice to have the option of adjusting the tilt of the top for the task at hand. The four adjustable arms allow for those options and hold the

surface firmly in place once in position. The work starts by sizing the four oak boards — and making the template that helps you shape the arms.

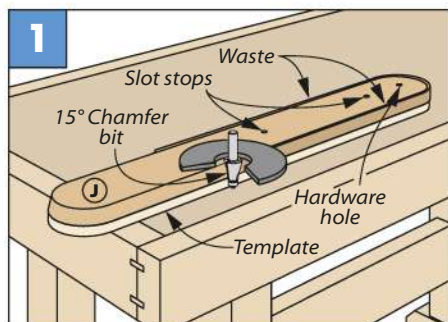
TEMPLATE #3. In Figure 1 below you see the last of the templates in action. The template is used in combination with a chamfer bit that has a bearing to ride along the edge of the template. To accommodate the hardware

that passes through the arms the template has three holes. The upper hole is for the hardware that connects the arms and top (detail 'b'). The two holes below are the end points for the slot that allows the arms to travel up and down. Refer to detail 'a' above for the exact location of these holes.

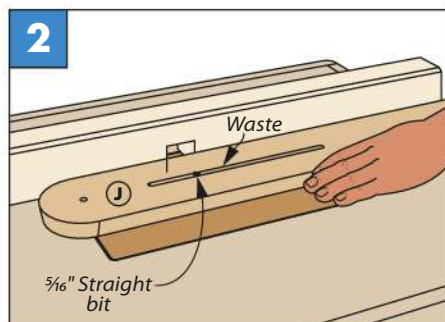
After you've shaped the profile of the arm and drilled the holes you can head to the router table. Figure 2 shows how to make the slot in the arms (in multiple passes, of course).

ATTACH THE ARMS. When the arms are complete, you can spend a little time installing the threaded inserts shown in the main drawing and detail 'b.' For the sake of making the top, I installed the arms in their slots on the case. After the top is built, you'll want to remove the assembly to apply the finish underneath.

SHAPE THE ARM



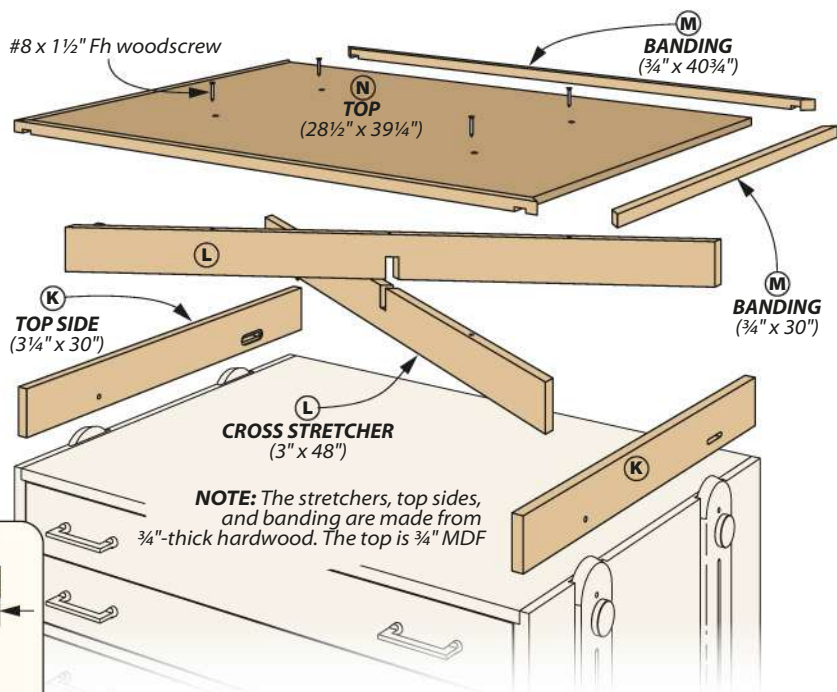
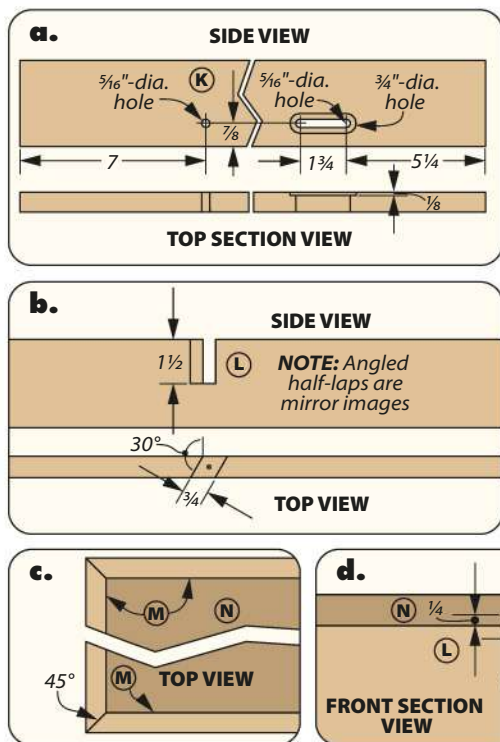
Shape First. The template for the arm guides the chamfer bit and locates where you need to drill holes for hardware.



Rout the Slot. Align the bit to the hole that is the end point of the slot, then lower the arm on to the table.

THE TOP

The top of the workcenter is next on the hit parade. The assembly consists of two sides that are



bolted and screwed to the arms and connect to the top in a dado. If the top were smaller this might be all the support that would be needed — but it's not. To add rigidity to the assembly there are two cross stretchers that are joined together with half-laps, pin-nailed to the sides, and glued to the top. Let's by working on the sides.

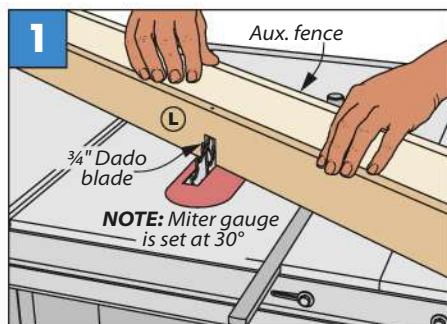
THE TOP SIDES. Detail 'a' above provides all the information needed to make the top sides. The holes in front hold a screw and bolt. The slots at the rear allow the top to pivot without binding the arms when you want to tilt the worksurface.

Once you have laid out the locations of the holes and slots, set it on the top of the case to confirm that the arms line up to your work, then you can head to the drill press. A Forstner bit forms the needed recesses as well as the ends in the slot. A jig saw and little hand work remove the waste between the two holes. The hole in front is just a hole, so drill it and move on to making the top and its banding.

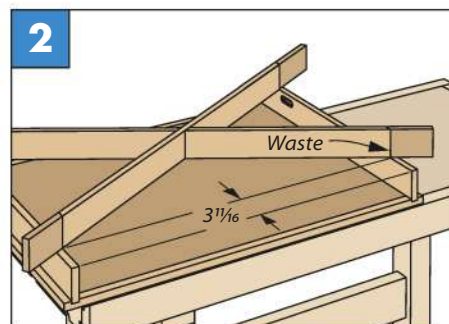
THE BANDED TOP. I chose to use MDF for the top; I like how it stays flat over time. Once it's cut to size I ripped the banding material. Then it's just a matter of marking and mitering each piece as you go around the top. Glue and pin nails are all that's needed to attach the banding. To connect the sides to the top you'll need to cut the dado in the outer edges of the top, refer to detail 'd' above.

CROSS STRETCHERS. The cross stretchers are two boards that have centered angled half laps. Figure 1 below shows the set up at the table saw. Notice that the length of the cross stretchers shown in the main drawing above is long. When you look at Figure 2 below you'll see why. Once the cross stretchers are fit and cut, they're attached to the top with screws and pin-nailed to the sides.

