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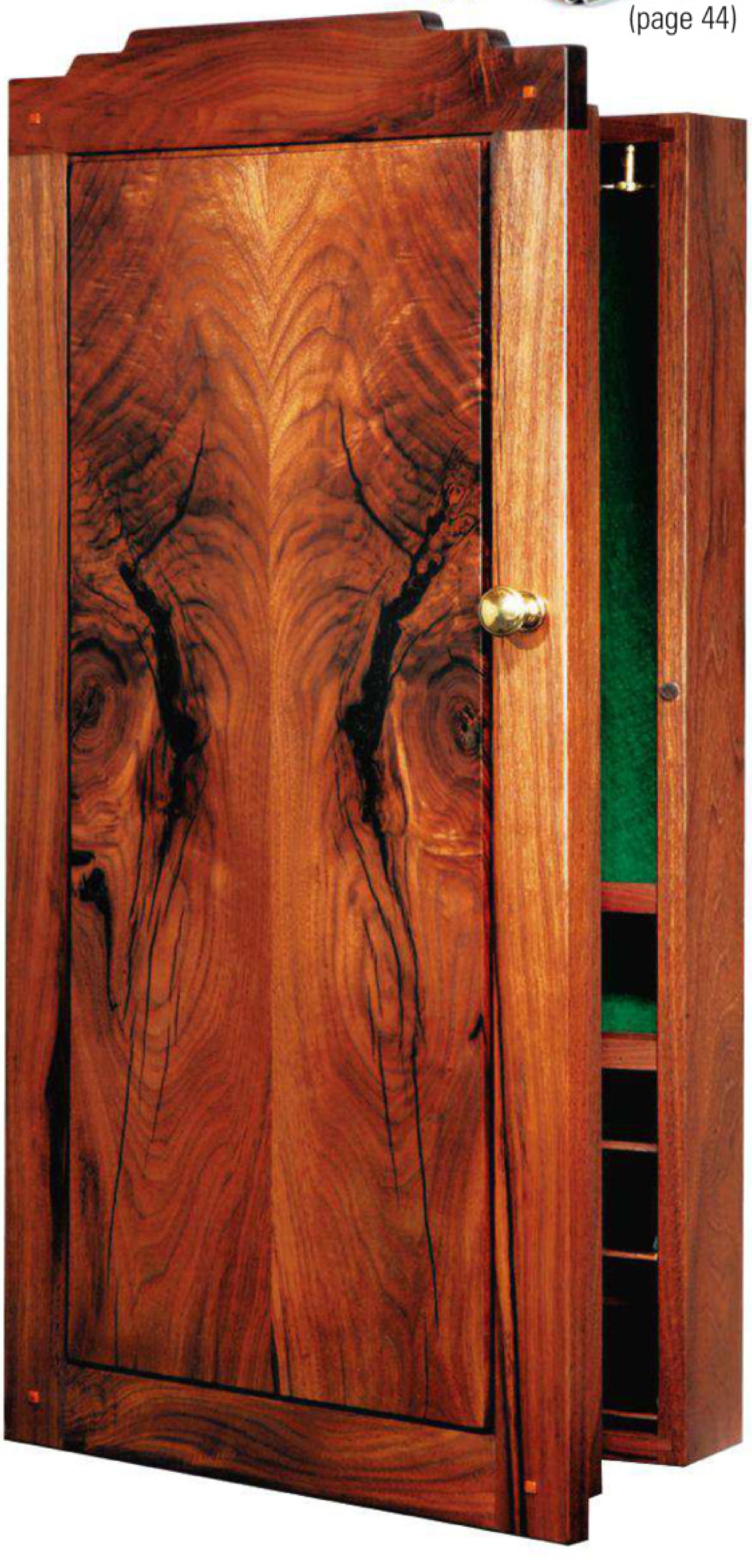

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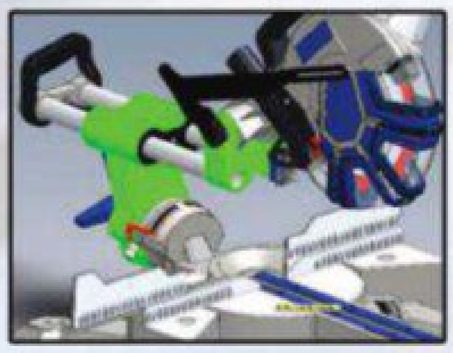

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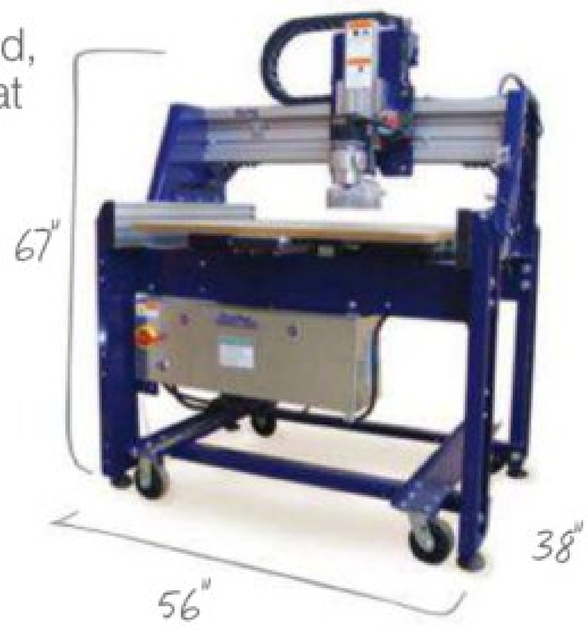

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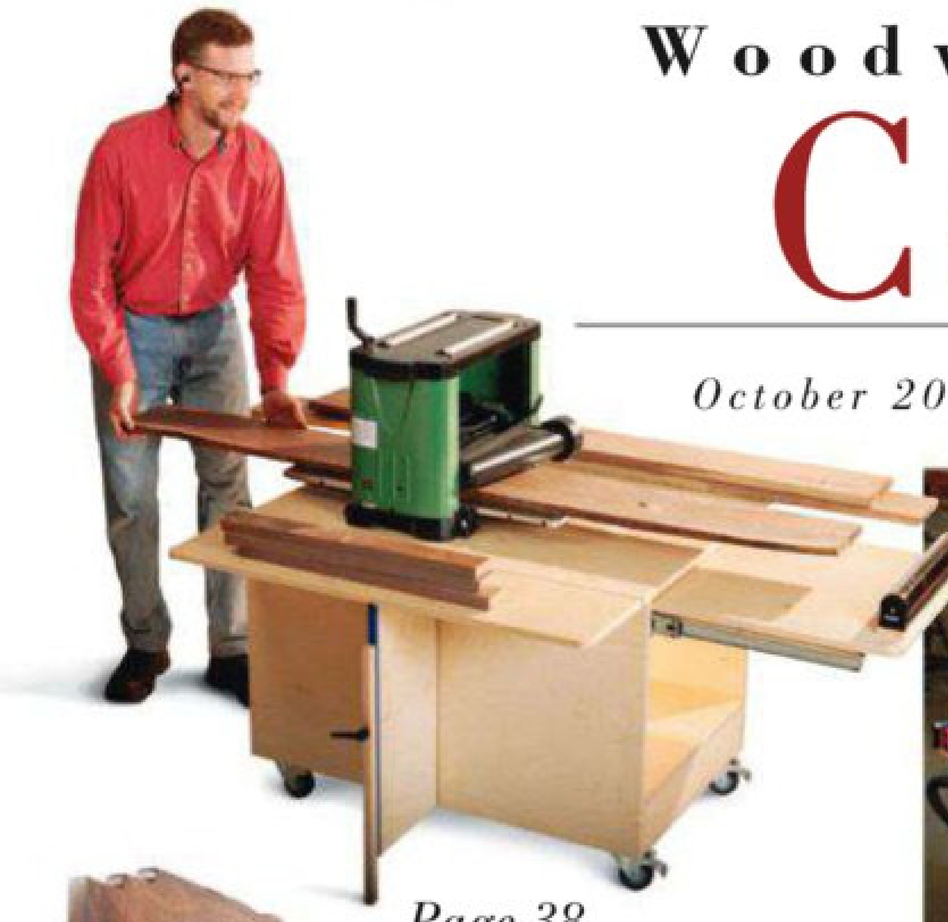

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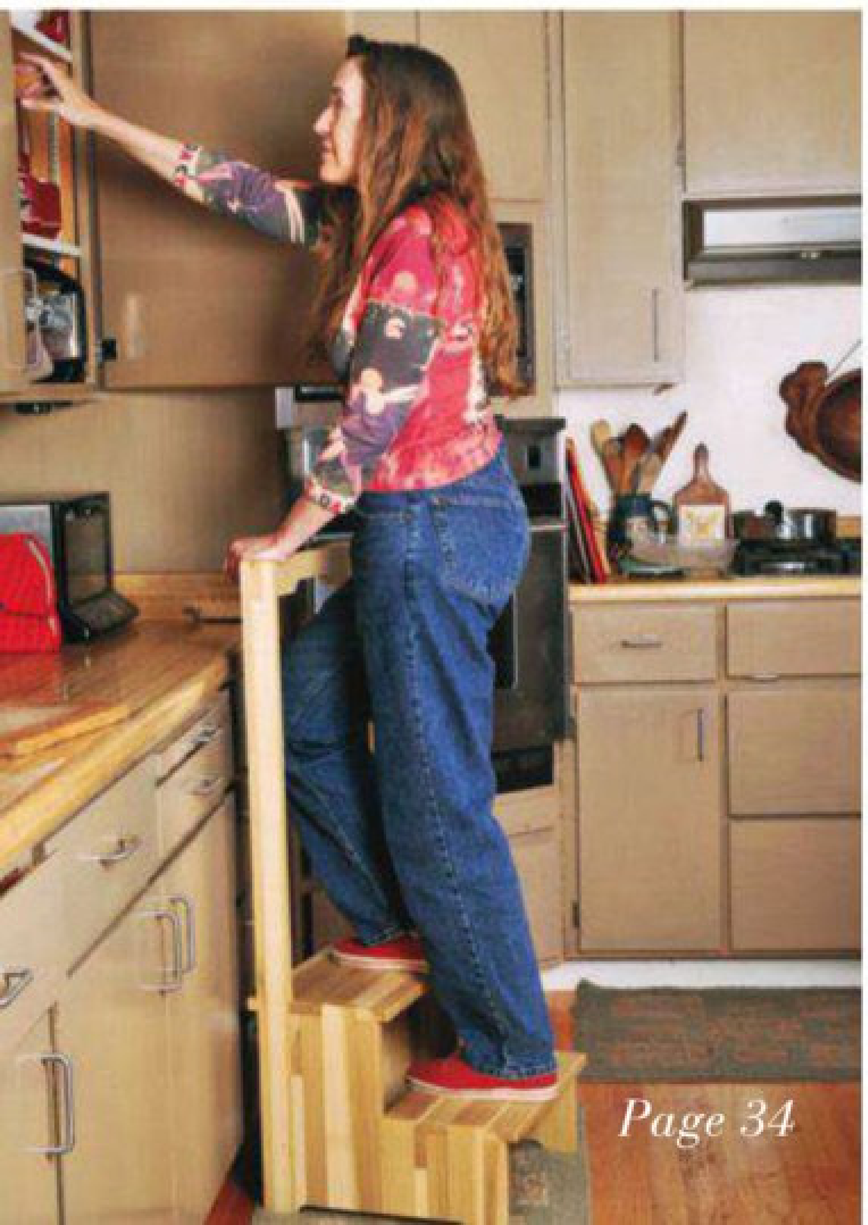

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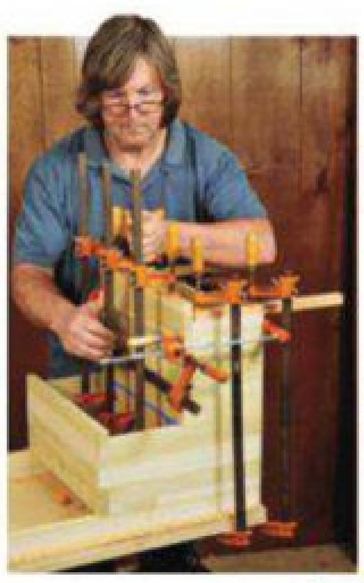

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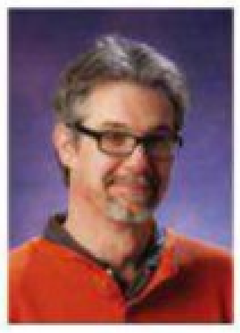
Letters

Readers Move Beyond the Journal's Plans

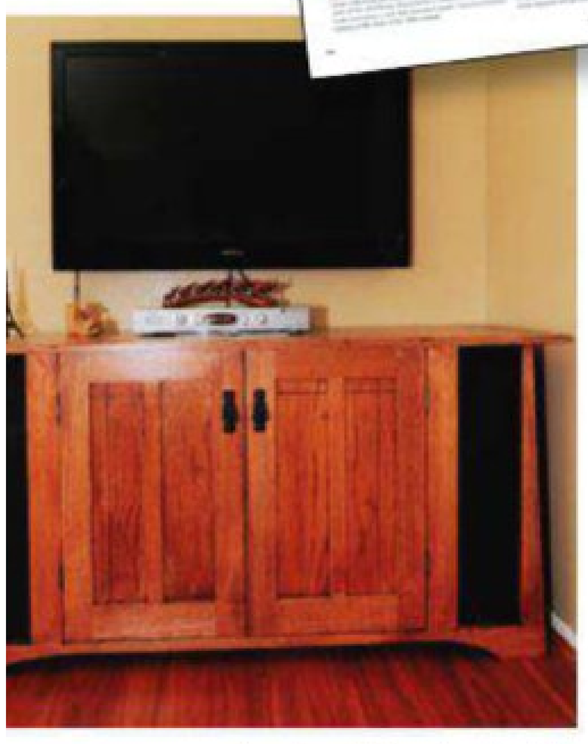
YOU'RE BUILDING OUR TABLE ... AND YOU DID WHAT?!



"I'm building your table plan (or you name the project), and I've run into a bit of trouble," is a call I regularly get. My response: "Give me a moment to grab that magazine so I can see what you're talking about." It is about this point in time that our loyal reader tells me that they have "improved" several aspects of our well-thought-out design. (I shouldn't be miffed at this, but sometimes I can't help feeling like they have messed with my children!) These improvements, of course, make it trickier to solve their problem, but they also reinforce my faith in the creativity of woodworkers. It's just who we are: we seldom make anything exactly "to plan" and we never make it the same way twice. That spark of creativity is, in my opinion, at the core of our desire to make stuff from wood. And it is why we never get bored with what we do ... and why I will continue to get phone calls!

—Rob Johnstone

One-of-a-kind? Or great minds think alike? Regular reader Cliff Koppmann discovered a real design surprise in our December 2010 issue.



Reader Mike Bellsmith added speakers and moved the DVD and CD storage behind the doors of his entertainment center.

Entertaining Design

My wife and I loved the aesthetic design of Kerry Pierce's "Entertainment Center" from your December 2010 issue. I made a few changes some other readers might like to see. Instead of open slots in front for DVDs, I put speakers there. The DVD storage design did not show the titles facing out on the original, so I imagine it is hard to find that game or movie you're looking for.

Instead of the exterior DVD storage, I put in two compartmentalized drawers to hold the DVDs out of sight. The drawers hold many more DVDs than the original design, and I included a compartment for CDs as well. I found there was still plenty of room for my stereo components inside the cabinet even with the added drawers. I also used frame-and-panel construction on the sides rather than the plain plywood panels Kerry did.

All in all it was a fun project, but you could see the kitchen cabinet influence on Kerry's techniques: building up from a base and lots of cleats.

Mike Bellsmith
Chino, California

I'm a regular reader of *Woodworker's Journal*, now retired and living my dream in a 30' x 40' woodshop. I lay no claim to being a master at the craft of woodworking, but I enjoy it thoroughly.

Here's a photo of a cabinet I recently designed and built (top photo). It was created at my wife's request for a cabinet below our TV to match her "Mission oak" coffee and end tables.

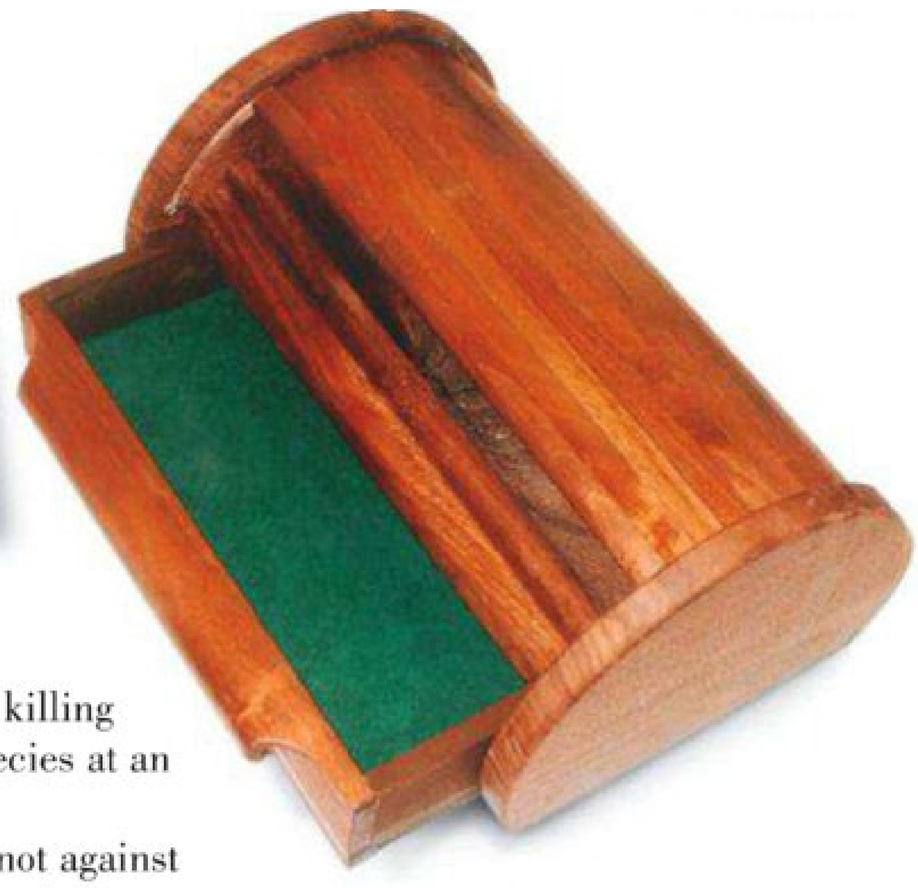
I took dimensions and angles off of the present furniture and drew a scale front sketch of the cabinet in the pictures. No other drawings. Glue-ups were required for the top and legs. I started with rough-cut wood and sized all wood to get started. It was a fun and challenging project. About May of 2010, it finally came to rest in my living room. I am proud of it and thought I had created a one-of-a-kind. Until I opened the December 2010 issue of *Woodworker's Journal*. On page 30, I saw a cabinet close in size with the same tapered leg design and the same basic use as mine. I was amazed at the similarities. It just goes to show, "never assume," as I did, that I had one-of-a-kind.

Cliff Koppmann
Seville, Ohio

Tambours Are Tricky

In looking through my April 2011 *Woodworker's Journal*, I came across the project "A Tambour-topped Box." Not knowing how difficult it would be to make, I gave it a try.

Vern Gutz
Corry, Pennsylvania



Reader Vern Gutz found building our tambour box to be a bit tricky, but he got through it, completing our design to a "T."

Safe Travels for Wood

I enjoyed your article about Chris Lubkemann crafting unique items from wood acquired internationally ["Tree Craft," *June 2011*]. However, this spurs me to suggest caution when moving wood, plants, or plant parts very far from where they are found without proper sanitation. Wood moved even from one county to the next may contain insect eggs or larvae, or fungal spores, that start a new infestation in a previously non-infested area. Several American tree species are currently in peril because of introduced insects and disease from parts of the globe where trees have had thousands of years to develop at least some immunity to them. A perfect example is the emerald ash borer, introduced from eastern Asia, that is now killing American ash species at an alarming rate.

So, while I am not against using imported wood, I stress the need for caution when moving wood that has not been properly kiln-dried or otherwise sanitized.

Michael G. Messina
Director, School of Forest Resources
Penn State University
University Park, Pennsylvania

Letters continues on page 8 ...

