in this issue

PROJECTS
18 Shop Project: Shelf-pin Drilling Jig
28 Barrister's Bookcase
38 Flat-panel TV or Game Cabinet
50 Chip ‘N’ Dip Tray
58 Curvy Jewelry Box
64 Scrollsawn Barnyard Puzzle

SKILL BUILDERS
20 How to Install a Mortised Lock
54 Get the Max from Your Plunge Router

TOOLS & MATERIALS
24 Wise Buys: Spindle Sanders
68 10 Top New Tools for 2010
78 Shop-Proven Products

DEPARTMENTS
6 Sounding Board
8 Shop Tips
16 Shop Monkey
45 Annual Article Index
72 Ask WOOD
92 What’s Ahead
SHOW OFF THE GIFTS YOU BUILT

Before you wrap that handmade gift, take a few snaps of it and post them to the “Holiday Gifts 2009” photo gallery at woodmagazine.com/holiday2009. Last year, Vilas and Cheryl Schroeder of Marinette, Wis., crafted this gorgeous 14’ shuffleboard table as a present to their daughter, Sarah, and her husband, Chad.

LEARN TO BUILD CABINETS

Why pay big bucks for flimsy shop cabinets when you can build rock-solid ones for less? We’ll even help. Go to woodmagazine.com/betterwoodworking, then search for “cabinet.” There, you’ll find nearly a dozen downloadable videos about cabinetmaking.

WHADDAYA KNOW ABOUT WALNUT?

Before you build the Barrister Bookcase project on page 28, learn all about walnut—and how to work with it—at woodmagazine.com. Just type “walnut” into the search box and click “Search.”

HOME-Theater WIRING, SIMPLIFIED

Whether you build the Flat-panel TV Cabinet project on page 38 or one of your own design, you’ll need to connect it all and learn how to hide the wires. We’ve hooked up with the electronics experts at Crutchfield to teach you everything you need to know.

- Tips for Home A/V Cable Management woodmagazine.com/cables
- A Guide to Wall-mounting Your Flat-panel TV woodmagazine.com/flatpanel
- In-wall Wiring Guide woodmagazine.com/inwallwiring
- TV Connections woodmagazine.com/connect
ZAR® ULTRA MAX WOOD STAIN interior formula applies easily and penetrates evenly to achieve a rich, uniform color. It is ideal for furniture, hardwood floors, woodwork and wood, metal or fiberglass doors.

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

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

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

For more information or a dealer near you visit www.ugl.com or call 1-800-272-3235.
The facts are hard to ignore.
Titebond® III outperforms polyurethane glues.

What woodworkers need to know!

<table>
<thead>
<tr>
<th></th>
<th>Titebond III</th>
<th>Polyurethane Glues</th>
</tr>
</thead>
<tbody>
<tr>
<td>Higher Bond Strength</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Exterior Use – Waterproof</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Easy Water Cleanup</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Much Safer To Use</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Shorter Clamp Time</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>No Foam – Less Mess</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Shorter Open Time</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Doesn’t Stain Skin</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Bonds Most Materials</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Bonds Oily / Exotic Woods</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Lower Cost – Better Value</td>
<td>✔️</td>
<td>✔️</td>
</tr>
<tr>
<td>Longer Usable Shelf Life</td>
<td>✔️</td>
<td>✔️</td>
</tr>
</tbody>
</table>

As the leader in wood glues, we want you to know the truth about polyurethane glue and woodworking. A straightforward comparison between Titebond® III Ultimate Wood Glue and polyurethane glue tells the story.

Titebond® III is THE ultimate choice for bonding wood to wood. Period.

For more information and a detailed comparison, please visit www.titebond.com/TBIIIvsPolyurethane
Part of the bench, all the appreciation
My wife enjoys gardening and has turned our backyard into a beautiful park-like setting with several places to sit and enjoy the fruits of her labors. So when my son and I saw the tree bench in issue 190 (May 2009), we built it as a Mother’s Day gift for her. Because we don’t have a large tree in our yard, we built half the bench, added arm rests on the ends for stability, and placed it around a flowering crab-apple tree. She loves it.  
—Scott Tibbels, Omaha, Neb.

Half-size rockers for half-pint youngsters
I wanted to make a child-size rocking chair for my niece’s first child, born this past year, so I built a smaller version of the rocker in issue 183 (May 2008). I made each part exactly half the size of those in the original plan, with a few exceptions: I made the seat slats wider, beefed up the rail and slat tenons to about three-quarter scale, and gave the curved rockers a T-shape for a wider footprint. So far, I’ve made four chairs, two each in cherry and oak. Thanks for the inspiration.
—Mark Wroblewski, LaSalle, Ill.

How about the random-orbit sander as an innovation?
Might I suggest another tool for your list of woodworking innovations in the past 25 years: the random-orbit sander. About 21 years ago, I saw a dual-action pneumatic sander at my brother-in-law’s autobody shop, and I said someone should invent a sander like that for woodworking. A few months later, I saw my first electric random-orbit sander made for wood. Now a regular user, I most likely would not be a cabinetmaker if it weren’t for this tool because it turned the worst part of building into an acceptable, reasonably pleasant task.
—Tom Kurth, Alma, Mo.

Upon further reflection, Tom, we should have included these sanders. Although German-based Festool invented the electric random-orbit sander more than 25 years ago, ROSs weren’t widely available in the U.S. until the late ’80s. And we’re with you about its time-saving performance: We won’t work without one, either.
—WOOD magazine editors

I made the switch on my machines
Reading your review of router-table power switches (issue 189, March 2009) inspired me to replace the push-button switches on my stationary machines because they were all different and often hard to push the “off” buttons. So I replaced them with Grizzly’s Safety Paddle Switch (#G8988, $4; 800-523-4777, grizzly.com).
—Bill Tarleton, Lafayette, Calif.

HOW TO REACH US

■ For woodworking advice:
  Post your woodworking questions (joinery, finishing, tools, turning, dust collection, etc.) on one of our online forums at woodmagazine.com/forums.

■ To contact our editors:
  Send your comments via e-mail to woodmail@woodmagazine.com; or write to WOOD magazine, 1716 Locust St., LS-221, Des Moines, IA 50309.

■ Subscription assistance:
  To notify us of an address change or to get help with your subscription, visit woodmagazine.com/service. Or write to WOOD magazine, P.O. Box 37439, Boone, IA 50037-0439. Please enclose your address label from a recent magazine issue.

■ To find past articles:
  See our index at woodmagazine.com/index.

■ To order past issues and articles:
  For past issues of WOOD magazine, special newsletter-only issues, or downloadable articles, go to woodmagazine.com/store. Some issues are sold out.

■ Updates to previously published projects:
  For an up-to-date listing of changes in dimensions and buying-guide sources from issue 1 through today, go to woodmagazine.com/editorial.
Introducing 3 New JET® Tools Designed Specifically for the Serious Woodworker

>> 20", 18" and 16" TSC™ Bandsaws
>> 22-44 ODH™ Oscillating Drum Sander
>> 17" XACTA-X™ Drill Press

STRENGTH REBORN.

FINESHEST FINISH.

INSTANTLY EXACT.

The ALL-NEW JET® TSC™ Bandsaws are designed with a Triangular Frame to provide superior column rigidity that enables precision sawing.

The ALL-NEW JET® 22-44 ODH™ Oscillating Drum Sander features a Drum Head that oscillates from left to right to eliminate workpiece streaking left by linear drum sanders.

The ALL-NEW JET® 17" XACTA-X™ Drill Press features an X-Shaped head mounted dual AC powered laser guide system for accurate cross point drilling.

Visit Us Online At: www.jettools.com

©2009 WMH Tool Group, Inc. The color WHITE is a registered trademark of WMH Tool Group, Inc.
Poor man’s bench vise

I wanted a vise on my secondary workbench, but didn’t want to pony up the cash for another heavy-duty one like on my main workbench. So I built this low-budget bench clamping system to hold oversized boards. After installing T-track near the edge of my bench, I drilled holes through 10” handscrew clamps, as shown below, to accommodate ¼x2 ½” T-bolts. The star knobs lock the clamps along the T-track to accommodate different board widths and lengths.

—Ken Minnaert, Olympia, Wash.

Speedy spindle gauge

While manually duplicating spindles on my lathe recently, I grew tired of constantly setting and resetting my calipers to check the various diameters along the workpiece. So I made this simple hardwood story board to speed up the process.

I drew a centerline on a scrap of hardboard and drilled holes of diminishing sizes with my Forstner bits. At the tablesaw, I cut to one side of the centerline, ripping the board in two and discarding the waste side. On the remaining board, I marked each half-circle with its diameter. By placing the desired-size hole over the spindle, I quickly check my progress at critical diameters.

—Byron Manthey, Hutchinson, Minn.

continued on page 10
INTRODUCING THE 12-VELT CRAFTSMAN CORDLESS MULTI-TOOL

With the ability to sand, scrape, saw, and smooth, this portable tool puts the power to complete any job right in the palm of your hand. With innovation and better value, trust that Craftsman has the tool to get the job done right. Find it at craftsman.com

Sears THE HEADQUARTERS OF CRAFTSMAN
**Shop Tips**

**No-fuss mortise setup**
I like to cut mortises and stopped grooves using the router table. Here's my method for skipping the hassle of a time-consuming trial-and-error set-up process.

After laying out the mortise or stopped groove, use a Forstner bit to drill a hole at each end of the mortise or groove. Then at your router table, drop one of the holes over the router bit to set bit height, the fence position, and your first stopblock. Use the other hole to set the opposite stopblock, and you're set up to make the cut.

—Philip Exantse, Bridgewater, Conn.

**Two-in-one insert for extended life**
I use a zero-clearance insert for making nearly all tablesaw cuts, so I go through a lot of inserts. To extend the life of your inserts, simply rotate them. First use one side with your thin-kerf blade.

When it gets chewed up enough to start losing effectiveness, designate that slot as the full-kerf side, and turn the insert around. The fresh side becomes zero-clearance for the thin-kerf blade once again.

—Craig Richardson, Ottumwa, Iowa
Shop Tips

Go-anywhere mini spraybooth
I like to finish my small turned projects with aerosol spray lacquer, but don’t like the fumes in my shop. So I made this portable spray booth from scrap plywood. The simple 12x16x16" box features two lazy-Susan bearings—one inside the top that holds a cup hook for hanging small parts, and one in the bottom for larger vessels. When it comes time to spray finish, I carry the box outside using the drawer-pull handle. The lazy-Susan bearings let me rotate the parts as I spray, for full coverage. Then, I just carry the box back into the shop for drying.

—Del Kramersmeier, Eagle Grove, Iowa

continued on page 12

Discover the hobby that becomes a passion

GET STARTED
making spectacular pens this winter

HUGE LATHE SALE!
on our compact, powerful Turncraft Pro midi lathes

Call or go online for a FREE catalog and FREE pen making DVD

Penn State Industries
1-800-377-7297 • www.pennstateind.com
**Shop Tips**

**Corner clamp converters**
These corner clamping blocks help me squarely glue up mitered frames of almost any size. Each block consists of two pieces of 2¼” laminated hardwood. In the top piece, I drilled a ¼” hole in the center to allow for glue squeeze-out. Then, backing the piece with an auxiliary fence on my miter gauge, I cut the squared notches by running it through the tablesaw on edge. Finally, I glue the top and bottom blocks together, and cut slots in the sides and bottoms sized to corral my bar clamps. (Cut on the sides shown bottom.) Scraps of acrylic epoxied to the notches ensure that any glue squeeze-out comes off.

—Max Young, Albion, Ind.
Plan easel is a step up
The plans for a recent project came printed on a 2x3' sheet of paper and were accompanied by about 10 pages of instructions. I wanted to keep everything handy for reference, but there is nowhere near the amount of vertical or horizontal space in my shop to display the plans. The solution: this temporary easel quickly constructed from an aluminum step ladder, a couple 2x3' pieces of plywood, and a few machine screws. I taped up the plans to put everything in easy view. The ladder still folds to get it out of the way. Or if I need to use it as a ladder, it’s no problem to quickly remove the screws.
—Joel Simmons, McDonough, Ga.

continued on page 14
Ready for the next level?

Berea Brand Pen Kits!

• High Quality
• Original Designs
• Reasonably Priced

Visit us at www.bereahardwoods.com or call us at 1-877-736-5487 or e-mail us at bereahard@aol.com

Shop Tips

Sure-fire center finder for firewood

I’ve found some of the most beautiful turning blanks in the firewood pile. The good news: It’s free. Bad news: It’s hard to find the center of odd-shaped pieces. So I’ve come up with this trick to solve that dilemma.

Mount a piece of scrap wood to your lathe’s faceplate. Then attach a piece of acrylic using double-faced tape and chuck it in your lathe. Turn the acrylic to a disc. Use a 3/16” bit in a tail-stock chuck to drill a hole through the centerpoint, and then scribe concentric circles on the disc at 1/8” intervals with a skew chisel.

To use the centerfinder, position it over the end of the stock, adjusting it until one of the circles is completely inscribed in the solid, usable portion of the wood. Then use a nail set or an awl to mark the center through the hole in the disc.

—Dick Ayers, Barron, Wis.
Always reveal your butt hinges evenly
Installing butt hinges for inset doors while ensuring a consistent hinge exposure on flush-mounted doors has always given me grief. This simple jig makes it easy, though. I made it out of a 1x2" strip of wood with a 1/4x1/4" stop strip glued to the edge, as shown. The location of the stop determines the reveal, or how much the hinge sticks out from the face frame. (I use 1/4".)
To put it to use, simply clamp the guide to the face frame and butt the hinge against the fence to position it for drilling. Once finished, do the same on the door. When you attach the doors to the frame, they will come out flush every time.
—Charles Paukert, Cedar Creek, Neb.

Running tight on clamps? Add pegs
With clamps running short on a cabinet job, I needed a good way to secure face frames. So I improvised, making a pegged block that fit into the shelf-pin holes in the case side. Then, the pressure from a C-clamp forced a tight glue joint between the frame and the case side.
—Daryl Sullivan, Cedar Falls, Iowa

CAUTION:
FAST, SIMPLE SHARPENING WILL LEAD TO MORE PROJECTS

Drill Doctor
The Drill Bit Sharpener
Sharpens your dull and broken drill bits
- E-Z Align System — assures correct sharpening alignment
- Patented dual-cam sharpening system — professionally sharpen your bits
- Diamond sharpening wheel — long lasting

Work Sharp
The Wood Tool Sharpener
Sharpens your woodworking tools
- Fast, precise, repeatable results every time
- Air-cooled dry sharpening system — no mess
- Complete sharpening system, no jigs needed

See our video demos at www.DrillDoctor.com
www.WorkSharpTools.com
Precisely how precise?

During a visit to a woodworking friend's home, my pal asked me to check out his tablesaw. He was having "issues" with the set-up and wanted a second opinion.

There in his garage shop was a nice contractor's saw, complete with a shiny top, perfectly lubricated handwheel threads, and not a speck of dust on it. While admiring the gleaming saw, my friend passed me a board he had ripped on it. I sighted down the cut edge and noticed the smallest amount of roughness on the cut. Trust me; you really had to squint to see anything.

Next, he removed the saw's throat plate and blade, and went to a special drawer where he stored his precision measuring devices. Armed with his machinists dial indicator, he mounted it to the saw top, and gingerly pushed the instrument to the arbor flange.

"There," he said, his voice heavy with disappointment, "The arbor's off by .002", and I'm having a bear of a time getting it perfect."

I looked at the board, noted the measurement, and studied the board again. "Looks good to me," I said.

He sighed, reassembled the saw, made another test cut and held the result up close to my face. "You see??" I looked again, and if I squinted just right, turned my head to the side, and positioned the board in the proper raking light, I could barely make out some roughness.

"I dunno... Still looks good to me."

He turned, shook his head and said, "You just don't get it, do you?" It was then that I remembered what he does for a living: My friend is an engineer.

Wood is pretty amazing stuff. It seems so substantial, yet it constantly moves in response to changes in temperature and humidity. Woodworkers for centuries have understood this and adapted their methods of work to account for it.

I get a kick out of woodworkers who routinely turn to machinist's tools to perfect the thickness of a tenon or the fit of a set of dovetails. If you cut the joint on a rainy day and assemble on a sunny one, you'll see the magic—and feel the frustration—of our preferred medium of work. Hey, we aren't machining parts for the Space Shuttle.

And, getting back to my buddy's beef: Trying to get a perfect "glue-line rip" right off a tablesaw is an act of magic you don't need to attempt. Many experienced woodworkers will joint a board, rip it an extra 1/2" wide, then joint the ripped edge to smooth it and bring the board down to size.

Remember, when wood is involved, "close enough" is usually close enough. It's more fun to build projects than to worry about thousandths of an inch. 

*The Shop Monkey (aka Tom Lovino of Tampa, Fla.) blogs prolifically at woodmagazine.com/shopmonkey.*
WIFE APPROVED
THE NEW SAWSTOP PROFESSIONAL CABINET SAW: AFFORDABLE SAFETY AND PERFORMANCE

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

Get the gift you REALLY want this year!
Don’t wait – visit sawstop.com/wifeapproved
We’ll send her all the information she’ll need to make your holiday wish come true.
Quick & Easy Jig

Shelf-Pin Jig Use a plunge router to bore dead-on holes for shelf pins.

Rather than spend $30 or more for a commercial shelf-pin jig, make your own from scrap material. This simple jig, made from perforated hardboard, has a fence to reference against your workpiece edge. Add an auxiliary subbase—with an indexing pin—to your plunge router, and then simply bore perfectly spaced holes as needed. Make your jig long enough to bore all the holes in a particular workpiece without moving it. Or make a shorter one that you move down by indexing off holes you just made.

Begin by building the jig, as shown in the drawing below. For the auxiliary subbase, we used ¼”-thick clear acrylic for best visibility, but you also can make it from medium-density fiberboard (MDF).

Scribe a straight line down the center of the subbase’s longest axis. Bore a ¼” hole on the line centered with the row of holes closest to the fence and a ⅛” hole where the centerline intersects the fourth row of holes. Remove your router’s regular subbase and center it on the ⅛” hole of the auxiliary base. Mark and bore holes for the mounting screws, including a counterbore or countersink to recess the screws. Sand a slight chamfer on one end of a ⅛” dowel and then cut it to ¾” long. Using super glue or epoxy, install this dowel into the first hole to serve as a registration pin. Now, mount this subbase to your router.

For those times when you need to reposition the jig, make a registration guide from a scrap of solid wood. Bore three ⅛” holes and glue in the dowels as shown. The longer center dowel pins the jig into a previously routed hole.