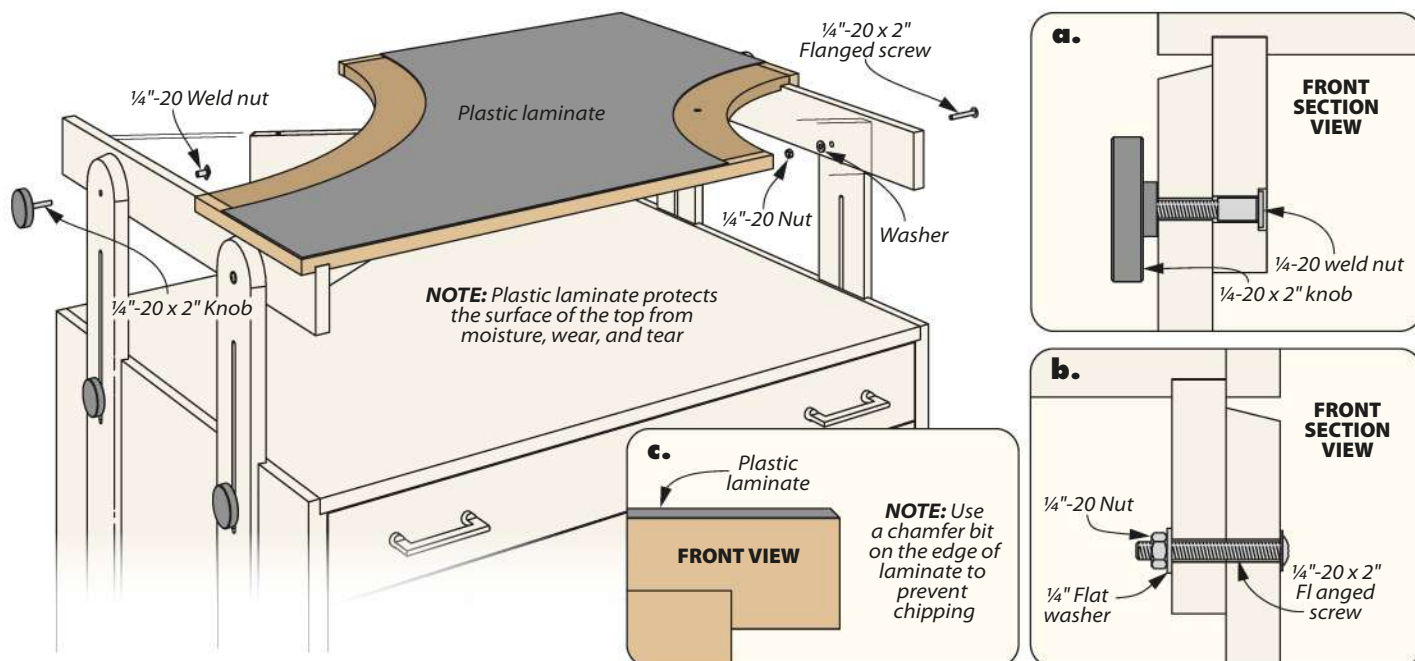
ASSEMBLE THE TOP



Angled Half-Lap. Your table saw with a dado blade installed makes quick work of the angled half laps.



A Custom Fit. Place the cross stretchers on the upside down top as shown above. Trim the waste at the band saw.



Protect & attach the TOP

The last item on your list before attaching the top to the arms is to cover it with plastic laminate. If this is a task that's new to you there's plenty of information available at Woodsmith.com when you search "plastic laminate."

I lied. The last item on your list before attaching the top is to apply the finish, we chose liming wax. Like paste wax, liming wax

is rubbed into the surface, then buffed out to give the workstation it's subtle glow. It requires a little elbow grease, but it's well worth the effort.

MORE HARDWARE. As you see in the drawing above the knob that attaches the back arms to the top are identical to the ones used earlier. Detail 'a' shows that the knobs are screwed to

weld nuts that reside in the slots you made in the sides.

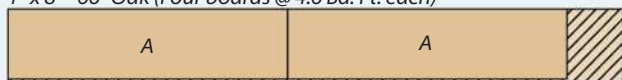
Up front (detail 'b') there's a flanged bolt that's screwed to a hex nut, allowing the front to pivot. To attach the hardware I placed the top up on blocks so I could reach underneath.

Now it's time to roll the workstation in place and put it to use. Happy creating. [W](#)

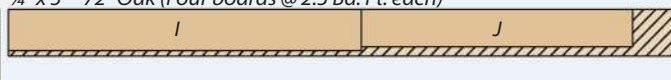
Materials, Supplies & Cutting Diagram

A Sides (2)	1 x 30 - 30	I False Fronts (6)	$\frac{3}{4}$ x 4 $\frac{13}{32}$ - 37 $\frac{7}{8}$	• (12) 4 $\frac{3}{4}$ " Drawer Pulls
B Top/Bottom (2)	$\frac{3}{4}$ x 30 - 38 $\frac{3}{4}$	J Adjustable Arms (4)	$\frac{3}{4}$ x 4 - 29 $\frac{1}{8}$	• (4) $\frac{1}{4}$ "-20 Threaded Inserts
C Dividers (2)	$\frac{3}{4}$ ply. - 29 x 38 $\frac{3}{4}$	K Top Sides (2)	$\frac{3}{4}$ x 3 $\frac{1}{4}$ - 30	• (6) $\frac{1}{4}$ "-20 x 2" Knobs
D Edging (2)	$\frac{3}{4}$ x $\frac{3}{4}$ - 38	L Cross Stretchers (2)	$\frac{3}{4}$ x 3 - 48 rgh.	• (2) $\frac{1}{4}$ "-20 x 2" Flanged Screws
E Back (1)	$\frac{1}{4}$ ply. - 38 $\frac{3}{4}$ x 29 $\frac{1}{4}$	M Banding	$\frac{3}{4}$ x $\frac{3}{4}$ - 145 rgh.	• (2) $\frac{1}{4}$ "-20 Nuts and Washers
F Drawer Sides (12)	$\frac{3}{4}$ ply. - 3 $\frac{1}{2}$ x 28 $\frac{1}{2}$	N Top (1)	$\frac{3}{4}$ ply. - 28 $\frac{1}{2}$ x 39 $\frac{1}{4}$	• (2) $\frac{1}{4}$ "-20 Weld Nuts
G Drawer Front/Back (12)	$\frac{3}{4}$ ply. - 3 $\frac{1}{2}$ x 36	• (4) 5" Swivel Locking Casters		• (4) #8 x 1 $\frac{1}{2}$ " Fh Woodscrews
H Drawer Bottoms (6)	$\frac{1}{4}$ ply. - 27 $\frac{3}{4}$ x 36	• (6 pr.) 28" Drawer Slides		• (1) 4' x 8' Sheet of Plastic Laminate

1" x 8" - 66" Oak (Four boards @ 4.6 Bd. Ft. each)



$\frac{3}{4}$ " x 5" - 72" Oak (Four boards @ 2.5 Bd. Ft. each)



$\frac{3}{4}$ " x 8" - 84" Oak (Four boards @ 4.7 Bd. Ft. each)



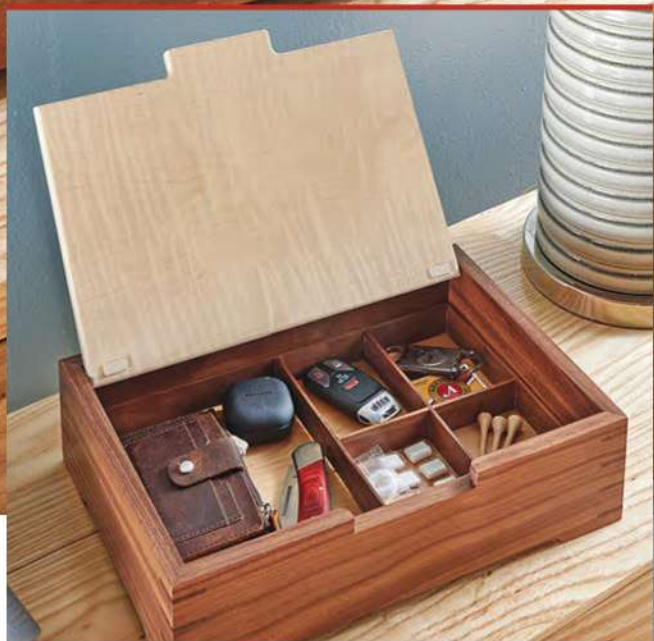
$\frac{3}{4}$ " x 8" - 84" Oak (Two boards @ 4.7 Bd. Ft. each)