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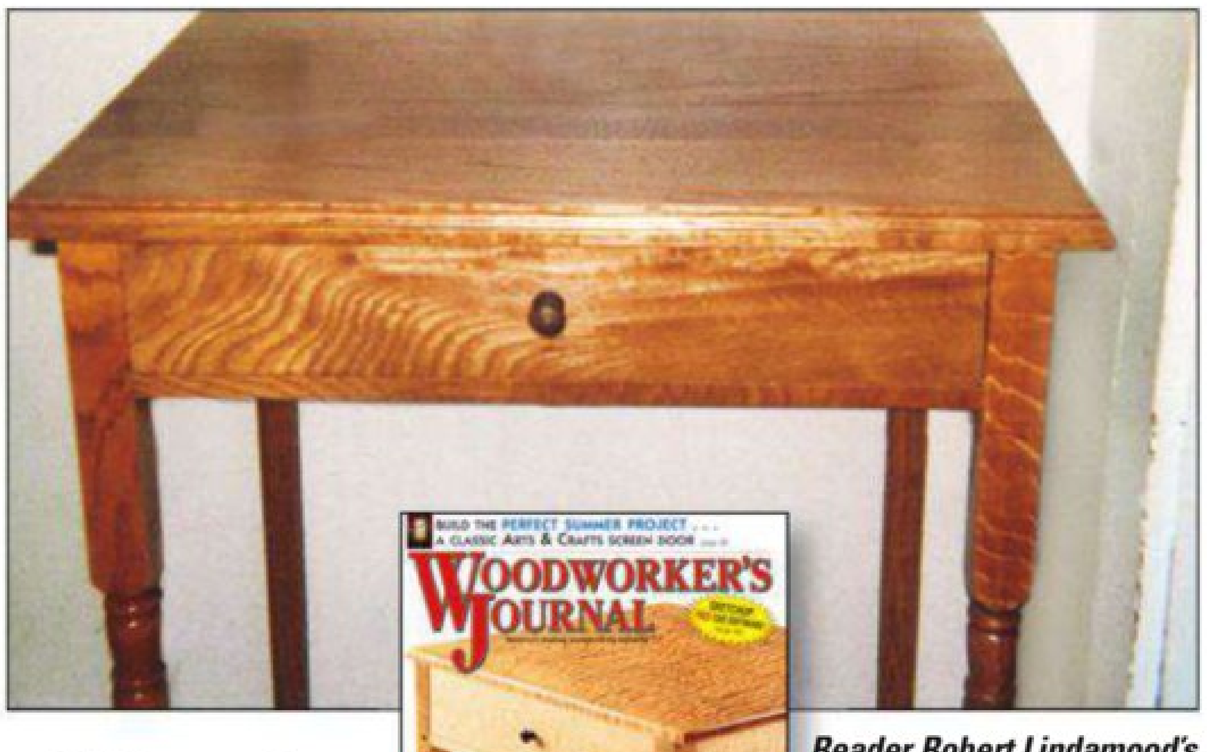
Letters continued



Reader Robert Lindamood's oak version of our Shaker makeover.

WJ Responds:
While we'd like to thank Michael for this valuable reminder — we want to protect trees as much as anyone — we also need to point out that Chris Lubkemann's use of found wood and his years as an overseas missionary mean that he was using the various international woods when he was in their home locales.

Shaker Inspiration

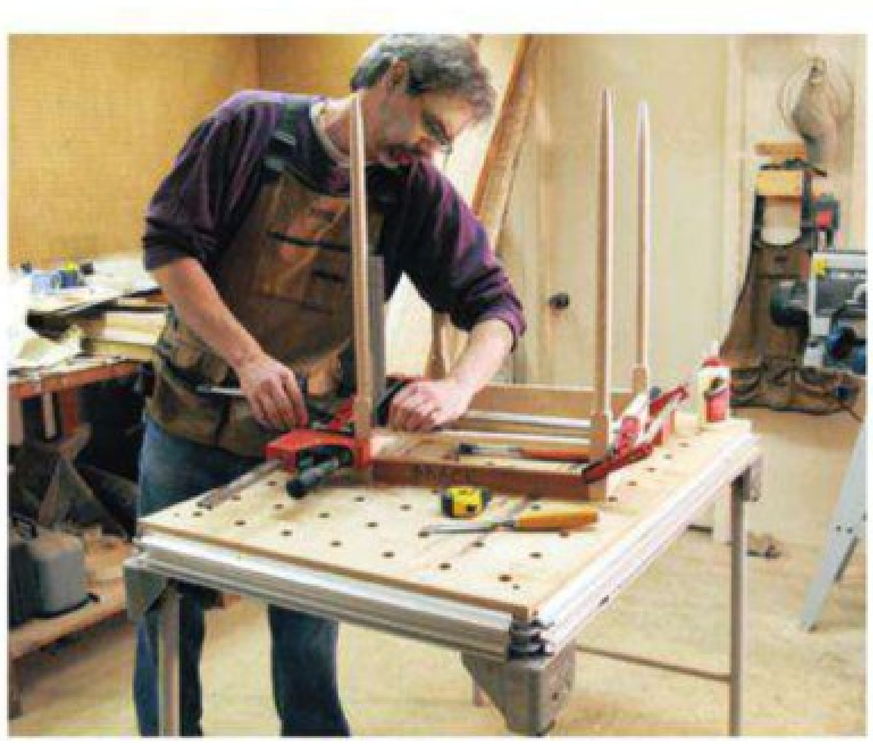
Enclosed please find a picture (top) of a Shaker night table which I built after seeing, in the August 2010 *Woodworker's Journal*, your article entitled "Shaker End Tables." It was, in my opinion, a great inspiration to all woodworkers who admire and appreciate Shaker craftsmanship.

The table, which I built by using your drawings, started about seven years ago when I had a small furniture repair shop in Marion, Virginia. I was looking for old pieces of furniture to restore and resell, and when I found the legs which I used to build my table in the scrap pile from a local factory, I said, "This is going to be a Shaker table." (I believe they were intended to be pilasters for a stairway.)

When I moved to Tennessee in September of 2006, I brought these pilasters and some oak scrap with me. I already had the top glued and edged, intending to build a nightstand. When I received my copy of the *Woodworker's Journal* with your Shaker table on the cover, I downshifted to the Shaker mode and immediately started building my altered version which you see in the (above) photo. Thank you for your inspiration.

Robert D. Lindamood
Whitleyville, Tennessee

Letters continues on page 10 ...



Our reader used salvaged turned legs to build his version (photo above) of editor in chief Rob Johnstone's Shaker table. Here Rob is shown gluing his turned legs to the table's apron.

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Brainpowered Shop Tool

As an apprentice offset pressman in the late 1940s, enough cash was realized to enable the purchase of a Shopsmith tool from Montgomery Ward Co. Inspired to build a coffee table, I then constructed a band saw using 3/4" plywood and hubs from bicycle front wheels and using power provided by a belt attached to the Shopsmith. The curved legs were sanded using the Shopsmith with a sanding drum made from a bowling pin — which I mounted through the saw table blade cutout and controlled on lathe centers.

The outcome? This cherry table has spent over 60 years since then, sometimes in front of the sofa, as shown, and sometimes relegated to the basement. Don't know if I would attempt this now with more modern tools.

Thought someone would get a kick out of this story.

M. Tubbs
Jacksonville, New York

W.J. Responds: We did indeed get a kick out of the story. We also feel this is a good time to remind everyone that *Woodworker's Journal* recommends following all tool manufacturers' safety precautions.

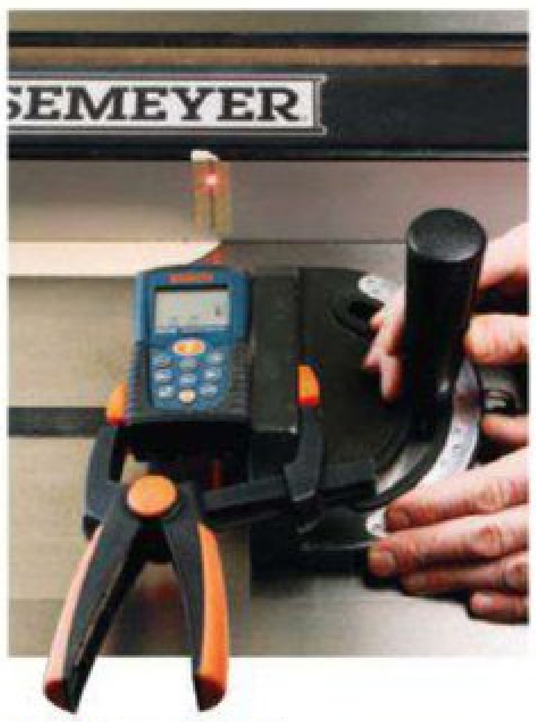
Not a Choice Pick?

The *Tricks of the Trade* section is one of my favorite departments in your magazine. However, I was disappointed in your "pick of the tricks" winner in the June 2011 issue. How is Mr. Wells sure if his laser pointer is sitting square on his miter gauge? And why isn't it easier to grab a carpenter's square

Reader M. Tubbs built this table with some unique tools (bowling pin, anyone?) powered through his Shopsmith.

to measure a 90° angle with the gauge to the fence? This takes seconds and doesn't require batteries.

Shawn Miller
Portland, Oregon



A Bitter Drink

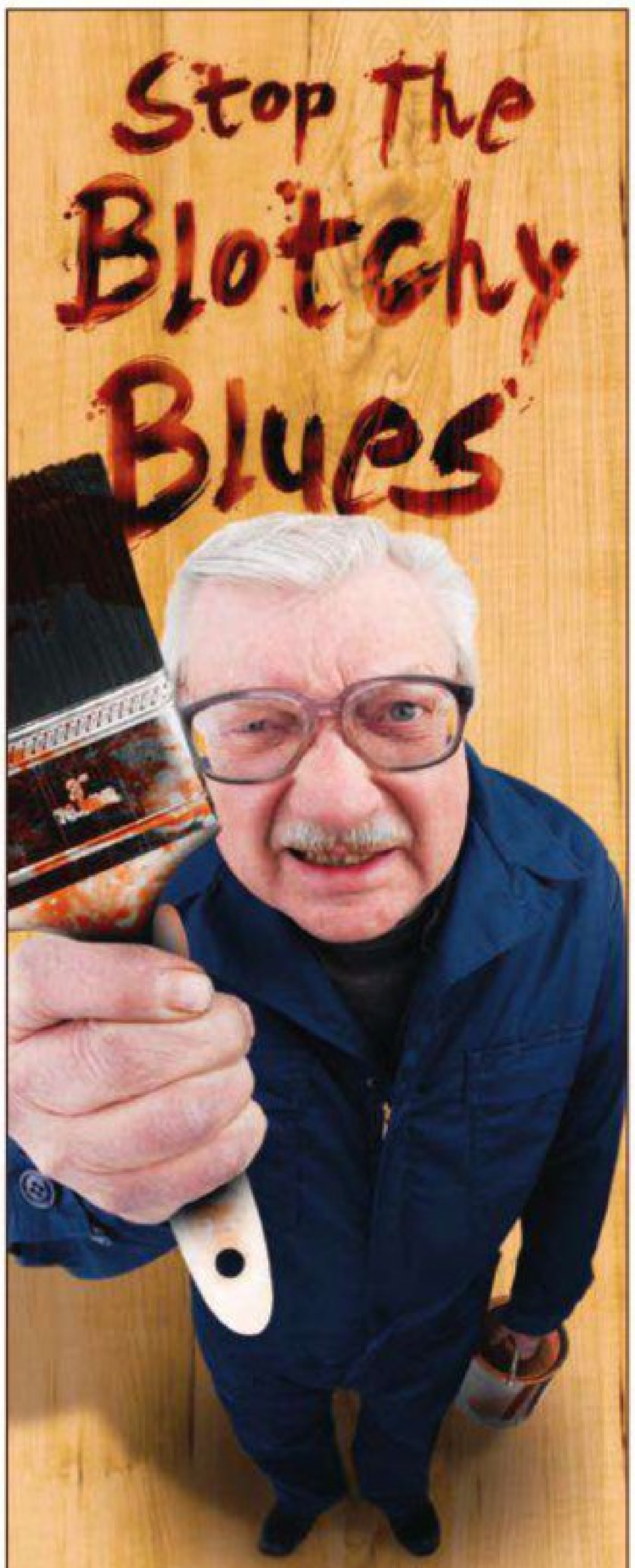
In the August 2011 issue, there is a "Tricks of the Trade" recommendation for prolonging finish viability that is juxtaposed with your "Safety First" warning.

And rightly so that you should have that warning there. Varnish, solvents, etc. should never, ever, be put in soda containers! This is pediatrics poison control 101. No amount of labeling makes this safe. Better to spray in some inert gas or replace the varnish more often.

Richard Hurst, M.D.
Olympia, Washington

W.J. Responds: Thanks for making that point, Dr. Hurst. While some woodworkers may not have youngsters around in their day-to-day lives, we're pretty sure they don't want the grandchildren's introduction to the shop to be the kind you're mentioning.

Special thanks to Dr. Hurst for pointing out the dangerous idea we presented in last issue's Tricks of the Trade. We regret this error in judgment and hope that all will take note of this correction.



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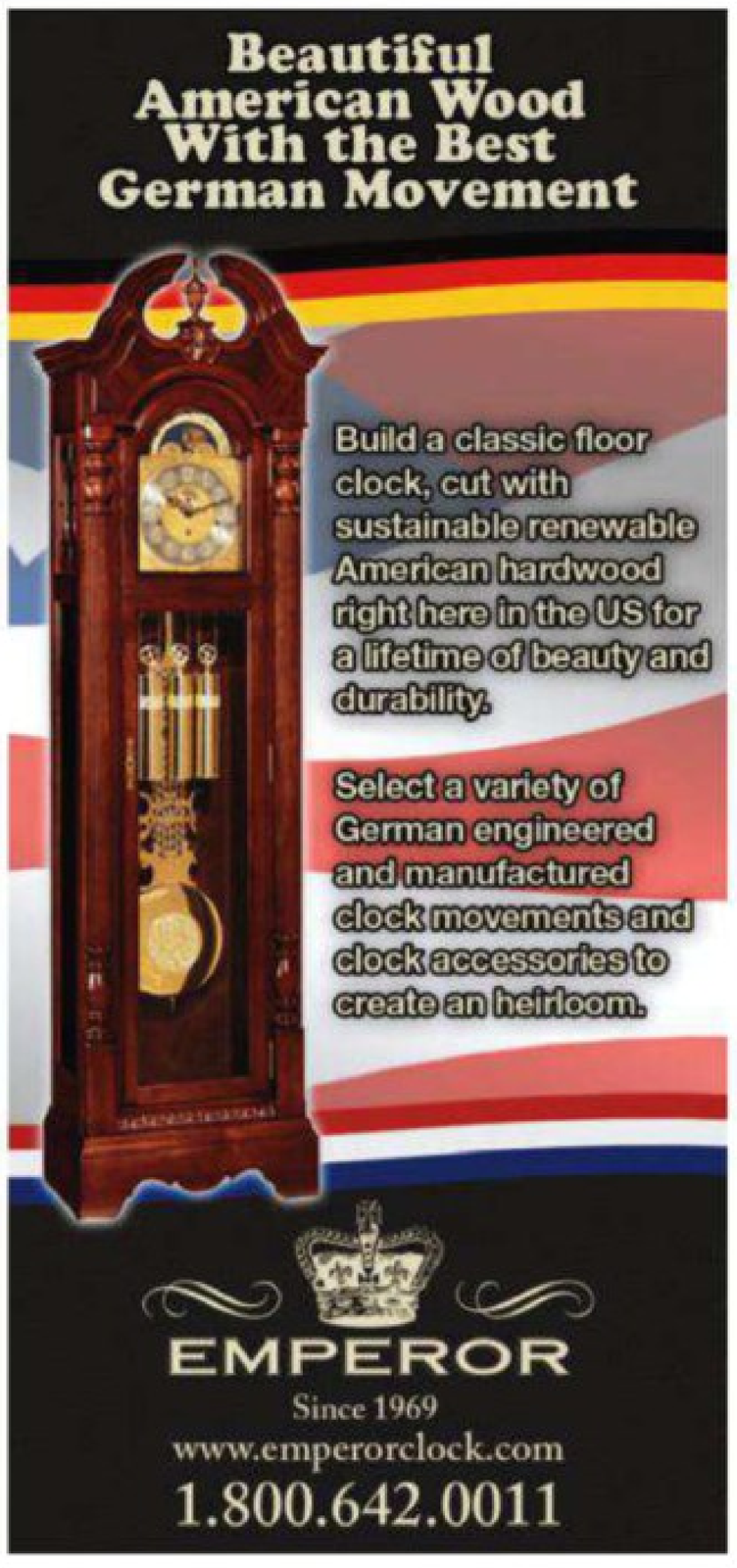

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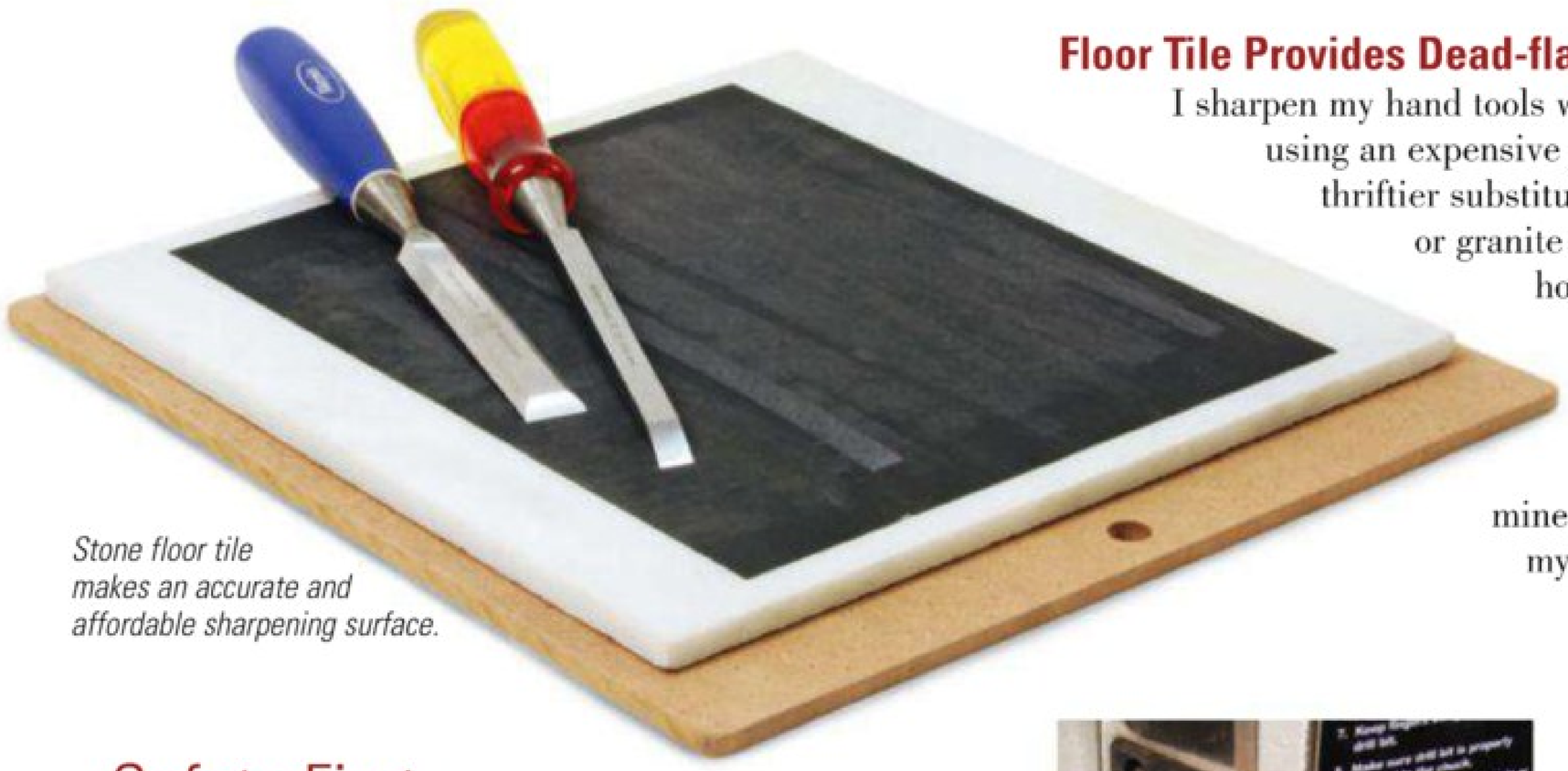
Tricks of the Trade

Smart Machine Improvements



Stone floor tile makes an accurate and affordable sharpening surface.

Floor Tile Provides Dead-flat Sharpening Surface

I sharpen my hand tools with sandpaper, but instead of using an expensive plate glass base, I've found a thriftier substitute: ground and polished marble or granite floor tile. You can buy it at any home center. Glue the tile to an oversized piece of Masonite, plywood or MDF. This backer stiffens the tile and protects the edges. I drilled a hole in mine for hanging it up when I finish my sharpening sessions.