To use the jig, clamp it to your workpiece. In your router, install an upcut spiral router bit the same diameter as the studs of your shelf pins. Set the depth-of-cut stop so it’s slightly more than the length of the shelf-pin studs. This jig is set up to bore holes 4” from the fence; if you want holes closer to the edge of your workpiece, use double-faced tape to adhere a spacer, as shown above. Hold the jig alongside the part you’re drilling, insert the subbase indexing pin into a hole, power up the router, and bore a hole. Insert the subbase pin into the next hole in the jig and bore again, stepping and repeating as needed.

Project design: Jeff Mertz
Illustration: Roxanne LeMoine
How Do You Turn Your Home’s Interior From Ordinary To Extraordinary?

With Freud’s Architectural Millwork Router Bits!

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

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

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

1-800-334-4107
www.freudtools.com/architectural
Installing a Mortised Lock

With just a few simple tools, you can add security to your projects’ lids, drawers, or doors.

Embellishing your project with a mortised lock adds to both its functionality and appearance. Of course, it adds a little more complexity as well. Follow these simple steps to master the mortised lock.

Security starts with a shallow mortise

Nearly all the steps of installing a mortised lock remain the same regardless of its application. We’ll use the drawer lock in the Barrister’s Bookcase project on page 28 to demonstrate this technique.

Start by marking a centerline on the top edge and face of the drawer front. Holding the lock against the face, center the lock pin (see drawing) and mark both ends of the lock faceplate on the drawer front’s top. (Centering the lock body instead of the pin may place the keyhole off-center if the pin is not centered in the lock.)

In your drill press, install a bit that matches the width of the lock faceplate. (See “Which bit to use?” on page 22.) Set your drill press depth stop so the lock faceplate will sit flush with the top edge of the drawer front, and drill both ends of the marked mortise, with the circumference of the bit just reaching the marked lines [Photo A]. By drilling the ends first, you ensure they will drill out cleanly. If an end is left until last, the overlapping bit may chatter, leaving an imprecise or ragged hole. Don’t move your drill press fence—you’ll need that setting for the next mortise.

Make a scoring cut on the edges of your mortise with a straightedge and craft knife. Clean up the shallow mortise with the largest chisel that will continue on page 22
Free “Online Videos” show you how to join it, rout it, and clamp it, at...
MLCSwoodworking.com

“Spin Control”
Our Router Speed Control reduces speed without reducing torque! Work at the best speed for your bit and wood. Adjust from 0 RPM to full speed.
#9410 • 20 AMP....$34.95

“Hot New Joints”
The Fast Joint System creates unique joints quickly and easily. Includes everything you need to make exquisite joinery: The jig, joint templates, clamps, bushings and router bits. Two Sets available.
#9411 • 4 Template Set.....$169.95
#9422 • 11 Template Set.....$269.95

“Band Together”
The Merle Band Clamp features dual-pivoting jaws that align to any angle! Features 23’ steel banding and four corners. The Shopmaster Set includes 4 clamps and 8 extra corners.
#9012 • Merle Clamp ............$27.95
#9007 • ShopMaster Set .........$114.95

“45 Different Cuts”
Our 45 piece, carbide tipped Router Bit Set includes straight, round over, chamfer, cove... 20 profiles in all! FREE lube!
1/4” shank .......#6074............$119.95
1/2” shank .......#8374............$119.95

“Routing Heavyweight”
Our 120 lb. Heavyweight Router Table and Fence features a large cast-iron top, universal clamping system, tilt-up access, split fence with dust port, sturdy stand and miter gauge.
#2387 • ON SALE! Save $70..........................$299.95

1-800-533-9298    MLCS FREE SHIPPING!
PROFESSIONAL ROUTER BITS & WOODWORKING PRODUCTS
IN CONTIGUOUS USA • PO. BOX 165 DI, HV, PA. 19006 - 2010
**Challenge Skill**

**IT'S OKAY TO BE SHALLOW**
Taking care to keep the chisel perpendicular to the drawer edge ensures a tight fit.

**KNOW YOUR VERTICAL LIMITS**
Be sure to drill your keyholes just slightly larger than the tip of the key to allow for fit.

**FILLER AND DRILL'ER**
Inserting a shim into the mortise while drilling the keyhole prevents blowout.

**GIVE IT A TWIST**
Twist the key to transfer the marker ink on the bolt to where the strike plate should go.

**SCORE ONE FOR THE CRAFT KNIFE**
Scoring the outline of the strikeplate will help to keep your chisel on track.

**STRIKE PLATE PLACE**
Clean the edge of the shallow mortise with a chisel; then check the fit of the strikeplate.

---

fit [Photo B]. Invert the lock to check the faceplate depth—if the mortise isn’t deep enough, use a narrow chisel.

With the lock inverted in the shallow mortise, transfer both ends of the lock body to the rail edge [see opener]. After setting your drill press and bit to the same depth as the lock body, prepare to drill the deep mortise. Unlike the shallow mortise, begin drilling both ends of the deep mortise by centering your drill bit over the end lines rather than abutting the circumference of the bit to the edge. This allows the mortise to accommodate the squared edges of the lock body. Chisel and clean up the deep mortise to fit the lock body.

**Eyeball the keyhole**
Using the centerline on the face of the drawer front, center the tip of the key and mark its vertical limits [Photo C]. Insert a filler shim in place of your lock while drilling the keyhole [Photo D].

**Which bit to use?**
While drilling a mortise, a Forstner bit drills cleanly, without chatter, and the overlapping holes leave less waste to remove later with a chisel. For our project, however, we needed to use a hand drill to mortise the strike plate inside the drawer opening—and a Forstner bit won’t accept a stop collar. So our second-best option was a Brad point bit, which still allows for some overlap and can be marked for consistent depth with an ordinary stop collar. If you don’t have a Brad-point bit to match the plate’s width, you can make it work by separating each hole by ¼", and chiseling away the remainder.

---

Insert the lock, drill the appropriate pilot holes, and secure with screws.

**Coordinate the plate**
To quickly and accurately mark the location of your strike plate mortise, generously coat the end of the bolt with a permanent marker, close the drawer, and turn the key to engage the bolt against the corresponding rail [Photo E]. With double-faced tape, center the strike plate over the mark and score the outline with a craft knife [Photo F].

Using the same procedure as with the lock faceplate, drill a shallow mortise [Photo G]. Mark and drill the deep mortise to allow for the bolt to fully engage when turned. If the bolt operates with a hooking motion rather than strictly vertical, you’ll have to lengthen the deep mortise to accommodate the bolt’s movement. Secure the strike plate with screws.

Written by Nate Granzow with Jeff Mertz
Illustration: Tim Cahill
Best Power to Size Ratio in the Industry. Bosch continues its legacy of innovation with its first-ever full line of pneumatic nailers and compressors. Packing 10% more power into the industry’s most compact tools, Bosch takes full advantage of superior design to give you precise control and maneuverability. More compact, more powerful and more durable. Full Force Technology – groundbreaking innovation that consistently delivers 100% power.

Get a FREE TOOL BELT when you purchase any new Bosch fastening gun or compressor**

* Excludes high pressure systems. Test conducted at Robert Bosch Tool Corp.
**While supplies last. See boschtools.com/guns-n-hoses for details.
Why buy?
Nothing beats a spindle sander for smoothing curved edges. Because the spindle oscillates up and down as it spins, it sands efficiently with greater stock removal, less burning, and longer abrasive life than you get with a non-oscillating drum. These benchtop models will handle nearly any curve-sanding task, for a fraction of the cost of a heavier floor model. We tested seven models and recommend the four below. All have sufficient power, come with at least four sanding drums, and include onboard storage for all parts.

Benchtop Spindle Sanders

**GRIZZLY #G0538, $150**

6 sanding drums: ⅛", ⅛", ⅛", ⅛", ⅛", ⅛", and ⅛" in diameter
Includes: 6 insert rings, wrenches
Weight: 34 lbs

**Editor test-drive:**
The Grizzly G0538 features a 14x20" laminate-covered MDF top with the spindle offset. I like that, because most of the time I’m working on the right side of the spindle. Despite its small size, it sands with gusto while still being easy to finesse. My shop-vacuum hose connected easily to the 2½" port below the table and sucked up all the dust. I had to anchor it to my workbench, though, because the lightweight unit scooted around when unsecured.

—Tested by Jeff Mertz, Design Editor

**To learn more:**
800-523-4777; grizzly.com

---

**RIDGID #EB4424, $200**

5 sanding drums: ⅛", ⅛", ⅛", ⅛", and ⅛" in diameter
Includes: 4 insert rings, drum washers, belt-sanding attachment, workpiece stop, hex wrenches
Weight: 40 lbs

**Editor test-drive:**
Not only is this machine nearly unstoppable as an oscillating spindle sander, it’s also a 4x24" oscillating edge sander. The belt drive fits into the same drive shaft as the drums, and provides about 8" of working belt length. It takes about 30 seconds to make the change to spindle sanding. The front of the aluminum table tilts down to 45°. My shop vacuum hooked up easily to the 2½" dust port and gathered in all but a little dust behind the drums.

—Tested by Dave Campbell, Deputy Editor

**To learn more:**
866-539-1710; ridgid.com

---

**CRAFTSMAN 21500, $280**

6 sanding drums: ⅛", ⅛", ⅛", ⅛", ⅛", and ⅛" in diameter
Includes: 6 insert rings, drum washers
Weight: 58 lbs

**Editor test-drive:**
There’s nothing fancy about this unit, but it does everything I need a spindle sander to do. The 18" diameter cast-iron table provides plenty of work surface, and beefs up the vibration-eliminating weight to 58 lbs. The Craftsman 21500 has a 3"-diameter spindle, something Ridgid and General International don’t offer. I force-fed hard maple and cherry against the spindles and could not bog it down. The 2½" dust port fit my shop vacuum hose precisely for good dust collection.

—Tested by Lucas Peters, Multimedia Editor

**To learn more:**
800-383-4814; craftsman.com

---

**GENERAL INTERNATIONAL 15-220-M1, $430**

5 sanding drums: ⅛", ⅛", ⅛", ⅛", and ⅛" in diameter
Includes: 4 insert rings, wrenches
Weight: 81 lbs

**Editor test-drive:**
Why pay this much for a benchtop spindle sander? Because the 81-lb heft of a rugged cast-iron top and heavy steel base eliminates vibration, and the ¼-hp motor—twice as big as the competitors—powers through wood without a hint of stalling. I like the test-tallest 5½" sanding drums (other makes are 4½") for those rare occasions when I need to sand a workpiece that large. The table tilts to 45° for angled work. And there’s an adapter included to hook up a 4" dust hose to the 2½" port.

—Tested by Craig Ruegsegger, Multimedia Editor

**To learn more:**
888-949-1161; general.ca
Lift, grip and protect your projects

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

GOOD TO KNOW all new education programs
- Ship Shape Shop with Jim Heavey
- Finishing Clinic
- Hand Tool Rodeo
- Cabinet Restoration
- Complete Schedule Online

GOOD TO BUY show exclusive discounts
- Where woodworkers and DIY’ers in the know stock up
- The best buys of the year
- Find coupons on our website

GOOD TO TRY test-drive before you buy
- Put the latest tools to the test before you buy

BE A SHOW-OFF!
Enter your best work in our Show-Off Contest for a chance to win a Delta Unisaw!

Register Online

To register and learn more go to www.thewoodworkingshows.com
Overall dimensions: 36 1/4" wide x 16 3/4" deep x 51 3/4" high.
Our twist on this classic project includes a drawer at the bottom to keep files close at hand. Even fully loaded, it rolls in and out easily on heavy-duty drawer slides. The drawer-box joinery requires just a single setup on the tablesaw explained in this article and demonstrated in a free online video at woodmagazine.com/simplifiedrawer.

**Every case has two sides**

1 Begin by gluing up stock for the panels (A) [Materials List, page 36]. While the panels dry, rip ¾" stock for the top/bottom rails (B), center rails (C), front stiles (D), rear stiles (E), and facing (F) [Drawing 1]. Set up a stopblock and auxiliary fence on your miter gauge and cut the top/bottom rails and center rails to length. Reset the stopblock and cut the front stiles, rear stiles, and facing to length. Set the facing aside for now.

2 In your table-mounted router, set up the rail router bit with the bearing flush to the fence face [Photos A, B]. Cut the cope profile on the ends of the top/bottom rails (B) and center rails (C), backing up each workpiece with a pushblock [Photo C].

**COPING WITH COPING THE RAIL ENDS**

Set the upper edge of the rail bit's lower cutter ⅛" above the tabletop (Photo A). Then adjust the fence so it aligns with the bearing of the bit (Photo B). Using a pushblock to steady the rails and prevent tear-out on the back edge (Photo C), rout the rails with the good face down on the tabletop.
**SHOP TIP**

**Sticking the setup**
Get perfectly flush faces on the rails (B, C) and stiles (D, E) without measuring. Simply set the height of the stile bit by using a coped rail as a guide. Adjust the bit so the slot cutter aligns with the tongue on the end of the rail.

**2 EXPLODED VIEW**

3. Install the stile bit in the router, adjust the bit height [Shop Tip, above], and set the fence flush with the bearing. With the good face down, rout the inside edges of the top/bottom rails (B), front stiles (D), and rear stiles (E), and both edges of the center rails (C).

4. Dry-fit the rails (B, C) and stiles (D, E). Position the center rails (C) to create three openings of equal length. **Quick Tip! Marks that stick with it.** To help realign pieces quickly during glue-up, place painter's tape across the joint of each center rail and stile. Measure the width and height of an opening and add 3/16" to each dimension. Retrieve the panels (A) and cut them to these dimensions.

5. Set up a raised-panel bit with back cutter in your table-mounted router and cut the profile around each panel.
Tie the sides together

1 Mount in your tablesaw a dado blade matching the thickness of the shelves (H), and attach an auxiliary fence to the rip fence. With part of the blade housed in the auxiliary fence, cut a rabbet along the back edge of each rear stile (E) [Photo E, Drawing 1].

2 Readjust the fence so the exposed blade width equals the thickness of the top/bottom panels (G). Rabbet the inside top and bottom of each side assembly (A–E). Remove the auxiliary fence, reset the rip fence 14¼” from the blade, and cut two dadoes across each side assembly [Photo F, Drawing 1].

SHOP TIP
Routing perfect stopped chamfers
This simple setup guarantees matching chamfers on each edge of the facing (F). Start by using double-faced tape to attach a T-shaped block to the router-table fence. The width of the vertical stop equals the diameter of the bit bearing plus two times the size of the chamfer. With a ½” bearing and a ¾” chamfer, make the stop 1¼” wide. Center the stop over the bit. Next, tape a 3”-long stopblock to one end of the facing and a 4½”-long stopblock to the other, flush with the ends. To rout the chamfers, move the facing into the bit so the left stopblock touches the left side of the T (photo) and push it along the fence until the right stopblock contacts the T. Flip the facing around and rout the opposite edge. Attach the stopblocks to the other facing and repeat the procedure for four perfectly matched chamfers.
Retrieve the facing (F) and rout stopped chamfers on each front edge. Glue the facing (F) to the front of each side assembly (A-E) with the ends and outside edges flush. **Note:** Make sure the 4 1/2" unchanneled end is at the top and that the assemblies are mirror images. Finish-sand to 220 grit.

Cut the top and bottom (G) and shelves (H) to size. Cut the shelf edging (I) to size and glue and clamp it in place. Finish-sand the shelves (H/I) through 220 grit, then assemble the sides (A-F) with the shelves (Photo G). Add the top and bottom (Shop Tip, below right; Drawing 2a).

Cut the top/bottom trim (J) to fit between the facings (F). Glue the trim in place, flush with the top face of the top panel and the bottom face of the bottom panel. Finish-sand to 220 grit.

From 1/4" plywood, cut the back (K) to fit between the rabbets in the side assemblies (A-F), and flush with the top face of the top (G) and bottom face of the bottom (G) (Drawing 2). Drill holes and screw the back in place to check the fit, then remove it to allow easier access during the rest of construction.

**A top and bottom add appeal**

1. From 1/4" stock, cut the top/bottom trim fronts (L), sides (M), and backs (N), and the extension frame front (O), sides (P), and back (Q) to width, and 1/8" longer than listed. Rout a bullnose on one edge of the top/bottom trim front and sides (Drawing 3a). Then cut 1/8" glue-relief grooves on one face of these pieces (Drawings 2a and 3) and on both edges of the extension frame front and sides.

2. Miter-cut both ends of the top trim front (L) so it is 1 1/4" longer than the case width. Miter one end of each top trim side (M). Clamp the trim front to the top of the carcase centered side-to-side and with a 3/4" overhang in front. Place the trim sides against it. Mark the trim sides’ final length (Photo H), cut them to length, and glue and screw the trim front and sides to the carcase. Cut the top trim back (N) to length to fit between the trim sides (Drawing 3) and glue and screw it in place. Repeat this process for the bottom trim frame. Sand the frames to 220 grit.

3. Measure the distance the top frame (L-N) overhangs the top rails (B) and facing (F) (Drawing 2a). Transfer this dimension to the top faces of the top trim front and sides, parallel with their outside edges. As with the top and bottom frames, miter the extension frame front (O) and sides (P) to fit along the lines (Drawing 2a). Sand the front and sides to 220 grit, then glue them in place. Cut the extension frame back (Q) to length to fit between the sides, finish-sand it, and glue it in place.

4. Miter-cut the base front (R) to length, then miter-cut and crosscut the base sides (S) to length (Drawing 3). Rout the 1/4" cove along the upper edge of these pieces, then lay out the profile. Bandsaw the profile and sand it smooth.

5. Bandsaw six corner cleats (T) to size and shape (Drawing 3b). Glue up the base front (R) and sides (S) using a cleat in each corner (Photo I). Glue the remaining cleats to the back end of the sides (Drawing 3), then glue and screw a support cleat (U) behind each miter joint (Drawing 3). Drill countersunk shank holes in two more support cleats and glue them in place, evenly spaced on the back face of the base front.

6. Turn the case upside down and attach the base to the case, flush at the back and centered side-to-side. Drill countersunk shank holes through the corner cleats (T) and drive screws through them and the front support cleats (U) (Drawing 3).

7. Cut the cap panel (V) to size, and the cap front trim (W) and side trim (X) to width and 1/8" longer than listed. Then miter the trim pieces to fit around the cap panel (Drawing 2). Rout a 1/2" roundover on the bottom edge of the trim (Drawing 2a). Then finish-sand the cap assembly and glue it to the extension frame (O-Q) flush at the back and centered side-to-side.

**SHOP TIP**

**Know the angles**

Driving a screw straight down into the 1/8"-deep rabbet in the top and bottom rails (B) risks blowing out the inside face of the rail. Instead, angle the screw slightly to the outside of the rail to prevent this (Drawing 2a). Use a scrap block mitered at 10° to help guide your bit at the proper angle while drilling the pilot holes [right].
Frame the doors and a false front

1 Measure the openings for the doors and drawer. Crosscut the rails (Y) 3 1/8" shorter than each opening's width, and the stiles (Z) 1/2" shorter than each opening's height. **Note:** Each pair of stiles may not be the same length. If this is the case, mark them to indicate which opening they fit. Drill 1/8" holes 3/8" deep in the door stiles [Drawing 4]. Glue up stock for the drawer panel (AA) and set it aside for the moment.