ALSO NEEDED: One 48" x 96" Sheet of $\frac{3}{4}$ " Baltic Birch Plywood, One 48" x 96" Sheet of $\frac{3}{4}$ " Oak Plywood, One 48" x 48" Sheet of $\frac{3}{4}$ " MDF, Three 48" x 96" Sheets of $\frac{1}{4}$ " Oak Plywood, One 48" x 48" Sheet of $\frac{1}{4}$ " Oak Plywood



Sectional Keepsake Box



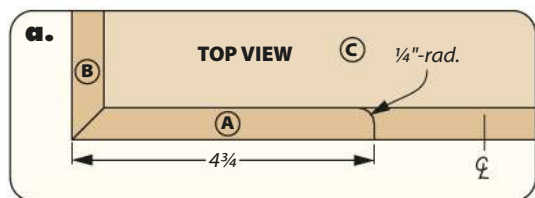
This handy little box secures and organizes keys, wallets, jewelry, and much more — and it does it in style.

Clutter always seems to come from the small things. It's easy for an end table by the front door to quickly become home to a smattering of keys, wallets, loose change, and inevitably a screw or two that followed me home from the shop. The keepsake box you see above is a great way to give these

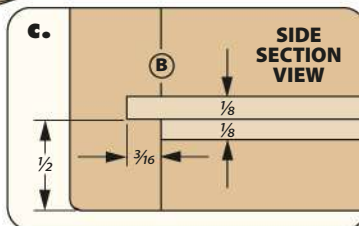
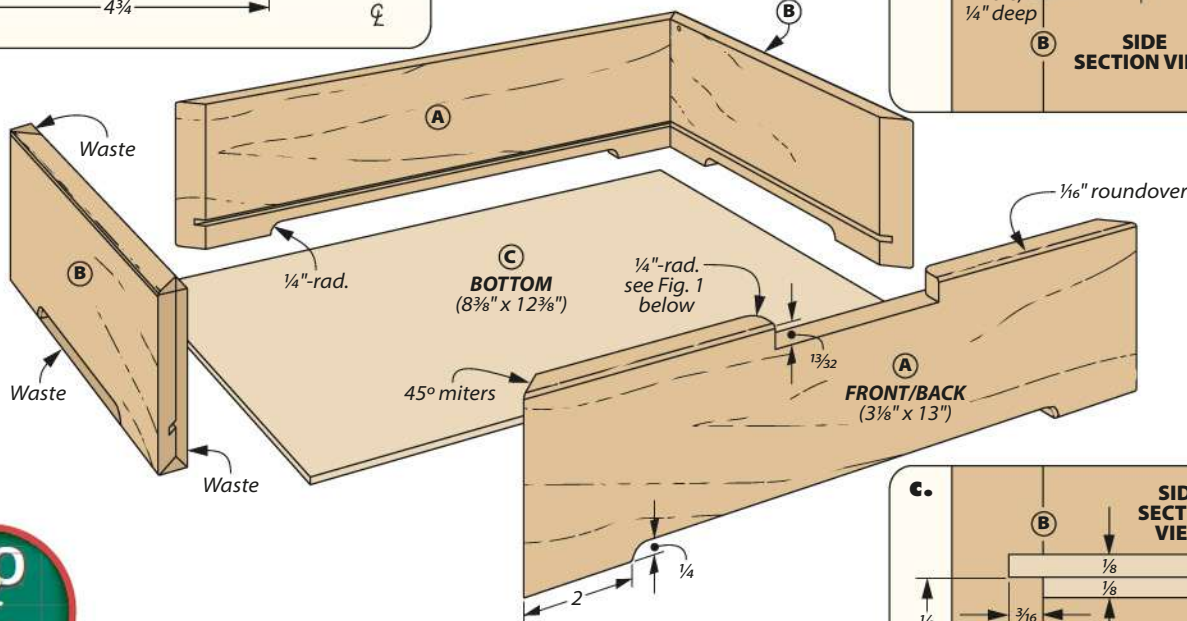
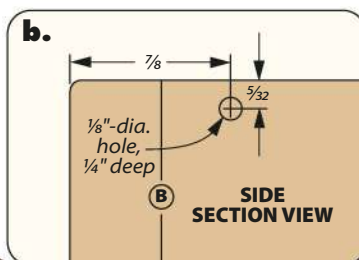
vagabond items a home — and hopefully keep that end table a little less cluttered.

This box is a simple project, but it takes on an elegance in its simplicity and contrast. Small arches below subtly lift the box, while mitered sides are reinforced and given some visual interest with a series of splines. The brilliant

curly maple lid sits neatly in the case of black walnut, held in by hidden pin hinges. Inside a series of hardwood strips forms the dividers that'll keep your small accessories in their places. All in all, this box will make for a fun weekend in the shop, and a good replacement for any pile of pocket clutter.



NOTE: Front, back, and sides are made from 1/2"-thick hardwood. The bottom panel is 1/4" plywood



For more on the two jigs shown here, visit:

Woodsmith.com/275



Begin with the CASE

The first parts to create for this box are the case pieces. These consist of a front, back, and two sides that will be mitered together. Additionally, a plywood bottom is held in by grooves in each piece.

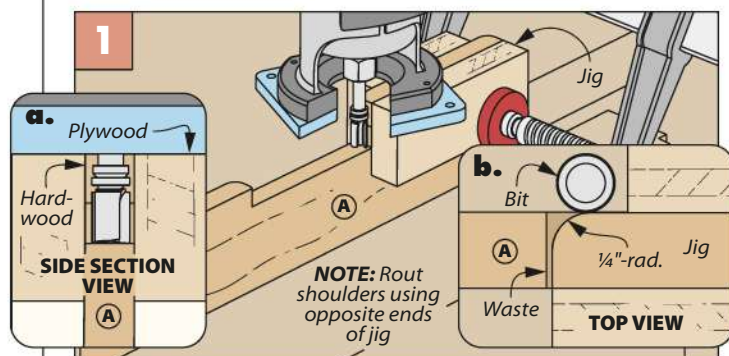
Start out the project by cutting the front, back, and sides of the

box to size. When cutting these pieces to length, miter them to fit with each other as well.

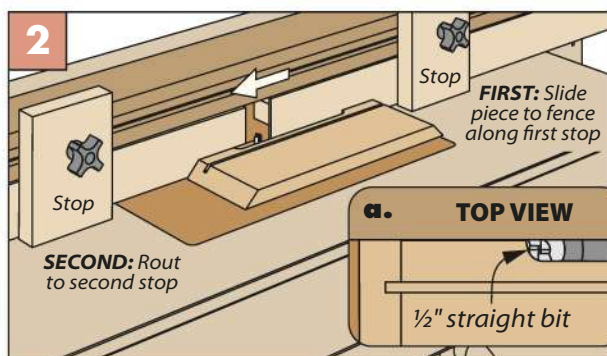
FRONT NOTCH. To create a seat for the lip on the lid (we'll get to that later), the front piece needs to be notched along the top edge. I removed most of this with a dado blade at the table saw.

As you can see in detail 'a,' the notch has radiused corners on its inner edges. To make these, I created a jig from two pieces of plywood and a hardwood strip (Figure 1 below). The strip equals the thickness of the sides, and its ends are radiused so they can guide the bearing on

SHAPING THE CASE

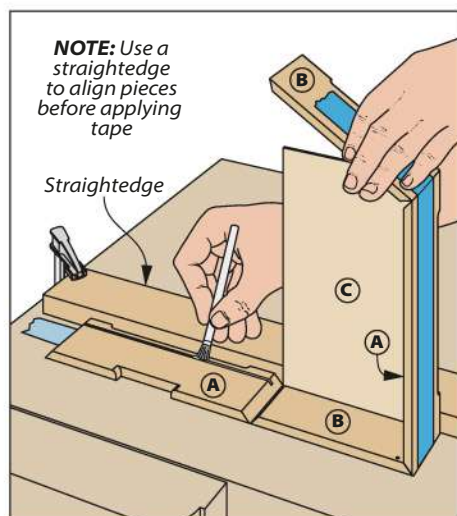


Lid Lip. Half-rounded shoulders flank the lip of the lid when closed. I created a radiused jig to straddle the workpiece for the bearing on my pattern bit to follow as I routed these.