John L. Cusimano
Lansdale, Pennsylvania

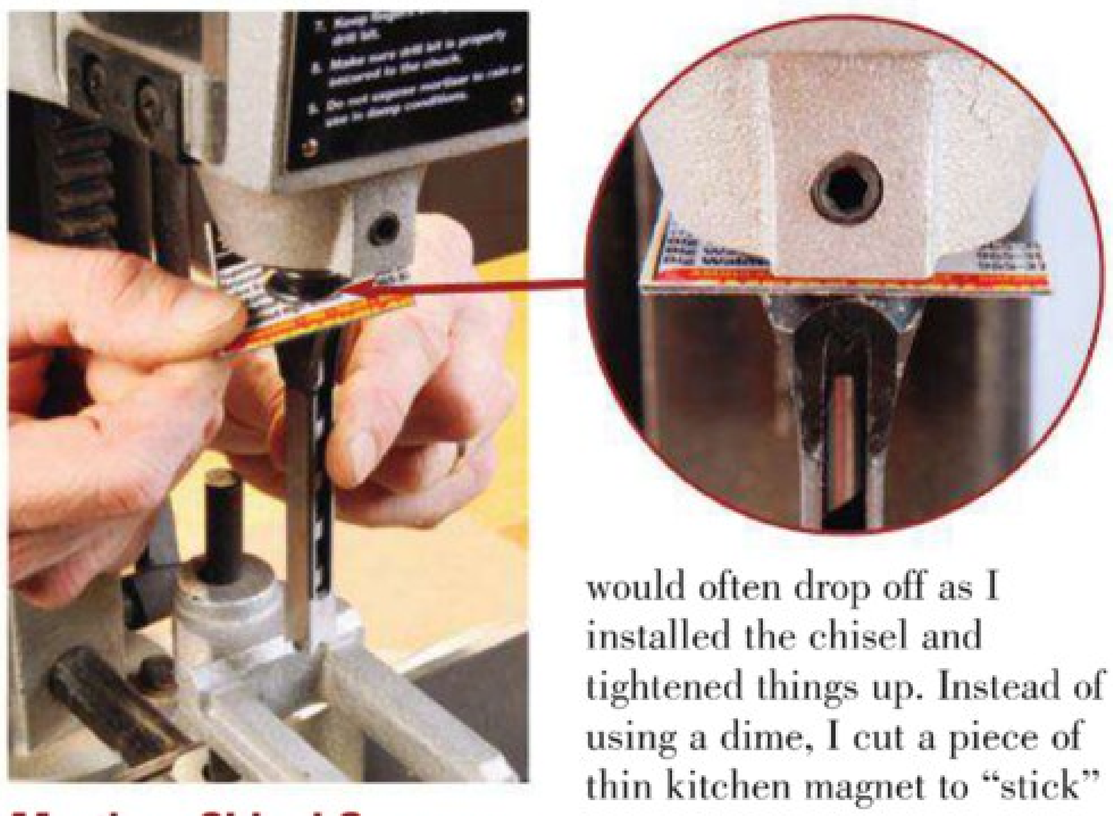
Safety First

To demonstrate techniques and show details, Woodworker's Journal sometimes removes necessary guards from power tools. We do not advocate this practice and urge readers to strictly follow tool manufacturers' instructions and safety precautions.

Shim Your Bench Vise for Easier Gang Sanding

When I'm building cabinet doors and need to sand the edges of the rails and stiles before assembly, I don't want to accidently round over the corners with my sander. To prevent this from happening, I clamp them all together in my bench vise. But since the frame parts are narrower than my vise jaws, I place a thick shim underneath and on top of the vise screw. It keeps the edges of all the workpieces flush, creating a broad surface for more controlled sanding.

Serge Duclos
Delson, Quebec

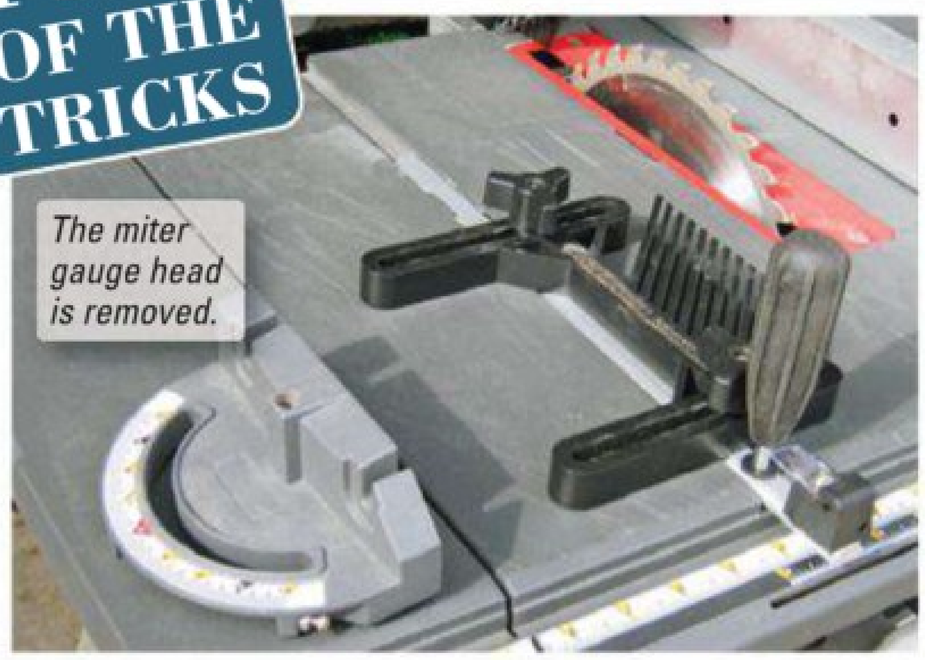


Mortiser Chisel Spacer

Mortiser chisels cut better if you use a spacer to create a gap between the chisel and the internal drill bit. A dime's thickness is about the right amount of gap, but for me it would often drop off as I installed the chisel and tightened things up. Instead of using a dime, I cut a piece of thin kitchen magnet to "stick" between the collar and chisel for a spacer. After use, I just stick the magnet to the mortiser until next time. No more dropping those dimes!

Charles Mak
Calgary, Alberta

PICK OF THE TRICKS

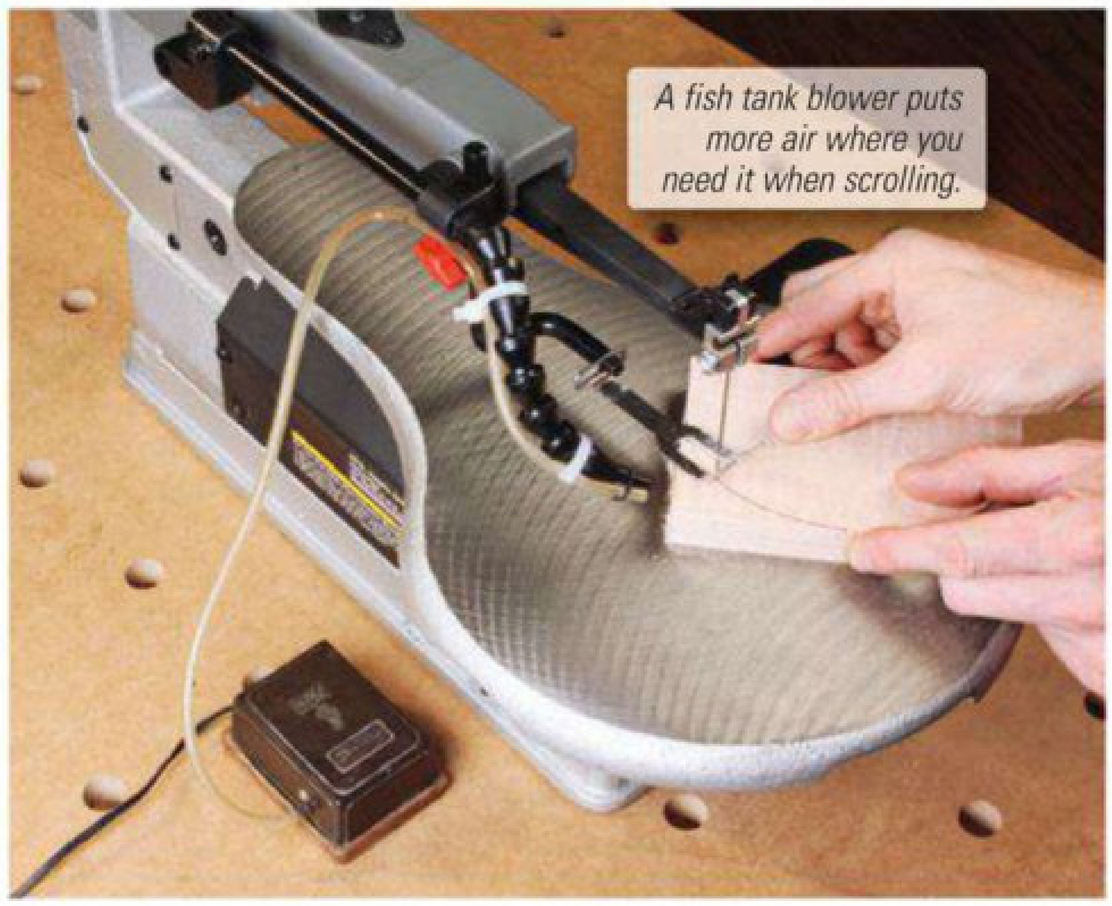


The miter gauge head is removed.

Miter Gauge's Bar Switches to Featherboard Mount

The mounting bar of my featherboard was too wide for the narrower miter gauge slot on my portable table saw. Despite my search, I couldn't find a replacement of the correct width. So, I took my miter gauge apart and drilled two holes through its bar for the featherboard bolts. I countersunk these holes for the bolt heads and fastened the featherboard to it. On my saw, the table has tabs that hold this bar in the slot. Thanks to those tabs, I can use the miter gauge handle, threaded into its hole, to tighten the bar so the featherboard doesn't move. Now it's a 30-second changeover from miter gauge to featherboard.

Van W. Adams
Waukesha, Wisconsin



Perfect Dowel Sizing with Pocket Gauge

Dowel diameters are notorious for being inconsistently milled, so it's difficult to determine their exact size when you're at the store picking one up. I made this dowel gauge with holes drilled for the two sizes I buy most often: 3/4" and 1 inch. Whenever I buy dowels, I slip it into the pocket and test-fit both ends. This way my dowel supply is always accurate.

A.J. Hamler
Williamstown, West Virginia

Pump Up a Scroll Saw

The air pump on my scroll saw just didn't keep the sawdust clear, so here's my easy fix: I took an aquarium pump and attached its hose to the saw's adjustable air nozzle. Voilà! Clean cutting.

Kim Stewart
Uniontown, Pennsylvania

Winner!

In addition to our standard payment (below) Van W. Adams of Waukesha, Wisconsin, will receive a Lamello Vario Box 440 Piece Set of Biscuits and Joining Elements from Colonial Saw for being selected as the "Pick of the Tricks" winner. We pay from $100 to $200 for all tricks used. Send your original, unpublished tricks with a photo or drawing to Woodworker's Journal, Dept. T/T, P.O. Box 261, Medina, MN 55340. Or send us an email: tricks@woodworkersjournal.com

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Questions & Answers

Why Don't Dado Blades Measure Up?

The dado blades that are the right size for a saw may seem wrong to our reader — but it's important to follow manufacturers' recommendations.

Q Why do companies make 8" dado blades? If a saw is made for a 10" or 12" blade, that is the optimum surface cutting speed for that saw, and that is where it operates the safest. When you change to a dado set (whether it be a set or a wobbler type blade), you are compromising your safety on that saw because you are now cutting much more material and you have to be more attentive. Now you change to an 8" blade and you are running at a reduced cutting speed (20 percent on a 10" and 33 percent on a 12" saw). I would think that this reduced cutting speed and the wider blade would seriously compromise your safety on the saw! Why don't companies make 10" and 12" dado sets to maintain more safety on the saw?

Le Volberding
Dayton, Nevada

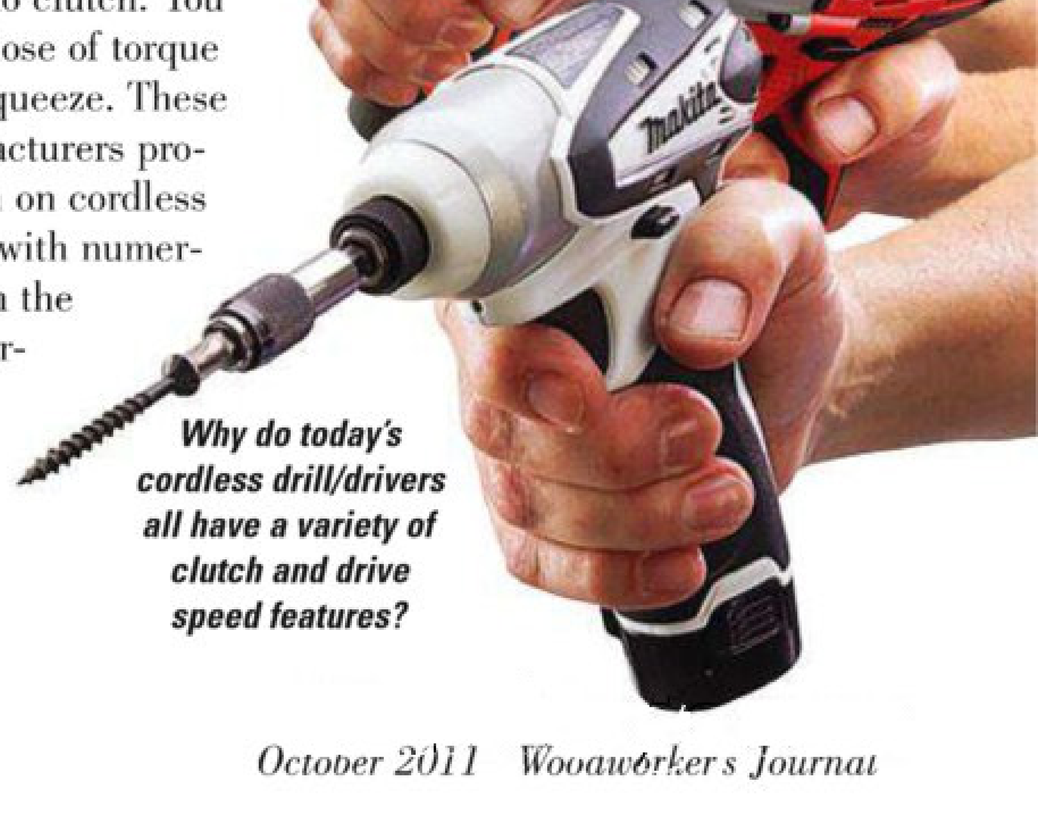
A Machine manufacturers actually determine the appropriate sized dado that can be used on their machine. They determine this given the design of the arbor, power transmission system and motor, along with safety considerations and other factors that influence the best size for their machine. Some 10" saws actually will only allow 6" dadoes. Dadoes remove a lot more material than a blade does and are harder on the saw than a standard blade. You should only use the size the saw manufacturer recommends.

— Cliff Paddock

Q What do the variable clutch and drive speed settings on a cordless drill really mean?

Leslie R. Douglas
Eureka, California

A Before we all started plugging batteries into our drills, our corded predecessors had one speed control at the trigger and no clutch. You got the full dose of torque with every squeeze. These days, manufacturers provide a clutch on cordless drill/drivers with numeric settings on the collar. Its purpose is to disengage the transmission at a range of torque thresholds to prevent overdriving screws in delicate surfaces such as drywall, or damaging small or fragile screws. The higher the number on the



Why do today's cordless drill/drivers all have a variety of clutch and drive speed features?

THIS ISSUE'S EXPERTS

Cliff Paddock is director of new product development at Freud Tools.

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

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

Contact us

by writing to "Q&A,"
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by faxing us at (763) 478-8396
or by emailing us at:
QandA@woodworkersjournal.com
Please include your home address, phone number and email address (if you have one) with your question.

collar, the more torque the drill will apply before the chuck stops spinning, and vice versa. It gives us added control. That second switch for speed settings enables you to choose a higher speed range for faster drilling and driving tasks or a slower range for driving larger bits, mixing paddles and so forth.

— Chris Marshall

Q I always read about them in table saw reviews, but I never seem to see them in my friends' shops. So what's the story with riving knives … do I really need to have one on my table saw?

Steve Marlos
Hilo, Hawaii

This example of a high quality riving knife illustrates how a riving knife hugs the curve of the saw blade. It also moves up and down with the saw blade as the blade is adjusted for various cutting heights.

A riving knife is a splitter that sits behind a table saw blade. Its job is to prevent kickback that results from stock distortion — a not uncommon event that can occur during ripping operations. While all riving knives are splitters, not all splitters are riving knives. The quintessential riving knife is curved to match the diameter of the saw blade and "hugs" the back of the blade, with a distance

Continues on page 16 ...

Winner!

For simply sending in his question on dado blades, Le Volberding of Dayton, Nevada, wins an Osborne Miter Gage by Excalibur (from General International).

Each issue we toss new questions into a hat and draw a winner.

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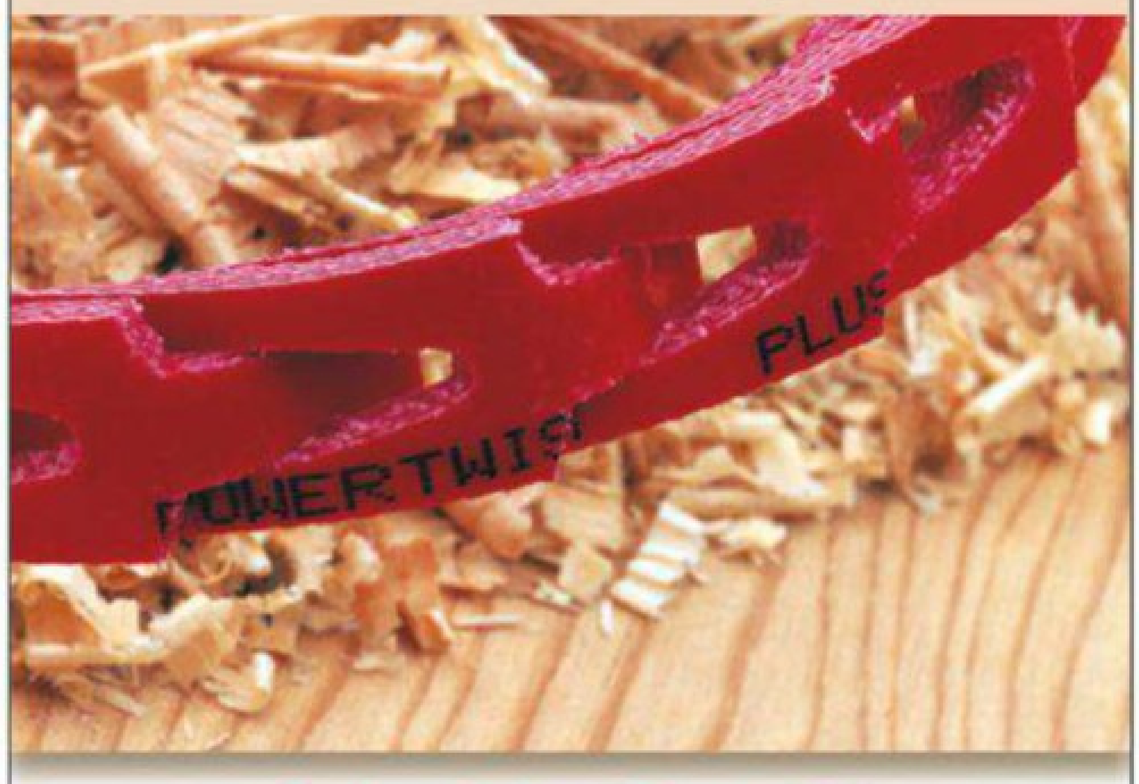

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Stumpers

A Guessing Game

Readers planted a variety of ideas in attempts to solve this mystery.

Thanks to reader C.R. Bush's photo, here, we're truly able to picture this tool in use.

Russell Housman of Franklin Square, New York, has "been getting *Woodworker's Journal* for years and always wanted to put my two cents in on the mystery tool." Russell thought the mystery tool in the June issue from **Terry Luther** of Marietta, South Carolina, could be "some kind of clothesline. We'll see if I'm right."

He was not.

Larry Hoyt of Tucson, Arizona, asked, "Am I too far-fetched to think this is an old landmine? I've only handled one in my lifetime; however, I recognized it immediately." Interesting how Larry gains such confidence by his last sentence — also wrong. Wrong or right, it's always entertaining reading the guesses. Like these:

"My best guess is that the unit would be a roaster pan for coffee beans," from **Eivind L. Kristensen** of Holmestrand, Norway. **Chet Geiselman** of Muncie, Indiana, said, "I'm guessing it's a hog oiler." **Jim Broich** of Sleepy Eye, Minnesota, thought it "looks like the container for holding the cable for a drain router." And **Diana H. Zielinski** of Cudahy, Wisconsin, remembered her grandmother's "bedwarmers were rounded metal pots with attached lids. It's just a guess, you see."

Jim Davis of Reston, Virginia, was straightforward: "My guess is that it holds a ball of twine. What for? Who knows?"

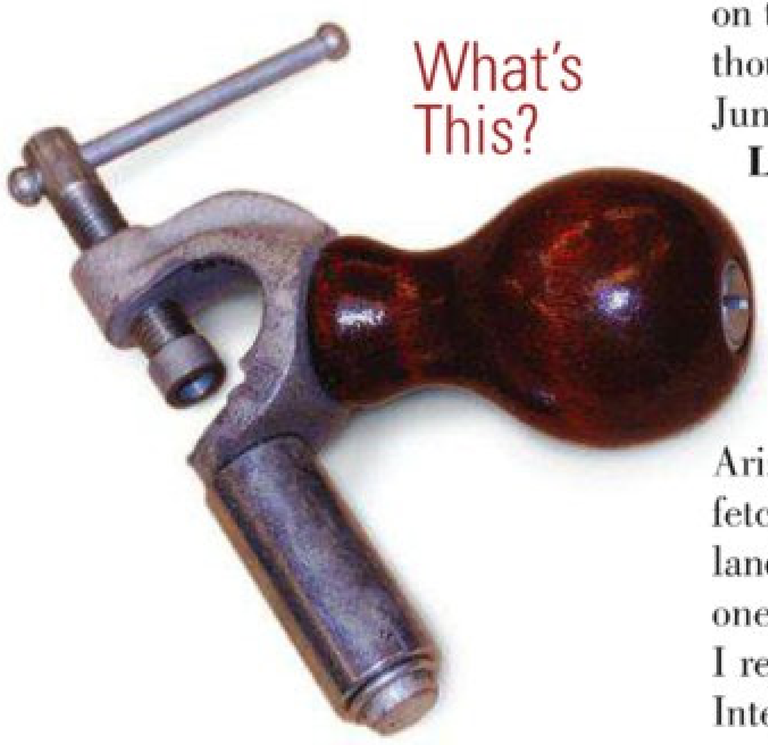
Luckily, we did have a reader who was not guessing. **C.R. Bush** of Aiken, South Carolina, stated, "The item is a mule-drawn cotton and corn seed planter. The planter in [my] photo was used in the 1930s and 40s."