2 As you did with the side assemblies (A–F), use your rail-and-stile router bits to cut the joinery on the rails (Y) and stiles (Z). Cut the drawer panel (AA) to size, then rout the profile around it [Drawing 5]. Finish-sand the panel to 220 grit, then apply a finish.

3 Glue up the doors, checking that the frames are square and flat. Then glue dowels in the stiles (Z) and cut them to length [Drawing 4]. Glue up the drawer frame with the panel (AA), placing rubber spacers in the grooves [Drawing 5].

4 After the glue dries, mount a 1/8" rabbeting bit in a handheld router and rabbet the back face of the door frames to accept the glass and stops. Chisel the corners square, then finish-sand the doors and drawer false front (Y/Z/AA). Cut four 38" lengths of glass stop (BB), sand it through 220 grit and set it aside.

5 Glue up stock for the door/drawer supports (CC) and cut them to size. Set two of them aside for use with the drawer later. In the four remaining door supports, cut a 1/8" groove and drill two 1/8" holes and two 3/8" countersunk shank holes [Drawing 6], making sure you end up with two mirrored pairs. Sand the supports to 220 grit, then cut two lengths of 1/8" dowel for each door support [Drawing 6]. Glue the 2"-long dowels in place below the grooves. Set aside the 1 1/4"-long dowels until the doors are installed.

6 Screw the door supports (CC) in the case [Photo J]. Slide the door in from the back of the case [Photo K], then insert (don’t glue) a 1 1/4"-long dowel in each door support. Mount the knobs [Drawing 2]. **Quick Tip! Make (and see) your mark.** Put painter's tape on the bottom stiles to make the knob location marks more visible.
Cut the door stops (DD) to size [Drawing 4a]. Temporarily attach a rubber bumper to each door stop using double-faced tape. Glue the stops to the shelves (H) so the front of the door rests flush with the front of the shelf edging (I). Reinstall the back (K).

**Build and install a drawer**

1. Glue up ⅝" stock for the drawer front/back (EE) and sides (FF). Trim the pieces to size after the glue dries.

2. In your tablesaw, set up a ¼" dado blade and raise it ¼" above the table. With the rip fence ¼" from the blade,
plow a dado across each end of the drawer sides (FF), and a groove to accept the drawer bottom (GG) across the inside faces of the sides and drawer front/back (EE) [Drawing 5a, Step 1]. Add an auxiliary fence to the rip fence and rabble the ends of the front/back (EE) to create a tongue that fits the dadoes in the sides (FF) [Drawing 5a, Step 2]. (We demonstrate this process in a free video at woodmagazine.com/simpledrawer.)

3 Cut the drawer bottom (GG) to size and glue up the drawer, checking for identical diagonal measurements to ensure that the box is square.

4 Rest the drawer (EE–GG) on 1/4"-thick spacers and clamp the false front (Y/Z/AA) to the drawer, with the false front also resting on the spacers [Photo L]. Place a drawer slide along each drawer side (FF) 1/4" behind the drawer stile (Z) and resting on the bench. Use two screws to secure the slides to the drawer sides. Retrieve the drawer supports (CC) and align them flush with the false front. Transfer the location of the fronts of the drawer slides onto the drawer supports. Remove the slides from the drawer and mount them to the drawer supports [Photo M].

5 Remove the drawer slides and mount the drawer supports (CC) in the carcass [Photo N]. Then, using the screw holes in the support and drawer sides (FF), remount the drawer slides and install the drawer into the carcass.

6 Lay out the locations of the knobs on the drawer panel (AA) [Drawing 2]. (They should align with the door knobs.) Clamp 1/4"-thick spacers to the bottom trim (J) and rest the false front (Y/Z/AA) on them, centered in the opening. Drill pilot holes for #8 x 1 1/4" flathead wood screws [Photo O]. Drive screws through the drawer panel and into the drawer front (EE). Remove the drawer and false front from the carcass, drill four countersunk pilot holes from inside the drawer into the drawer stiles (Z) [Drawing 5], and screw the false front in place. Remove the screws from the knob holes, enlarge the holes to accept #10 machine screws and install the knobs.

Closing arguments

1 Cut a 3/4" x 4" x 8" blank for the plinth blocks (HH). Rip intersecting 40° bevels along one edge, then rip a 3/8"-wide strip from the beveled edge. Cut the plinth blocks to length from this strip. Sand bevels on the ends to complete the blocks [Photo P]. Glue the plinth blocks to the facing (F) [Drawing 1].

2 Remove the back (K), doors, and drawer, and remove the false front (Y/Z/AA) from the drawer case (EE–GG). Remove the hardware, including the bumpers, from the door stops (DD). Brush a walnut stain on the carcass top/bottom (G) to blend it in with the carcass. Allow it to dry, then apply a coat of boiled linseed oil to all unfinished pieces. After the oil cures, apply a coat of polyurethane. After the topcoat dries, buff all pieces with 320-grit sandpaper and add a second coat of polyurethane.

3 Have glass cut to size to fit in the doors. Retrieve the glass stop blanks (BB) and miter-cut pieces to fit in the rabbets [Drawing 4]. Drill 1/8" holes for the brads, place the glass in the doors, and nail the stops in place. Reinstall the doors and case back (K).

4 To accept hanging file folders, cut two pieces of 1/8" x 1" aluminum bar to fit between the drawer sides (FF) and drill countersunk 1/8" holes [Drawing 5]. Screw the aluminum to the drawer front/back (EE) with 1/8" projecting above the edge of the front and back.

5 Reattach the false front (Y/Z/AA) to the drawer and slide the drawer into the carcass.

6 If there are no objections, stock your case, then hold court to show off its features and your handiwork. 

continued on page 36
### Materials List

<table>
<thead>
<tr>
<th>Part</th>
<th>T</th>
<th>W</th>
<th>L</th>
<th>Mat. Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>carcass</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A panels</td>
<td>⅛&quot;</td>
<td>1⅛&quot;</td>
<td>12⅛&quot;</td>
<td>EW 6</td>
</tr>
<tr>
<td>B top/bottom rails</td>
<td>⅛&quot;</td>
<td>2&quot;</td>
<td>11⅛&quot;</td>
<td>W 4</td>
</tr>
<tr>
<td>C center rails</td>
<td>⅛&quot;</td>
<td>2⅛&quot;</td>
<td>11⅛&quot;</td>
<td>W 4</td>
</tr>
<tr>
<td>D front stiles</td>
<td>⅛&quot;</td>
<td>1⅛&quot;</td>
<td>44⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>E rear stiles</td>
<td>⅛&quot;</td>
<td>2⅛&quot;</td>
<td>44⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>F facing</td>
<td>⅛&quot;</td>
<td>2&quot;</td>
<td>44⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>G top/bottom</td>
<td>⅛&quot;</td>
<td>1¼&quot;</td>
<td>33⅛&quot;</td>
<td>BP 2</td>
</tr>
<tr>
<td>H shelves</td>
<td>⅛&quot;</td>
<td>1⅛&quot;</td>
<td>33⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>I shelf edging</td>
<td>⅛&quot;</td>
<td>⅜&quot;</td>
<td>33⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>J top/bottom trim</td>
<td>⅛&quot;</td>
<td>⅛&quot;</td>
<td>30⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>K back</td>
<td>⅛&quot;</td>
<td>33⅛&quot;</td>
<td>44⅛&quot;</td>
<td>WP 1</td>
</tr>
<tr>
<td>top/bottom trim frames</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>L* fronts</td>
<td>⅛&quot;</td>
<td>2⅛&quot;</td>
<td>35⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>M* sides</td>
<td>⅛&quot;</td>
<td>2⅛&quot;</td>
<td>15⅛&quot;</td>
<td>W 4</td>
</tr>
<tr>
<td>N* backs</td>
<td>⅛&quot;</td>
<td>2¼&quot;</td>
<td>30⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>extension frame</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>O* front</td>
<td>⅛&quot;</td>
<td>1⅛&quot;</td>
<td>15⅛&quot;</td>
<td>W 1</td>
</tr>
<tr>
<td>P* sides</td>
<td>⅛&quot;</td>
<td>1⅛&quot;</td>
<td>15⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>Q* back</td>
<td>⅛&quot;</td>
<td>1¼&quot;</td>
<td>32⅛&quot;</td>
<td>P 1</td>
</tr>
<tr>
<td>base</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>R front</td>
<td>⅛&quot;</td>
<td>3⅛&quot;</td>
<td>35⅛&quot;</td>
<td>W 1</td>
</tr>
<tr>
<td>S sides</td>
<td>⅛&quot;</td>
<td>3⅛&quot;</td>
<td>15⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>T corner cleats</td>
<td>⅛&quot;</td>
<td>⅜&quot;</td>
<td>3⅛&quot;</td>
<td>P 6</td>
</tr>
<tr>
<td>U support cleats</td>
<td>⅛&quot;</td>
<td>⅛&quot;</td>
<td>2¼&quot;</td>
<td>P 4</td>
</tr>
<tr>
<td>cap</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>V panel</td>
<td>⅛&quot;</td>
<td>15⅛&quot;</td>
<td>35⅛&quot;</td>
<td>WP 1</td>
</tr>
<tr>
<td>W* front trim</td>
<td>⅛&quot;</td>
<td>⅝&quot;</td>
<td>36⅛&quot;</td>
<td>W 1</td>
</tr>
<tr>
<td>X* side trim</td>
<td>⅛&quot;</td>
<td>⅝&quot;</td>
<td>16⅛&quot;</td>
<td>W 2</td>
</tr>
<tr>
<td>door and drawer frames</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Y rails</td>
<td>⅛&quot;</td>
<td>2¼&quot;</td>
<td>26⅛&quot;</td>
<td>W 6</td>
</tr>
<tr>
<td>Z stiles</td>
<td>⅛&quot;</td>
<td>2¼&quot;</td>
<td>13¼&quot;</td>
<td>W 6</td>
</tr>
<tr>
<td>AA drawer panel</td>
<td>⅛&quot;</td>
<td>9¼&quot;</td>
<td>26¼&quot;</td>
<td>EW 1</td>
</tr>
<tr>
<td>BB glass stop blanks</td>
<td>⅛&quot;</td>
<td>⅜&quot;</td>
<td>38&quot;</td>
<td>W 4</td>
</tr>
<tr>
<td>CC supports</td>
<td>¼&quot;</td>
<td>2&quot;</td>
<td>14⅛&quot;</td>
<td>W 6</td>
</tr>
<tr>
<td>DD door stops</td>
<td>⅛&quot;</td>
<td>⅜&quot;</td>
<td>3⅛&quot;</td>
<td>W 4</td>
</tr>
<tr>
<td>drawer</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>EE front/back</td>
<td>⅛&quot;</td>
<td>10&quot;</td>
<td>28⅛&quot;</td>
<td>EP 2</td>
</tr>
<tr>
<td>FF sides</td>
<td>⅛&quot;</td>
<td>10&quot;</td>
<td>13¼&quot;</td>
<td>EP 2</td>
</tr>
<tr>
<td>GG bottom</td>
<td>⅛&quot;</td>
<td>12¼&quot;</td>
<td>28⅛&quot;</td>
<td>BP 1</td>
</tr>
<tr>
<td>HH* plinth blocks</td>
<td>⅛&quot;</td>
<td>⅜&quot;</td>
<td>3&quot;</td>
<td>W 2</td>
</tr>
</tbody>
</table>

*Parts initially cut oversize. See the instructions.

### Materials key:
- EW-edge-glued walnut
- W-walnut
- BP-birch plywood
- WP-walnut plywood
- P-poplar
- EP-edge-glued poplar

### Supplies:
- Double-faced tape, 8x1½" flathead wood screws (8), 8x1¼" flathead wood screws (36), 8x1½" flathead wood screws (4), 8x⅜" flathead wood screws (18), 6x⅜" flathead wood screws (8), ⅜x⅜" brads (24), ⅛x9⁄16" single-strength glass (2), ⅜x12" dowel, ⅜x1x36" aluminum bars (2)

### Blade and bits:
- Dado blade
- Rail and stile set
- Raised panel with back cutter
- Round-over, 45° chamfer
- Cove
- ¼" rabbing router bits

### Sources
- Hardware: 1¼" brass knobs (6) no. AS3012 EB, $1.69; 12" heavy-duty drawer slides (2) no. KV8505P12, $23.62 (pair); ¼" rubber bumpers (4) no. 3MSJ5312, $5.60 (pack of 56); rubber panel spacers (42) no. RCR1885, $3.00 (pack of 100); Woodworker's Hardware, 800-383-0130, www.woodworker.com
- Router bits: Rail-and-stile set ( Freud no 99-260, Woodcraft no. 828792) $99.99; raised panel with back cutter (Freud no. 99-569, Woodcraft no. 828803) $99.99; Woodcraft, 800-225-1153, woodcraft.com

Written by Craig Ruegsegger with Jeff Mertz
Project design: Kevin Boyle
Illustrations: Roxanne LeMoine; Lorna Johnson

---

### MORE RESOURCES

**FREE VIDEOS**
- "Making Super-Simple Drawers" at woodmagazine.com/simplesdrawer
- "Perfect-Fitting Dadoes" at woodmagazine.com/deadandado

**FREE PLAN**
- Squaring braces at woodmagazine.com/braces

**RELATED ARTICLE**
- "Arts & Crafts Barrister’s Bookcase" issue 149 (June/July 2003) A modular, stackable design. $5

($=Download this article from woodstore.net for a small fee. Type "barrister" in the Search box.)
How to get the perfect Holiday gift ...

Every issue of WOOD Magazine on DVD-ROM!

Step 1: Fold magazine back on itself, this page up, as shown.

Step 2: Position magazine where your significant other can’t miss it.

Step 3: Act surprised about receiving your ultimate Holiday gift!

25 years of WOOD on 5 BIG volumes — every issue, every project, every tip, technique, and tool review.

Get one—get ’em all—for as little as $29.95 each!

Hurry—quantities are limited ... go to www.woodmagazine.com/DVDlibrary or call 1-888-636-4478 before it’s too late!
Slim-Profile TV/Game Cabinet

Give your flat-panel television or dartboard a wall-mounted hideaway that's a breeze to build.

WHAT YOU'LL NEED

- **Materials**: ¾” oak, ¾” and ½” oak plywood, ⅛”×⅜” oak molding.
- **PROJECT HIGHLIGHTS**
  - Overall dimensions: 52¼” wide × 8½” deep × 36¼” high.
  - The interior dimensions accept most 42” flat-screen televisions up to 49½” wide × 5½” deep × 32” high.
  - Make a half-size version to conceal a standard-size dartboard.
  - Build the doors without the expense of cope-and-stick router bits.

As bulky tube-style TVs gradually disappear, so go the old-style armoires and entertainment centers that held them. Today's televisions require smaller, sleeker storage—the kind you can build yourself using basic tools and home-center materials.

In this article, we'll first take you through the steps to build the TV cabinet. Then, on page 43, you'll learn about the minor modifications necessary to construct a matching dartboard case.

Assemble the case

1. Cut the top and bottom (A), sides (B), and hanging cleats (C) to size. Quick Tip! A hang-up without hang-ups. To make the hanging cleat fit snugly within the case, cut the cleat with the tablesaw setup used to cut the top and bottom to length.

2. From the outside face, drill and pocket-screw the bottom (A) ⅛” from the bottom ends of the sides (B). Then pocket-screw the top (A) to
Build the cabinet with two or four doors, depending on what's inside. Chalkboard-painted panels inside the dartboard cabinet doors provide a place to keep score.

with the stiles overlapping the sides by ⅛" [Drawing 1a, Photo B].

6 Cut two 54"-long blanks for the top/bottom front trim (F), a 38"-long blank for the top/bottom end trim (G), one 56"-long blank for the front cap trim (H), and a 22"-long blank for end-cap trim (I). Quick Tip! Rout, then cut to size. You can machine long parts easier and safer than short ones, so rout profiles on the end trim and end-cap trim before cutting them to length. Rout ½" coves on the top/bottom front trim and top/bottom end trim. Rout ¼" beads on the front cap and end-cap trim [Drawing 1a]. Sand trim parts to 180 grit.

7 Miter the top and bottom front trim (F) to length. Center, drill, and screw the front trim pieces on the case (A-E) with a ¼" front overhang.

8 Cut the top/bottom end trim (G) about 1" oversize and miter one end to make two left and right parts. Mark and cut one top/bottom end trim [Drawing 1, Photo C]. Then glue and screw it to the case (A-F) [Photo D]. Repeat for the other end trim and the front-cap trim (H) and end-cap trim (I).

ATTACH THE FRAME TO THE CASE

Raise the case (A-E) on riser blocks to provide clearance for the clamps. This also makes it easier to use an assortment of clamps.

the sides, keeping the ends and edges flush [Photo A].

3 Screw the cleats (C) to the top and bottom (A) and drive pocket screws from the cleats into the sides (B). (For the #8 screws in this project, drill ⅛" pilot holes.)

4 Cut the face-frame stiles (D) and rails (E) to size. Pocket-screw the rails to the stiles.

5 Glue and clamp the frame (D/E) flush with the top of the case (A/B/C).
**Make two pairs of doors**

1. Cut the door rails (J) and stiles (K) to size. Attach the rails to the stiles by drilling and driving two pocket-hole screws [Drawing 2]. **Note:** Place pocket-hole screws at least 1 1/8" from the edges of the rails to keep them clear of rabbets to be routed later [Drawing 2a].

2. Install a 1/4" rabbeting bit and make several progressively deeper passes to rout a rabbet 3/4" deep around the inside edges of the door frame (J/K).

---

**CUT THE TRIM TO LENGTH**

With the top/bottom end trim (G) miter against the front trim (F), mark the end trim at the edge of the top/bottom (A).

**ATTACH END TRIM TO THE CASE**

Drill countersunk 1/4" pilot holes in the top/bottom end trim (G) and pilot holes in the sides (B) before gluing and screwing them.

**ROUND OFF PANEL CORNERS**

Use a template from an art or office supply store to mark corner radii on the door panels (L) to match the door-frame (J/K) rabbets.
Cut four door panels (L) to size. Mark an ⅜" radius at each corner [Photo E] and sand to the lines until they fit between the rabbets [Photo F]. Finish-sand the panel faces to 180 grit, then apply a thin bead of glue to the frame rabbet and clamp the panels in place or use two ⅜" brads to secure each panel.

After the glue dries, cut the door horizontal trim (M) and vertical trim (N) 1" oversize from molding like that in Drawing 2b. (We bought ours at a local home center.) Miter one end of each trim part, then miter each trim part to fit the door frame [Photo G]. Glue and clamp the trim in place.