Notches Below. Routed notches on the bottoms of the case pieces form the "feet" of the box. A stop on either side of the router table fence makes these easy to size.

MITER GLUEUP



Taped Miters. Lay all the pieces in a row, then attach a piece of tape across their backs. Flip them over, apply glue, and bring them around the bottom for the glueup.

a pattern bit. The plywood pieces are glued to the sides of the strip, allowing it to straddle the front piece while I routed the corners.

BOTTOM GROOVE. Now is a good time to swap out that dado blade for a flat top blade and cut the grooves for the bottom panel in

comes the bottom. After sizing it, cut rabbets across the bottom edges of the panel (detail 'c').

ASSEMBLY & SPLINES

Next, glue up the case. The upper left box shows my method for gluing up mitered assemblies.

BOTTOM PANEL. Last

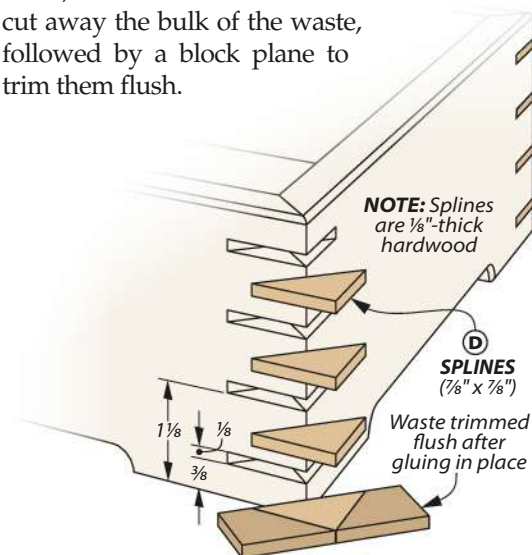
each piece. As you can see in detail 'c,' the bottom will be rabbeted, so a single blade kerf will be sufficient.

ARCHED FEET. Arches across the bottom of the front, back, and sides form the "feet" of this box. I made these at the router table, as you can see in Figures 2 and 2a on the previous page.

HINGE HOLES. Hidden pin hinges hold the lid into the sides; more on that later. For now, just drill the holes in the side pieces (detail 'b,' previous page).

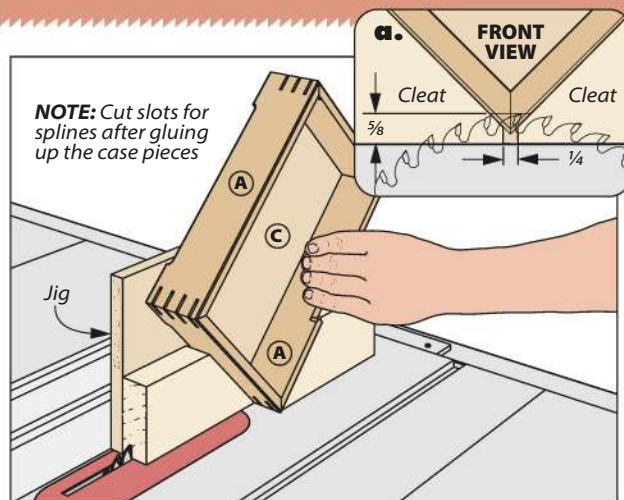
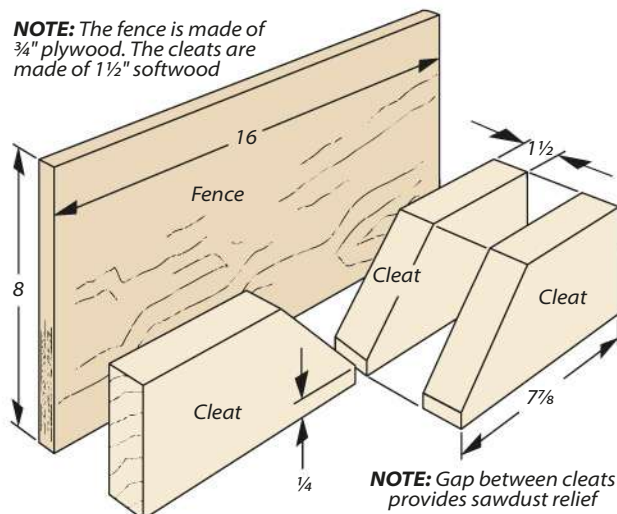
ANGLED JIG. As you can see on page 55 and the art below, the case has splined corners. After the case is dry, we'll need to cut the slots for the splines in the corners. This is easy enough at the table saw — with the right jig. The box below shows the jig I used and how I made the cuts. After making four slots in each corner, it's time for the splines.

SPLINES. The splines begin as thin, hardwood blanks. After sizing, glue them into the slots you just cut. Once the glue dried, I used a flush trim saw to cut away the bulk of the waste, followed by a block plane to trim them flush.

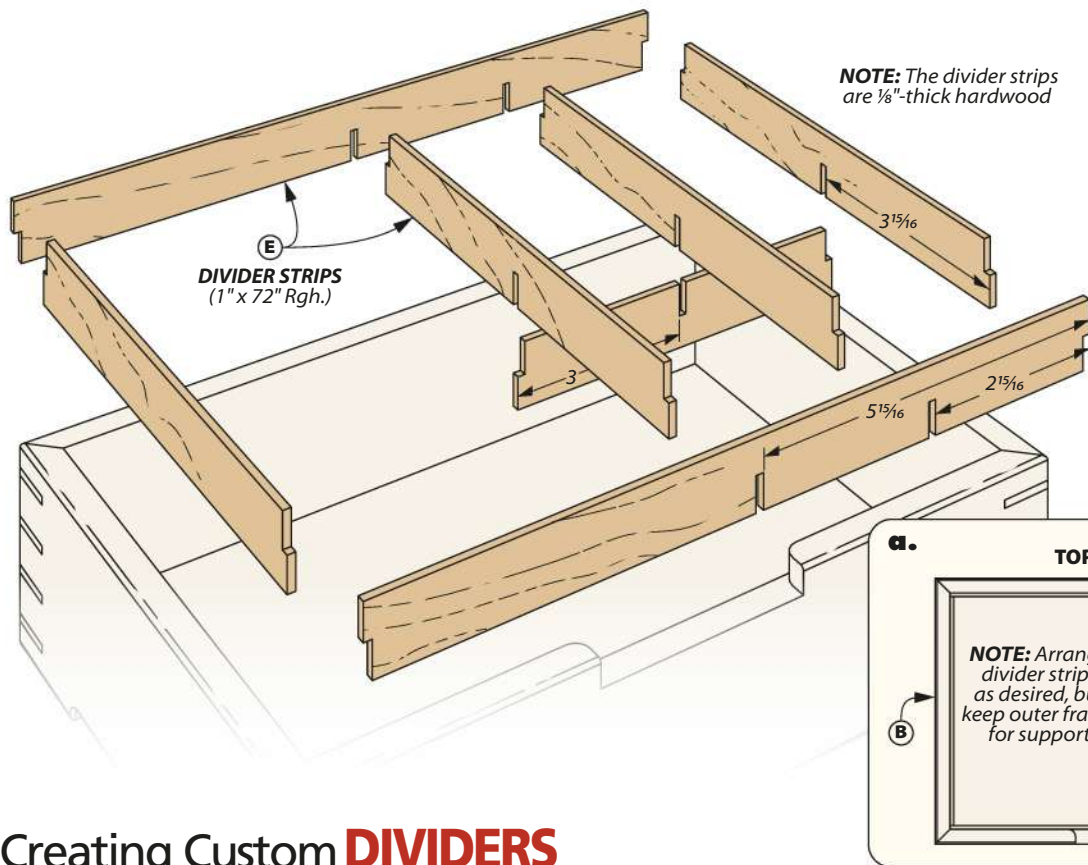


ANGLED SLOT-CUTTING JIG

NOTE: The fence is made of 3/4" plywood. The cleats are made of 1 1/2" softwood



Angled Jig. The slots for the splines are cut at the table saw with an angled jig that cradles the case's corner.