He also cited the embossed August 11, 1885 date, which is indeed when the patent was issued to Henry D. and Eugene L. Wilson of Abbeville, South Carolina, for what they described as a "Cotton-Planter and Guano Distributer." If you've got guano, you're going to want to distribute it. In the Wilsons' case, that would have been as seed fertilizer.

In other cases ... well, it's anyone's guess.

—Joanna Werch Takes

What's This?



Al Limiero of Longmont, Colorado, shared this issue's mystery tool for our Stumpers readers. He doesn't have any patent information, but believes it was available in the 1950s. Do you know any more? Send your answer to stumpers@woodworkersjournal.com for a chance to win a prize!

Winner! Russell Housman of Franklin Square, New York, wins a PORTER-CABLE 6.0 Amp Hand Planer (Model PC60THPK).

We toss all the Stumpers letters into a hat to select a winner.

continued

of 1/8" to 1/4" between blade and knife. The top of the riving knife is held just below the top of the saw blade, so it does not interfere with cuts or grooves formed by the blade. But here is the most important characteristic: It is mounted in such a way that it will rise and lower with the blade as it is adjusted for various cuts.

Many experts feel that a riving knife is the single most important piece of safety equipment a table saw can sport. A properly used riving knife alone will eliminate nearly all ripping kickback — one of the primary causes of table saw injuries. When it's used in conjunction with proper technique (blade height, stance, push sticks, etc.) and blade guards, nearly 100 percent of table saw mishaps can be avoided.

Riving knives have been standard equipment in Europe for decades but have been largely and inexplicably absent from U.S. table saws. Recently, a group of power tool industry manufacturers joined together to create a new standard for table saw safety equipment that includes quality riving knives (as well as easy-to-operate top guards), even on small portable saws. Some within the industry contend that this new focus on safety was sparked by SawStop's table saw with its high-tech saw blade brake — an important new player in this market.

— Rob Johnstone

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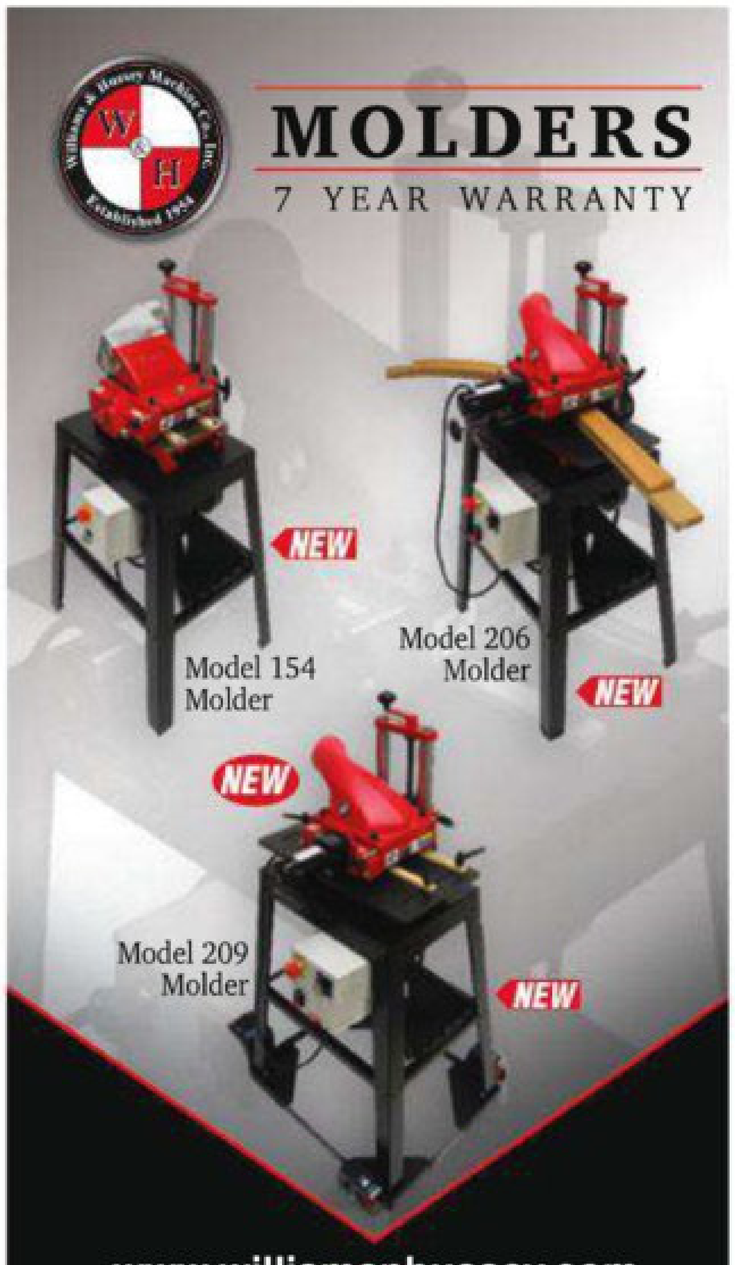

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NOTE: See Quik-Link at *woodworkersjournal.com* for web links to all of these products.

Festool RO 90 DX Rotex Multi-Mode Sander

Festool's new *RO 90 DX Rotex Multi-Mode Sander* shifts gears with a twist of the wrist, going from aggressive, belt sander-level to random orbital mode with a turn of the dial. Its transformations also include the ability to switch easily from a round pad to a delta-shaped pad for detail sanding without the use of any tools. Other features on the 3.3-pound tool include an edge protector that snaps onto the front of the sander to prevent incidental contact with adjoining surfaces, sealed metal gear housing and a detachable Plug-It power cord. The 1/2hp sander is priced at $375.

Rockler's *Dust Right Vortex™* 10-gallon dust container turns any standard shop vacuum into a two-stage dust extractor. Instead of sawdust, wood chips and other debris clogging up a vacuum filter, the Dust Right Vortex's patented process traps those items in the translucent 10-gallon container, which has an easy-to-read "fill" line and a snap-on lid for fast and easy disposal. A five-caster base provides stability and easily maneuvers through the shop, while hoses, such as the included 36" flexform, fit tightly inside the connection ports. The Dust Right Vortex (item number 40530) sells for $69.99.

Rockler Dust Right Vortex

O'Keeffe's Working Hands hand cream

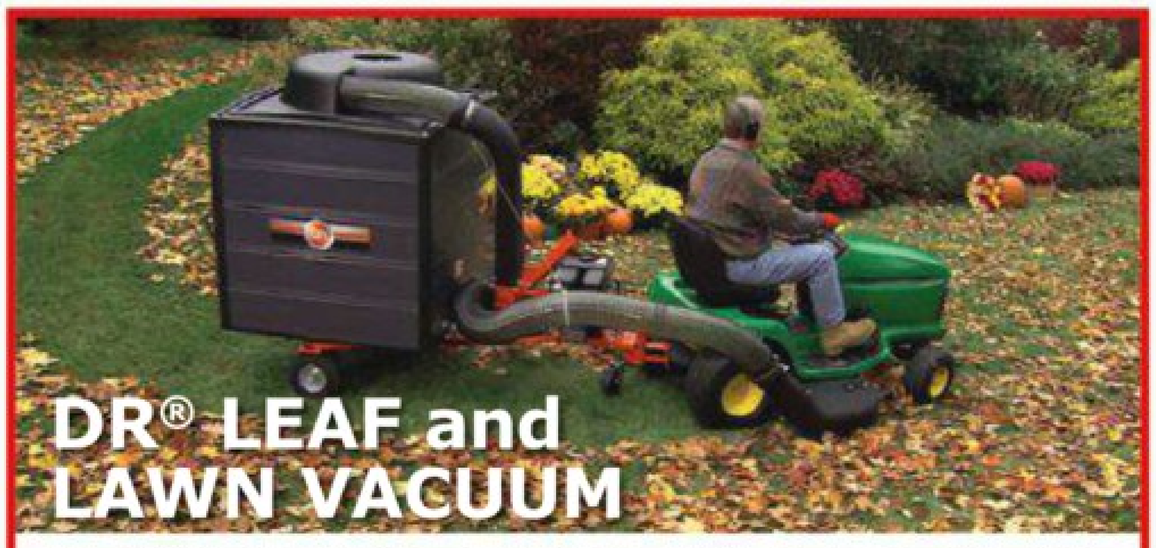
Originally developed by Oregon pharmacist Tara O'Keeffe to repair the cracked hands of her rancher father, **O'Keeffe's** *Working Hands* hand cream is now a part of the Gorilla Glue company. The cream mimics the skin's natural repair process by drawing moisture into the skin and hydrating it. Ingredients include glycerin and allantoin. The non-greasy, hypoallergenic, odorless formula comes with a money-back guarantee. A 3.4-ounce jar sells for $7.99.

One of the latest additions to its 18-volt LXT Lithium-Ion lineup is **Makita's** *LXSL01 Cordless 7½" Dual Slide Compound Miter Saw*. Weighing in at 27.5 pounds, the LXSL01 has a 2,200 rpm motor with a direct-drive gearbox, which Makita says will entail less maintenance than belt-drive models. The LXSL01 miters 0° to 47° left and 0° to 57° right; bevels 0° to 45° left and 0° to 5° right; and it has positive miter stops at nine settings, ranging from 0° to 45° left and right. One of over 40 tools that will run off the same 18-volt LXT lithium-ion battery, the LXSL01 has 2 1/16" vertical capacity and will crosscut 11¾" at 90°. It retails for approximately $600.

Makita LXSL01 Cordless 7½" Dual Slide Compound Miter Saw

DeWALT's new *12" Sliding Compound Miter Saw* is the *DWS780*, running off a 15-amp motor that delivers 3,800 rpm. An LED light and cut alignment system (which doesn't require recalibration) casts a laser-like shadow on the wood surface, where the blade will

Continues on page 20 ...



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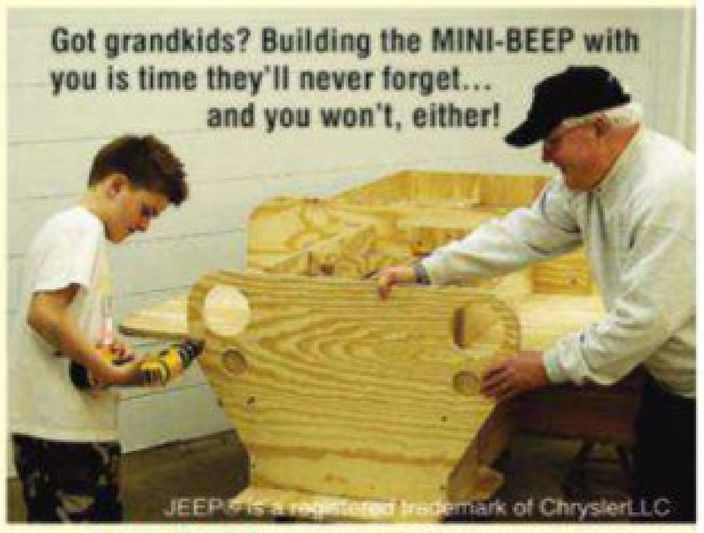

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What's In Store continued

DeWALT DWS780 12" Sliding Compound Miter Saw

come in contact. Cut capacities include 6¾" vertical and 13⅞" horizontal; an exclusive back fence design will cut up to a 2x16 at a 90° angle and a 2x12 at a 45° angle. The DWS780 will miter 60° to the right and 50° to the left, and it bevels both right and left from 0° to 49°, with five positive stops, ranging from 0° to 49°, in both directions. Retail price for the 56-pound DWS780 is approximately $600.

"Keeping a brush clean and in top condition is key to applying the best possible finish," says **Rockler** vice president of product development Steve Krohmer; the *Paint Brush Cleaning and Storage Container* (item number 40570) is meant to do just that. The one-brush container has a suspension spot

Rockler Paint Brush Cleaning and Storage Container

in its snap-on lid for the brush; after the brush is inserted, the container filled with water or mineral spirits, and the lid placed, the brush remains suspended in the liquid — which can be reused — preventing the bristles from curling or drying out. Left overnight or longer, the brush is ready for reuse after a quick rinse. The Brush Cleaning and Storage Container sells for $7.99.

Bosch's new *Large Random Orbit Sander, the ROS65EVC5*, is the first random orbit sander that will accept either 5" or 6" discs. It will also accept a wide range of optional pads, from extra-soft to hard to PSA, and it is the first sander with a unique "shock absorber" like top attachment system, providing vibration control and, Bosch says, "superior ergonomics and tool balance." The ROS65EVC5 is priced at $229 and will be available in October.

Bosch Large Random Orbit Sander ROS65EVC5

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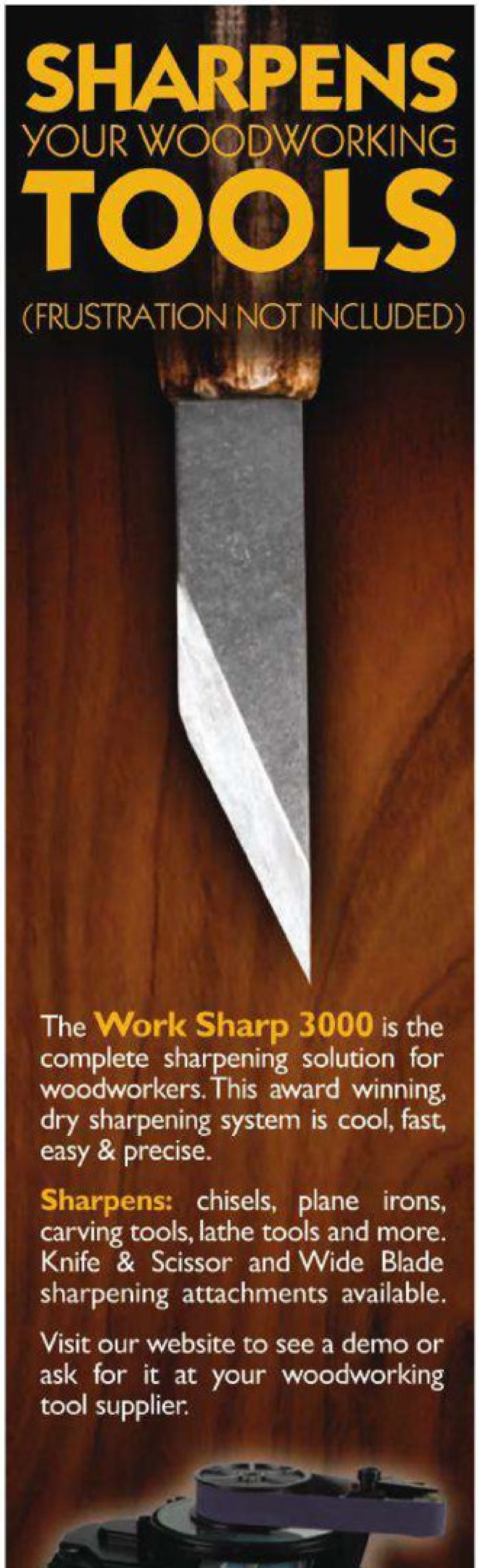

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Shop Talk

My Totally Tricked-out Hammond

By David Fowler

"In my experience, [the Hammond] is the ultimate precision tool, and equally important, it is inexpensive and requires little space."
— David Fowler

Before

On my woodworking journey, I am always looking for ways to achieve greater accuracy and precision, whether by trying a new tool or modifying a machine. One tool I've been using for several years is the Hammond TrimOSaw, or Glider for short.

Originally designed for the printing industry by Hammond Machinery Builders Inc. in Kalamazoo, Michigan, the Glider was intended for the very accurate and precise cutting of printer's type used in a letterpress. While they have become obsolete to the modern-day printer, these gems are still available to the woodworker — with a little luck.

At the heart of the saw is a cast-iron sliding table, which rides on 20 ball bearings and has a travel of about 24".

For the woodworker, the Glider's main function is that of a crosscut saw. In its stock version, it does this very well and with repeatable accuracy. That is the good news; the bad news is that the standard saw, as outfitted for the printer, has a few shortcomings for the woodworker. My improvements transform this uncommon printer's saw into a table saw capable of accuracy measured

in thousandths of an inch.

Its micrometer fence system is very precise for cutting metal type, but it is too small for the woodworker and does not move out of 90°. I added an aftermarket miter gauge from JessEm. Precise angles are now easy, and I have used the saw to cut 8/4 oak 12 inches and wider and other woods as small as 1/8" x 1/8".

The Glider was designed to use 6" to 7" diameter high-speed blades; their bore was larger than 5/8" and they had a special 3-screw-hub mounting system. To mount a standard saw blade, my modifications included filing larger openings in the tabletop and base and boring three countersunk hub screw holes in a new crosscut blade.

On the right side of the saw is an adjustable stop mechanism, called the batter gauge. I use it when cutting shoulders on tenons. For micro-adjustments, I use a two-step process: first, I move the batter gauge to its approximate position and set the micro-adjustment locking screw. Then I rotate the barrel — a mark equals 5,000/inch and a revolution equals 50,000/inch — very simple, very precise.

When I had the Glider's sliding table removed and mounted on the milling machine, I drilled two additional screw holes for a tenon jig as well.

Replacing the three-phase motor with a single-phase motor is only necessary if you do not have three-phase service. The only modification to the saw is to make a wood or metal sub-plate that mounts to the new motor and to the original motor mounting plate. I used the original switch and wired it so that the next improvement, a vacuum system, would turn on when the motor was switched on. I sealed the saw's hollow base with a 1/4" piece of plywood and some silicone caulk so that the dust would not drop into the hopper area.

The Glider came with a removable hopper used to catch the type that fell off after being cut. I decided this would provide a nice cabinet for two dovetailed drawers that I would use for saw blades and accessories.

It is obvious to me that the designers of the Glider were detail oriented, so it comes as a surprise that the saw does not have a means to lock the raising and lowering mechanism. Because the shaft moves slightly up and down when the blade height is adjusted, I had to make a clamp that would move with it.

As a professional woodworker, I have the good fortune to work with large and very expensive pieces of equipment, which allows me to work quickly and achieve a high degree of accuracy. However, whenever I have an operation that requires the utmost precision and accuracy, I invariably turn to my modified Hammond.

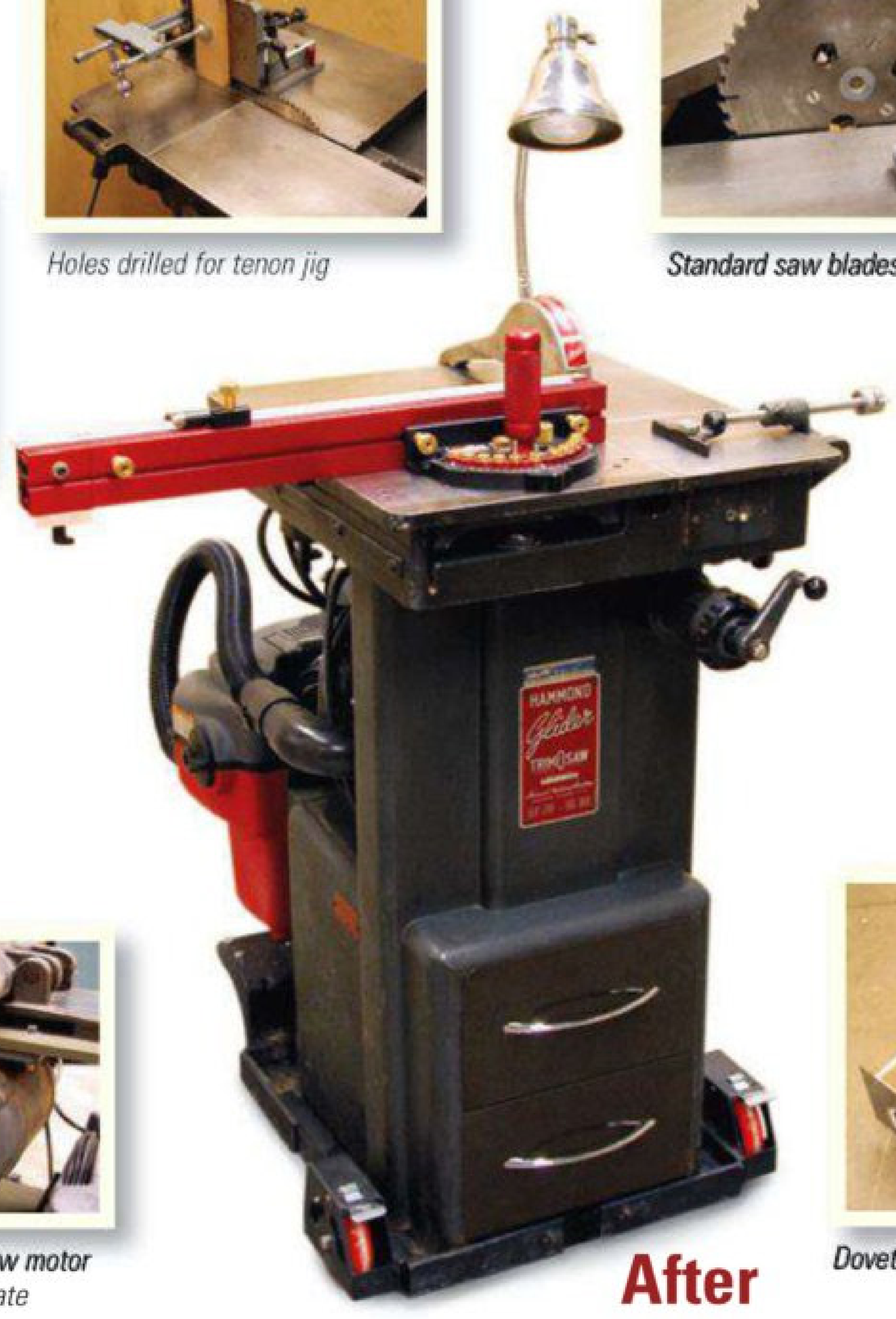
Shop Talk continues on page 24 ...