Rout ⅜" rabbets on the ends of all doors. On the two doors that will receive hinges, rout an additional rabbet along the door edge that hinges to the frame stiles (D) [Drawing 2].

Assemble the cabinet

Lay one outside door (J–M) side by side with one inside door and space them apart using folded business cards.

Center a 2" butt hinge over the gap, then drill and fasten the hinge in place [Photo H]. Repeat for the other hinge, and again for the other double door.

Drill and screw the ⅜"-offset hinges to the rabbeted door stile (K) of an outside door (J–M). Center the double doors between the frame rails (E). Then drill and screw the hinges to a frame stile (D) [Photo I]. Repeat for the other double door. Quick Tip! Shrink doors to fit. If the two inner doors bump when closed, cut them some slack on
your tablesaw. Note the amount of door overlap, then remove the hinges from both doors. Adjust your tablesaw to remove half the overlap from the adjoining door stiles. Then reassemble the double doors and recheck the fit.

3 Cut the magnet blocks (O) to size; then glue and clamp them to the frame rails (E), centered from side to side and flush with the rail edges [Drawing 1]. Drill and screw magnetic catches to the blocks; then drill and screw knobs and strike plates to the doors (J–M).

4 Remove the hardware, fill the pocket holes in the doors with plugs, and sand smooth. Then sand all parts to 180 grit and finish. We applied Varathane no. 209 Golden Pecan stain and two coats of Old Masters water-based finish.

5 Reattach the hardware and mount the cabinet on a wall where you’ll hang the television by screwing through the hanging cleats (C) into wall studs. Mount the television using tips in the sidebar Wire Your TV Like an Expert, and close the doors on a successful project.

Wire Your TV Like an Expert

Before you mount your television cabinet, plan how you’ll wire it for electricity, antenna, cable, speakers, and add-ons such as a DVD player. This can be as simple as installing a wiring chase from the TV cabinet to the baseboard or as sophisticated as running in-wall wiring.

For help with this, we turned to the online Learning Center at Crutchfield, a mail-order and retail electronics specialist. Learning Center topics include everything from audio/video basics to installing home-theater systems. To get you started, we worked with Crutchfield to bring you these Learning Center tutorials:

• Tips and Techniques for Home A/V Cable Management covers how to conceal wires behind raceway channels without in-wall wiring. Visit woodmagazine.com/cables
• A Guide to Wall-Mounting Your Flat-Panel TV explains in detail how to safely attach a flat-panel television to the wall behind your new cabinet. Visit woodmagazine.com/flatpanel
• In-Wall Wiring Guide explains how to run wires and cables within walls. Visit woodmagazine.com/inwallwiring
• TV Connections helps you make sense of ports on the back of today’s televisions and describes which types of cables give you the highest quality picture and sound. Visit woodmagazine.com/connect

To explore topics ranging from how to shop for a high-definition TV to creating a home theater, visit the Crutchfield Learning Center at crutchfield.com

Cutting Diagram

With rabbets on the centered double doors resting on the frame stile (D) and rails (E), drill and drive hinge screws.

Materials List (TV Cabinet)

<table>
<thead>
<tr>
<th>Part</th>
<th>FINISHED SIZE</th>
<th>Matl.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A top/bottom</td>
<td>¾” 7&quot; 49½&quot;</td>
<td>OP</td>
<td>2</td>
</tr>
<tr>
<td>B sides</td>
<td>¾” 7&quot; 34&quot;</td>
<td>OP</td>
<td>2</td>
</tr>
<tr>
<td>C hanging cleats</td>
<td>¾” 2&quot; 49½&quot;</td>
<td>O</td>
<td>2</td>
</tr>
<tr>
<td>D frame stiles</td>
<td>¾” 2&quot; 34&quot;</td>
<td>O</td>
<td>2</td>
</tr>
<tr>
<td>E frame rails</td>
<td>¾” 2&quot; 47¾&quot;</td>
<td>O</td>
<td>2</td>
</tr>
<tr>
<td>F+ top/bottom front trim</td>
<td>¾” 2” 52½”</td>
<td>O</td>
<td>2</td>
</tr>
<tr>
<td>G+ top/bottom end trim</td>
<td>¾” 2” 8½”</td>
<td>O</td>
<td>4</td>
</tr>
<tr>
<td>H+ front-cap trim</td>
<td>¾” 2¼” 54¼”</td>
<td>O</td>
<td>1</td>
</tr>
<tr>
<td>I+ end-cap trim</td>
<td>¾” 2¼” 9¼”</td>
<td>O</td>
<td>2</td>
</tr>
</tbody>
</table>

Doors (4)

| J rails            | ¾” 2¼” 7½”    | O     | 8    |
| K stiles           | ¾” 2” 30½”    | O     | 8    |
| L panels           | ¾” 8½” 26½”   | OP    | 4    |
| M+ horizontal trim | ¾” ¾” 7½”     | O     | 8    |
| N+ vertical trim   | ¾” ¾” 26”     | O     | 8    |
| O magnet blocks    | ¾” ¾” 30”     | O     | 2    |

*Parts initially cut oversized. See the instructions.

Sources

Materials key: OP—oak-veneer plywood, O—red oak.

Supplies: Pocket screws, ¾"x1½" flathead wood screws, ¾"x2" flathead wood screws, knobs (2), 2" butt hinges (4), ¾" offset hinges (4), magnetic catches (8), pocket-hole plugs, ¼" nickel-plated knobs (2).

Bits: ¾" rabbeting bit, ¾" rabbeting bit, ¾" round-over bit, ½" cove bit, pocket-hole drill bit and jig.
Build a dartboard cabinet that scores a bull's-eye

Make an open-back dartboard cabinet using most of the same techniques and parts as the television cabinet.

1 Cut the parts to size where noted [Materials List], as with the television cabinet. Note that you’ll make only two single doors this time and no magnet block [Drawing 3]. Instead, you’ll add two chalkboard panels (P).

2 Assemble the cabinet (A/B/C) and frame (D/E) as before. Attach the front and end trim (F, G) to the top and bottom, followed by the front and end-cap trim (H, I).

3 Make two single doors (J–N) like the outside doors on the TV cabinet. Cut the chalkboard panels (P) to size and cover the front face with two coats of chalkboard paint [Sources]. Then center, glue, and clamp a chalkboard panel to the inside panel of each door.

4 Mount hinges on the doors and fasten them to the stiles (D). Sand where needed up to 180 grit and finish as desired. Hang a dartboard with its bull’s-eye the regulation 5.8" above the floor and center the cabinet over the dartboard. Screw it through the hanging cleats (C) and into the wall studs.

MORE RESOURCES

RELATED VIDEO

*“Digital TV Antennas and Installation” at woodmagazine.com/DigitalTV. (S=Download this video for a small fee.)

Cutting Diagram

Materials List (Dartboard Cabinet)

Written by Bob Wilson with Kevin Boyle
Project design: Jeff Mertz
Illustrations: Roxanne LeMoine; Lorna Johnson

<table>
<thead>
<tr>
<th>Part</th>
<th>FINISHED SIZE</th>
<th>T</th>
<th>W</th>
<th>L</th>
<th>Mat. Qty</th>
</tr>
</thead>
<tbody>
<tr>
<td>Case</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>A</td>
<td>top/bottom</td>
<td>3/4&quot;</td>
<td>3&quot;</td>
<td>25 1/2&quot;</td>
<td>OP</td>
</tr>
<tr>
<td>B</td>
<td>sides</td>
<td>3/4&quot;</td>
<td>3&quot;</td>
<td>34&quot;</td>
<td>OP</td>
</tr>
<tr>
<td>C</td>
<td>hanging cleats</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>25 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>D</td>
<td>frame stiles</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>34&quot;</td>
<td>O</td>
</tr>
<tr>
<td>E</td>
<td>frame rails</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>23 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>F</td>
<td>top/bottom front trim</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>28 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>G</td>
<td>top/bottom end trim</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>4 1/8&quot;</td>
<td>O</td>
</tr>
<tr>
<td>H</td>
<td>front cap trim</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>30 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>I</td>
<td>end cap trim</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>5 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>Doors (2)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>J</td>
<td>rails</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>7 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>K</td>
<td>stiles</td>
<td>3/4&quot;</td>
<td>2&quot;</td>
<td>30 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>L</td>
<td>panels</td>
<td>3/4&quot;</td>
<td>8 1/8&quot;</td>
<td>26 1/2&quot;</td>
<td>O</td>
</tr>
<tr>
<td>M</td>
<td>horizontal trim</td>
<td>3/4&quot;</td>
<td>7 1/8&quot;</td>
<td>O</td>
<td>4</td>
</tr>
<tr>
<td>N</td>
<td>vertical trim</td>
<td>3/4&quot;</td>
<td>1/2&quot;</td>
<td>26&quot;</td>
<td>O</td>
</tr>
<tr>
<td>P</td>
<td>chalkboard panels</td>
<td>3/4&quot;</td>
<td>8 1/8&quot;</td>
<td>27&quot;</td>
<td>HB</td>
</tr>
</tbody>
</table>

Sources

Materials key: OP—oak-veneer plywood, O—red oak, HB—hardboard.

Supplies: Pocket screws, #8 x 1 1/2" flathead wood screws, knobs (2), 1/2" offset hinges (4), pocket-hole plugs, 1/4" nickel-plated knobs.

Bits: 1/4" rabbeting bit, 3/8" rabbeting bit, 1/2" round-over bit, 1/2" cove bit, pocket-hole drill bit and jig.

Sources: Blackboard paint no. 202626, S12 per quart, available at Lowe’s stores. Or use Rust-Oleum no. 206540 chalkboard paint, $15 for 30 oz., from Amazon.com.

*Parts initially cut oversize. See the instructions.
AWARD-WINNING DESIGN

The 3000 series machines are the new members of Laguna Tools line of bandsaws. Built with many features from our award-winning HD line of bandsaws, the new 3000 series provides a perfect balance between very large capacities and competitive prices.

Prices starting at $1,295!

CALL FOR FREE DVD

PLATINUM SERIES

TABLESAW
- 3-hp TEFC Leeson Motor
- 10-in. Blade Capacity
- 60-in. Rip Capacity
- Triple V-Belt Drive System

JOINTER
- 2-hp TEFC Motor
- 1/8-in. Out Capacity
- Shear-Tec Spiral Cutterhead

PLANER
- 3hp TEFC Motor
- 25-in. x 20-in. Table
- Shear-Tec Spiral Cutterhead

PANELSAW
- 4-hp TEFC Motor
- 1/3-hp Scoring Motor
- 67-in. Cross Cut Capacity
- 10-in. or 12-in. Blade Capacity

THRIVING ON INNOVATION
LAGUNA TOOLS
17101 Murphy Avenue, Irvine, CA, 92614
www.lagunatools.com

Se Habla Español
800.234.1976
949.474.1200
### PROJECTS

<table>
<thead>
<tr>
<th>Article, Issue: Page</th>
<th>Article, Issue: Page</th>
<th>Article, Issue: Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air compressor caddy, 190:52-55</td>
<td>Dresser, Shaker-style, 188:34-40</td>
<td>Sanding-disc caddy, 189:32</td>
</tr>
<tr>
<td>Bedroom set, Shaker-style, 187:24-39</td>
<td>Dust collection floor chute, 188:10</td>
<td>Sandpaper cutter, 190:85</td>
</tr>
<tr>
<td>Benchtop routers, 193:24, 26</td>
<td>Excavator, toy, 194:62-65</td>
<td>Shelf and towel rack, 192:34-37</td>
</tr>
<tr>
<td>Blanket chest, 194:30-36</td>
<td>Ice cream scoop, turned-handle, 191:76-78</td>
<td>Shelf-pin drilling jig, 191:24</td>
</tr>
<tr>
<td>Bookcase, glass-door, 191:34-40</td>
<td>Jewelry chest, 191:70-75</td>
<td>Shelves, stacking, 189:70-74</td>
</tr>
<tr>
<td>Bud vase, 194:28-29</td>
<td>Lingerie chest, Shaker-style, 189:34-40</td>
<td>Table, Arts &amp; Crafts, Limbert, 192:30-33</td>
</tr>
<tr>
<td>Cabinets, basic, 191:50-55</td>
<td>Magazine file, 193:66-68</td>
<td>Table set: coffee, end, sofa, 188:54-60</td>
</tr>
<tr>
<td>Candleholder, 191:20-21</td>
<td>Mirror, Shaker-style, 188:66-68</td>
<td>Table-leg trimming jig, 198:30</td>
</tr>
<tr>
<td>Circular saw cutting guide, 191:26</td>
<td>Music box, 192:47-51</td>
<td>Tapering jig, 188:12</td>
</tr>
<tr>
<td>Clamp racks:</td>
<td>Napkin holder, 189:20</td>
<td>Telephone stand, 190:62-65</td>
</tr>
<tr>
<td>Adjustable, 191:56-58</td>
<td>Organizer, wall-hung, 189:49-53</td>
<td>Tool tote, toy, 190:76-77</td>
</tr>
<tr>
<td>Hold by handles, 194:18</td>
<td>Picnic table, 191:60-65</td>
<td>Towel rack and wall shelf, 192:34-37</td>
</tr>
<tr>
<td>Shelf-style, 193:75</td>
<td>Printer stand, 192:66-69</td>
<td>Tree bench, 190:38-44</td>
</tr>
<tr>
<td>Clock, mantel, 194:54-56</td>
<td>Quilt ladder, update, 189:6</td>
<td>Valet, dresser-top, Shaker-style, 188:41-43</td>
</tr>
<tr>
<td>Desk, drop-front, 193:32-38</td>
<td>Router table, 192:56-61</td>
<td>Work table, folding, 190:32</td>
</tr>
<tr>
<td>Dowel drilling jig, 189:72</td>
<td>Saddle jig, for cutting tall pieces on tablesaw, 192:70</td>
<td>Workbench, 194:42-44</td>
</tr>
</tbody>
</table>

### TOOLS & MATERIALS

<table>
<thead>
<tr>
<th>Article, Issue: Page</th>
<th>Article, Issue: Page</th>
<th>Article, Issue: Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Air filtration system, Powermatic, test, 192:77</td>
<td>Dust collectors, portable cyclone: JDS, Oneida, 188:32</td>
<td>Nailer/compressor combo kits, test, 190:30</td>
</tr>
<tr>
<td>Bandsaw, adjustable height, General International, 188:30</td>
<td>Forstner bit sets, test, 194:20</td>
<td>Nail-puller, Extractor, test, 189:19</td>
</tr>
<tr>
<td>Bandsaw, Steel City, test, 189:16</td>
<td>Gator Micro Zip Sander, All Industries, test, 193:80</td>
<td>Outlet, rotating, 360 Electrical, test, 190:84</td>
</tr>
<tr>
<td>Bandsaw, update, cutting steel, 188:8</td>
<td>Glues, best for outdoor, test, 190:72</td>
<td>Painter's Pyramids, test, 192:77</td>
</tr>
<tr>
<td>Bandsaw blade, how to coil, 191:18-19</td>
<td>Granite-enhanced machines, 189:16</td>
<td>Planer/jointer combos, test, 191:66-68</td>
</tr>
<tr>
<td>Bandsaw blade oscillation, 193:84</td>
<td>Hinge-boring Jig, Sommerfeld, test, 191:80</td>
<td>Random-orbit sander, Milwaukee, 190:37</td>
</tr>
<tr>
<td>Circular saws: Makita, Skil, 190:34</td>
<td>Jigsaw blades, Bosch, 188:32</td>
<td>Router bit, Double-grind straight, Freud, test, 191:81</td>
</tr>
<tr>
<td>Clamps, parallel-jaw, Bessey, 188:30</td>
<td>Jointer, Steel City, test, 189:16</td>
<td>Router-bit setup tips, 194:50-53</td>
</tr>
<tr>
<td>Clamps, parallel-jaw, Irwin, test, 194:74</td>
<td>Jointer knives, Disposablade, test, 193:82</td>
<td>Router dado jig, Infinity Cutting Tools, test, 194:76</td>
</tr>
<tr>
<td>Coping sleds for router table, test, 191:30</td>
<td>Jointers, test, 189:54-59</td>
<td>Router table accessories, test, 192:24:</td>
</tr>
<tr>
<td>Dado sets, test, 188:50-53</td>
<td>Lathe, Laguna Tools, test, 194:72</td>
<td>Featherboard, Milspectra</td>
</tr>
<tr>
<td>Doweling joiner, Freud, 188:29</td>
<td>Magswitch, 188:32</td>
<td>Fence, Woodpeckers</td>
</tr>
<tr>
<td>Drill/drivers: Hitachi, Makita, 190:36</td>
<td>Miter saw, dual compound/sliding, Milwaukee, 188:30</td>
<td>Safety switch, Rockler</td>
</tr>
<tr>
<td>Drill/drivers: Ridgid, Ryobi, 188:30</td>
<td>Miter saw, dual-bevel, Milwaukee, test, 193:80</td>
<td>T-track/uter track, MLCS</td>
</tr>
<tr>
<td>Drum sander, oscillating, Jet, 188:30; test, 193:78</td>
<td>Miter saw, sliding compound, Bosch, test, 191:80</td>
<td>Router-table power switches, test, 189:28</td>
</tr>
<tr>
<td>Drum sanders, test, 190:49-51</td>
<td>MiterSet, Richard L. Pattee, test, 191:83</td>
<td>Routers: Bosch, Craftsman, 190:36</td>
</tr>
<tr>
<td>Dust collector, portable cyclone, Oneida, test, 190:82</td>
<td>Mortise Mill, JessEm, 188:32</td>
<td>Routers for table mounting, 192:26</td>
</tr>
</tbody>
</table>

continued on page 46
Tools & Materials (Cont.)