Creating Custom **DIVIDERS**

With the case made, it's time to divide the box up. Forming sections inside is a great way to keep everything organized and prevent the box from becoming a cluttered, little bin. Thin strips

of hardwood make the dividers. You can customize these to suit your needs, but you can see my arrangement above. Since my box would be living by the entry-way, I sectioned off one half for larger items like my wallet and folding knife, and made smaller cubbies for keys and other miscellany I might want to grab on my way out the door.

DIVIDER STRIPS. You can see the width of the strips I used above, but to determine the proper length for each piece measure directly off of the case. As I mentioned, you can construct this however you see fit, but be sure to make a "frame" of strips around the perimeter to support the inner dividers.

These strips are connected by simple half-lap joints. I made these at the table saw, as you can see in the box at left. From there, you can glue them up. Once dry, simply set the divider assembly in place — no glue needed.

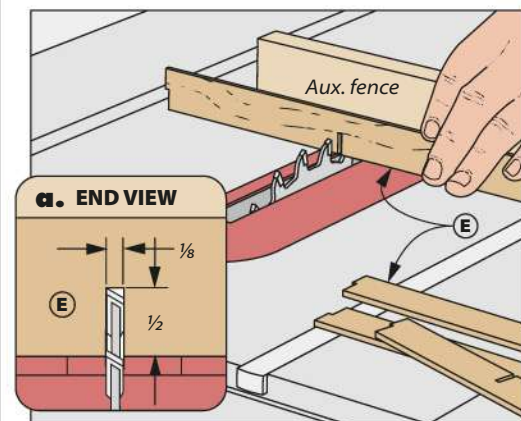
FLIP-UP LID

The last element to this box is the contrasting lid. To set it off from the dark walnut, I decided to use curly maple here. Once you have the lid cut to proper size, it's time to start shaping it.

LID LIP. The first thing I wanted to address on the lid was the lip on the front edge that will sit on the notch in the case. This began at the drill press, using a $\frac{1}{2}$ " Forstner bit to drill out the radiused corners (detail 'a,' next page). With those in place, I headed over to the band saw to cut the majority of waste free, leaving just a little material outside of my layout lines. To finish the edge, I clamped a straight scrap board right over the layout lines of the front edge. This acted as a guide for a pattern bit, which I used to rout the front edge of the lid to final shape.

HIDDEN PIN HINGES. You can see in the art at the bottom of the next page how the lid is held in place.

HALF-LAPPED STRIPS



Lap Joint. A combination blade works well to cut the half-laps in the dividers. Use an auxiliary miter gauge fence to avoid chipout.

A pair of hidden hinge pins insert into a pair of edge holes, then spring out to hold the lid into the sides.

Start by drilling the holes for the pin hinges in the sides of the lid. Detail 'b' below shows the locations of these, but I recommend measuring directly off the back to the holes you drilled in the sides earlier for a direct match. The drilling is best done at the drill press to keep everything straight. Clamp the lid to your fence to support it vertically and keep it square.

Additionally, you'll need to create access holes, and the drill press works well to clear out most of that waste. As you would for a mortise, drill out the access holes in the bottom of the lid, then clean them with a chisel.

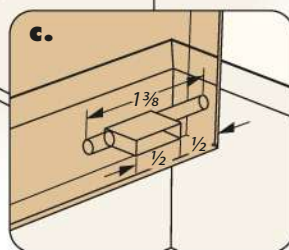
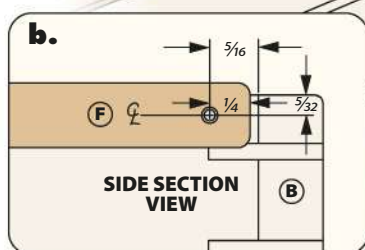
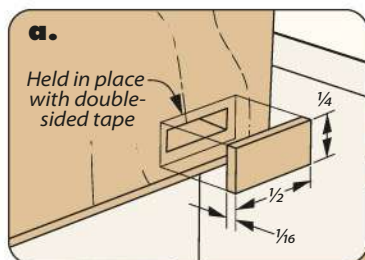
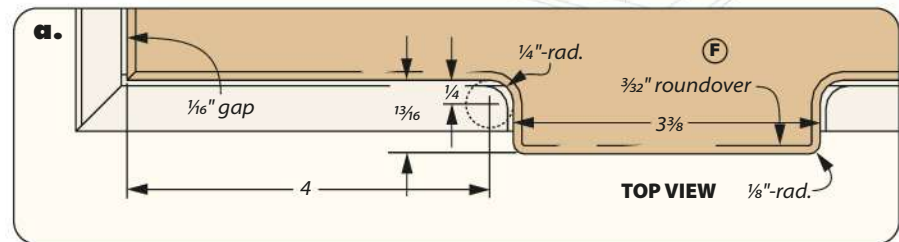
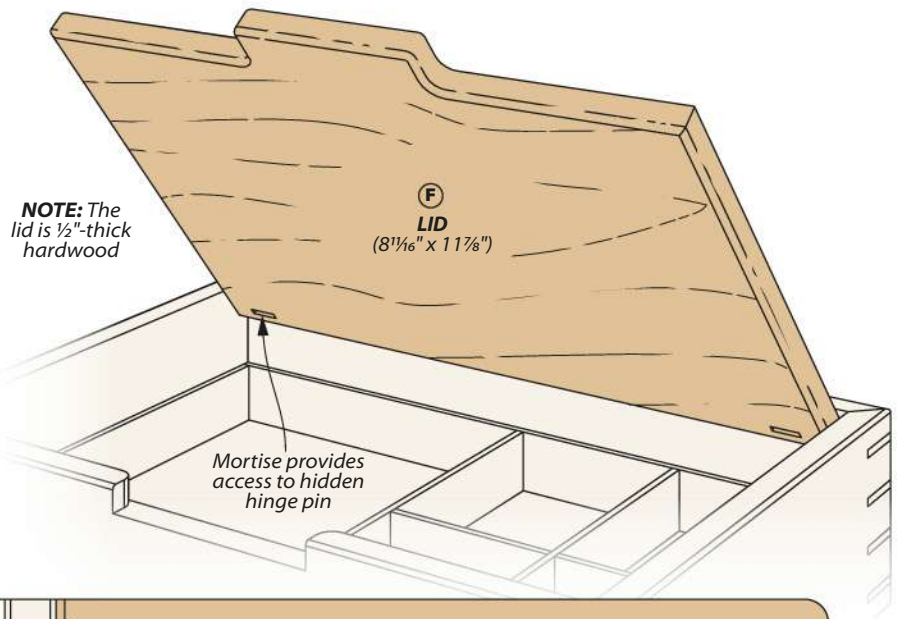
FINISHING TOUCHES. The last item on the docket for this lid is a roundover. Rout a $\frac{1}{8}$ " roundover on all edges of the lid to ease its shape. This will provide a pleasant contrast to the sharp corners of the case itself.

With everything made, it's nearly time for assembly. First however, it's a good idea to finish all the pieces separately. I used a few coats of spray lacquer,

providing a layer of protection and a gorgeous, glossy coat.