Holes drilled for tenon jig

Standard saw blades

Aftermarket miter gauge

Batter gauge adjustable stop



After

Vacuum mounted on support

Micro-adjustment locking screw and barrel

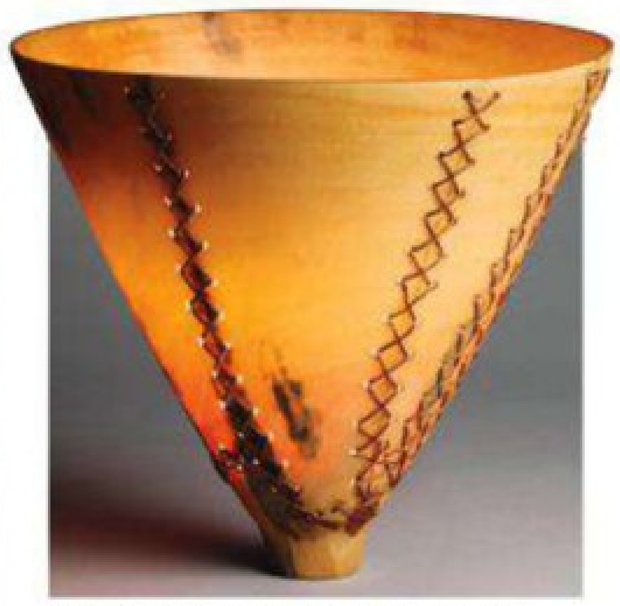
***Sub-plate mounted to new motor** and original mounting plate*

Dovetailed drawers mimic hopper front panel

Shop Talk continued

photo by Andi Wolfe

An exhibit of local collectors' 25 years of wood art was one aspect of a woodworking summer in Minnesota.



"Post Nuclear Series" by Ron Kent

"Lunar Sphere" by David Ellsworth

"On the Edge" by Jack Slentz

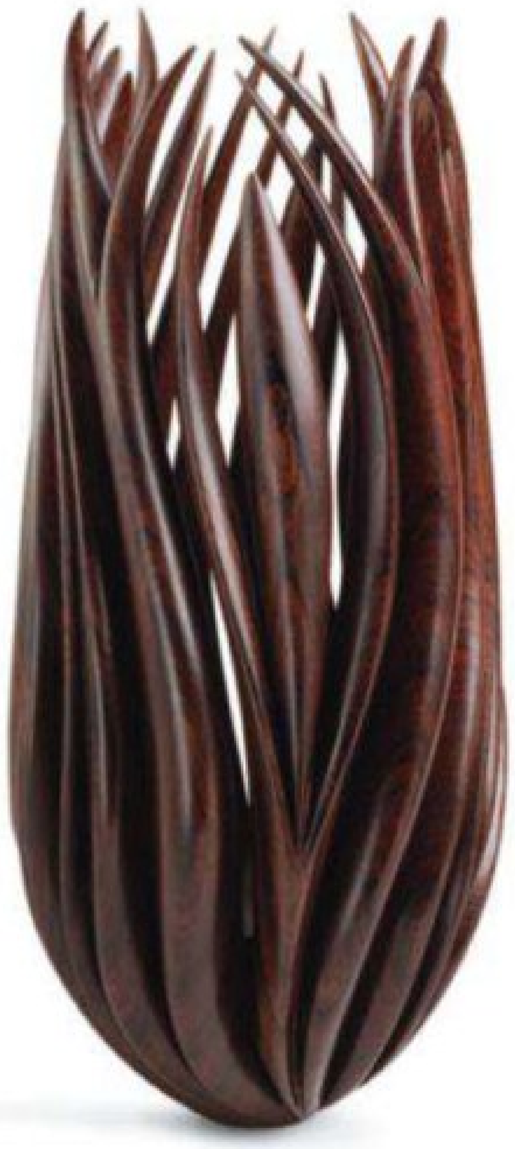
"Blossfeldt Vase" by Michelle Holzapfel

Wood Art

A 25-Year Collection

Woodworkers galore gathered in Minnesota's Twin Cities this summer with the annual symposia of the American Association of Woodturners and the biennial forum of the Collectors of Wood Art both held in that locale. The Minneapolis Institute of Art took advantage of this confluence to host a show featuring works from local wood art collectors Ruth and David Waterbury.

"Conversations with Wood: Selections from the Waterbury Collection" was on exhibit from mid-June to early September and featured 80 objects from the Waterburys' 500-plus piece collection. It's a collection that has spanned over 25 years, and encompasses pieces that represent woodturning, carving, piercing and painting.



"Garden Songs" by William Hunter

"Ruth and Dave Waterbury really helped develop the field of wood art as it's known today," said associate curator Jennifer Komar Olivarez. Their collection includes items ranging from several hundred-pound sculptures to a 4" turning, many collected on visits with the artists.

Many of the 130 living artists share comments and memories about their pieces in the exhibition catalogue.

You can find more information on the website of the Minneapolis Institute of Arts, *www.artsmia.org*.

— Joanna Werch Takes

"Family" by Michael Hosaluk

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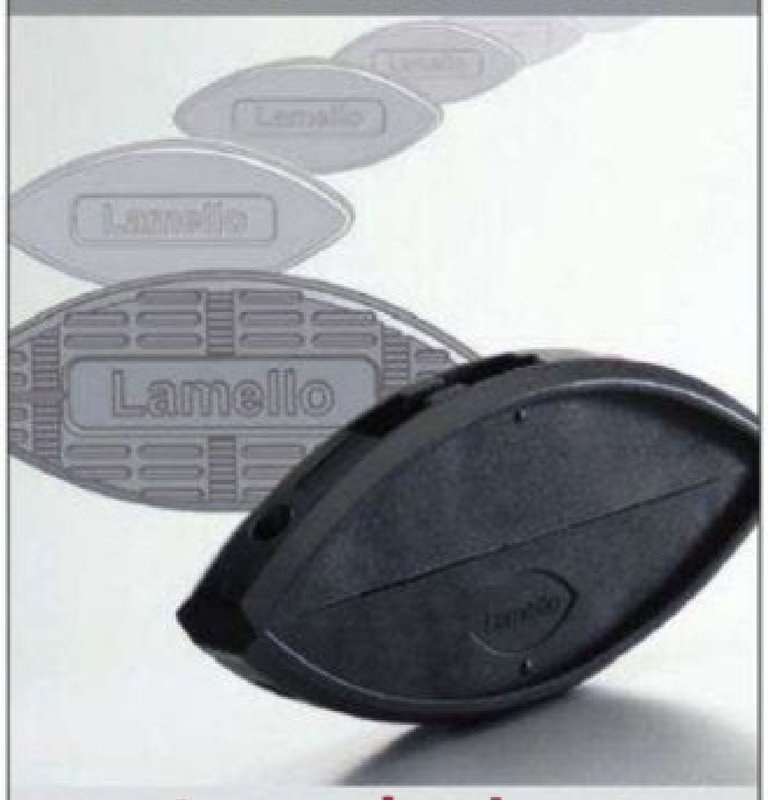
Cam & Dowel
Connectors shaking
in their drill holes?



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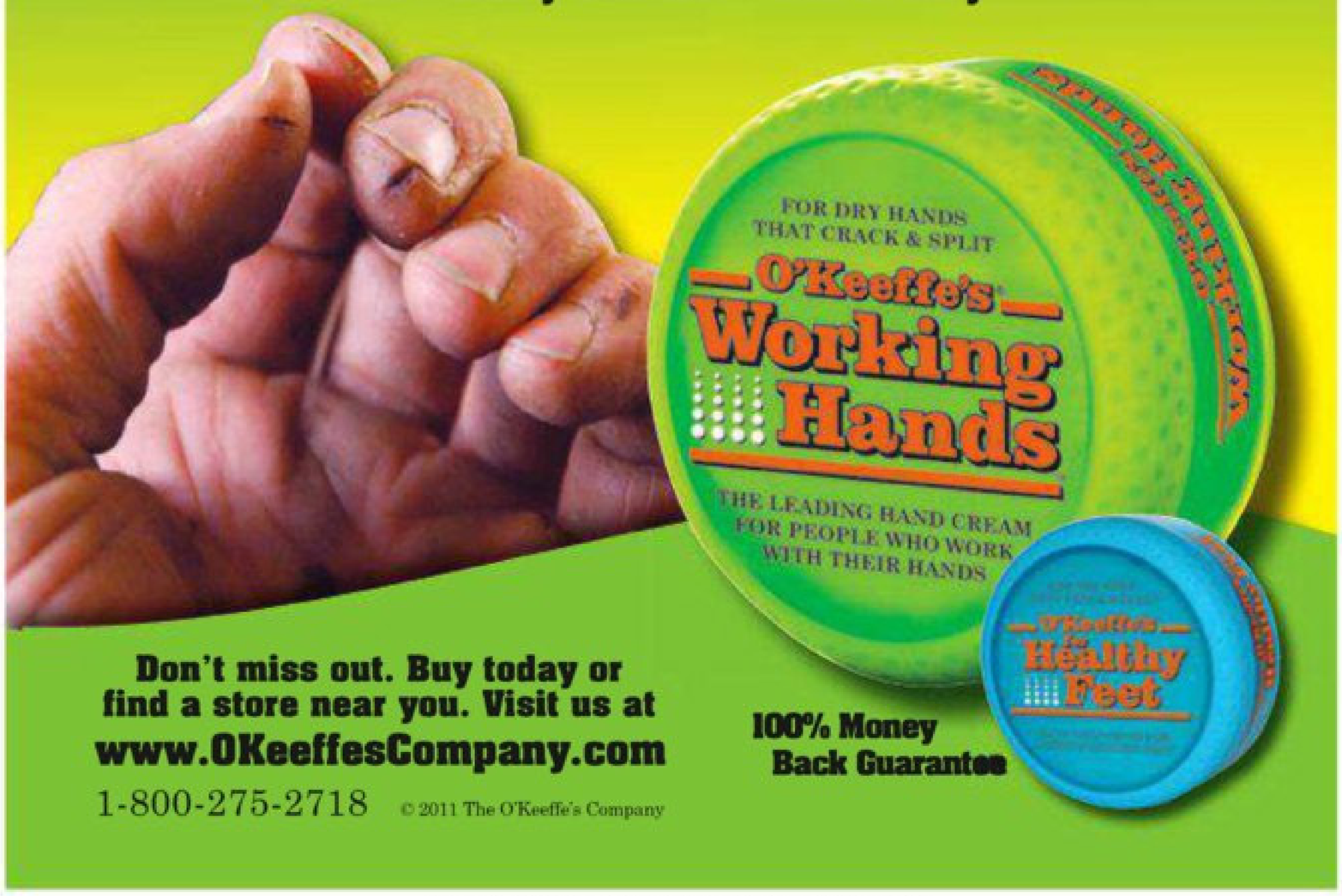

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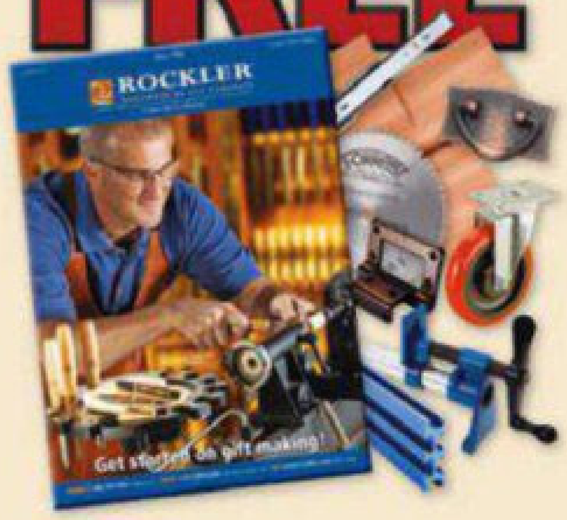

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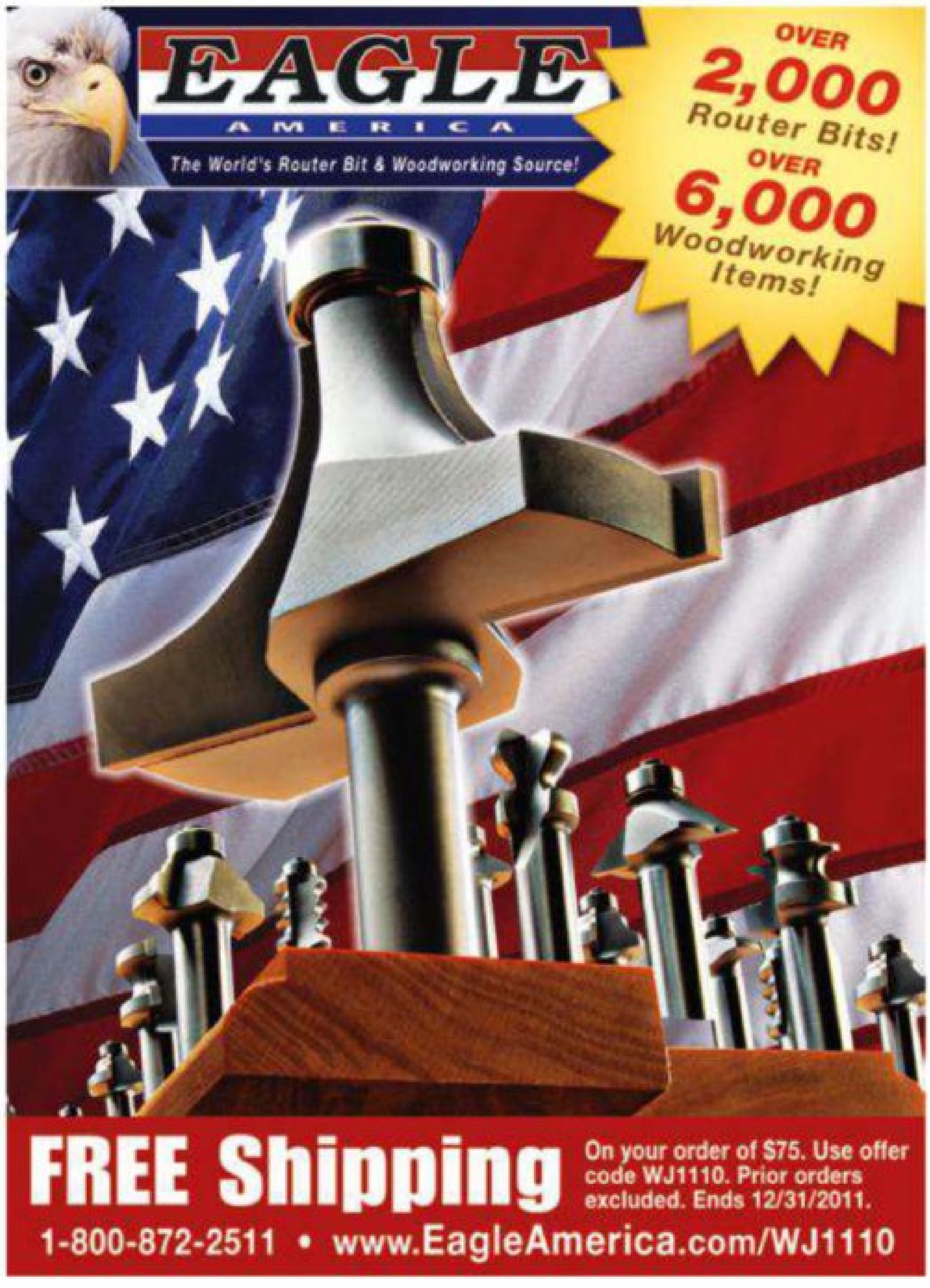

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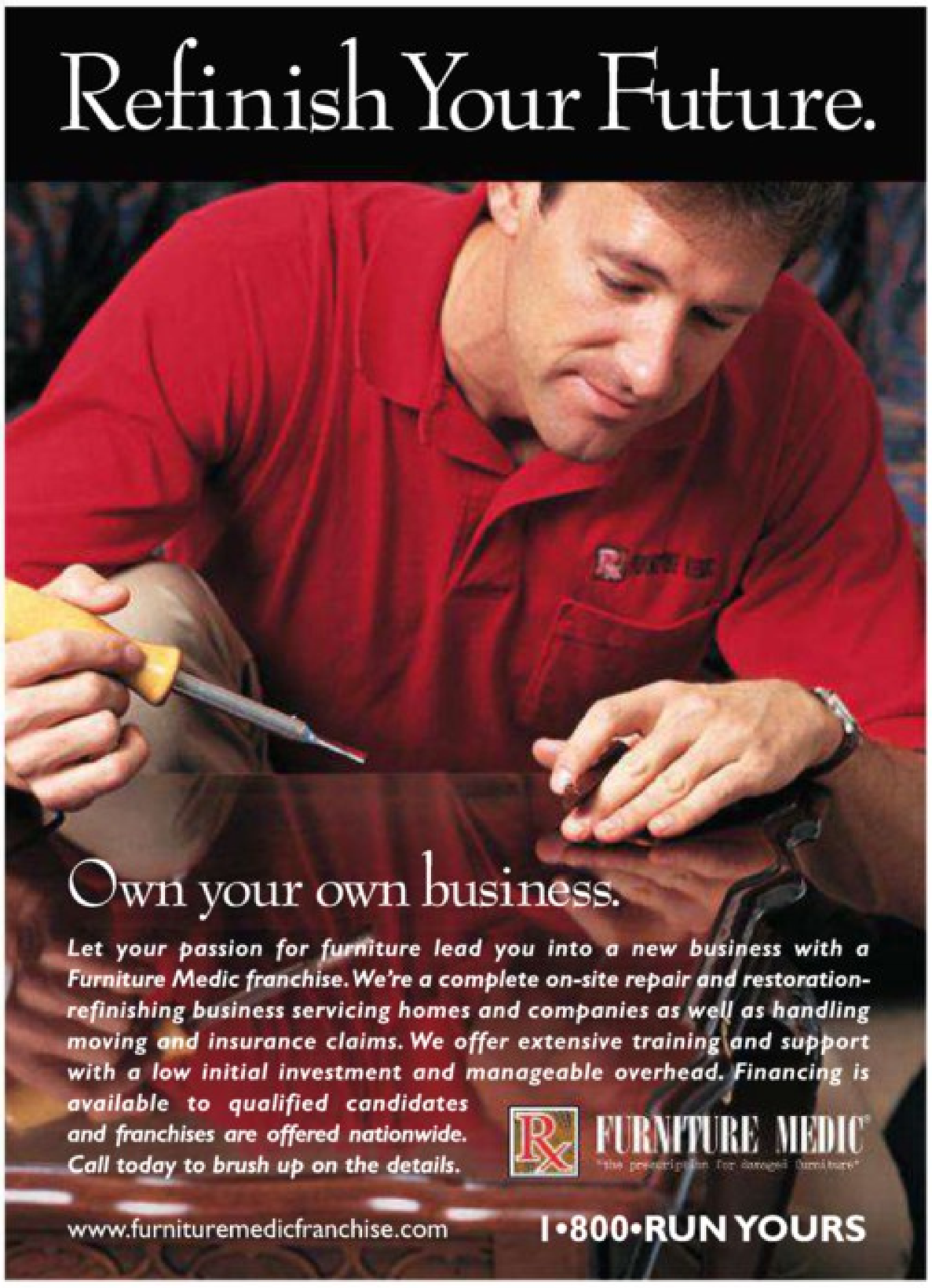