- Setup tools for machinery, 189:22, 24
- Tablesaw, Craftsman, 190:35
- Tablesaw, Delta Unisaw, 188:29; test, 192:76
- Tablesaw, Grizzly, 190:35
- Tablesaw, hybrid, Ridgid, test, 194:72
- Tablesaw, SawStop, test, 191:80
- Tablesaw, splitter vs. riving knife, 188:74, 192:6
- Tablesaw blade, damaged, 194:78
- Tablesaw blades less than $50, test, 194:58-60
- Tenon-Lok joinery system, Rockler, test, 193:78
- Tenoning jigs, test, 193:69-71
- Tools for fine-tuning joints, 194:24, 26
- WorkSharp, update, 189:6

Techniques and Features

- Abbreviations on Internet, 189:78
- Abram, Norm, 192:38-42
- Acrylic, cutting, 189:78
- Baseboards and chair rails, making and installing, 194:66-70
- Bevel large tabletops, 191:17
- Beveled tapers, 192:22-23
- Biscuit joint mistakes, 193:28, 30
- Cabinet door, making and mounting, 191:53-54
- Cabinetmaking basics, 191:50-55
- Casters, on picnic table, 188:78
- Chair rails and baseboards, making and installing, 194:66-70
- Chatoyance, defined, 189:80
- Consumer Product Safety Improvement Act, 191:14
- Coping molding, 194:69
- Dadoes, cutting on tablesaw, 188:16
- Deadblow mallet, using, 190:78
- Digital subscription, 190:6
- Door and window trim, make and install, 193:40-44
- Door contest winner, 191:12
- Dovetailing wide panels, 194:38-39
- Dowels, making, 194:81
- Drawer, making, 191:54-55
- Drawer, out of square, 194:22
- Earlywood and latewood, defined, 193:83
- Finishing:
  - Film finish, fixes, 190:18-19, 21
  - Lacquer, repair damage, 188:81
  - Pine, staining, 189:81
  - Shellac, all about, 192:18, 20
  - Staining plywood, to match solid stock, 188:14
  - Walnut, faux, 199:74
- Frame and panel construction, 190:56-60
- Furniture labeling, 192:74
- Gloves for solvents, 190:81
- Glue-up, no clamps, 188:78
- Going pro, 188:70-73
- Habits for shop success, 190:66-69
- Hand tools, problem solving:
  - Bench chisels, 192:54
  - Block plane, 192:55
  - Card scraper, 192:55
  - Flush-trim/dovetail saw, 192:55
  - Sanding grips, 192:55
- Index, issues 181 thru 187, 188:6, 45-48
- Joinery:
  - Bevel joints, how to, 190:22
  - Beveled tapers, 192:22-23
  - Biscuit joint mistakes, 193:28, 30
  - Dadoes, how-to, 190:16
  - Dovetailing wide panels, 194:38-39
  - Dovetails, how-to tips, 188:24, 26-27
- Joints, in large parts, with circular saw, 191:26-28
- Metal fasteners, or not, 193:18
- Mortise-and-tenon, hints, 189:63; sizing 189:76
- Outdoor adhesives, joint test, 190:72-74
- Pocket-hole, 188:57; face frame, 191:52-53
- Tools and methods for fine-tuning, 194:24, 26
- Jointer, save money with, 194:40-41
- Jointing and planing, how to, 189:60-63
- Knots, working with, 190:28; 194:6
- Lamination springback, 192:73
- Lighting, shop, placement, 194:80
- Metal, hidden inside trees, 191:14
- Moisture content, 189:83
- Norm Abram, 192:38-42
- Planer, save money with, 194:40-41
- Presidential gifts, 189:86
- Pressure-treated lumber, safety, 189:82
- Raised-panel door, how to, 190:24-26
- Raised panels, movement, 194:82
- Router burn marks, remove, 191:22; 194:13
- Router-bit setup tips, 194:50-53
- Routing small parts, 190:78
- Salvaged lumber, finding and using, 193:72-74
- Scrapers and parting tools, how to use, 189:42-44
- Screw, removing broken, 194:78
- Screws, choosing, 191:41-43
- Securing the shop, 192:72
- Shellac, 192:18, 20
- Shop Monkey, metal vs. wood fasteners, 193:18
- SketchUp, design tips, 189:64-68
- Smoke smell, removing from furniture, 192:75
- Spalted maple food safety, 191:16
- Splinter/ripping knife, 188:74; 192:6
- Staining, matching plywood and solid stock, 188:14
- Story stick, 190:70-71
- T-track, installing, 188:83
- Table legs, fixing uneven, 189:30
- Templates preserving, 189:76
- Trim, make quarter round, 190:78
- Turning, Doug McGrath, 188:70-73
- Turning: How to use scrapers and parting tools, 189:42-44
- Underwriters Laboratories, 190:79
- Veneering made easy, 193:54-56
- Video sources, 190:6
- Window and door trim, build and install, 193:40-44
- Wood grain selection, 192:72
- WOOD magazine's first 25 years, 193:64-65
- Wood toy regulations, 191:14
- Woodworking woods:
  - Bamboo, 192:53
  - Cedar, aromatic, 194:16
  - Combination-core plywood, 192:52
  - Cypress, 194:6
  - Earlywood and latewood, defined, 193:83
  - Ipe, 192:53
  - Lyptus, 192:52
  - MDF, differences in quality, 189:80
  - Padauk, 190:80
  - Pine, pitch bleeding, 190:81
  - Pressure-treated lumber, safety, 189:82
  - Spalted maple, 191:16
  - Wood grain selection, 192:72
  - Wood substitutes, 192:52-53

Card scraper, 192:55

Habits for shop success, 190:66-69

Scrapers and parting tools, 189:42-44
Installing threaded inserts, 193:10
Changing scrollsaw blades, 190:14
Miter saw safety, cutting small pieces, 191:9
HOW TO USE THIS INDEX

This annual index includes every article and Shop Tip that appeared in WOOD® magazine from the December/January 2008/2009 issue through the November 2009 issue. To quickly find the article you’re looking for, first identify the major index category most likely to contain the article:

- Projects (plans with step-by-step instructions)
- Tools & Materials (product reviews and guidance on using tools, accessories, hardware, and wood products)
- Techniques and Features (specific skills and articles of general interest, such as craftsman profiles)
- Shop Tips/Skill Builders (quick ideas you can put to use in your shop today)

Then look for the one word that best describes the project, technique, tool, or shop tip. Articles with two strong descriptors, such as a mission table, may be found under both descriptors—“mission” and “table.”

Three steps to find any article, from issue 1 to present, using the online index

1. You also can quickly search the comprehensive online index of all WOOD magazine articles in one of two ways. First, to get directly to the index, type woodmagazine.com/index in your Web browser. Or, click on the Article Index button, shown below, in the left column of any woodmagazine.com page.

2. In the Keyword Search box, type the one word that best describes the article subject, avoiding plurals. For example, to locate a tablesaw review, type “tablesaw,” (or simply “table”) but not “review.” Click on the button marked Search. If you want to narrow the search to tablesaw jigs, type “tablesaw” in the box, then click on the button next to the words: Jigs, Fixtures, & Organizers under Category Search. Next, scroll down and click on Search under Keyword and Category Search.

3. The Web page now displays a list of articles related to your search term, including the cover date of the issue, issue number, and the page numbers. If you don’t have the issue, most articles published in WOOD magazine can be downloaded for a minimal cost. This list indicates downloadable articles with the blue words WOOD STORE, which, when clicked on, give you more details about buying the article. Otherwise, some back issues are available for $7.95 (plus s&h) by calling 888-636-4478.

Not sure exactly what project plan you’re looking for? Go window shopping!

So, you’ve had a request from a family member to build a project—say, a piece of mission-style furniture. Where do you start? Go to the WOOD Store® at woodstore.net and click on the tab that best describes the article you want (Plans, Techniques and Features, or Tool Reviews). Staying with the mission furniture example, you next click on Projects, and on the next page Indoor Furniture and Accessories, and then Arts and Crafts Furniture, Mission Style on the next page. There, you’ll find more than 30 mission-style projects.
Put Some Metal In Your Wood

The PlasmaCAM® machine makes it easy for you to cut intricate metal shapes that really enhance your wood projects.

Call today for your FREE demo video to see what you can do with this amazing machine.

(719) 676-2700 • www.plasmacam.com
PO Box 19818 • Colorado City, CO 81019
Passing the snacks at your next party might be a problem as guests pause to admire the contrasting woods and flowing lines of this chip and dip holder. When guests ask for snack trays of their own, make copies in no time using templates.

Assemble a tray blank

1. Starting with stock about ¼” thicker than shown in the Materials List, page 52, edge-glue three panels to create blanks for the tray top and bottom (A) and middle (B). After the glue dries, plane the blanks to thickness.

2. To distribute clamping pressure to the center of your lamination, cut six 2×12” clamping cauls and lay out a curve on one edge of each with the center of the faces ⅛” wider than the ends [Drawing 1]. Cut or sand each caul to the layout line.

3. Stand three pairs of clamps on your bench with cauls spanning the lower jaws, curved edge up [Photo A]. Glue and sandwich the tray middle (B) between the tray top and bottom (A) with the ends and edges flush. Place the remaining cauls curved side down on top of the tray parts between the pairs of upper clamp jaws. Tighten the clamps until the ends of the cauls touch the blank.

Templates for success

1. Cut two ½×11×17” pieces of MDF or Baltic birch plywood for the templates. Enlarge the tray pattern [Drawing 2] 400 percent to make two full-size photocopies. Or if you prefer to trace the layout on the template blanks, first make a beam compass using ½” MDF or plywood [Drawing 3].

2. Lay out centerlines on each template and mark each radius where shown [Drawing 2]. Use the beam compass to trace arcs [Photo B]. Label one template as “inside” and the other as “outside.”

3. On the inside template, cut out the openings about ⅛” from the lines...
1 CLAMPING CAUL LAYOUT

[Diagram showing clamping caul layout]

2 TRAY PATTERN

[Diagram showing tray pattern]

3 BEAM COMPASS

[Diagram showing beam compass]

4 Using a jigsaw or scrollsaw, on the outside template, cut the outside shape of the tray. Sand both templates to the layout lines [Photo C]. Place the inside template on the outside template. Check that the inside template opening parallels the inside template center opening.

5 In the corner waste areas, drill, countersink, and screw the inside template to the tray blank (A/B) [Photo D]. Trace around each opening and remove the template.

6 Mount a Forstner bit from 1" to 1¼" in diameter in your drill press. Starting with the four tight curves at the corners of the center opening, drill overlapping holes ⅛" inside the layout lines and 1⅜" deep [Photo E]. Then drill out waste for the 4" holes. Chisel off waste between the holes.

7 Make an auxiliary router sub-base by first drilling a 2" hole centered in a ½×6×18" piece of MDF. Remove your plunge-router sub-base plate and center the router chuck over the auxiliary sub-base hole. Then mount this sub-base to your router. Now attach a collet extension (see Sources) to your tray bit [Photo F] and chuck the extension and bit in the router.

Rout flat-bottomed holes

1 Reattach the inside template to the tray blank (A/B). Adjust the plunge
A collet extension adds 2¼" to the shank of this tray bit, allowing it to reach past the template and 2½" into the tray openings.

After a series of ¼"-deep cuts, the final pass reveals the contrasting walnut portion of the tray blank (A/B).

Place the tray upside down over your round-over bit and rout the inside edges of each tray opening.

Reset the router plunge depth so that the bearing rides against the edge of the previous cut. Then make a second pass. Repeat until the bit cuts 2½" deep (Center the lamination line on the bit radius). Now rout the centers to flatten the bottoms of the openings.

Remove the inside template, place the outside template in position and trace the tray shape on the blank (A/B). Bandsaw the tray and sand to 320 grit.

Install a ¼" round-over bit in a table-mounted router and set it to round over the inside edges of each tray opening [Photo H, Drawing 4]. Then round over the top and bottom outside edges [Photo I].

If you don’t have a router table, use the auxiliary router subbase to stabilize the router as you round over the edges freehand.

Sand the edges and insides of the compartments up to 320 grit using sanding sponges. Apply three coats of satin polyurethane, sanding with a 320-grit sanding sponge between coats. Then invite some friends over, stock the tray with chips and let the party begin.

Turn the tray counterclockwise as you run the edges against the ¼" round-over bit bearing.

Written by Bob Wilson with Jeff Mertz
Project design: Kevin Boyle
Illustrations: Roxanne LeMoine; Lorna Johnson

---

**ASSEMBLED TRAY**

---

**Materials List**

<table>
<thead>
<tr>
<th>Part</th>
<th>FINISHED SIZE</th>
<th>Matl.</th>
<th>Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A*</td>
<td>½&quot; 11&quot; 19&quot; W</td>
<td></td>
<td>2</td>
</tr>
<tr>
<td>B</td>
<td>1½&quot; 11&quot; 19&quot; M</td>
<td></td>
<td>1</td>
</tr>
</tbody>
</table>

*A*Parts cut oversize. See the instructions.

**Materials**

- W-edge-glued walnut
- M-edge-glued maple

**Bits**

- ¼"-diameter bowl/tray bit
- ½" collet extension
- ¼" round-over bit
- 1" to 1¼" Forstner bit

---

**Sources**

- **Tray router bit**: CMT 1½"-diameter bit no. 851.502.11B, $37.68 from Amazon.com. For an alternate, use 1¼"-diameter bit no. 144-2005B, $40, Eagle America, 800-872-2511 or eagleamerica.com.
- **Collet extension**: CMT ½" collet extension no. 796.001.00, $33.01 from Amazon.com. For an alternate, use extension no. 415-0660, $25.88, Eagle America.

---

**More Resources**

- Buy templates and instructions to build a snack tote that complements this tray at woodmagazine.com/snacktote.
From Hobbyist to Industrial
Oneida Air Systems is #1 in Dust Collection.

- Top Award Winner in All Independent Tests Since 1993.

Some of Our Industry Awards:

- Invented and Made in the USA.
- Built to Last A Lifetime.
- FREE Design Consultation
- New Oneida HEPA Filters
  GE Certified H12 HEPA Media. Third Party Tested. For the Best Possible Filtration.
- Talk Directly to Our Technical Staff and Engineers
- 1.5hp and Larger Systems
- One Stop Shopping for All of Your Dust Collection Needs.

The Dust Deputy.
A Cyclone for Shop Vacuums.
D.I.Y. Dust Deputy Starts at $59.00
Deluxe Kit Shown Here $99.00

Makes the Perfect Gift!

Call Today for FREE Catalog!
1.800.732.4065

Order Online!
See Our Complete Product Line & Videos
www.oneida-air.com
11 Ways to Get the Most From Your
Plunge Router

To many woodworkers, a plunge router is like one of those deluxe TV remote controls that has lots of buttons and functions: Most people only use a few of them because they don’t understand their full capabilities. Welcome to the plight of the plunge router. Too often this versatile tool gets pushed to the side in favor of its simpler sibling, the fixed-base router. But here are 11 ways a plunge router beats its brother.

1. Mortising
Store-bought or shop-made jigs increase the accuracy of a router as well as its ability to make identical, repeated plunge-router tasks. For example, you don’t need to own a hollow-chisel mortiser to make mortises quickly and easily. Simply build the jig shown on the next page, grab your plunge router and an upcut spiral bit, and you’re in business. Install a ¾” guide bushing in your router’s subbase and a bit that matches the width of your mortise. Center the scribed lines on the jig to your mortise layout lines, and then rout in ¼”-deep increments. Depending on the position of your mortises, sometimes only one of the jig’s aluminum cross bars will rest on the workpiece. To keep the jig parallel to the workpiece in these instances, add a ¼” spacer, as shown in Photo 1.

For the tenons, you have three options, all of which work equally well. First, you can rout mortises in both of the mating workpieces and make a loose tenon to fit. To do this, dimension stock to the thickness and width you’ll need, and then round over the edges on your router table. Second, machine a tenon onto the mating workpiece as you’d do for a rectangular mortise, and then simply round the edges with a knife or rasp. Or third, square the mortise corners with a chisel to fit a matching tenon.

2. Doweling
Make the same jig as for mortising, but rather than sloting the acrylic top, simply bore two ¾” holes, as shown in Photo 2. Make multiple tops with different spacing between the holes for different dowel setups. To use this jig, set it up as you would for mortising, and then plunge the holes to your desired depth. Repeat for the mating workpiece, and assemble the joint with glue and dowels.
ANATOMY OF A PLUNGE ROUTER

As the name suggests, a plunge router's bread and butter is its ability to lower a bit onto a workpiece and make any number of cuts, such as stopped dadoes or mortises, without needing an entry or exit point along an edge or end. Internal springs make it snap straight up after you finish the cut. You control the depth of cut with a stop rod that contacts a multi-position, rotating turret stop. Using multiple stops, you can rout deeply in small increments before getting to the final depth, avoiding grain tear-out and saving wear on the motor and bit.

In addition to handheld use, a plunge router also excels mounted in a router table. Many models now include built-in lift mechanisms, including some that raise the collet high enough for above-the-table bit changing. Dedicated plunge routers, such as the one shown below, do not fit into aftermarket router lifts, but the motors from midsize models (ones that interchange between plunge and fixed bases) fit most lifts and can be easily removed for handheld use in their bases.

Plunge routers range in size from the 1.1-hp Trend T4 (essentially a trim router in a plunge base) to midsize models with 1 1/2 to 2 1/4 hp to monster routers with 3-plus hp. Most midsize and larger routers come with variable-speed motors and 1/4" and 1/2" collets.

1

Insert a spacer in the mortising jig where this leg's taper begins. That keeps the jig parallel to the mortised surface.

2

Because the holes on this doweling jig are near the board's end, use a same-thickness scrap for a spacer.

woodmagazine.com
3. Interior pattern routing
When you need to rout any type of closed pattern in the interior of a workpiece, such as the chip/dip tray [Photo 3] and on page 50, choose a plunge router. With a fixed-base router you have to tip the router into the cut—risky because you can damage the workpiece or template or possibly injure yourself.

Whether you use commercial templates or make your own, you’ll need to use either a guide bushing or a top-bearing pattern bit to register against the template. For cuts deeper than your bit can reach, use a collet extension, which fits into your router collet and has another collet for your bit.


4. Stopped dadoes, grooves, and flutes
When you need to make field cuts like these, tilting a fixed-base router into the workpiece might cause it to veer off track and damage your workpiece. With a plunge router you simply use a clamp-on straightedge or an edge guide [Photo 4] made by your router’s manufacturer. Add stops at each end, and it’s almost goof-proof.

5. Circle routing
To create perfect circles, mount your router to a trammel arm that rotates around a fixed point [Photo 5]. With a plunge router you can quickly cut out the workpiece from a larger blank, without need of a saw. Build a trammel arm from our downloadable plan at: woodmagazine.com/routertrammel.

6. Sign-making
You’ve got two options here. First, you can sketch the lettering onto your workpiece, and then freehand rout along the lines. But that requires a steady hand—one slip-up and you’ll have to start over. Or, use a commercial sign-making system [Photo 6] with a guide bushing in the plunge base.


7. Inlay
As with sign-making, it takes a steady hand to rout inlay recesses freehand. Mess up and you’re forced to mend the goof. By using templates with bearing-guided bits or guide bushings, you eliminate the chances of veering off course. And whether the inlay serves for decoration or to patch a flaw in the wood, store-bought kits [Photo 7] provide everything you need to rout the recess as well as exact-fitting inlays.

Inlay products: Eagle America, brass inlay kit, part #440-1321, $40; butterfly template, part #440-1914; 800-872-2511, eagleamerica.com.