ASSEMBLY. With the dividers set in place, all you need to do is install the lid using the pin hinges. Insert the hinges, squeezing their springs down, sliding the lid in place, then

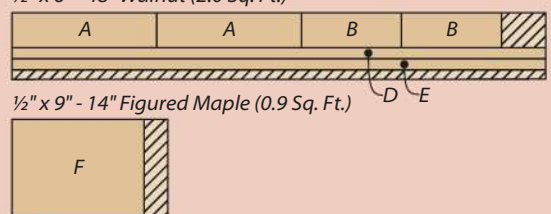
positioning the lid until you feel the hinges spring out into the holes in the sides. The access points for the hinges can be disguised with two pieces of maple (detail 'a') using double-sided tape, allowing you to replace them if need be. **W**



Materials, Supplies & Cutting Diagram

A	Front/Back (2)	$\frac{1}{2} \times 3\frac{1}{8}$ - 13
B	Sides (2)	$\frac{1}{2} \times 3\frac{1}{8}$ - 9
C	Bottom (1)	$\frac{1}{4}$ ply. - $8\frac{3}{8} \times 12\frac{3}{8}$
D	Splines (16)	$\frac{1}{8} \times \frac{7}{8}$ - $\frac{7}{8}$
E	Divider Strips	$\frac{1}{8} \times 1$ - 72 rgh.
F	Lid (1)	$\frac{1}{2} \times 8\frac{11}{16}$ - $11\frac{7}{8}$
• (2) $\frac{1}{8}$ " Hidden Pin Hinges		

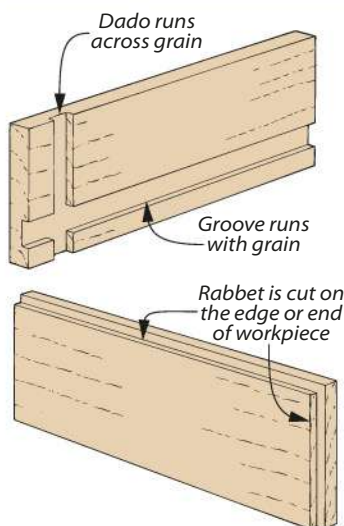
$\frac{1}{2} \times 6$ " - 48" Walnut (2.0 Sq. Ft.)



$\frac{1}{2} \times 9$ " - 14" Figured Maple (0.9 Sq. Ft.)

Dadoes, Rabbets & Grooves

DADOES VS RABBETS



Know Your Terms. What's the difference between a dado and a groove? It all has to do with the direction of the grain.

Dado. A dado runs across the grain of the wood. And a groove runs with the grain of the wood. This is really the only distinction. You can see what I mean in the top drawing at left.

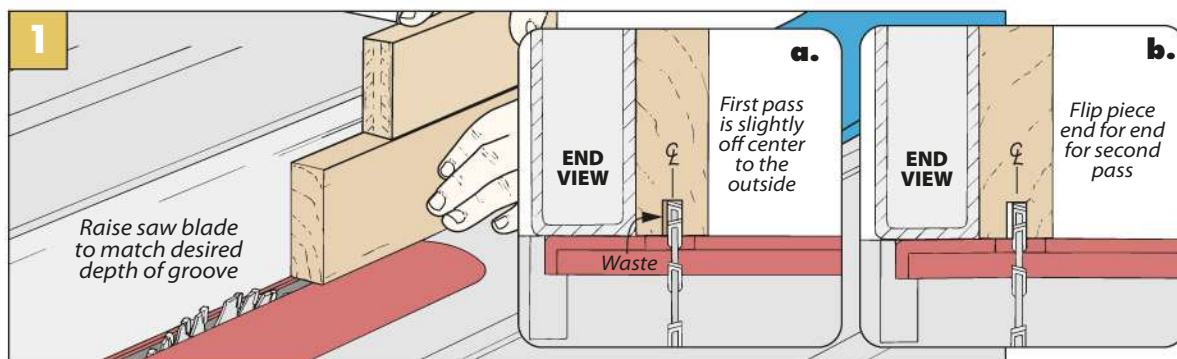
Rabbet. And what about a rabbet? A rabbet is nothing more than a dado or groove that is cut on the end (or edge) of a board. You can see an example of this in the drawing at left.

My favorite part of a project is creating the joinery. Doesn't matter what kind of joints the plans call for. It's then that generic boards turn into project parts. And I can even start to glimpse the final form of the project.

As important as the joinery is, what's surprising is the forms it takes most often. Woodworkers tend to lose their minds over dovetails and wedged through tenons. If you skim through any project plan, you'll find that grooves, dadoes, and rabbets turn up over and over. With that kind of workload, it's important to devote some time to the process of understanding what makes them different and how to create each one.

GLOSSARY. While the three joinery details share many attributes, the names help you orient the direction and location of the cuts. The box at left provides a visual guide for reference.

All three of the cuts perform several functions, sometimes in combination: These joints



can house another workpiece, forming a mechanical connection. The detail registers one part in relation to another. The joint increases the glue surface, improving the strength of the assembly. On these next pages, we'll look at the techniques as well as key details for cutting these joints at the table saw.

GROOVES

Cut along the grain of a workpiece, a groove offers a good place to start. It's similar to a rip cut. It just doesn't go all the way through a workpiece.

Your usual blade cuts narrow grooves just fine. The workpiece is guided by the rip fence. To widen a groove, simply adjust the fence and make another pass.

CENTERED GROOVES. A version of this approach is used when cutting a centered groove on the edge of a workpiece. We employ this method in *Woodsmith* for frame and panel construction.

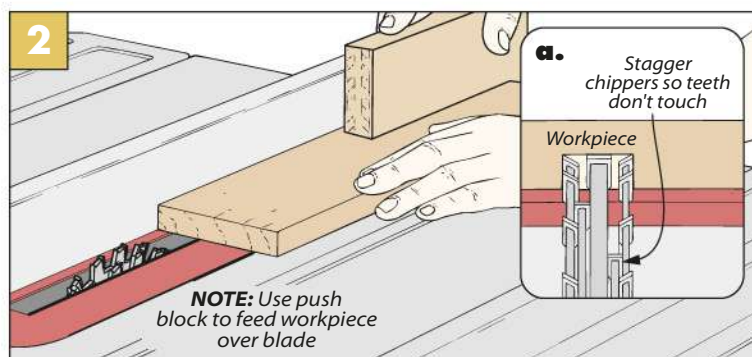


Figure 1 above highlights how two off center cuts both widen a groove and center it on the thickness of the part. All you need to do is flip the workpiece end for end between cuts. The photo on the previous page offers a good example. One thing to note: I like to set up this cut so the blade is offset away from the rip fence. This way, should the workpiece drift from the fence, it will be into the waste area of the groove.

WIDE GROOVES. When a groove gets around 1/4", it's time to choose another blade. As Figure

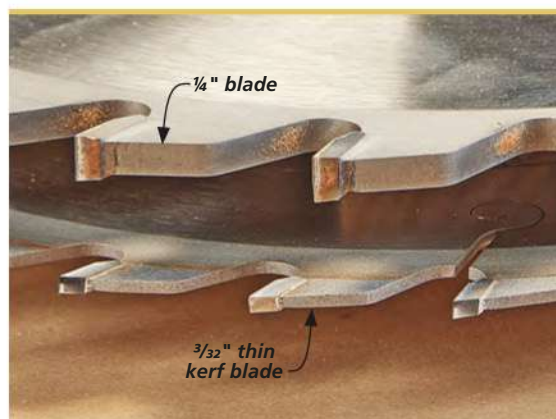
2 shows, that usually means a dado stack. Grooves come in groups, usually. So it's time well spent to dial in the size of the dado with all the chippers and shims necessary.

The action of cutting a wide dado creates a lot of resistance. A push block and/or pads keeps a workpiece flat on the saw table.

GROOVING BLADE. A dado isn't your only option. Steve Johnson in the shop at *Woodsmith* uses a 1/4"-wide grooving blade for crisp, consistent grooves. (Refer to Sources on page 66.)



▲ With flat-topped teeth, the grooving blade plows a crisp channel along the length of hardwood and plywood.



▲ Here you can see the difference in the thickness and tooth shape of the grooving blade and a combo blade.



▲ A gap-free rabbet joint registers the two parts and increases glue surface area for a solid connection.

WARREN OF RABBETS

A rabbet differs from a groove or dado in that it only has one side wall, as shown in the photo above. That fact that it can be formed along the edge (with the grain) or across the end (cross grain) makes identifying it confusing for new woodworkers.