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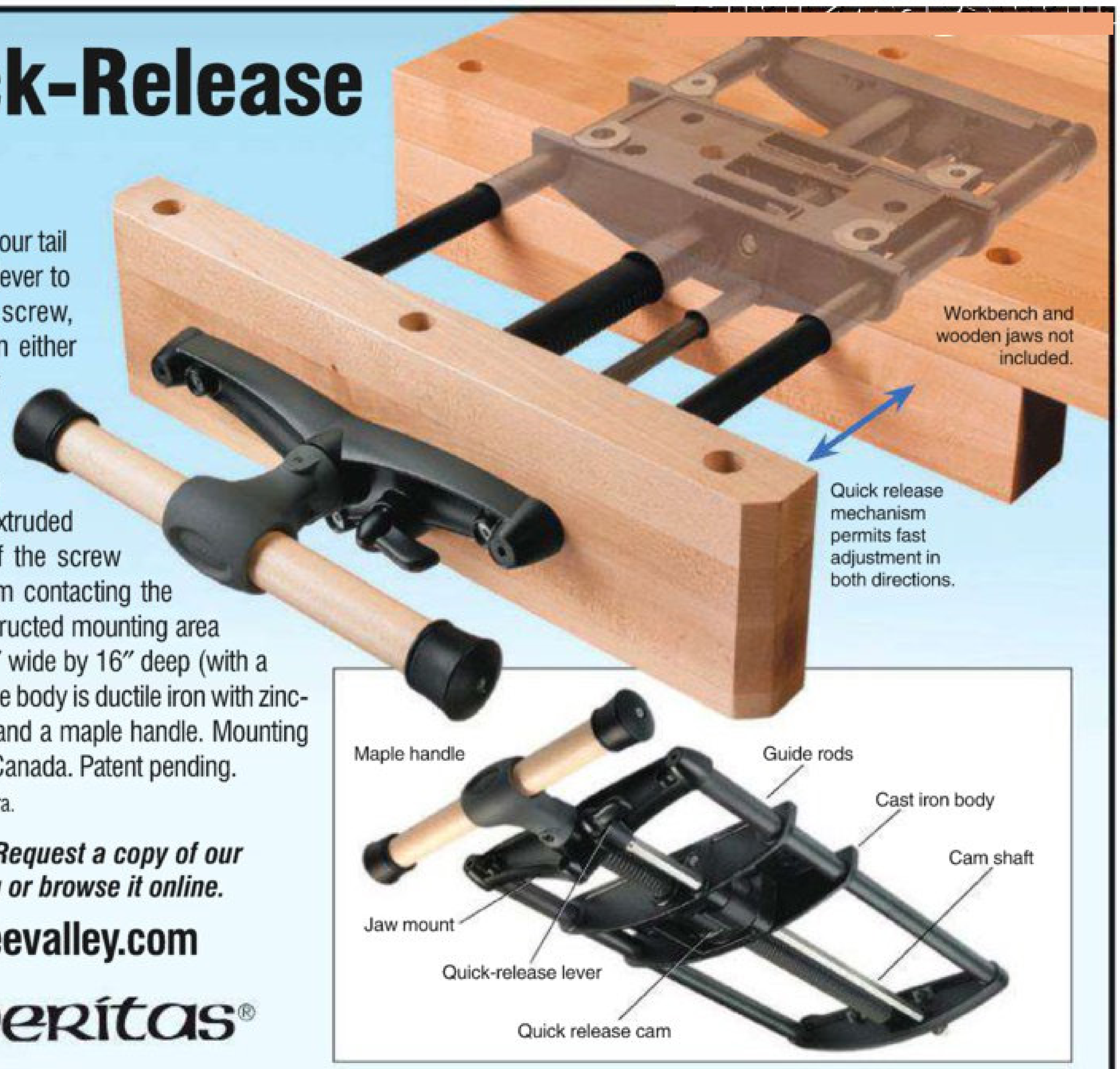

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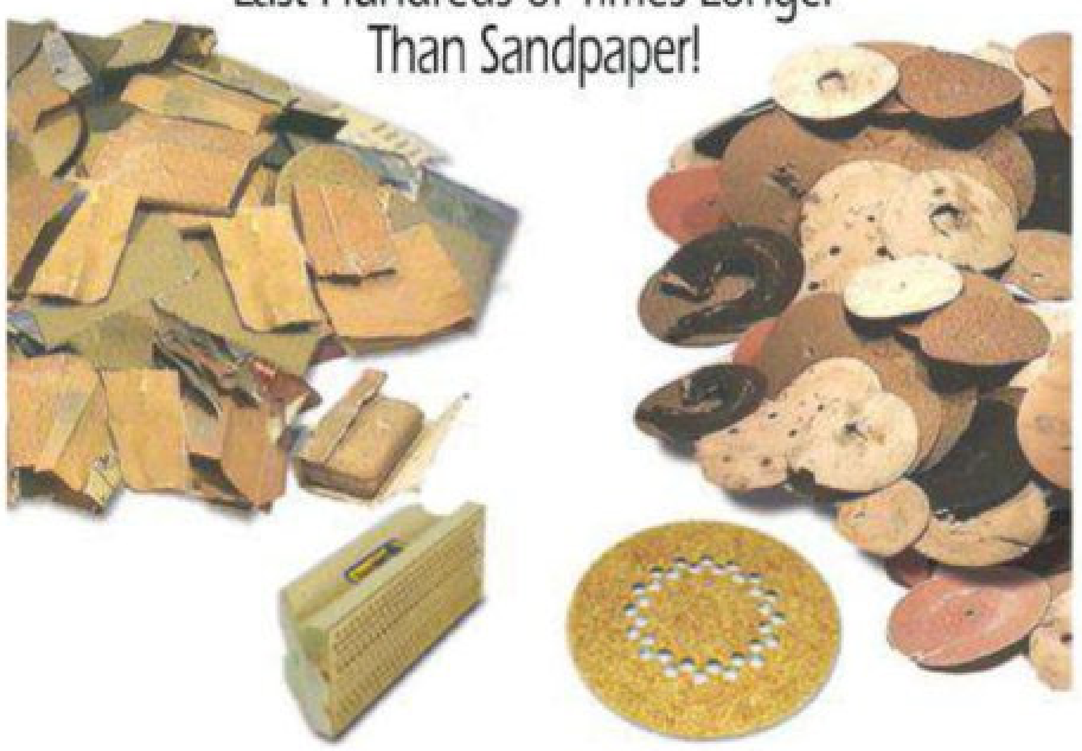

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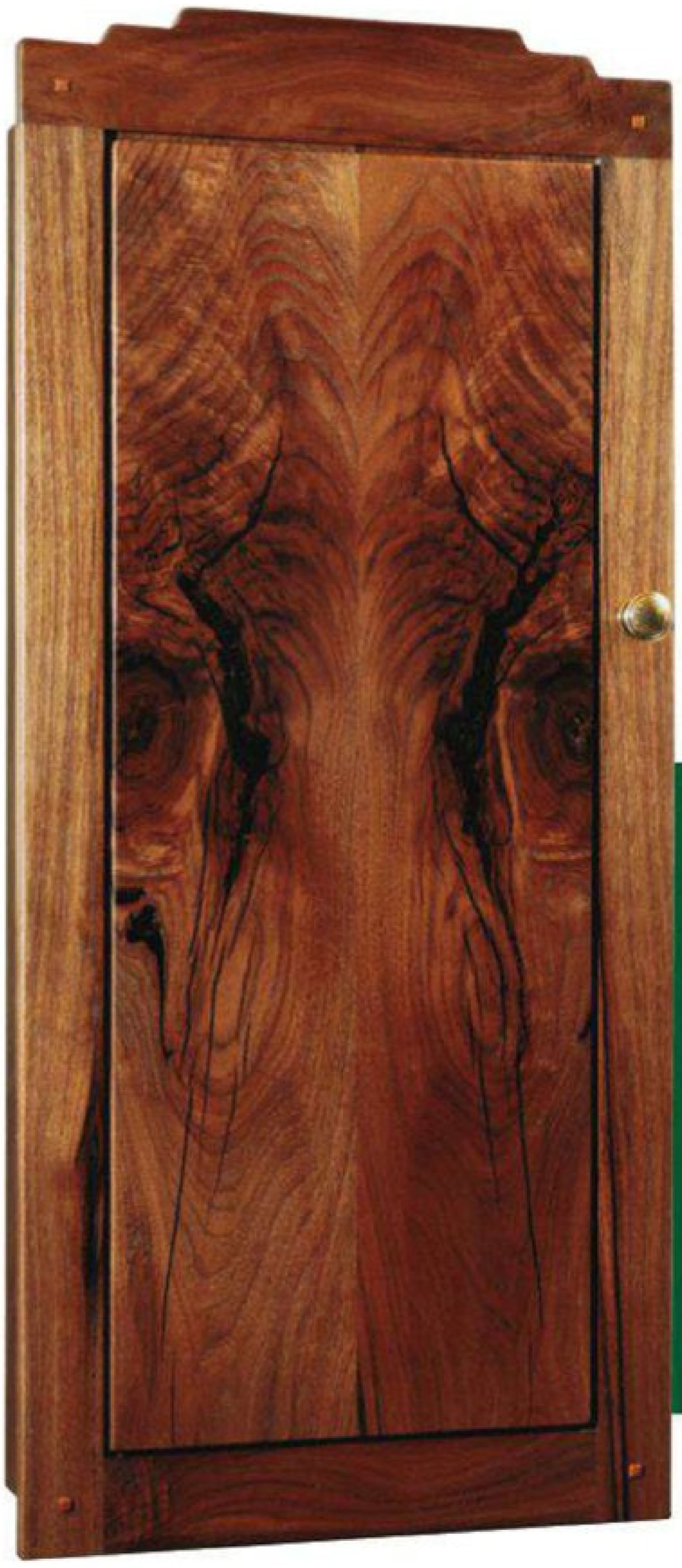
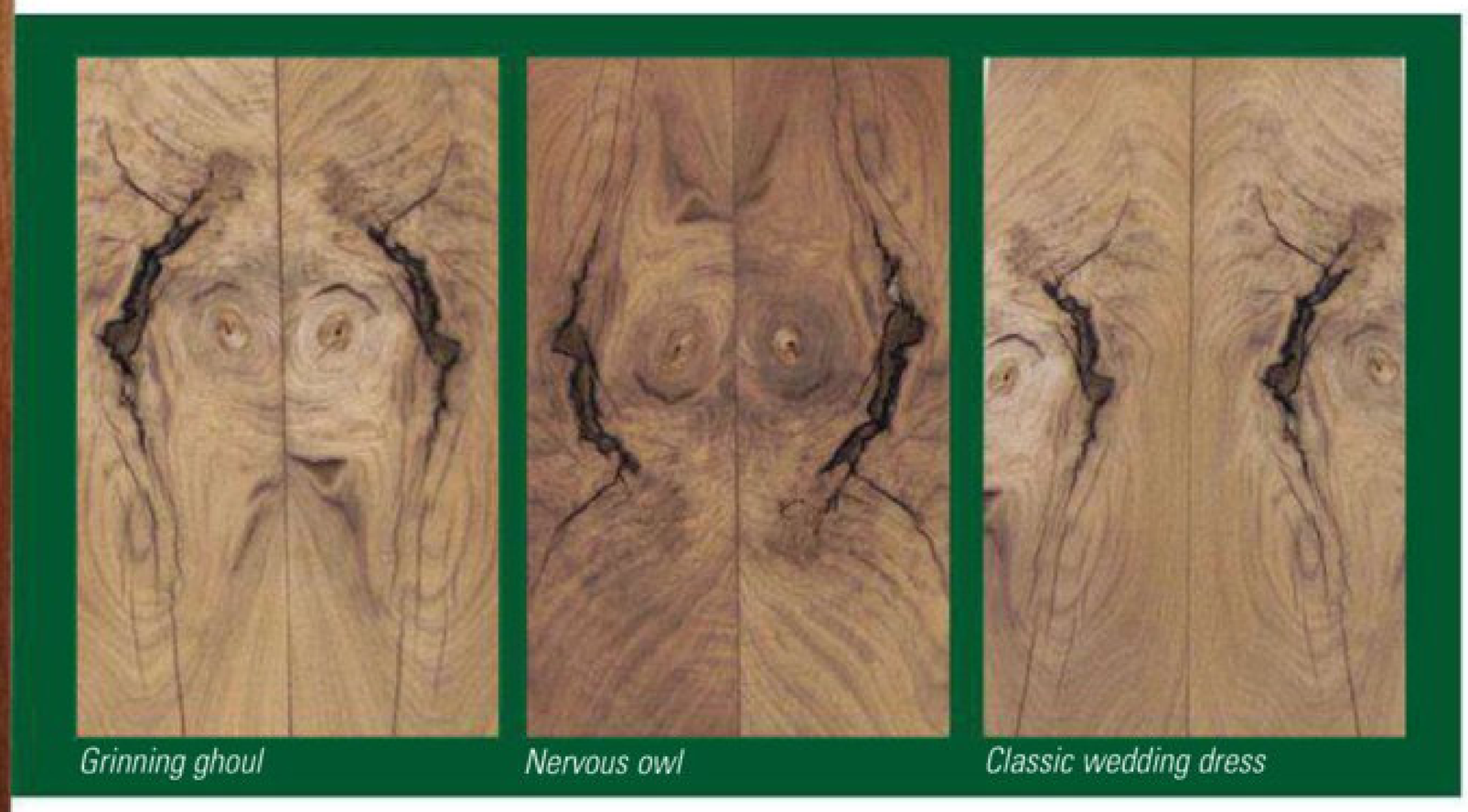
Gnarly Wall-Hung Jewelry Cabinet

By David Munkittrick

I have a hoarding problem. I routinely hang on to wood most cabinet shops toss in the scrap bin — especially if it has some really cool figure.





Grinning ghoul

Nervous owl

Classic wedding dress

The book-matching process sometimes reveals pretty startlingly bad calls, especially if your project is a jewelry box. The choices (above) left little doubt as to the best path.

To "salvage" prize stock, the author uses CA glue to first stabilize bark inclusions, knots or punky areas that are prone to tearout. He follows up by filling other voids and cracks with a slow set, two-part epoxy colored with a powder dye designed for solvents (for more on this technique, see page 70). He also adds fairing filler to give the epoxy a thicker consistency and makes it easier to sand.

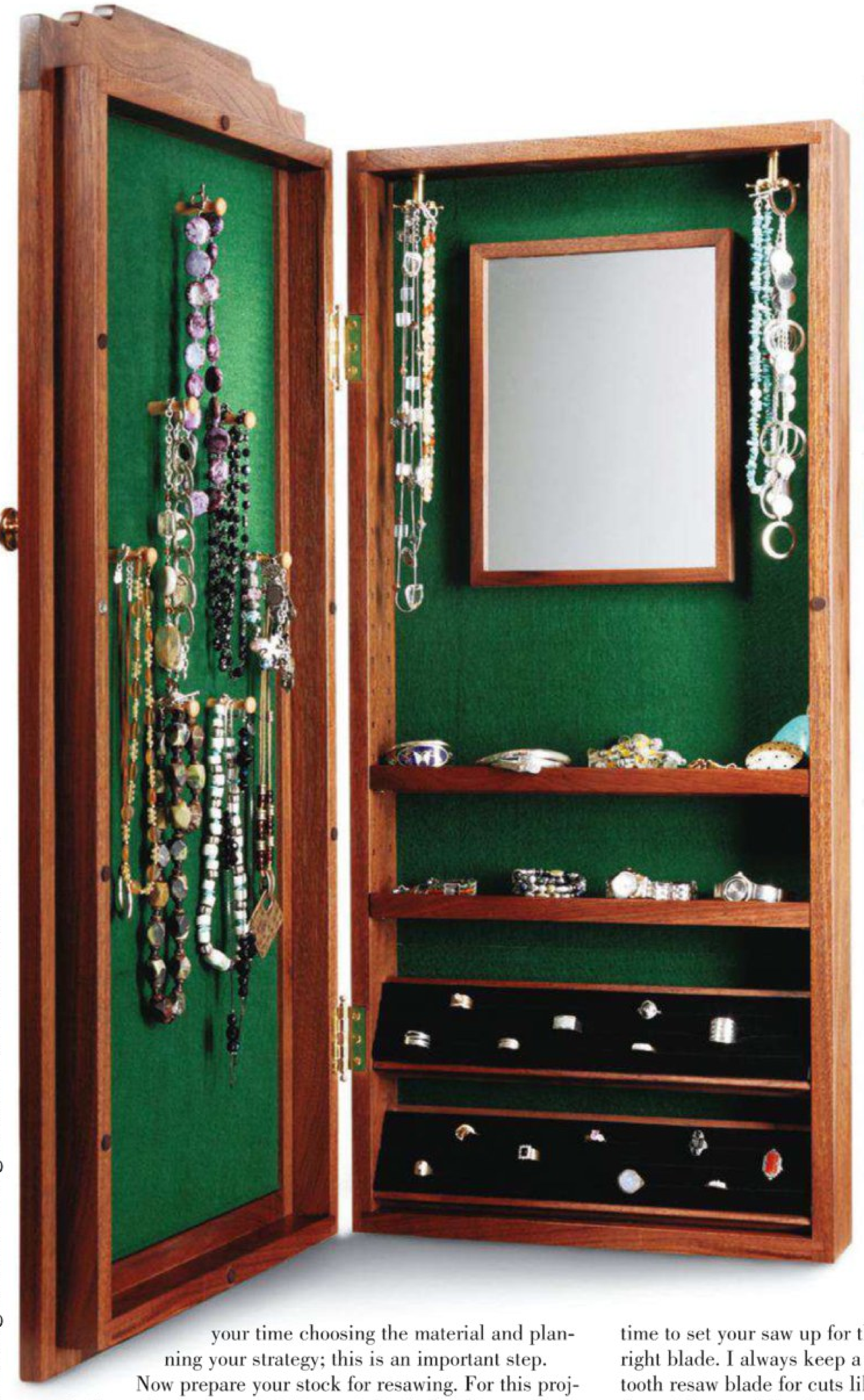
I can justify my "collection" of hoarded leftovers because I've found that with a little extra work, my lowly scrap wood can be transformed into some pretty cool projects.

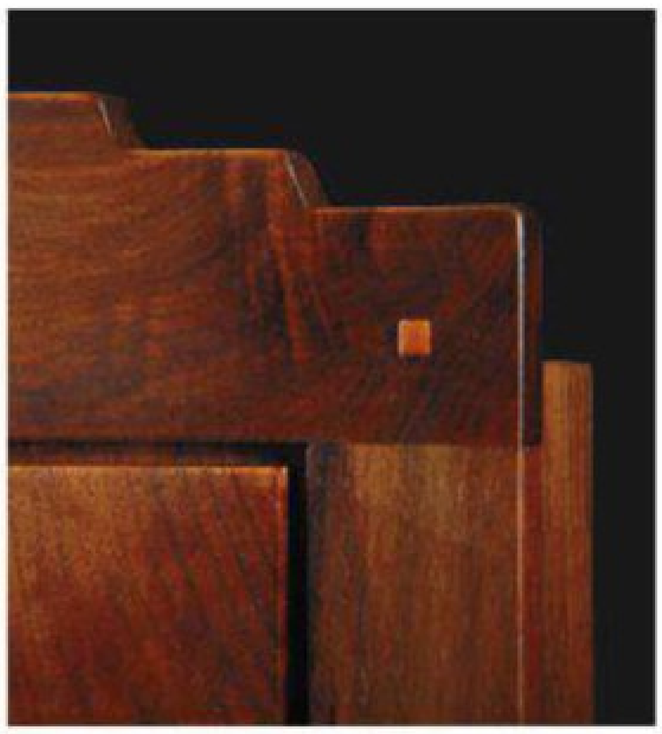
When a friend approached me to build a hanging jewelry box he designed for his wife, I knew just where to find the wood. Three offcuts of 8/4 walnut with knots, splits, cracks and some stunning figure were perfect for this jewelry box. The 8/4 stock would require resawing, and the gaping holes around the bark inclusions would need to be filled with an epoxy, but I knew the end result would be worth the extra effort.

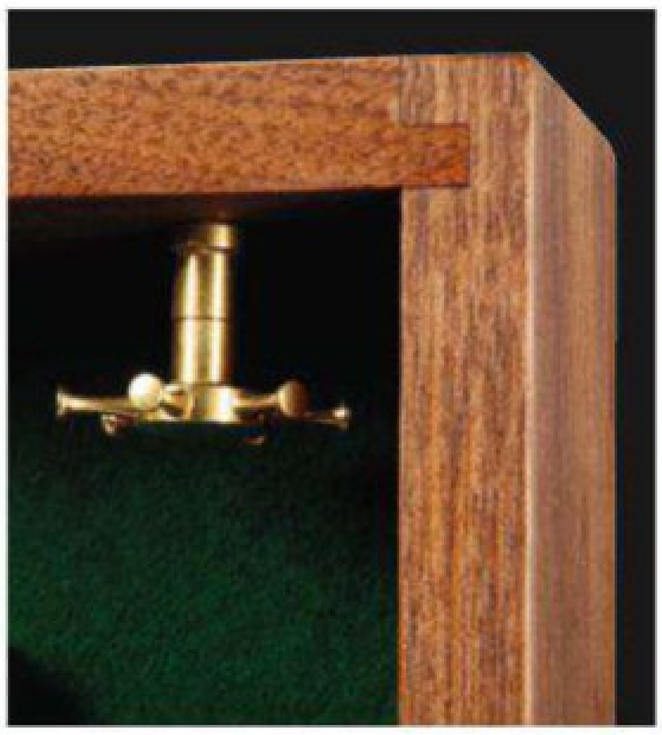
Come along and I'll show you how I use gnarly stock in my projects. In this story I'll talk about how I resaw thick stock, fill cracks and voids with dyed epoxy, mount butt hinges and add the end grain pegs for a little Greene & Greene flair.

Let's Get Started

If your wood is in the rough, joint and plane your stock first. Then take a close look at the wood and mark out your cuts (see top left photo, page 30). You have to practice a little triage with wood casualties like these. I use chalk to plan my cuts. If I change my mind, the chalk is easy to erase. Reserve the most spectacular grain for the door panel. Straight-grain sections are best for door frames where you want maximum stability. Take







your time choosing the material and planning your strategy; this is an important step.

Now prepare your stock for resawing. For this project, I planned to resaw my 1¾" material in half. This would give me plenty of room to joint and plane the stock to a final 3/4" thickness. Set a marking gauge to approximately half the thickness of the stock and mark the cutline. Often, I will also run the gauge on the opposite face of the board. This usually produces two closely spaced lines down the middle of the board to form a perfect little "road" for my band saw blade to travel along.

With wide stock such as this, I use a simple single-point fence for resawing (see bottom photo, page 30). Whatever you do, don't just walk up to your band saw and have at it. Take the time to set your saw up for the operation at hand. Start with the right blade. I always keep a sharp, 3- to 4-tooth per inch skip tooth resaw blade for cuts like this. Mount the new blade, set the guides carefully, then make sure your table is perpendicular to the blade. Clamp down the fence using your marked wood as a guide. Now, go ahead and make your cuts.