8. Keyholes
Hanging something on a wall but don’t want to use a hanger bracket or wire? A slotted keyhole [Photo 8] does the job nicely and won’t be seen, because the screw head and shank slip into the slot. Many manufacturers make router bits specifically for making these keyhole slots in several sizes; choose the one that best fits the screws you’ll use. You can use one keyhole slot for small projects or two or three for larger ones. It’s always best to drive the screws into wall studs, so lay out your keyholes accordingly. Whether you place the keyholes on vertical or horizontal elements of your project, the technique is the same. Plunge into the back to the preset depth, and then rout.
about an inch or two of slot. Turn off the router and return to the spot where you plunged in before lifting the router.

9. Dual-light offset subbase
Laser locators and LED lights make this subbase from MLCS ideal for many plunge-routing tasks even if you never hold it by its offset knob. The crosshair lasers prove especially useful for lining up a plunge cut, such as the marble holes in the Chinese-checkers board shown [Photo 9]. Flip the switch the other way, and bright LED lights illuminate hard-to-see tasks.

On-Point Dual-Light Subbase: MLCS, part #49098, $60. 800-533-9298.  
młcswoodworking.com.

10. Shelf-pin holes
By making the Quick & Easy Jig on page 18, you can use your plunge router to bore any number of perfectly aligned shelf-pin holes.

11. Dust hoods
Some router manufacturers include dust hoods with their routers, but many also come as accessories. Typically made of clear plastic, these prove helpful in gobbling up chips and dust when hooked to a shop vacuum.

MORE RESOURCES

- Router techniques: View more than two dozen FREE router technique articles at woodmagazine.com/routertechniques.

- Router reviews: View seven pay-per-download router and accessory reviews at woodmagazine.com/routerreviews.

- Chinese checkers game board: Buy the downloadable plan and pattern at woodmagazine.com/chinesecheckers.

Written by Bob Hunter with Kevin Boyle and Jeff Mertz
Illustrations: Roxanne LeMoine; Lorna Johnson
Jewelry Box

Behind those sinuous curves lies straightforward construction.

Spend just a few evenings in the shop crafting this box, then let its curves bedazzle its recipient. Joinery for the carcase and drawers requires only a router table with a couple of straight bits; your bandsaw makes easy work of the flowing lines on the front.

**Construct the case**

1. Glue up a ½"-thick blank for the sides (A) and cut them to size [Materials List, page 62]. Glue up two 8¾x14" blanks for the top and bottom (B) and edging (C). After the glue has dried, rip a 7"-wide top/bottom from each blank. Save the cutoff for the edging. Mark the top, bottom, and the mating cutoffs so you can reorient them properly after cutting the edging to shape.

2. Using a ¼" straight bit in your router table, rout the dadoes across the top (B) and bottom (B) [Drawing 1]. Use a
backer board to prevent tear-out as the bit exits the workpiece. Reset the fence flush with the back edge of the bit. Cut the rabbets along the top, bottom, and back inside edges of the sides (A), sneaking up on the final depth until the tongues on each end fit the dadoes in the top and bottom (B).

3. To rout the stopped rabbet along the back edges of the top and bottom (B) [Drawing 1], clamp stopblocks to the fence 13 3/4" on either side of the bit. With the right end of the top against the right stopblock, pivot the workpiece into the bit and move it along the fence until reaching the left stopblock. Quickly swing the top's right end away from the bit. Repeat this process on the bottom (B).

4. Switch to a 1/8" straight bit and cut the dadoes across the inside faces of the sides (A) [Drawing 1]. Make sure you end up with mirrored sides.

5. Make four copies of the Edging, Upper/Lower Drawer Pull Pattern on pages 60–61 and set two aside for later. Use spray adhesive to attach a copy to each edging (C), aligning the straight back edge of the pattern with the edge that mates with the top/bottom (B). Note: Flip the pattern over so the curve is reversed on the top edging [Drawing 1]. At the bandsaw, cut just outside the curved line, then sand up to the line by hand or with a drum sander [More Resources, page 62]. Use mineral spirits to remove the pattern, then glue each edging (C) to its mating top or bottom (B), keeping the faces and ends flush [Photo A].
Sand the feet to 220 grit, then glue them to the bottom of the case flush with the edges, front, and back.

Cut the back (F) to fit in the rabbets in the sides (A) and top/bottom (B) and glue it in place.

### Make a set of drawers

The two upper drawer boxes are identical; the lower drawer is taller [Drawing 2].

1. Cut the drawer fronts/back (G, I) and sides (H, J) to size. With a ¼" straight bit in your router table, rout the ¼"-deep rabbets on the ends of the drawer sides and along the bottom edges of the sides and fronts/back. Dry-fit the drawer parts and measure for the bottoms (K). Cut the bottoms to size, then glue and clamp the drawers together, making sure that they are flat and square. After the glue dries, check the fit of the drawers in the carcass. Plane or sand the drawers as needed for a smooth-sliding fit.

2. From ¾"-thick stock, cut the drawer faces (L, M, N) to size. Quick Tip! Go with the (grain) flow. Cut all three faces from a 7"-wide board to get a continuous grain flow across the...
front of the case. Cut a \( \frac{1}{8} \)" groove \( \frac{1}{8} \)" deep centered on each drawer face’s width [Drawing 2].

3. Make three copies of the **Drawer Face Pattern** below and spray-adhere one to the edge of each drawer face (L, M, N). Bandsaw just outside the line [Photo D]; then sand up to the line. Lay the three drawer faces faceup and trace the thinnest profiles onto the thickest [Photo E].

4. Plane stock for the upper/lower drawer pulls (O) and the middle drawer pull (P) to fit in the grooves in the drawer faces (L, M, N) [Shop Tip, page 62], then cut the pulls to size. Make one copy of the **Middle Drawer Pull Pattern** and retrieve the two remaining copies of the **Edging, Upper/Lower Drawer Pull Pattern**. Spray-adhere one pattern to each of the pulls, then cut and sand them to finished shape.

5. **Quick Tip! Get flat-bottomed grooves.** If your saw blade didn’t cut a flat-bottomed groove in the drawer faces (L, M, N), stick self-adhesive sandpaper to the edge of a cutoff from the drawer pulls (O, P) and sand the bottom flat. Glue the drawer pulls in place, seated fully in the grooves in the drawer
**SHOP TIP**

**Planing thin parts**

Workpieces thinner than 3/16” may break apart when fed through a planer. To reduce that likelihood, use double-faced tape to fasten each piece to a sled, then run the sled through. Use 1/8” or 1/4” MDF or melamine for the sled, or plywood if it’s flat. Taking light cuts and using your planer’s fastest cutter speed and slowest feed rate also helps to reduce chip-out.

faces. Note that the curve of the top pull should match that of the top edging (C), and the curve of the bottom pull should match the bottom edging.

6. Glue the middle and upper drawer faces (M, N) flush with the bottom of the drawer. Glue the bottom drawer face (L) 3/8” above the bottom of the drawer to create a gap below the drawer face when it is slid into the case.

7. Sand all parts to 220 grit, then apply a finish. We wiped on a coat of boiled linseed oil followed by three coats of aerosol lacquer, sanding lightly between coats with a 320-grit sanding sponge.

8. After the finish dries, apply self-adhesive felt to the inside of the drawer bottoms (K), and slippery tape to the bottom edge of the bottom drawer sides (H).

---

**Materials List**

<table>
<thead>
<tr>
<th>Case</th>
<th>FINISHED SIZE</th>
<th>Matl. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>A sides</td>
<td>1/2&quot; 7&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>B top/bottom</td>
<td>1/2&quot; 7&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>C* edging</td>
<td>1/8&quot; 1/8&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>D drawer runners</td>
<td>1/4&quot; 3/4&quot;</td>
<td>1/2&quot;</td>
</tr>
<tr>
<td>E feet</td>
<td>1/8&quot; 2&quot;</td>
<td>2&quot;</td>
</tr>
<tr>
<td>F back</td>
<td>1/4&quot; 6&quot;</td>
<td>13&quot;</td>
</tr>
</tbody>
</table>

**Drawers**

<table>
<thead>
<tr>
<th>Case</th>
<th>FINISHED SIZE</th>
<th>Matl. Qty.</th>
</tr>
</thead>
<tbody>
<tr>
<td>G lower front/back</td>
<td>3/8&quot; 2 1/2&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>H lower sides</td>
<td>1/4&quot; 2 1/2&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>I upper fronts/backs</td>
<td>1/4&quot; 1 1/4&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>J upper sides</td>
<td>1/4&quot; 1 1/4&quot;</td>
<td>6&quot;</td>
</tr>
<tr>
<td>K bottoms</td>
<td>1/4&quot; 6&quot;</td>
<td>12&quot;</td>
</tr>
<tr>
<td>L lower face</td>
<td>1/4&quot; 2 1/2&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>M middle face</td>
<td>1/4&quot; 2&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>N upper face</td>
<td>1/4&quot; 1 1/4&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>O upper/lower pulls</td>
<td>1/4&quot; 1&quot;</td>
<td>14&quot;</td>
</tr>
<tr>
<td>P middle pull</td>
<td>1/4&quot; 1&quot;</td>
<td>14&quot;</td>
</tr>
</tbody>
</table>

*Parts cut from same blank. See the instructions.

**Materials key:** EC—edge-glued cherry; EM—edge-glued bird’s-eye maple; C—cherry; BP—bierc plywood.

**Supplies:** Spray adhesive.

**Bits:** 3/4”, 1/8” straight router bits.

**Sources**

**Self-adhesive felt:** Red self-adhesive felt 12"x24" (1) item 76040.50, $13.80, Lee Valley, 800-871-8158, leevalley.com.

**Slippery tape:** 1"x18" (1) item 24004.01, $11.50, Lee Valley.

**Kit:** For a lumber kit for the jewelry box, call Heritage Building Specialties, 800-524-4184, heritagewood.com. Order kit W195.

---

**Cutting Diagram**

1/4 x 7/8 x 60" Cherry (3.3 bd. ft.)

*Plane or resaw to the thicknesses listed in the Materials List.

1/4 x 5 1/2 x 96" Bird’s-eye maple (4 bd. ft.)

1/4 x 5 1/2 x 24" Bird’s-eye maple (1 bd. ft.)

1/4 x 24 x 48" Birch plywood

---

**MORE RESOURCES**

**FREE VIDEO**

- Turn your electric drill into a portable drum sander
  at woodmagazine.com/drillsanding

**RELATED ARTICLE**

- "Portable Drum Sander," issue 185 (September 2008) $5

(Click to download this article for a small fee from woodmagazine.com/plans. Type “drum-sander” in the search box.)
Bob Vila endorses and recommends the famous EdenPURE® portable heater

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

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

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

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

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

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

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

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

The advanced space-age EdenPURE® Infrared Portable Heater also heats the room evenly, wall-to-wall and floor-to-ceiling.

As you know, most other portable heaters only heat an area a few feet around the heater.

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

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

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

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

SPECIAL READER’S DISCOUNT COUPON

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

Check below which model and number you want:

☐ GEN3 Model 500, number _____  ☐ GEN3 Model 1000, number _____

☐ To order by phone, call TOLL FREE 1-800-588-5608 Authorization Code EHS1247. Place your order by using your credit card. Operators are on duty Monday - Friday 6am - 3pm, Saturday 7am - 12 Midnight and Sunday 7am - 1pm, EST.

☐ To order online, visit www.edenpure.com enter Authorization Code: EHS1247

☐ To order by mail, by check or credit card, fill out and mail in this coupon. This product carries a 60-day satisfaction guarantee. If you are not totally satisfied with your purchase, your purchase price will be refunded – no questions asked. There is also a three year warranty.

NAME___________________________ADDRESS________________________________________

CITY___________________________STATE________ZIP CODE____________________________

Check below to get discount:

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

☐ I am ordering past 10 days of the date of this publication, therefore I pay shipping and handling and full price totaling $389 for GEN3 Model 500 and $499 for GEN3 Model 1000.

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

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

Account No.____________________Exp. Date ______________________

Signature________________________

MAIL TO: BioTech Research Authorization Code EHS1247 7800 Whipple Ave. N.W. Canton, OH 44767
PROJECT HIGHLIGHTS

- Overall dimensions are 22" wide x 5½" deep x 8¾" high.
- Learn how to scrollsaw perfectly fitted parts from two different wood species at the same time.

A little horsing around with your scrollsaw and you’ll have these farm friends finished before you can say E-I-E-I-O. Not ba-a-a-a-d.

Scrollsawn Barnyard Puzzle

This herd of happy animals is a puzzle within a puzzle, where each one can be assembled and repositioned on the slotted base for hours of play.

Animal hows

1. Edge-glue a panel for the barn (A) blank. Then cut blanks for parts B–I and cut the base (J) to size [Materials List, page 65]. Sand the blanks to 180 grit.

2. Download [see More Resources] or photocopy patterns for the barn (A), horse (B), cow (C), goat (D), pig (E), tractor (F), wagon (G), sheep body (H), and sheep legs (I). Apply the patterns to blanks using spray adhesive, noting the grain orientation shown. Using a #2 scrollsaw blade, cut the outlines of parts A–G. For the sheep, attach the leg (I) blank to the underside of the body (H) blank with double-faced tape [Photo A], and cut the legs.

CUT TWO BLANKS AT ONCE

CUT THE LEGS FROM THE BODY

Adhere a blank for the sheep legs (I) to the body (H), and saw out waste between both pairs of legs. Then saw away waste along the outsides of the legs.

Saw the curves of the puzzle parts to separate the sheep legs (I) from the body (H). Remove the waste still taped to the body before sawing the rest of the sheep body.
3 Switch to a #2/0 blade for a close fit between the puzzle pieces. Drill and cut the animal faces. Then cut the individual puzzle parts where shown on the patterns [Photo B].

4 Cut 1/2" grooves 3/8" deep in the base (J) where shown [Drawing 1]. Sand the base to 180 grit, touch-up-sand the figures as needed and apply three coats of clear finish. (We used spray lacquer, sanding between coats with 320-grit sandpaper.)

Written by Bob Wilson with Kevin Boyle
Project design: Kevin Boyle
Illustrations: Rosanne LeMoine; Lorna Johnson

MORE RESOURCES

DOWNLOADABLE PATTERNS
Don’t want to cut up this magazine? You’ll find free downloadable patterns of all the animals and figures at woodmagazine.com/barnyard.

ADDITIONAL PUZZLE PLANS
Go wild with our safari scroll saw puzzle at woodmagazine.com/safari.
Reel in a big one—our fish scroll saw puzzle— at woodmagazine.com/fishy.
While you’re there, look at plans for our other games and puzzles.

Supplies: Double-faced tape.
Blades and bit: 1/2" dado set, #2 and #2/0 scroll saw blades, 1/4" drill bit.)
Top New Tools

We select the most promising woodworking tools and accessories for the coming year.

Transfer corner angles to this miter saw's movable fences
Craftsman's 10" MiterMate compound miter saw eliminates the middleman when it comes to cutting trim. Instead of making several test cuts to get the perfect fit for mating trim pieces, you use the included angle finder to duplicate the corner. Next, you transfer that angle to the saw by pivoting the fences—not the blade—to match. Then you simply cut both pieces on their respective sides for an exact fit. Each fence pivots 45° front and back so you can cut inside and outside corners. They also line up straight as on a standard miter saw. The saw bevels up to 45° to the left.
Craftsman
MiterMate Miter Saw, $250
800-383-4814, craftsman.com

Enjoy cookies with your woodworking
Leave it to the guys in hockey-mad Minnesota to come up with the puck-like Bench Cookies. With a rubbery, textured pad on each face, these pads grip workpiece and workbench equally well, even when routing. And the 1" thickness elevates the workpiece to allow clearance for router-bit bearing screws, as well as access to edges for finishing tasks.
Rockler
Bench Cookies, $12 per 4-pack
800-279-4441, rockler.com
Rout endless cabinet door combos with one bit set
Freud's Premier Adjustable Rail and Stile set gives you the ability to create cope-and-stick doors from $\frac{3}{8}$ to 1" thick with stub tenons, long tenons, and narrower grooves for undersized flat panels. Add optional cutters and you can rout profiles on both faces, cut glass-panel beads, or increase the door thickness to $\frac{3}{4}$.

Freud
Premier Adjustable Rail and Stile Router Bit Set, $120
800-334-4107, freudtools.com

Jazz up cabinet face frames with decorative beaded details
Until now, to make a beaded face frame you had two choices: buy a specialty machine that costs thousands of dollars or mill and mount thin strips with rounded edges to your existing frames. Now Kreg's Precision Beaded Face-Frame System creates integral beads and mitered joints with a simple setup on your router table. (Use your favorite joinery method, such as pocket screws, biscuits, or loose tenons, to assemble the face frame.) The levered fence mechanism mounts in a standard miter slot and features a flip stop for repeatable measurements. With the standard kit you get a notching bit and $\frac{1}{4}$" bead bit (both with $\frac{1}{2}$" shanks) and two setup tools. Kreg offers optional bits and setup tools for other bead profiles.

Kreg Tool Company,
Precision Beaded Face-Frame System, $500
800-447-8638, kregtool.com

Get the Greene & Greene look without the hassle
Ebony plugs with chamfered ends are a hallmark of Greene & Greene furniture. But these decorative details prove time-consuming to make and fit. FastCap's Artisan Accents plugs provide a shortcut: Simply make a partial mortise with a few mallet taps on the included chisel, and then glue in a synthetic-wood plug for an authentic look. FastCap's square plugs measure 3/8"; the company plans to offer other sizes in the future.

FastCap
Artisan Accents, $20 kit, $5 for 50 plugs
888-443-3748, fastcap.com

Bosch packs user-friendly features into router kit
Not content to simply sit on its award-winning 1617EVSPK two-base router kit—Top Tool in the July 2008 issue of WOOD's magazine—Bosch rolls out a premium combo kit as an upgrade. Most significant among the changes: finger-grip, lockable triggers on both bases' handles, an industry first for kits with interchangeable motors. The second major feature makes that possible. The motor and base sport electrical contact strips that, when coupled, channel electrical current from the motor to the switch. This kit also features bit-depth micro-adjustment even with the plunge base locked, LED lights around the spindle that remain on with the motor plugged in, and a ball-joint swiveling power-cord mount on the motor.

Bosch
Two-Base Router Combo Kit, #MRC23EVSK, $320
877-267-2499, boschtools.com
SawStop stays competitive with mid-tier tablesaw
Nearly a decade after the first SawStop tablesaw hit the market, the company has added a third saw to its lineup to give consumers a wider range of choices. The Professional Cabinet Saw is a lighter-duty version of SawStop’s Industrial Cabinet Saw, with a different trunnion assembly and dust-collection shroud around the blade. The Professional features a 3-hp motor, 10” blade, riving knife, 36”- and 52”-rip capacities, finger-release throat inserts (inset), blade guard with built-in dust port, and SawStop’s patented safety blade brake. This table-saw sells for about $3,000, midway between its Industrial ($4,000-plus) and Contractor saw ($2,000).