The nature of the rabbet opens up several approaches for cutting it at the table saw. All of these techniques are easily mastered. It's a good idea to have skill in using them to suit the project or tool setup at hand.

TWO-PASS RABBETS. The first rabbet-cutting technique I want to share uses a regular blade. At its most basic, you use one saw cut to define each face of the rabbet joint. The first cut is made on the face of the workpiece. For the



▲ When you're cutting a rabbet on a wide piece, attaching a tall auxiliary fence prevents tipping. A set of featherboards keeps the piece on track.

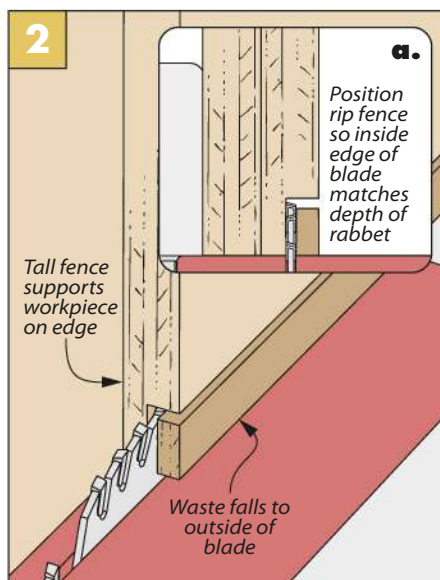
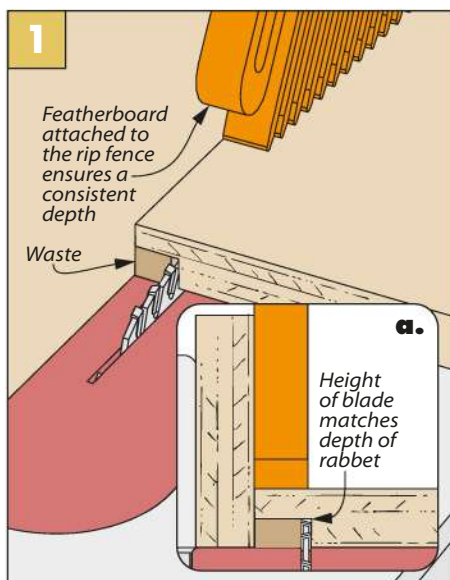
second, the workpiece is held on its edge.

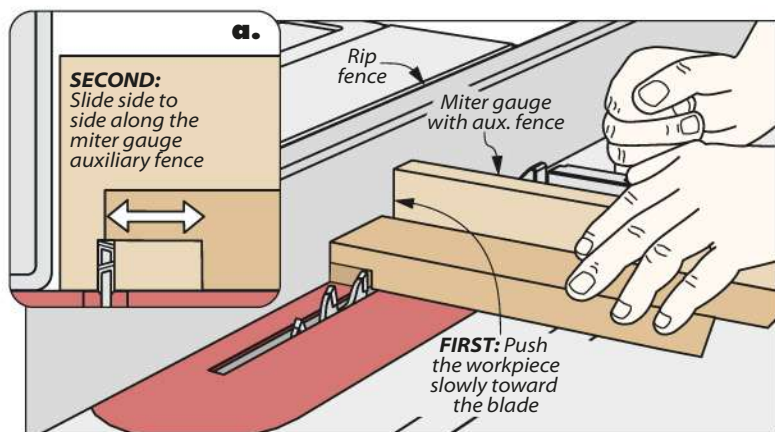
FIRST CUT. In Figure 1 you can see the setup for the first cut. I attach a tall auxiliary fence to

the rip fence, like the one shown in the photo above. (This is used to support the workpiece for the second cut.)

The next step is to set the rip fence. The distance from the fence to the outside edge of the blade defines the width. Most of the time, the width needs to match the thickness of a mating piece. So I like to use that piece as a gauge to set the rip fence. The height of the blade matches the depth of the rabbet.

FINAL CUT. The second cut isn't any more complicated than the first one. And it involves all the same considerations for setting it up. You can see these in Figure 2. Unless you're making a very shallow rabbet, a thin waste piece will be cut free during this step. You don't want it trapped between the blade and rip fence.





▲ Slide the workpiece side to side as you advance it across the blade. The rabbet is formed in small bites.

Otherwise, the piece could bind and kick back. Instead, the piece should fall to the outside of the blade. To set the blade height, I use the first cut as a guide. The blade is set a tad lower than the inside edge of the kerf, as shown in Figure 2a. This gives you a crisp shoulder.

END RABBETS. There's one other single-blade rabbet technique I want to talk about. The method shown above is a variation on Christian Becksvoort's "speed tenon" technique. Like before, the blade height is set to the depth of the rabbet. The rip fence is positioned for the width of the rabbet (when measured to the outside of the blade).

To cut the rabbet, advance the workpiece towards the blade.

As you do so, slide the piece side to side along the miter gauge fence. The end of the piece bumps against the rip fence at the end of each slide. This is shown in the upper right photo. The combination of the forward motion and sliding the piece cuts the whole face of the rabbet in a short time. As you can see in the photo at right, the surface is smooth. It's crazy how well this works.

DADO BLADE. The third rabbet technique should be a familiar one. I'd call it the Woodsmith default rabbet. We show it quite frequently in our step by step.

The main difference from the previous examples is the use of a dado blade instead of a single blade. Unlike a groove, you don't need to spend time dialing in the



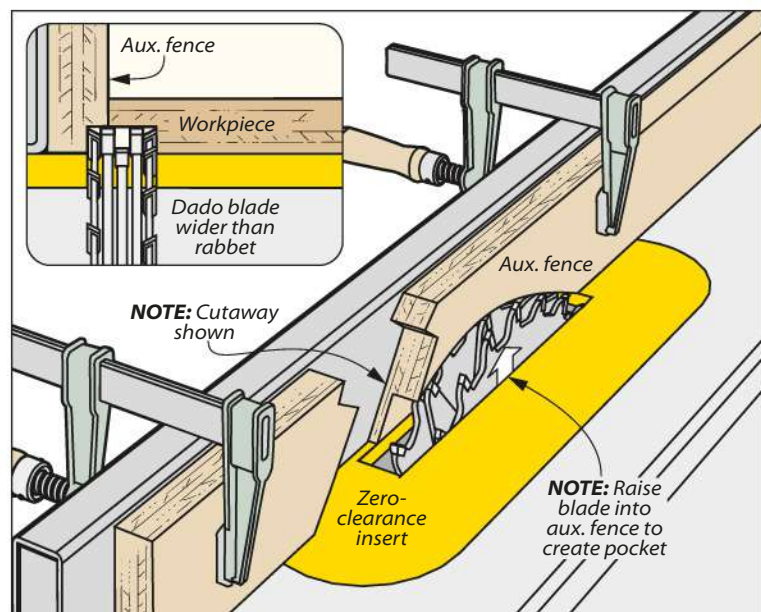
▲ The bottom of the rabbet is remarkably smooth. For narrow pieces, this method eliminates a blade change.

exact width you need. Assemble a dado stack that's wider than the rabbet.

In order to get the correct width, you'll recess a portion of the blade in a sacrificial fence attached to the rip fence. The primary benefit here is that you can form the rabbet in a single pass. When there are a lot of rabbets to cut, it's a significant timesaver in the construction process.



▲ A dado blade recessed in an auxiliary rip fence allows you to fine-tune the width of a rabbet. Once set, you can form rabbets in a single pass.





▲ A zero-clearance insert and an auxiliary miter fence keep tearout at bay while cutting dados in hardwood.



▲ Push pads distribute pressure for an even depth of cut across wide plywood panels.



SIMPLE DADOES

If cutting a groove is similar to ripping, then dados resemble crosscutting. A lot of the same principles apply. The biggest factor is making clean cuts since we're working across the grain.

A little side note concerning plywood. In *Woodsmith*, we use the same terms with plywood as we do with solid wood boards. It all depends on the direction of the face veneer. So if a channel is cut across the grain of the plywood, it's a dado in our book.

ONE APPROACH. We've seen several methods of work for the

other joinery details. I believe, there's only one way to cut dados on the table saw: with a dado blade. I'll grant that there are times when a project calls for a narrow dado that can be cut with a standard blade.