After resawing, I always give the wood a rest. Every board has some built-in stress. We've all experienced this on the table saw when the offcut bends away from the board as it's cut loose. Set the freshly resawn boards on scrap stickers, giving the wood a day or two to move before you joint and plane it to final thickness. This is an important step that allows the newly liberated wood to distort before you proceed.

Plan your cuts with chalk, reserving the best figure for the door panel (top). Scribe a centerline down the edge of the board with a marking gauge to use as a guide for resawing (right). Close, double lines are even better.

Resaw thick stock with a single-point fence. The beauty of this fence is that it allows you to swing the wood to account for blade drift and still keep your blade tracking right down the middle. Have a push stick within easy reach to safely finish your cut.

Dealing with Defects

The board I planned to use for the door panel had some bark inclusions. I dug out any loose bark, then stabilized the remaining bark with CA glue (see bottom photos, page 28). Stabilized wood is less prone to tearout or fuzzing when milled.

Once the wood was shored up, I jointed and planed it flat and square (see photo, below). Even though my panel stock would eventually be 5/8", I surfaced it to 3/4" because it still had to be book-matched and glued up into a single panel before surfacing to the final thickness.

Now it was time for some fun. I always love this part: playing around with book-matched panels in search of the perfect combination. This time it was something of a "no-brainer" (see photos, opening page). Once I had my book-match figured out, I could glue and clamp the panel together. When the glue dried, it was time to deal with those bark inclusions as well as some cracks and splits in the wood. Epoxy does wonders in cases like this — it fills and stabilizes the voids and cracks. Dyed black, the epoxy actually dresses up the panel's appearance, giving it a more elegant and less rugged look. (For more on using epoxy this way, see Michael Dresdner's article on page 70.) Mix the dye and filler with the epoxy in a sufficient amount, and use a stiff brush to push it down into cracks and crevices. Let the epoxy set overnight, then sand and plane the panel to final thickness.

Joint and plane your stock square and flat before gluing up the book-matched panel. Surface the panel to final thickness last.

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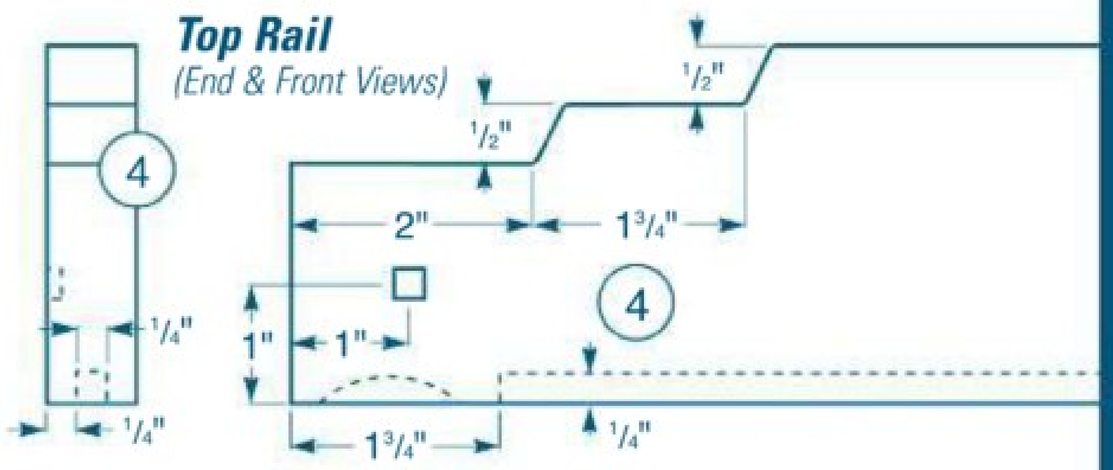
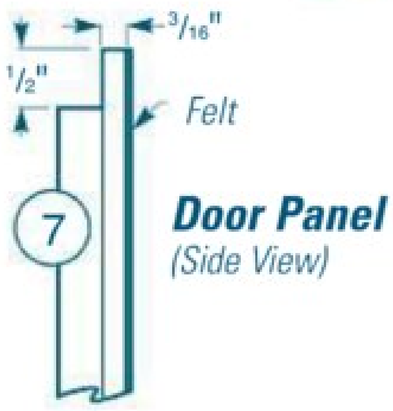
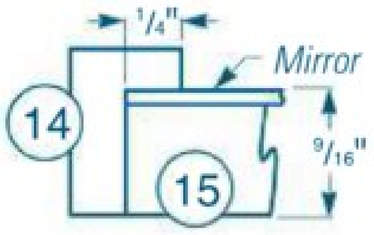
Top Rail
(End & Front Views)



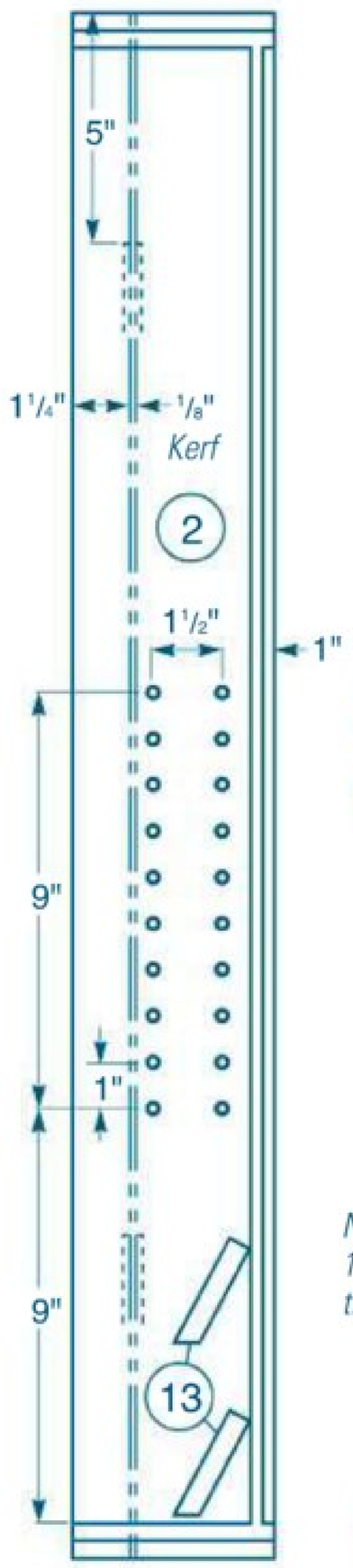
Door Panel
(Side View)



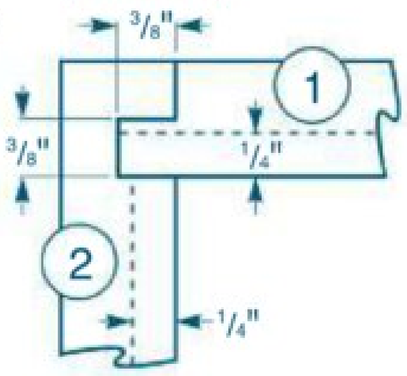
Mirror Frame
(End View)



Side
(Inside View)

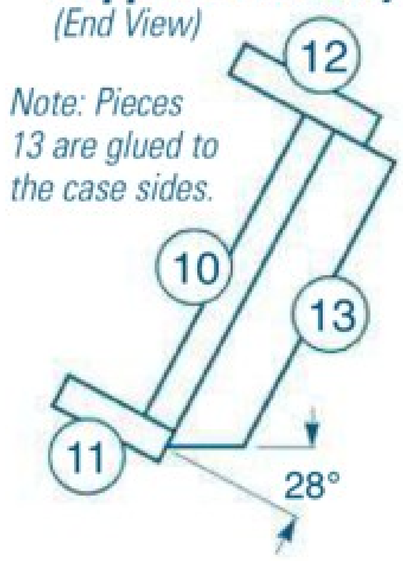


Case Assembly
(Front View)



Ring Holder and Support Assembly
(End View)

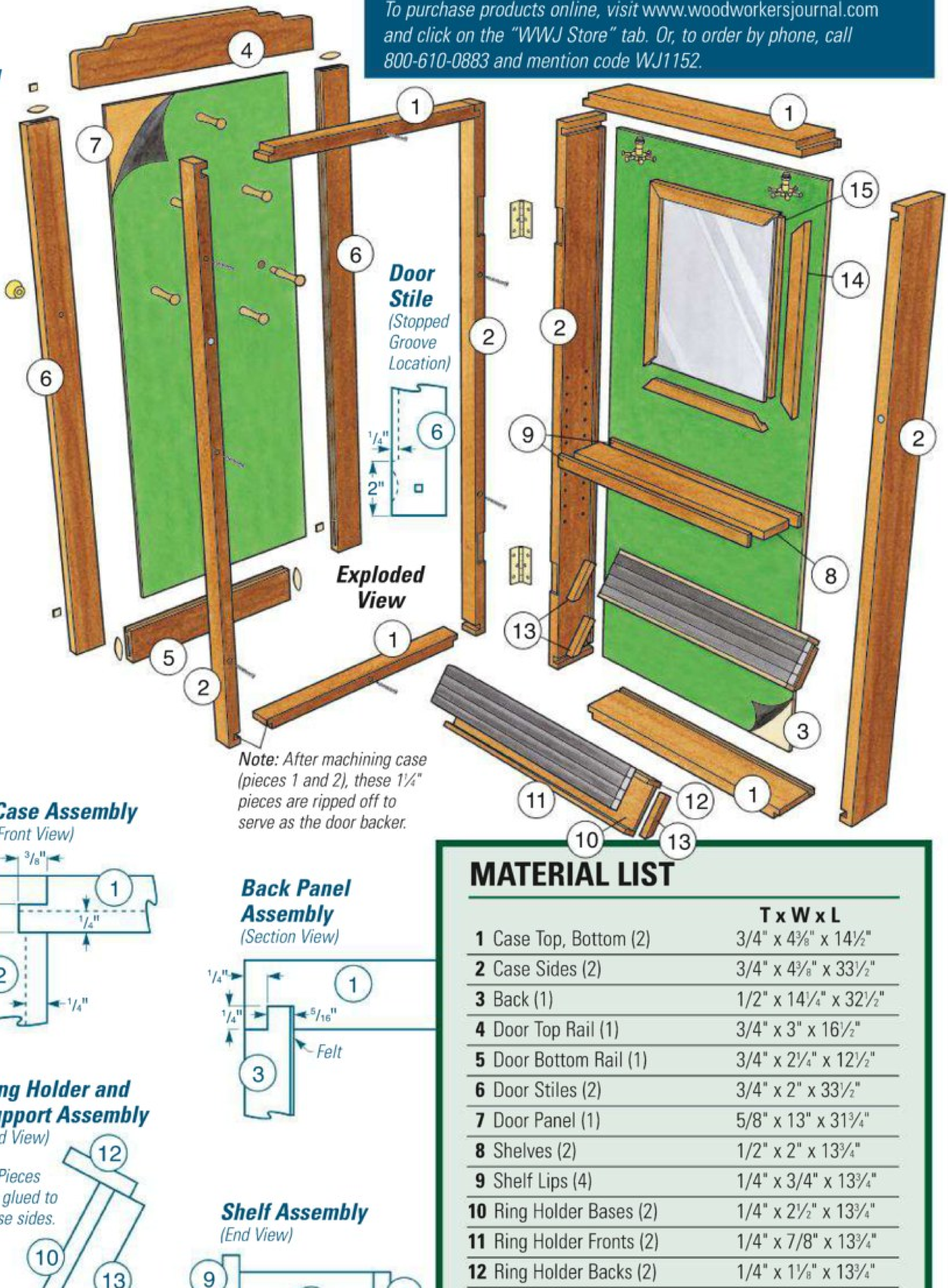
Note: Pieces 13 are glued to the case sides.



Back Panel Assembly
(Section View)

Shelf Assembly
(End View)

Exploded View



Note: *After machining case (pieces 1 and 2), these 1¼" pieces are ripped off to serve as the door backer.*

Door Stile
(Stopped Groove Location)

MATERIAL LIST

		T x W x L
1	Case Top, Bottom (2)	3/4" x 4⅜" x 14½"
2	Case Sides (2)	3/4" x 4⅜" x 33½"
3	Back (1)	1/2" x 14¼" x 32½"
4	Door Top Rail (1)	3/4" x 3" x 16½"
5	Door Bottom Rail (1)	3/4" x 2¼" x 12½"
6	Door Stiles (2)	3/4" x 2" x 33½"
7	Door Panel (1)	5/8" x 13" x 31¾"
8	Shelves (2)	1/2" x 2" x 13¾"
9	Shelf Lips (4)	1/4" x 3/4" x 13¾"
10	Ring Holder Bases (2)	1/4" x 2½" x 13¾"
11	Ring Holder Fronts (2)	1/4" x 7/8" x 13¾"
12	Ring Holder Backs (2)	1/4" x 1⅛" x 13¾"
13	Ring Holder Supports (4)	1/2" x 1/2" x 2⅝"
14	Mirror Frame (1)	1/2" x 3/4" x 40"
15	Mirror Back (1)	1/2" x 7¾" x 10"

After applying self-stick felt sheeting to the back panel, use a straight edge and a utility razor to trim it evenly. Apply finish to the inside faces of the case parts before assembling them with glue. Take care to keep glue squeeze-out away from the felt lined back.

"Pre-finish the inside of the cabinet box before assembly. Trying to apply finish right up to the felt is a chore to avoid."

Assembling the Case, Door Frame

With the door panel behind me, I cut my case parts to size and machined tongue-and-rabbet joints on the router table to attach the top and bottom to the sides. Take your parts to the table saw and rip 1¼" strips off of their front edges to use for the door assembly later on. Mark the parts accordingly to keep their orientation and grain direction clear. Follow the *Drawings* to bore shelf-pin holes in the case sides and door frame.

My cabinet's rabbeted back panel is made of 1/2" plywood, covered with felt. This explains why the case groove width (see drawing) is slightly oversized.

Apply self-stick felt to the panel's "show" face. I decided to pre-finish the insides of the cabinet box before assembling it with glue (see photo above). Trying to apply finish right up to the felt is a chore to avoid. Glue the back panel securely into the grooves in the case pieces so you can drive screws through it later to hang the cabinet from a stud.

Next, glue up those 1¼" strips (from pieces 1 and 2) to create the rear frame-work for the door. Remember to keep these frame parts oriented to visually match up with their corresponding members in the case.

Mortised butt hinges often give people fits — especially in a project like this where the door is actually part of the box and has to line up perfectly. Here's how I tackle the hinge hardware: Locate the hinge leaf on the front edge of the case and align it with a square. Scribe the ends of the hinge. I like to use a marking knife because it cuts the wood cleanly and leaves a groove to align my chisel. Now, mark the width of the mortise with a marking gauge (see left photo, below.)

Chuck a 1/4" straight cutter in a trim router and set the bit depth slightly less than half the thickness of the closed hinge. Rout out the waste, stopping shy of the knife lines (see center photo, below).

Clean up these mortises with a sharp chisel, and attach the hinges to the case. At this point, you can set the door's rear frame on the case and knife the hinge locations onto it (see bottom right photo).

Making the Door

It's time to build a cabinet door to accompany that hinged frame. Cut the rails and stiles to size, according to the *Material List* dimensions on page 31. I planned to assemble my door with mini-biscuits but float the panel in a 1/4"-wide, 1/4"-deep groove cut around the inside edges of the rails and stiles. Set up these groove cuts at your router table, and mill them now. Follow the *Drawings* carefully to note where these grooves need to stop so they aren't visible on the assembled door.

With the panel grooves milled, you can create a full-sized "cloud lift" paper template of the top rail profile (see *Drawings*). Cut out your template and trace its profile onto the rail. Head to the band saw to rough-shape it, then clean up the profiles and refine those gentle curves with files and sandpaper.

Cut the door panel to final size, and return to the router table to mill the 1/2"-wide rabbet around its front edges, which will leave you a 1/4" reveal. Now you can cover the back with felt, as you did with the back panel. Be sure the resulting tongue is slightly undersized so the addition of the felt back makes for a snug fit in the door frame grooves. Stick the felt to the back of the door panel, and assemble the door with biscuits and glue.

I cheated a bit when hanging my door to guarantee an even overhang on its rear frame. I used a pin nailer to tack the door

Scribe the hinge mortise locations with a knife and marking gauge, as shown at left. Next, rout out most of the waste with a trim router. Be sure to clamp a piece of scrap wood to the box side to add support for your router base. Mark the hinge locations on the door backer frame with a knife.

to the frame, then fixed the two permanently with countersunk wood screws driven through the frame's inside edges (see center photos, right).

Outfitting the Case

With the door mounted, the cabinet is almost complete. Now it's time to build and fit the adjustable shelves and ring holder trays (see *Drawings* for details, but you can personalize this as you wish). The edging on the shelves creates a lip to keep bracelets from rolling off on the front side. On the back edge they create a hook on the underside to capture the shelf pins. The ring trays hang on angled ledges attached to the cabinet sides. The extra-wide back edge creates a lip to hold the trays onto the ledges. Drill holes into the case top for the two brass necklace carousels, and fix them in place with a drop of epoxy or CA glue. Bore shallow holes into the back face of the door panel for short Shaker pegs to hang necklaces and longer jewelry. Finally, add a small mirror with a mitered frame if you so choose (see *Drawings*).

Finishing Up

It's now time to add the four square cherry peg details on the door's face. Mark and drill 1/4" holes about 1/8" deep on the frame. Use a square to outline the peg shapes. My "back pocket" trick for making square holes is to cut them using a hollow-chisel mortising bit with the drill removed and tapping it gently with a wooden mallet.

Rip a 1/4" x 1/4" cherry blank on the table saw. Cut the blank into short lengths and pound them into their holes with a drop of wood glue. Trim off the excess. I sanded my pegs using a cardboard shield to remove saw marks and create a slightly rounded top.

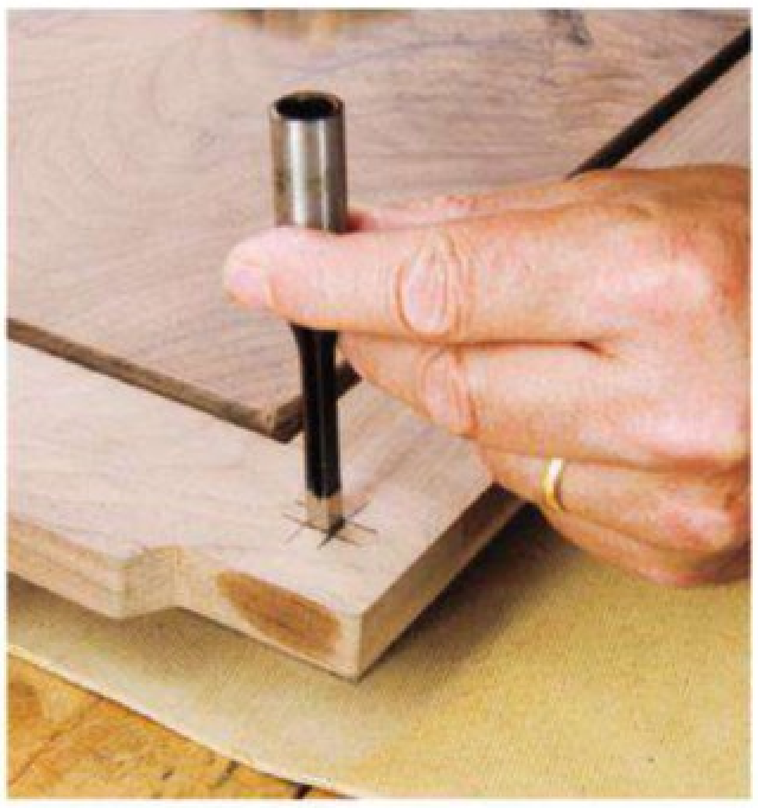
After sanding all of the surfaces to 220-grit, I topcoated the project with Waterlox satin finish before screwing a brass door knob in place and applying felt dots to cushion the door when it closes.

See what you can do with a few pieces of interesting scrap wood?

Dave Munkittrick is a cabinetmaker and furniture builder who works out of an old pig barn in Wisconsin.

Transfer the top door rail profile onto the rail with a paper template. A white colored pencil is easier to see on dark wood (left). After band-sawing this piece to shape, you'll find that a small rat-tail file is just the ticket for shaping the slight inside curves, as shown at right.

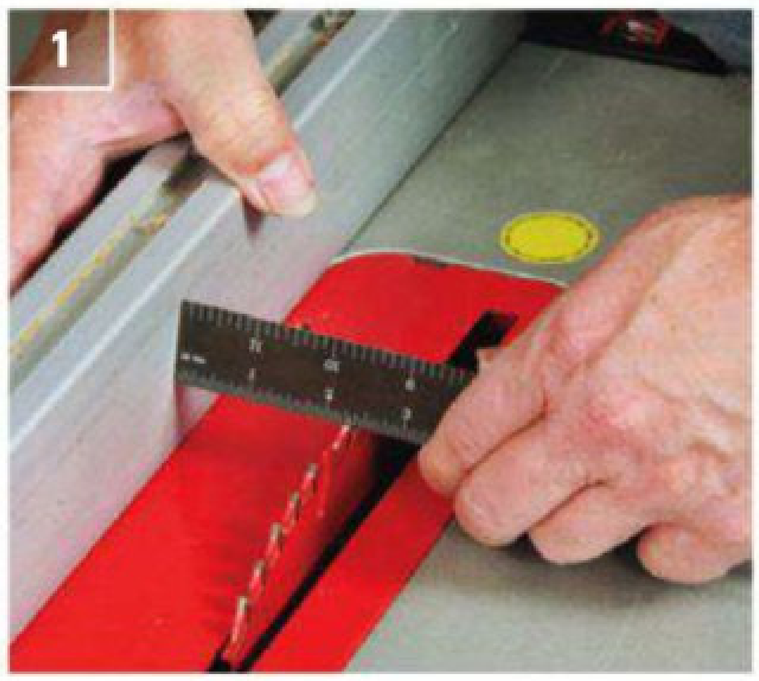
Pin the door onto the hinged portion of the box with a pin nailer (above). Then flip it open and drill pilot holes through the door backer into the door. Attack the door with screws (right), covering the heads with self-stick felt dots, which cushion the door when it closes.