SawStop
Professional Cabinet Saw, $3,000
866-729-7867, sawstop.com

There’s nothing like a new, er, old sweetheart
Seeking to recapture its one-time dominance in the hand-plane market, Stanley is launching five new Sweetheart Planes, complete with the heart logo and “SW” insignia found on legendary planes of the early 20th century. Made of heavy ductile cast iron with thicker, more durable steel blades than modern Stanley planes and a one-piece frog and base, these recreations are easier to fine-tune. In this lineup: No. 60 1/2 low-angle block plane ($100), a No. 9 1/2 block plane ($100), No. 62 low-angle jack plane ($180), No. 4 smoothing plane ($180), and No. 92 shoulder plane ($180). Additional models will follow.

Stanley Tools
Sweetheart Hand Planes, $100–$180
800-262-2161, stanleytools.com

Make mortises and tenons for half the price
We appreciate Leigh Industries’ FMT Frame Mortise & Tenon Jig for its ease of routing perfectly matching mortises and tenons. But its $900 price tag puts it out of reach for most home woodworkers. Now, Leigh’s Super FMT does much of what its sibling can, but for half the price. The Super FMT is made of steel rather than aluminum and uses F-style clamps instead of built-in cam clamps. It comes with five ⅜” joint guides for making two dozen sizes of mortise and tenon joints. Leigh sells more snap-in guides as accessories.

Leigh Industries
Super FMT Frame Mortise & Tenon Jig, $450
800-663-8932, leighjigs.com

3-speed impacter drives with greater precision
Impact drivers deliver greater torque than standard cordless drill/drivers, but not a lot of control over that power. Makita’s lightweight, 18-volt, lithium-ion impact driver (model BTD144) features a category-leading 1,420 inch-lbs of torque, and also has a three-speed transmission. Set it in the low range for small screws that might twist off easily; go to the middle range for common woodworking screws; or switch into high range for demanding fasteners, such as lag screws. And with the variable-speed trigger you can still fine-tune the bit speed within each range.

Makita
18-Volt 3-Speed Impact Driver, $350
800-462-5482, makitatools.com
**Merit badge for a beginner**

**Q:** I’m an absolute beginning woodworker. I bought a tablesaw because I heard that should be my first tool, but I don’t know a rabbet from a box joint. Could you suggest some beginner resources?

—Jonathan Akers, Portland, Ore.

**A:** Welcome to woodworking, Jonathan. If you’re just taking the first steps into this best of all crafts, check out the Woodwork merit badge booklet issued by the Boy Scouts of America ($4.50, scoutstuff.org; search for “woodwork”). It’s a good starting point that launches you into woodworking inexpensively.

The booklet starts with first aid before moving into the characteristics of trees and lumber, then basic hand tool use. The straightforward projects are designed to bolster your confidence in your tools and build your skillset incrementally.

Before you start up that tablesaw, learn to use it safely. Become thoroughly acquainted with the manual, and then take a look at the safety tips over at woodmagazine.com/tssafety.

Next, take a look at WOOD’s Basic Built information (woodmagazine.com/basicbuilt), our initiative to provide high-quality woodworking projects that require a minimum of tools and skills. (We include a Basic Built project in each issue of the magazine.)

Finally, for the inevitable questions and stumbling blocks, head over to woodmagazine.com/forums where you’ll find a friendly and knowledgeable community of woodworkers and forum hosts ready to answer your questions.

---

**String stabilizes spindles**

**Q:** As the long spindle I was turning became narrower, it began vibrating with a whipping motion. How do I eliminate the vibration?

—Roger Hastings, Escondido, Calif.

**A:** If sections of your spindle are still rough, Roger, first turn the entire spindle down to a cylinder. This ensures that the stock is centered and balanced on the lathe. Slow the turning speed down and keep your tools sharp to dampen any chatter.

If you find that the spindle still gets whippy, consider using one or more commercially-available spindle steady rests for added support on the spindle’s narrower sections. For a low-cost solution, make your own simple steady-rest, like the one shown at right.

Begin by laying out the shape on plywood, centering the rest’s opening on your lathe’s chuck. Mark the positions of the four screws such that an X drawn between them crosses at the center point. Then, bandsaw the frame to shape and drive the screws. Screw a small office binder clip to the lower left of the rest’s base. Next, attach a block of wood with a bolt and wingnut to clamp the rest to the ways of the lathe bed.

Tie a sturdy string to the bottom left screw. Then, with the spindle chucked in the lathe and centered in the rest, wrap the string around the screws in this sequence to capture the spindle: top right, bottom left, bottom right, top left, and bottom right. Finally, clip the end of the string into the binder clip to hold it tight. Make as many string steadies as you need to support the narrow sections of the spindle.

continued on page 74
Raise your drooping wings

**Q:** The cast iron wings on my tablesaw droop approximately ⅛" to ⅜" at their ends. How do I correct this?

—Donald Zarate, Las Vegas, Nev.

**A:** Your first step, Donald, should be to remove the wings completely. With a fine file or 220-grit sandpaper, sand the mating edges of the wings to remove any sharp edges, burrs, or paint. Then, reattach the wings without tightening the bolts all the way; allowing the wings to sag a small amount.

Lay a 4' level across the front edge of one wing and the tablesaw, and clamp it to the outer edge of the sagging wing. As you tighten the front bolt, keep an eye on the bottom of the level. Ideally, when the bolt is tight, the bottom of the level should sit flush across the tablesaw and the wing.

If there is still a gap, the bottom edge between tablesaw and wing needs shimming. Cut strips of brass shim stock (or use cut-up beverage cans).

Loosen the bolt, slide in a shim, and retighten. If the gap doesn’t close completely, repeat the process, adding a shim each time, until the tables are flush. Lastly, repeat the leveling process at the center and rear of the wing.

---

Cut out cupping

**Q:** I would like to make a box with a top that’s 13" wide using a 14"-wide mahogany board. Will there be a problem using a single board for the top?

—Jim Curtis, Longboat Key, Fla.

**A:** A board that wide will most likely cup unless the grain is riftsawn or preferably quartersawn, Jim. Imagine the end grain’s growth rings as curved bands under tension to straighten out. The wider the board and the more the grain runs parallel to the surface, the more likely that tension will be released with time or after you joint and plane the pieces. For a panel as wide as your box top, we prefer to glue-up boards no wider than 5" and preferably 4". If there’s a riftsawn or quartersawn grain section at the edges of your 14" boards, cut away the flatsawn cathedral-grain section and edge-glue the straight-grained pieces.

---

The most popular pinners, voted best

**Fine Woodworking**  **Molding**  **Trimming**  **Finishing**  **Intricate Assembly**

**Grex P6 Series**

23 Ga. Headless Pinners

Grex introduced the first pinners with an “adjust-free” magazine design - the defining feature of their line of pinners capable of driving pins from 3/8" up to 2". These are feature-packed industrial tools for those serious about their work.

**P650**

upto 2"

**P645**

upto 1-3/4"

**P635**

upto 1-3/8"

**P630**

upto 1-3/16"

---

Changing ideas into solutions.

**Grex**

Alhambra, CA  •  888-4GREXCO  •  info@grexusa.com

Cheltenham, ON  •  905-838-4887  •  info@grexcanada.com

www.grexusa.com

---

74  WOOD magazine  Dec./Jan. 2009/2010
16 PIECE SET
Bore clean, deep holes in soft or hard wood with virtually no effort!

For running electrical wires through floor joists, assembling 2x4 wood playsets for the kids & other tasks, these router bits make the job a snap! Put some excitement into your next "boring" job with this tradesman's quality 16-pc. set. Each bit is forged from #45 carbon steel & has a heat-treated 1/4"C47 hardnaced tip, flute ground behind the lands to pull chips up from soft, clean cutting & a polished finish. Includes 3/8", 1/2", 5/8", 3/4", 7/8" & 1" bits in both 4-3/4" & 8" lengths & 1/2", 5/8" & 3/4" bits in 16" length. Bits come in protective case. Compare At: $154.99
YOUR PRICE *Special Price
$29.99
No. UB65-56467
Ship $4.95

Tornado Tools™ 21.6V cordless drill — more features, more power & still the choice of contractors & tradesmen nationwide!

21.6V Power
Variable speed (0-650 RPM)
3/8" Jacobs keyless chuck — no key to lose
16 screwdriver settings
Includes 6 drill bits, 4 Phillips, 2 extension, 2 double-ended & 2 straight screwdriver bits

Now is the time to replace your under-powered drill with this contractor-grade drill! It has a high-torque 3.6V motor that drills into wood, metal & masonry with astounding speed & ease. Plus, it has a variable speed up to 650 RPM & 16 screwdriver settings. And thanks to a 3/8" Jacobs keyless chuck, you can change bits in seconds — no key to fumble with or lose! drill has on-board bit holder & comes with 15 pc. accessory set including: 6 drill bits, 2" extension has dual-ended screwdriver bits, 4 Phillips screwdriver bits & 2 straight screwdriver bits. Molded carrying case & AC adapter/charger included. Extra batteries & charger available, ask operator for details.
Compare At: $249.55
YOUR PRICE
$39.99
No. UB65-56384
Ship $4.95

Don't let it get lost in the dark...put 2800 watts of reliable power at your fingertips!

Chop, slice, stab and slash with ferocity you won't get from other knives! Others charge hundreds more for quality like this!

$10 OFF
ANY ORDER
FREE SHIPING**

Only $29.99* Ship $4.95
Compare At: $64.99
Item No. UB65-56389

$29.99
Every drill bit you will ever need — built to last a lifetime!

115-pc. set includes bits ranging from 3/64" to 1/2" in 24 sizes from 1-50 and lettered sizes A to Z.

Chop, slice, stab and slash with ferocity you won't get from other knives! Others charge hundreds more for quality like this!

Only $29.99* Ship $4.95
Compare At: $64.99
Item No. UB65-42511

Strap it on your wrist and disarm the silent killer!

EASY AS
1-2-3

Only $19.99 FREE SHIPING
Compare At: $39.99
Item No. UB65-97777

Remember to use the code UB65UB65
www.heartlandamerica.com

Discover the Best Value Direct to you from the Heartland!
Green Technology at Your Feet
1.866.WARM-TOES

Our radiant floor heating systems are compatible with any fuel source:
GAS PROpane SOLAR OIL WOOD ELECTRiC GEOTHERMAL

VISIT OUR WEBSITE
CALL FOR A FREE QUOTE
www.radiantcompany.com
Barton, Vermont

Ask WOOD

A sticky solution for securing patterns
Q: I'm a beginning woodworker with a basic question: How do you make templates out of medium-density fiberboard (MDF), what's the best way to secure a paper pattern to MDF—double-faced tape, glue, or something else?
—Erick Olsen, Methuen, Mass.

A: Stick to spray adhesives (such as 3M Spray Mount) for securing paper patterns to wood, Erick. Spray the paper with adhesive. Take care to avoid overspray on your workbench, or consider a dedicated spraying surface, such as the one below from issue 111, page 20 (plans available for free at woodmagazine.com/adhesivedrawer).

For the strongest bond, place the paper on the MDF blank right away. If you'd like to remove the pattern later, wait about a minute for the adhesive to become tacky before pressing the pattern to the wood. Once you've cut your MDF template, simply peel the pattern away. If you have trouble removing the pattern, brush on paint thinner. The solvent will soak through the paper and soften the adhesive, making the pattern easier to remove.

WOOD Magazine’s
WOODWORKING SHOWDOWN
ONLINE PROJECT CONTEST

Hundreds of woodworkers have uploaded their project photos to this contest—now it is up to you! Cast your votes and determine the winners. There are six categories and over $6,700 in prizes at stake!

Two months of voting begins Dec. 1, 2009.
You can still upload your project photos by Nov. 30 to be eligible to win!

To learn more about the Woodworking Showdown, cast your votes, and find great project ideas, visit:
www.woodmagazine.com/showdown

Sponsored by:

POWERmatic
BEST FURNITURE PIECE

Peachtree Woodworking Supply Inc.
BEST SMALL PROJECT

JET
BEST SHOP PROJECT

STEEL CITY
BEST SHOP

LOGOSOL
BEST OUTDOOR PROJECT

Titebond
BEST HOME IMPROVEMENT PROJECT
The Bed Clinically Proven to Reduce Back Pain

YOU CUSTOMIZE THE FIRMNESS
The Sleep Number Bed by Select Comfort™ is unlike any other. It’s the bed you adjust to your exact comfort and firmness preference, your SLEEP NUMBER® setting. Our easy-to-use handheld remote and advanced air-chamber technology allow you to quickly adjust the firmness on your side of the bed. At the simple touch of a button, YOU can change the firmness from extra firm to feather soft.

CLINICALLY PROVEN
It’s the bed clinically proven to relieve back pain and improve sleep quality.*

77% Discovered increased energy
67% Enjoyed less daytime sleepiness

89% Reported improved sleep quality
87% Fell asleep faster and experienced deeper sleep

93% Experienced back-pain relief
90% Reported reduced aches and pains

EACH SIDE OF THE BED ADJUSTS INDEPENDENTLY
On a Sleep Number® bed, each of you can adjust the comfort and firmness to your exact preference—your Sleep Number® setting. Once you find your Sleep Number® setting, you can fall asleep faster, enjoy more deep sleep and wake up more refreshed.

GREAT VALUE
The Sleep Number® bed costs about the same as an innerspring mattress, yet it lasts twice as long.

Receive a Special Thank You Gift!
For a limited time, inquire about our revolutionary bed and we’ll send you a special $50 Savings Card to use toward the purchase of any Sleep Number® bed or accessory item of $100 or more.¹

Call Now! 1-800-831-1211 ext. 38533
sleepnumber50.com

☐ YES! Please send me a FREE Brochure, DVD and Pricing.
☐ Limited-Time Bonus! $50 Thank You Savings Card!

Name ____________________________
Address __________________________
City __________ State ______ Zip ________
Phone ____________________________

¹For a summary of independent clinical studies and their results, call 1-800-831-1211.
²Restrictions apply. See savings card for details and expiration date.

Mail to: Select Comfort Direct, 9800 59th Avenue North, Minneapolis, MN 55442-9971
Make quick, clean mortises using your handheld drill

With JessEm’s Zip Slot Mortise Mill, you simply install the special drill bit—a hybrid of a twist bit and a spiral router bit—in your drill, clamp your workpiece to the jig, and press the spinning bit down as you slide the carriage back and forth. Repeat on the mating piece and insert a loose tenon, or machine a tenon onto that piece.

I drilled mortises up to 3½” wide and 1¼” deep in hardwoods and softwoods, end grain and edge grain, making every type of mortise-and-tenon joint I could think of, and always arrived at a perfect fit. Steep flutes on the bit clear chips quickly to avoid overheating and dulling the bit. Etched markings and dead-on scales on the mill and a depth-stop bit collar work so well the system’s nearly foolproof.

The model 8100 Mortise Mill comes with a ¼” bit-and-bushing assembly and a handful of solid-wood tenons. You can also buy bit-and-bushing kits in ⅛” ($25) and ⅛” ($33) for use with this model. Or, opt for the Pocket Zip Slot Mortise Mill (not shown), a smaller model that makes only ⅛” mortises. Fifty ⅛” tenons cost $9, 40 ¼” tenons are $13, and 30 ⅛” tenons are $15.

(Editor’s note: We tested two of each model. With the first units we had problems getting exact-fitting joints, a problem JessEm traced to faulty bushings. The second units we tested performed spot-on with no problems. JessEm’s Patrick Curry said the company has resolved this issue, and that all units on the market have the new bushings.)

—Tested by Erv Roberts, a furniture builder for nearly 50 years

Zip Slot Mortise Mill

Performance ★★★★★
Price ¼” standard model, #8100 $250
⅛” pocket model, #8200 $100
JessEm Tool Company
866-272-7492; jessem.com

This shop vacuum holds its own

Ridgid’s Smart Cart shop vacuum solves many of the dilemmas common to stub-style vacuums, but it also creates a new problem. First, dust and chips don’t build up on the filter—a nice 1-micron model that traps even fine dust—so I didn’t have to stop and clean it as often, and it maintains good suction. Second, the two built-in drawers store the five accessory nozzles that always seem to fall off other vacuums, and the sturdy, flat lid works for temporary storage. Finally, this model is noticeably quieter than the screaming vacuum I’ve used for years. That’s a relief for my ears.

But here’s the problem: Smart Cart’s 8’-long hose measures ½” smaller in diameter than Ridgid’s old hose. That makes the 1¼”-diameter nozzle unusable in the more common 2½” ports on my router table and other tools without resorting to adapters or duct tape.

—Tested by Bob Hunter, Tools & Techniques Editor

Smart Cart wet-dry vacuum, #WD7000

Performance ★★★★★
Price $200
Ridgid
800-474-3443; ridgid.com

continued on page 82
Time travel at the speed of a 1935 Speedster?

The 1930s brought unprecedented innovation in machine-age technology and materials. Industrial designers from the auto industry translated the principles of aerodynamics and streamlining into everyday objects like radios and toasters. It was also a decade when an unequaled variety of watch cases and movements came into being. In lieu of hands to tell time, one such complication, called a jumping mechanism, utilized numerals on a disc viewed through a window. With its striking resemblance to the dashboard gauges and radio dials of the decade, the jump hour watch was indeed “in tune” with the times!

The Stauer 1930s Dashtronic deftly blends the modern functionality of a 21-jewel automatic movement and 3-ATM water resistance with the distinctive, retro look of a jumping display (not an actual jumping complication). The stainless steel 1 1/2” case is complemented with a black alligator-embossed leather band. The band is 9 1/2” long and will fit a 7-8 1/2” wrist.

Try the Stauer 1930s Dashtronic Watch for 30 days and if you are not receiving compliments, please return the watch for a full refund of the purchase price. If you have an appreciation for classic design with precision accuracy, the 1930s Dashtronic Watch is built for you. This watch is a limited edition, so please act quickly. Our last two limited edition watches are totally sold out!

Not Available In Stores
Stauer 1930s Dashtronic Watch $99 +S&H or
3 easy credit card payments of $33 +S&H
Call now to take advantage of this limited offer.
1-800-859-1602
Promotional Code DRW360-02
Please mention this code when you call.
Stauer
14101 Southcross Drive W.,
Dept. DRW360-02
Burnsville, Minnesota 55337
www.stauer.com
Amish mantle and miracle invention help home heat bills hit rock bottom

Miracle heaters being given away free with orders for real Amish fireplace mantles to announce the invention that helps slash heat bills, but Amish craftsmen under strain of Christmas rush force household limit of 2

Save money: only uses about 9¢ electric an hour; so turn down your thermostat and never be cold again

By Mark Woods
Universal Media Syndicate

(UMS) Everyone hates high heat bills. But we're all sick and tired of simply turning down the thermostat and then being cold.