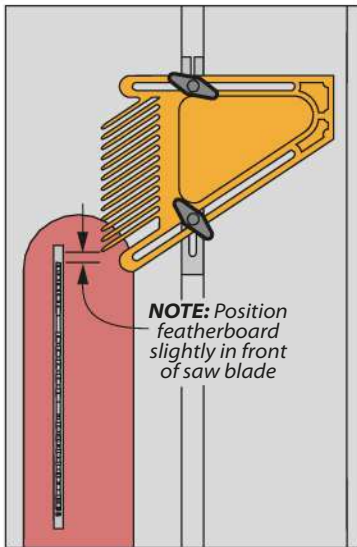
DIAL IT IN. The second key of cutting dados is accurate sizing. There's no substitute for test cuts. I like to keep a sample board near the table saw with a variety of previous test cuts. Each kerf is labeled with the various chipper and shim combinations. This gauge serves as a starting point for a new cut.

In order to get crisp cuts, a zero-clearance insert in the saw is a good place to start. Make sure the blades are clean, too. I also back up cuts with a miter gauge fence (top photo).

On plywood, use push pads to exert even downward pressure on the workpiece. This gives you a consistent depth of cut (near photo above).

Well-made grooves, rabbets, and dados are confidence boosters. The look and feel of snug-fitting joints lets you know all is well and your project will turn out right. **W**

USING FEATHERBOARDS & HOLD-DOWNS



Pressure Point. This location prevents the featherboard from pinching the blade.



▲ On narrow stock, a side-mounted featherboard holds the workpiece against the rip fence. Your attention can focus on holding the workpiece against the saw table.

Smart Featherboard Use. Featherboards and hold-downs increase safety and accuracy when you're cutting joinery at the table saw. This is especially true when you have a lot of similar parts to cut. So the natural temptation is to install several of them for ultimate results. This can be self-defeating. Enveloping a workpiece with featherboards makes it difficult to safely guide a workpiece into and past

the saw blade. My approach is to use the featherboards to focus my attention.

The photo above shows what I'm talking about. Cutting a groove in the edge of a narrow workpiece requires you to keep it against the fence, hold it down on the saw table, and drive it forward across the blade. I use the featherboard to apply side pressure (upper left drawing). This frees my

attention to concentrate on downward and forward pressure.

The top edge of the workpiece is left clear for pushing the workpiece with my hand from above and a push block from the back (out of frame).

Top-Mounted. When the workpiece is wide, another setup is more effective. In this case, there's really no good way to install a featherboard to apply side pressure. Even if there was, it would be too far from the cutting action to do much good.

The left photo shows a shop-made hold-down located above the workpiece. Its role is to apply pressure to get an even depth of cut. Your role in this dance is to keep the workpiece snug against the rip fence and moving forward.

As you can see, the side and back edge of the workpiece is open and accessible. This allows for a smooth and safe pass into and out of the cut.



▲ On a wide workpiece, installing a featherboard above the piece ensures a consistent depth of cut. You can focus on guiding the workpiece along the rip fence.

Sources

Most of the materials and supplies you'll need to build the projects are available at hardware stores or home centers. For specific products or hard-to-find items, take a look at the sources listed here. You'll find each part number listed by the company name. See the left margin for contact information.

MAIL ORDER SOURCES

Project supplies may be ordered from the following companies:

Woodsmith Store
800-444-7527
thewoodsmithstore.com

Acme Tools
877-345-2263
acmetools.com

Amana Tool
800-445-0077
amanatool.com

Cabinetmaker Warehouse
866-322-3835
cabinetmakerwarehouse.com

Festool
888-337-8600
festoolusa.com

Home Depot
800-466-3337
homedepot.com

Infinity Cutting Tools
877-872-2487
infinitytools.com

Iron Anarchy
ironanarchy.com

McMaster-Carr
630-833-0300
mcmaster.com

Porter Cable
portercable.com

Rockler
rockler.com

Van Dyke's Restorers
800-237-8833
vandykes.com

Varathane
800-901-0411
varathane.com

Woodcraft
800-225-1153
woodcraft.com

WOOD FASTENERS (p.12)

Splines can be cut from any hardwood, and dowels can be purchased at most home centers. As for the joiners, you can find the ones I used at the sources below.

- **Porter Cable**
Plate (Biscuit) Joiner 557
- **Festool**
Domino Joiner 59949

GREAT GEAR (p.22)

The two saws from *Milwaukee* can be purchased at *Home Depot*, *Acme Tools*, and other major chain hardware outlets.

- **Kreg**
Work Surface KWSJAWS
All of the mounts and accessories from *Work IQ Tools* can be purchased at their website *workiqtools.com*.

COFFEE TABLE (p.28)

To unify the look and warm up the coffee table a little bit it was stained with *Varathane's* "Mahogany," then protected with two coats of lacquer.

ROCKING CHAIR (p.34)

A coat of tung oil brought out the grain in the cherry wood

of the rocking chair. I followed that with a few coats of spray lacquer for the protective coat and pleasant shine.

ROUTER TABLE (p.42)

- **McMaster Carr**
Quick Clamp Handles .6385K31
Ah, shop projects. How do you finish them? There's a strong case for just putting the router table to work as soon as you attach the fence. The "no-finish" finish develops a lived-in look in short order. The other shown in the article has our now-standard satin lacquer finish. This offers protection and makes the project appealing for photos.

There are other options: A coat of wax on the top creates a low-friction surface. You could even apply plastic laminate.

WORKSTATION (p.46)

- **Rockler**
28" Drawer Slides 43879
- **Van Dyke's Restorers**
Drawer Pull 12255721
- **McMaster-Carr**
Threaded Inserts90192A152
2"-dia. Knob 6214K46
Flanged Screw91355A181
Nut95479A111

Weld Nut 90594A027

- **Cabinetmaker Warehouse**
Plastic Laminate . . .909-MC-4X8
- **Amana Tools**
14° Dovetail Bit45852
3/4" Straight Bit45230
1" Collar67355
- **Rockler**
15° Chamfer Bit 24791
- **Woodcraft**
Briwax Liming Wax144611

The casters used on the workstation are from *Iron Anarchy*. When you land at their site do a search for "black-casters-with-locks" for the 5" casters we used. The workstation was buffed with several layers of *Briwax* liming wax to make it glow. The black paint of your choice will work fine if you choose to paint the edges of the drawer boxes.

KEEPSAKE BOX (p.55)

- **Lee Valley**
1/8" Hidden Pin Hinge . .05H0201
The black walnut and curly maple of the keepsake box only need a couple of coats of lacquer to bring out their colors.

TABLE SAW JOINERY (p.60)

- **Amana Tool**
1/4" Grooving Blade61368

RAZOR-SHARP EDGES in 5 Minutes!

The *Woodsmith* Cabinet Scraper System offers a fool-proof method for getting a consistent, razor-sharp edge using only a few simple tools. The secret is in the *Woodsmith* jig—a unique tool that lets you file the edge, then create the burr.

Item# 7512124

Woodsmith Cabinet Scraper System \$59.99



OUR BOND IS OUR WORD

You're serious about your woodworking projects. So are we.



Titebond wood glues offer the proven performance, respected advice and trusted solutions you demand. We remain committed to being there with you for every project.

Titebond.

titebond.com | 1-800-347-4583

01105_5227TF



Learn more
shapertools.com/origin

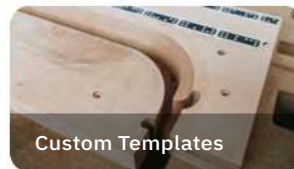
WHERE DIGITAL PRECISION MEETS CRAFT

- ✓ No computer programming required
- ✓ Works alongside other shop tools
- ✓ Portable and easy to store

Shaper Origin brings best-in-class portability and precision to any job. Create tight fitting joinery, custom inlays, install hardware, make custom templates and more.



Precise Joinery



Custom Templates



Mortise & Tenon



Hardware Installation



Fine Furniture



PRECISION CUTTING SIMPLIFIED