Well now, the popular HEAT SURGE® miracle heaters are actually being given away free to the general public for the next 7 days starting at precisely 8:00 a.m. today.

The only thing readers have to do is call the National Distribution Hotline before the 7-day deadline with their order for the handmade Amish Fireplace Mantle. Everyone who does is instantly being awarded the miracle heater absolutely free.

This is all happening to announce the HEAT SURGE Roll-n-Glow® Fireplace which actually rolls from room-to-room so you can turn down your thermostat and take the heat with you anywhere. That way, everyone who gets them first can immediately start saving on their heat bills.

Just in time for winter weather, portable Amish encased fireplaces are being delivered directly to the doors of all those who beat the deadline.

These remarkable fireplaces are being called a miracle because they have what's being called the Fireless Flame™ patented technology that gives you the peaceful flicker of a real fire but without any flames, fumes, smells, ashes or mess. Everyone is getting them because they require no chimney and no vent. You just plug them in.

The Fireless Flame looks so real it amazes everybody because it has no real fire. So what's the catch? Well, soft spoken Amish craftsmen who take their time hand building the mantles have a process that forces a strict household limit of 2 to keep up with orders.

“We can barely keep up ever since we started giving heaters away free. With winter just around the corner, everyone's trying to get them. Amish craftsmen are working their fingers to the bone to be sure everyone gets their delivery in time for Christmas,” confirms Frederick Miller, National Shipping Director.

“These portable Roll-n-Glow Fireplaces are the latest home decorating sensation. They actually give you a beautifully re redecorated room while they quickly heat from wall to wall. It's the best way to dress up every room, stay really warm and slash your heat bills all at the same time,” says Josette Holland, Home Makeover Expert.

And here's the best part. Readers who beat the 7-day order deadline are getting their imported hi-tech miracle heaters free when encased in the Amish built real wood fireplace mantles. The mantles are being handmade in the USA right in the heart of Amish country where they are beautifully hand-rubbed, stained and varnished.

You just can't find custom made Amish mantles like this in the national chain stores. That makes the oak mantle a real steal for just two hundred ninety-eight dollars since the entire cost of the miracle heater is free.

This free giveaway is the
How to get 2 free heaters

The National Toll Free Hotlines are now open. All those who beat the 7-day order deadline to cover the cost of the Amish made Fireplace Mantle and shipping get the HEAT SURGE miracle heater free.

A strict limit of 2 per household has been imposed. Since some home woodworkers want to build their own mantle piece, they are letting people get the imported miracle heater alone for just $1249. Or, with the Amish made mantle you get the miracle heater free.

Use the map below to locate the weather zone you live in and call the Hotline number for your zone.

ON THEIR WAY: Christmas orders have turned country roads into pipelines to the big city delivery system. Everybody wants a fireplace that comes fully assembled with a handmade Amish mantle in oak or cherry finish and gets delivered by truck right to your door. All you do is plug it in.

best way to slash heating bills and stay warm this fall and winter. The HEAT SURGE Roll-n-Glow Fireplace gives you zone heating and all the beauty and warmth of a built-in fireplace but rolls from room-to-room so it can also save you a ton of money on heating bills.

Even people in California and Florida are flocking to get them so they may never have to turn on their furnace all winter. And since it uses only about 9 cents of electric an hour on the standard setting, the potential savings are absolutely incredible.

“We are making sure one gets left out, but you better hurry because entire communities of Amish crafts- men are straining to keep up with demands. For now, we are staying out of the large national retail stores in order to let readers have two per household just as long as they call before the deadline,” con-

firms Miller.

It's a really smart decision to get two right now because for only the next 7 days you get both miracle heaters free. That's like putting five hundred bucks right in your pocket and you can save even more money on your monthly heating bills.

“Everyone’s calling to get one but those who are getting their Christmas shopping done are surprising the whole family by getting two. So when lines are busy keep trying or log onto amishfireplaces.com. We promise to get to every call. Then we can have a delivery truck out to your door right away with your beautiful Heat Surge Roll-n-Glow Fireplace,” Miller said.

“You'll instantly feel bone soothing heat in any room. You will never have to be cold again,” he said.

On the worldwide web:
www.amishfireplaces.com

Rolls anywhere to throw an instant heat wave with no chimney, no vents, no wood and no smoke

[EASILY ROLLS ANYWHERE: This is the portable Roll-n-Glow* Fireplace that easily rolls from bedroom to living room to keep you warm. No vents, no chimney and no tools. Just plug it in.

SAVE ON BILLS: Everyone can get low bills and stay warm and cozy. The Roll-n-Glow Fireplace saves a ton of money and makes your front room look like a million bucks.

SAFE FLAME: The Fireless Flame looks so real it fools everyone but there is no real fire. That makes the flame window safe to the touch and watchful eye of a parent. It's where the kids will play and the cat and dog will sleep.

FREE: Get this $1249 miracle heater free. It is being given away free to all who beat the 7-day order deadline for your choice of the oak or cherry finish Amish Mantles. The free heater comes already encased.
Shop-Proven Products
continued from page 78

Long pins solve long-standing vessel-finishing problem
I turn mostly small hollow vessels in my shop, but I’ve always battled how best to secure them on the lathe while making the finishing cuts on the bottom side. The standard soft jaw pins—usually an inch or so long—on most flat-jaw chucks work great with platters and bowls because the largest diameter is typically on the open end against the chuck. But they’re too short to grab vessels like the one shown at right.

So earlier this year I discussed this dilemma with Penn State’s Ed Levy, who promptly made a set of 2½"-long jaw pins that fit into my chuck’s jaws. Problem solved. Now I can shape and sand the bottoms and add finish knowing the rubber pins hold the vessels securely and without damaging the finished sides. These Soft Jaw Pins thread into the jaws of Penn State and Oneway chucks; check with Penn State for compatibility with other makes.

—Tested by Marlen Kemmet, Managing Editor

Lathe Chuck Long Soft Jaw Pins, #LCJAW5J
Performance ★★★★★
Price $25
Penn State Industries
800-377-7297; pennstateind.com

82
FACTORY DIRECT TO YOU!
How does Harbor Freight Tools sell high quality tools at such ridiculously low prices? We buy direct from the factories who also supply the major brands and sell direct to you. It’s just that simple! Come see for yourself at one of our 330 STORES NATIONWIDE and use this 20% OFF Coupon on any of our 7,000 products. We stock Automotive products, Shop Equipment, Hand Tools, Tarps, Compressors, Air & Power Tools, Material Handling, Woodworking Tools, Welders, Tool Boxes, Outdoor Equipment, Generators, and much more.
NOBODY BEATS OUR QUALITY, SERVICE AND PRICE!

WHY WE HAVE 10 MILLION SATISFIED CUSTOMERS:
✓ We Buy Factory Direct and Pass the SAVINGS on to YOU!
✓ Shop & Compare Our Quality Brands Against Other National Brands
✓ 7000 Tool Items In-Stock!
✓ NO HASSLE RETURN POLICY
Family Owned & Operated

LIFETIME WARRANTY ON ALL HAND TOOLS!

SUPER COUPON!
20% OFF ANY SINGLE ITEM!

See HarborFreightusa.com/Wood for additional SUPER COUPONS

12" SLIDING COMPOUND MITER SAW WITH LASER GUIDE
LOT NO. 98194/96698/91852
SAW BLADE INCLUDED!
REGULAR PRICE $199.99
SALE PRICE $119.99
SAVE 37%

CENTRAL MACHINERY 16" VARIABLE SPEED SCROLL SAW
LOT NO. 93012
REGULAR PRICE $79.99
SALE PRICE $49.99
SAVE 37%

MULTIFUNCTION POWER TOOL
LOT NO. 67256
REGULAR PRICE $59.99
SALE PRICE $29.99
SAVE 50%

12" COMBINATION SQUARE SET
LOT NO. 92471
REGULAR PRICE $7.99
SALE PRICE $5.99
SAVE 25%

ORBITAL HANGER SOLDERING IRON
LOT NO. 40078
REGULAR PRICE $17.99
SALE PRICE $7.99
SAVE 55%

12" RATCHET BAR CLAMP/SPREADER
LOT NO. 46987
REGULAR PRICE $19.99
SALE PRICE $1.99
SAVE 90%

We Will Beat Any Competitor’s Price Within 1 Year Of Purchase!

330 STORES NATIONWIDE

TO FIND THE STORE NEAREST YOU CHECK:
1-800-657-8001
or HarborFreightusa.com/Wood
**Woodcraft**

"American Made for the American Woodworker"

- Made from solid alloy steel
- Precision ground for proper balance at high RPMs
- Uses the highest quality American made micrograin carbide
- High hook and relief angles make for better chip ejection

**Whiteside**

QUALITY WOODWORKING TOOLS • SUPPLIES • ADVICE®

**New Invention!**

**Spring Bolt**

*SAVE 10 MIN OR MORE PER CONNECTION*
*QUICK LEARN*
*LOW UNIT COST*
*LESS MEN MINUTES*
LOWER SKILL LEVEL

Rocker Lock Fastening Systems, Inc.
877-577-BOLT | www.spring-bolt.com

**High Quality Woodworking Tools at Low Prices**

- **Air Locker**
  - P630 23 Ga Micro Pin Nailer Shoots between 1/2" to 1 3/16" $59.99
  - P630L (Extra Long Nose) $64.99
- **Air Locker**
- **Saws & Saw Blades**
- **Routers & Bits**
- **Sanders**
- **Jointers**

Osborne Wood Products, Inc.
866.849.8876
www.osbornewood.com

Authorized Retailer for All Top Brands Including

www.ToolOrbit.com 888-722-8299
Largest selection of tools and accessories at unbeatable prices!
Families Have Saved Up To 50% On Heating Costs
And never have to buy fuel — oil, gas, kerosene, wood — ever again!

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

Contact us today for info and FREE catalog!

Lifet ime Warranty

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

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

Check □ MasterCard □ Visa □ Discover 1-800-627-9276

www.hydrosil.com

Hydro-Sil, P.O. Box 662, Fort Mill, SC 29715
FREE Product Information from Advertisers in This Issue
Looking for FREE product information? Fill out the coupon in this section to receive FREE product info and catalogs.
Or, for quicker service and instant access to information, visit us online at www.woodworkerscenter.com

Adhesives & Finishes

TITEBOND® III ULTIMATE WOOD GLUE

GORILLA WOOD GLUE
High strength, shorter clamp time, and no dyes for a natural finish. Try it today on your next building project. Circle No. 50.

UNITED GILSONITE LABORATORIES
Finishing Touch Brochure — guide for best results using ZAR Wood Stain/Finishes. Circle No. 128.

Bits, Blades, Cutting Tools

CMT ORANGE TOOLS
Top quality industrial saw blades and router bits at affordable pricing. Circle No. 180.

EAGLE AMERICA
Largest selection of professional quality, American-made router bits + 100's of unique accessories. Circle No. 193.

FORREST MFG. CO., INC.
Top quality blades and dadoes for an ultra smooth finish. Circle No. 206.

FREUD SAW BLADES
This 48-page catalog illustrates the features and benefits for all Freud saw blades. Circle No. 219.

FREUD ROUTER BITS
All Freud router bits are represented in this 84-page catalog, including more than 130 new bits and sets. Circle No. 232.

SAWSTOP
SawStop table saws stop the blade upon contact with skin. Circle No. 280.

SOMMERFELD’S TOOLS FOR WOOD
Router Bits, Blades, Tools and Tips. FREE catalog & shipping! Circle No. 284.

Books, Plans and Videos

AMERICAN FURNITURE DESIGN CO.

MEISEL HARDWARE SPECIALTIES
CATALOG
2,000+ full-size project plans and hard-to-find hardware. Circle No. 401.

U-BILD WOODWORKING PLANS

General Woodworking Catalogs

ARMOR CRAFTS
Full-size plans to build cradles, rocking horses, clocks and more. Also hardware and wood craft supplies. Circle No. 556.

THE BEALL TOOL COMPANY

GRIZZLY INDUSTRIAL, INC.
12,000 woodworking and metalworking machines, tools and accessories — unbeatable prices! Circle No. 583.

PEACHTREE WOODWORKING SUPPLY
"Your One Stop Supply Shop"—over 4,000 items. Circle No. 654.

ROCKER WOODWORKING & HARDWARE
Our premium tools make woodworking efficient and enjoyable. FREE Catalog. Circle No. 661.

WOODCRAFT SUPPLY CORP.
Over 15,000 top quality woodworking tools, supplies, and accessories. Circle No. 700.

Hand Tools, Jigs & Clamps

AFFINITY TOOL WORKS
Manufacturer of quality hand tools and products for cabinetmaking, carpentry, woodworking. Circle No. 734.

KREG TOOL CO.
Your one stop shop for everything Pocket-Screw related. Circle No. 802.

MORITISE PAL
Mortises made easy! Circle No. 824.

STANLEY SWEETHEART HAND PLANES

Hardwood & Lumber

STEVE H. WALL LUMBER CO.

WOODWORKERS SOURCE
Hardwoods from around the world. Circle No. 869.

Income Opportunities & Education

AROMATIC OILS OF WOODWORKING
Over 125 summer hands-on workshops with the best instructors of modern time. Circle No. 916.

PROFURNITUREBUILDER.COM

WOODCRAFT RETAIL FRANCHISE
Own a Woodcraft Store — franchises offered for stores across the country. Circle No. 924.

Kits

KLOCKIT
The leading supplier of clock-making supplies for over 35 years! Circle No. 973.

WOODEN-GEAR-CLOCKS.COM
Create a wooden gear clock — kits and plans available. Circle No. 1008.

Miscellaneous

APOLLO SPRAYERS TURBINE SYSTEMS
Quality control, engineering and durability. Circle No. 1061.

AZTEC STEEL CORP.
Quality pre-engineered arch-style steel buildings at the lowest cost anywhere. Circle No. 1064.

CENTRAL BOILER
Classic Wood Furnaces — clean, safe, efficient heat for your home. Circle No. 1105.

DAKOTA ALERT, INC.
An alert sounds in the house when someone enters the drive. Circle No. 1129.

HYDRO-SIL
Unique room-by-room heating system. Circle No. 1190.

RADIANT FLOOR COMPANY
Radiant Heating Systems—design, manufacture and sale for the DRY. Circle No. 1301.

ROCK LOCK FASTENING SYSTEMS, INC.
Post and railing attachment hardware that makes it easy. Circle No. 1308.

Power Tools

BOSCH POWER TOOLS
Bosch Pneumatics Fastening System with Full Force Technology is 20% more compact. Circle No. 1459.

COOK’S SAW MFG., L.L.C.
Portable sawmills, Edgers, Sharpeners, Band Blades... Free catalog. Video available. Circle No. 1480.

FREUD POWER TOOLS
16-page catalog illustrates dependable power tools with traditional Freud quality. Circle No. 1532.

GRANBERG INTERNATIONAL
Alaskan Saw Mill, chain saw accessories. Made in USA. Circle No. 1558.

GREX POWER TOOLS
Professional fastening systems and pneumatic powered hand tools. Circle No. 1573.

LAGUNA TOOLS
Fine woodworking machines for professionals and hobbyists. Award-winning design bandsaws, European quality machines with over 25 years of experience. Circle No. 1593.

PLASMA CAM, INC.
Put metal into your wood projects! Free Demo Video! Circle No. 1641.
Shape Up Your Workshop!

Plan, build, equip, light, and organize your home workspace to realize your dreams.

On Newsstands NOW!

$6.99 U.S.
$8.99 Canada

Order online at woodmagazine.com/publications
or call toll free 888-636-4478

WD1209

WOODWorkersCenter.com

FREE Product Information

CIRCLE THE NUMBERS BELOW CORRESPONDING TO ITEMS IN THIS ISSUE.

24 280 654 869 1105 1558 1805 2045
50 284 661 916 1129 1573 1820 2052
128 336 700 919 1190 1593 1849 2065
180 401 734 924 1301 1641 1851 2127
193 435 802 973 1308 1665 1883 2133
206 556 824 1008 1459 1673 1974 2143
219 558 829 1061 1480 1768 2013 2151
232 583 856 1064 1532 1770 2039 4000

Discover how rewarding woodworking can be! Get one full year of WOOD® for just $28.00 (7 issues). Simply circle No. 4000. You will be billed later.

TO ENSURE PROMPT HANDLING OF YOUR ORDER, PLEASE:
- Circle Your Choice(s) in the box above
- Send card to WOOD® Magazine, Dept. W00607, P.O. Box 5135, Buffalo, NY 14205-5135
- Allow 4-6 weeks for delivery
- This card expires May 16, 2010

NAME
ADDRESS
CITY STATE ZIP
E-MAIL ADDRESS
PHONE (OPTIOAL)

Wood Magazine December 2009 87
What’s Ahead
A sneak peek inside the March 2010 issue (on sale January 19)

COVER ARTICLE

Pine cabinet
Not too big, not too small—this hutch is just the right size. Construction goes quickly, thanks to biscuit joinery. Adjustable no-mortise hinges make it easy to hang and position the doors perfectly.

The sizzle on chisels
Need chiseled abs? Sorry, can't help you there. But renowned craftsman and educator Tim Peters, above, will show you how to work wood with all types of chisels.

Wall shelf and mirror
Corral clutter in its two drawers while the warm cherry frame brightens your entry hall, bedroom, or bath.

Cook up a kitchen makeover in your shop
Avoid the cost of a completely new kitchen by bringing yours back to life with new doors, drawers, and built-ins. It's a project that pays for itself (and maybe some new tools for you, too).

TOOL TEST

Benchtop planers
The complete skinny on these thicknessing machines, from which is best to a few with flaws you can live with.
From the company that invented versatility, here's some more.

The all-new Multi-Max™ Oscillating Tool System.
Its fast side-to-side motion and compact design make it the perfect tool for even your most demanding remodeling projects. From cutting a door jamb to removing grout—and every job in between. It’s exactly the kind of versatility you’ve come to expect from a Dremel tool.
Call 1-800-437-3635 today for a free DVD. Or visit dremel.com to view project videos.
TAKE YOUR BEST SHOT

BOSTITCH

FN1664K
16 Gauge Finish Nailer

BT1855K
18 Gauge Brad Nailer

SX1838K
18 Gauge Finish Stapler

Our new oil-free finish nailers are engineered to help you achieve the level of craftsmanship you were always capable of. They offer precision-driven features such as dry-fire lockout, dial-a-depth technology, swivel fittings, patented profile tips . . . even an integrated pencil sharpener.

For nearly 40 years, Stanley-Bostitch has designed its products to be the most reliable & durable pneumatic tools available. Maybe that's why more finish carpenters and serious woodworkers rely on Stanley-Bostitch products more than any other major brand*

*Based on third-party survey in U.S. and Canada asking for the brands of finish products used in the previous 12 months.

© 2009 The Stanley Works

www.bostitch.com