Bore shallow door peg holes before chopping them square with a hollow-chisel mortising bit. Line up the chisel with squared-off marks surrounding the hole. Use a wooden mallet to protect the chisel. Tap lengths of cherry pegs home. Try using cardboard with a hole in the middle to gauge the peg length and to protect the door frame during the final trimming and sanding stages.

Kitchen Step Stool

By Sandor Nagyszalanczy



With scrap strips giving the appearance of a jigsaw puzzle, this stool is a handy home solution.

I was staring at a pile of poplar scraps left over from a large project I built when I asked myself: "Can I bear to build yet another cutting board from these scraps, or should I just burn them?" But as I looked over that ragtag collection of strips and cutoffs, I had a slightly crazy idea (they don't call me the "mad Hungarian" for nothing): What if I assembled all those little scrap strips into a larger project, kind of like a jigsaw puzzle? By overlapping alternating strips, I could form corners that interlock and create joinery like wide box joints. In addition to being a somewhat novel approach to construction, I realized these interlocking-arts joints would appeal to woodworkers who don't particularly like to fuss with time-consuming traditional joinery.

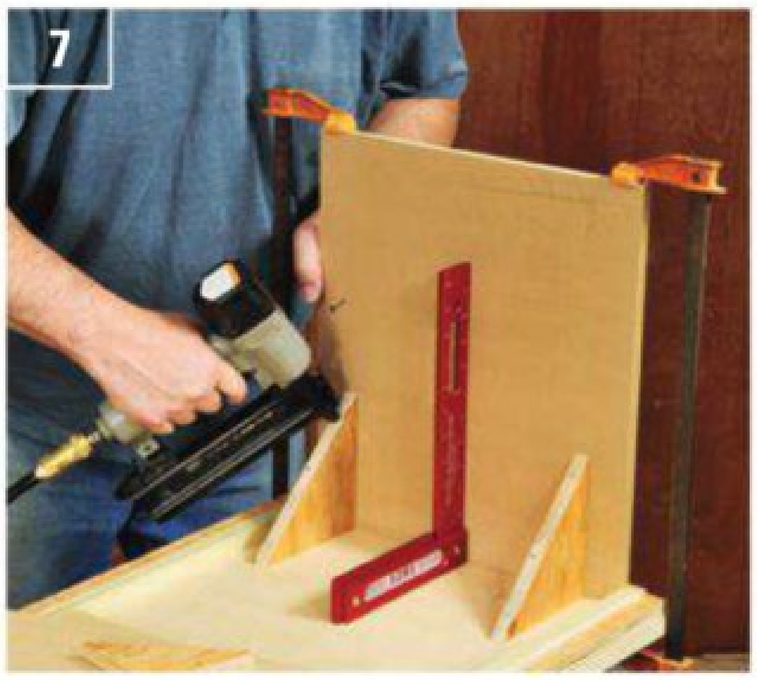
The project I came up with is a two-step stool, a piece of furniture that's mighty handy to have around the kitchen, utility room, garage or workshop any time you need to get something down from a high cabinet or shelf. In addition to its two strong, stable steps, the stool features a high back rail that offers stability as you climb and reach, and also makes the stool easier to carry and move around. When needed, the stool can serve as a little seat!

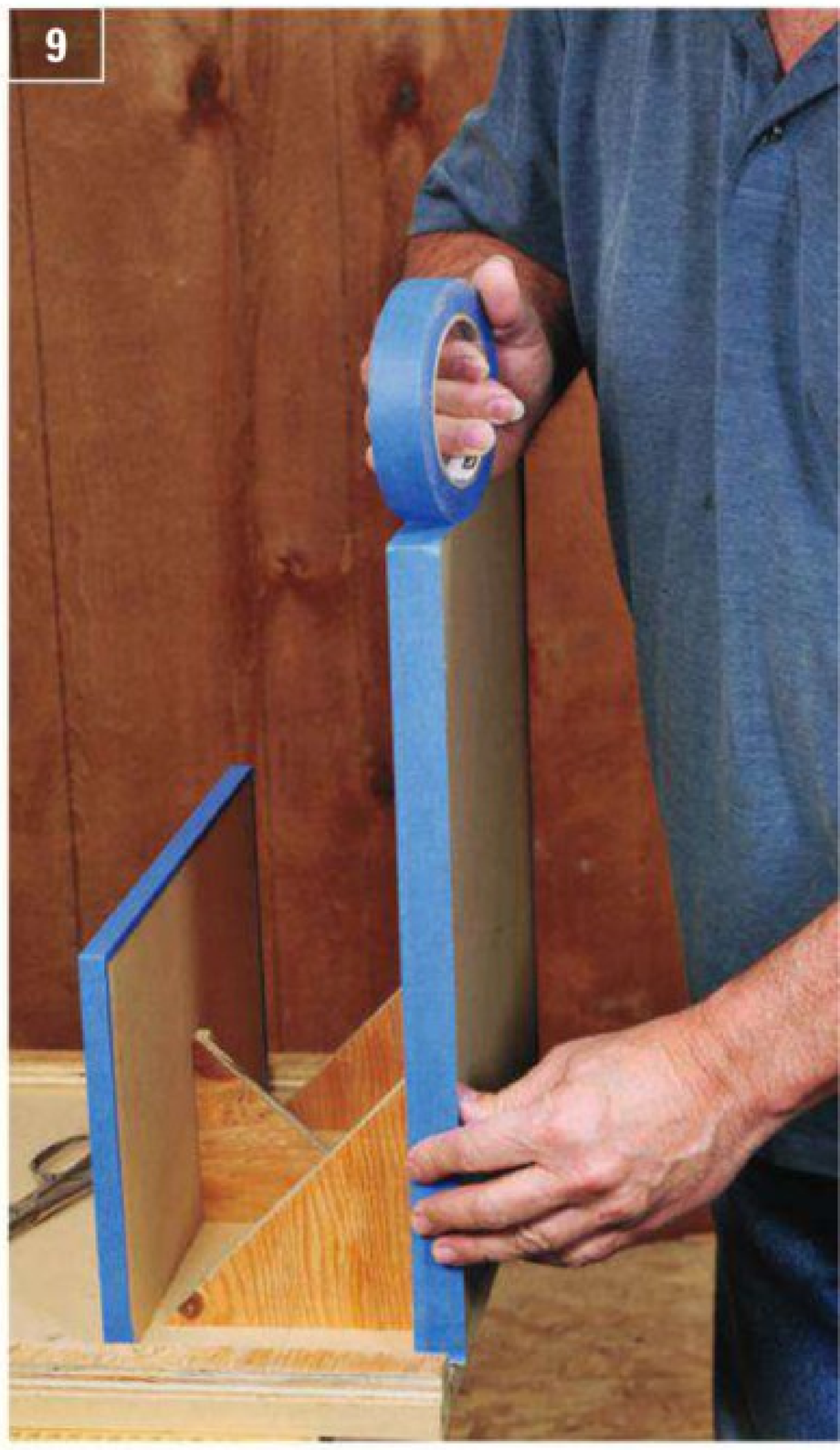
My two-step stool project, shown in the *Drawing* on page 37, is built from 36 separate 3/4"-thick wood parts that are cut to varying widths and lengths, then stacked and glued together in a precise order. An assembly form helps keep the stacked parts aligned during glue-up.

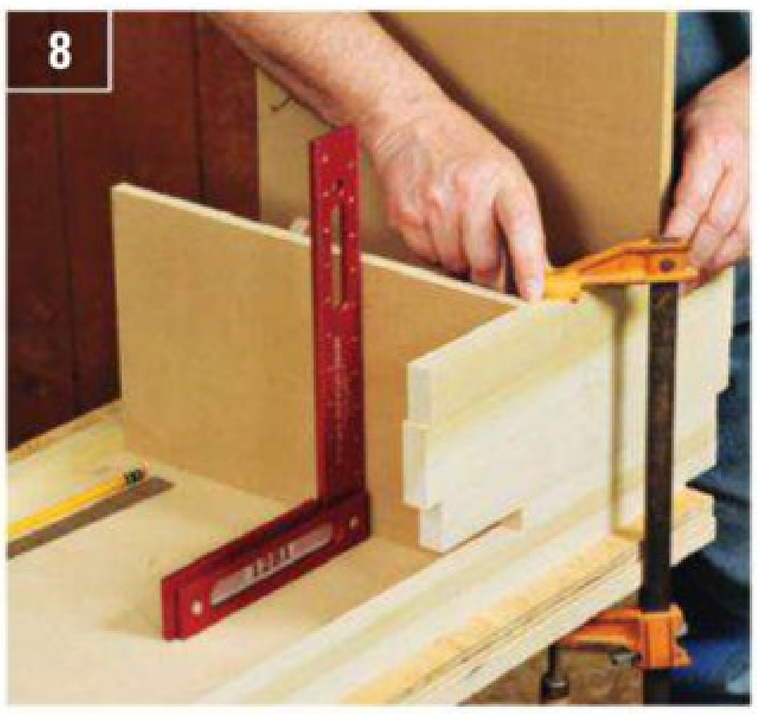
Since the majority of the stool's parts are only 2¼" wide or less, you could build the entire project from narrow scraps left over from other projects, or you could cut parts from different kinds of woods to give your stool a playful, patchwork appearance.

Preparing the Parts

The key to making the construction of this step stool an easy and smooth experience is to accurately and precisely cut and plane the parts. Here are the steps to take: First, carefully plan out your stock-ripping strategy, and determine which parts you'll cut from which 4/4 scrap boards you have on hand. At the table saw, mount your best ripping blade, and set the rip fence for a 2¼" cut (photo 1). Before ripping the first part, take a test cut on a scrap board to confirm that cut parts will be precise. (All the parts for this two-step stool need to be *exactly* the right width, length and







thickness, or you'll waste a lot of time fussing when you try to fit them together, plus more sanding and scraping after assembly.) Once the setting is confirmed, rip enough stock for all the 2¼"-wide parts on the cut list at one time, without resetting the fence (photo 2). If you're cutting more than one part from a particular board, joint its edge after each rip cut, to ensure that it's straight and square. Once all the 2¼" stock is ripped, reset the fence to 1½" and rip all those parts and then move on to the other required widths.

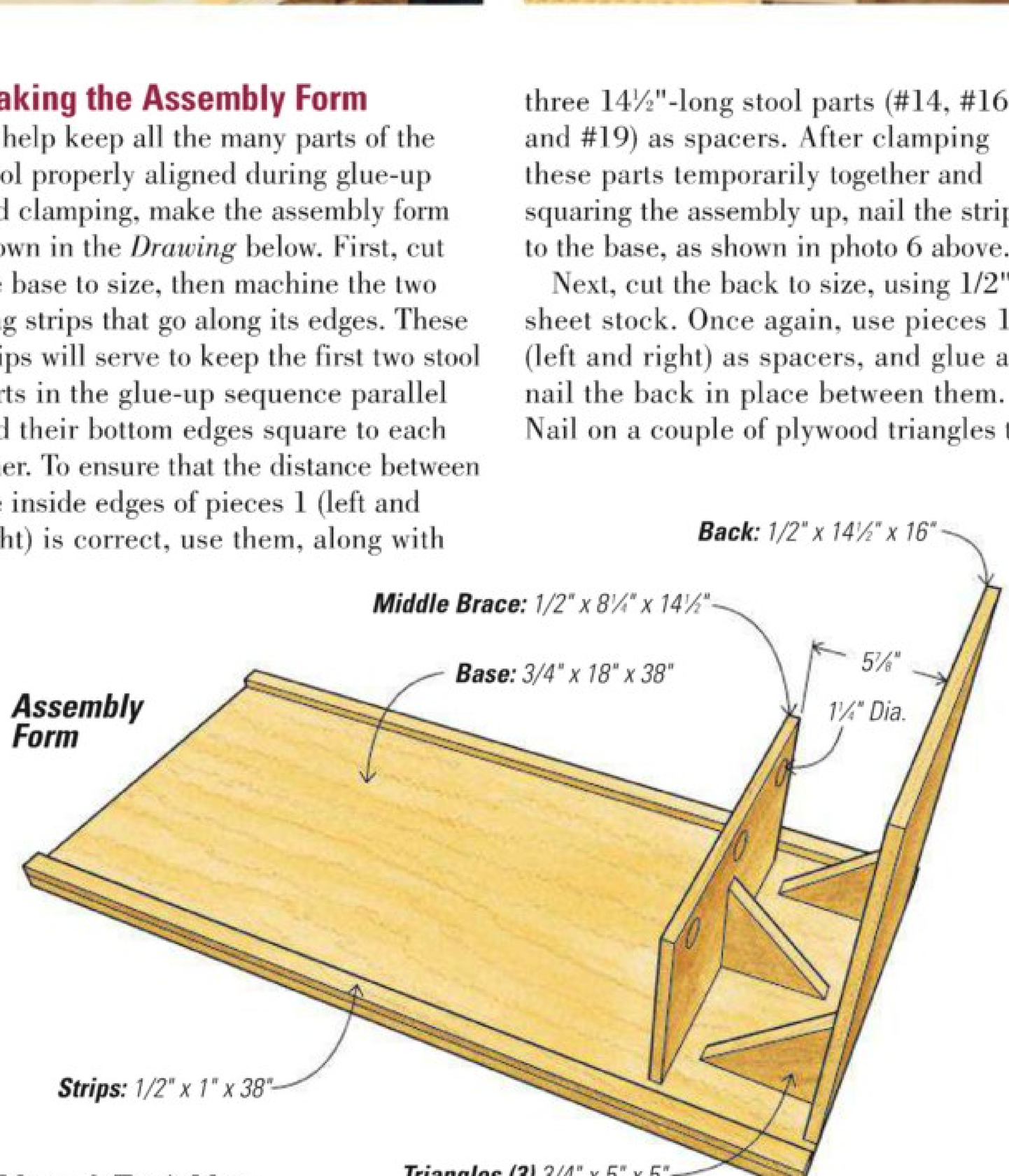
After taking a test cut or two on the cutoff saw, trim one end of each length of stock, marking it with a pencil slash. Now clamp a fence stop at 16 inches, and cut all the parts of that length (photo 3). Make sure to always put the previously squared end of each piece against the stop. Reset the fence stop and repeat the process until all parts are cut to their final lengths.

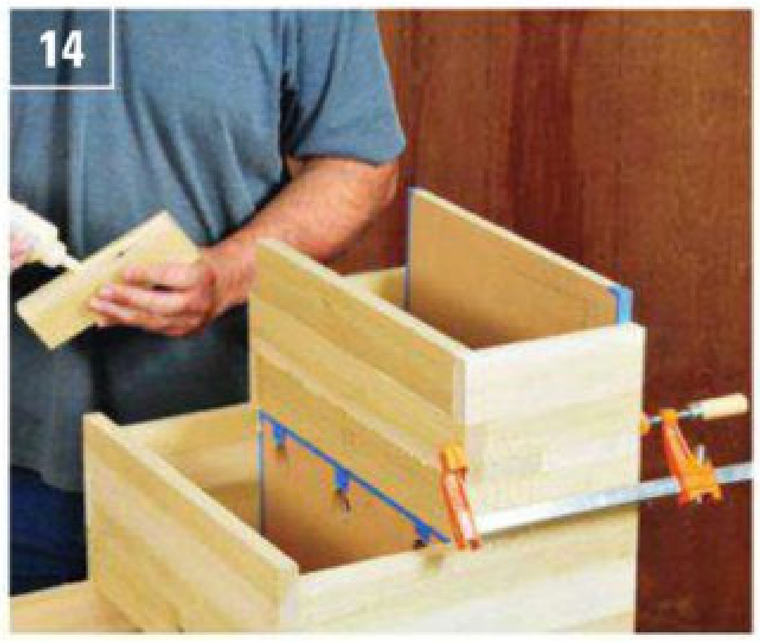
Next, take all the parts to your thickness planer and run each one through twice, planing a scosh off both sides until all parts are exactly 3/4" thick (photo 4). Finally, mark each part with its cut list number (photo 5).

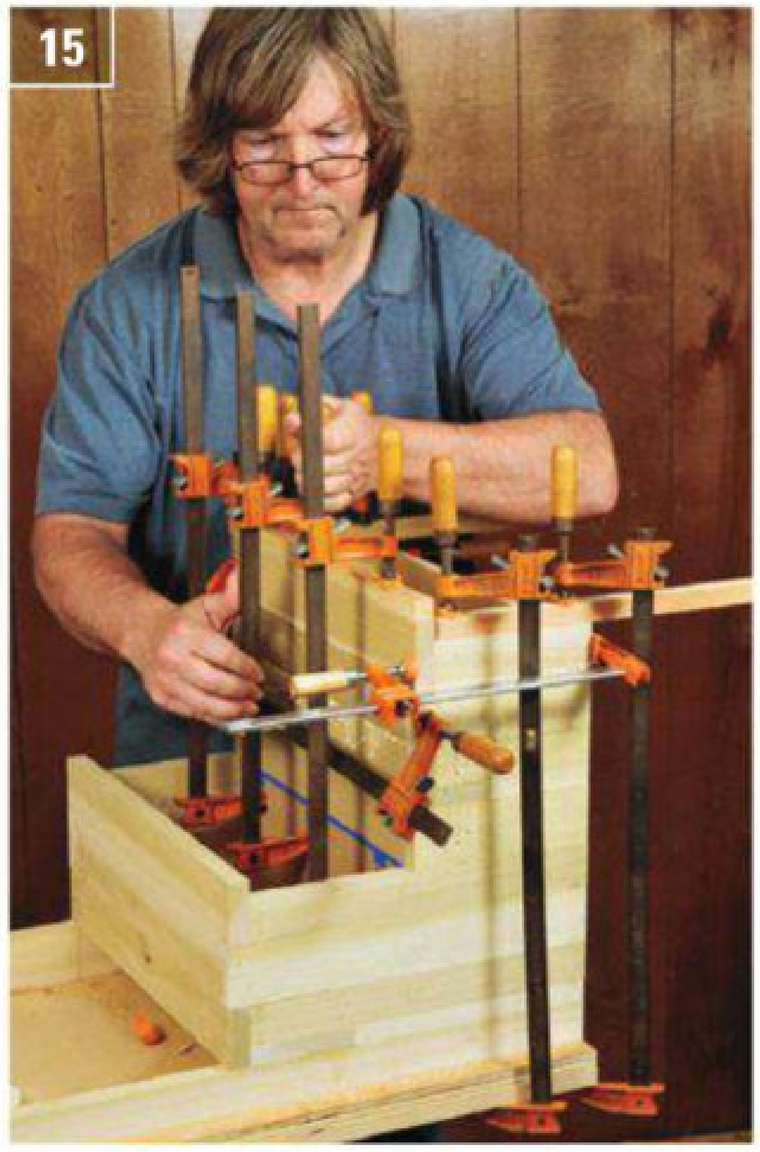
Making the Assembly Form

To help keep all the many parts of the stool properly aligned during glue-up and clamping, make the assembly form shown in the *Drawing* below. First, cut the base to size, then machine the two long strips that go along its edges. These strips will serve to keep the first two stool parts in the glue-up sequence parallel and their bottom edges square to each other. To ensure that the distance between the inside edges of pieces 1 (left and right) is correct, use them, along with three 14½"-long stool parts (#14, #16 and #19) as spacers. After clamping these parts temporarily together and squaring the assembly up, nail the strips to the base, as shown in photo 6 above.

Next, cut the back to size, using 1/2" sheet stock. Once again, use pieces 1 (left and right) as spacers, and glue and nail the back in place between them. Nail on a couple of plywood triangles to







Glue-up of the step stool takes place in four stages, as described in the story below. The author notes that you must take care to keep your pieces flush; small brads snipped off close to each mating surface (as shown in photo 10) help to prevent pieces from sliding.

brace the back and keep it vertically square to the base (photo 7). For the middle brace, cut another 1/2"-thick piece of sheet stock to size and drill three 1¼"-diameter holes 3/4" below its long top edge. These holes allow clamping the stool's bottom tread (pieces 19-22) during glue-up. Nail and glue the middle brace to the base, positioning it as shown in the *Drawing* on page 35, adding another triangular brace, to keep it nice and square.

Stack stool parts #1 to #7 atop the form's base as shown in photo 8, and temporarily clamp them together. This allows you to make sure that the height of the middle brace matches the height of the stacked parts. If it doesn't, trim or shim it until it's exactly flush. Finally, apply a layer of masking tape to the top edges of the strips, back and middle brace, to keep glued parts from sticking to them during assembly, as shown in photo 9.

Preparations Before Assembly

Because the kitchen stool has a lot of parts, it's important to make careful preparations before you begin the glue-up. In addition to having all the clamps you'll need on hand, cut some wooden strips to serve as clamping blocks that distribute clamping pressure and prevent dents to stool parts. To prevent glued parts from sliding out of position when clamping pressure is applied, I recommend partially driving a small brad into one half of each mating surface, then snipping it off so only a small nub protrudes, as shown in photo 10 above. To speed up this process, you can drive short pins or small nails with a pneumatic nail gun set to run on low air pressure, so it doesn't drive the pin all the way in.

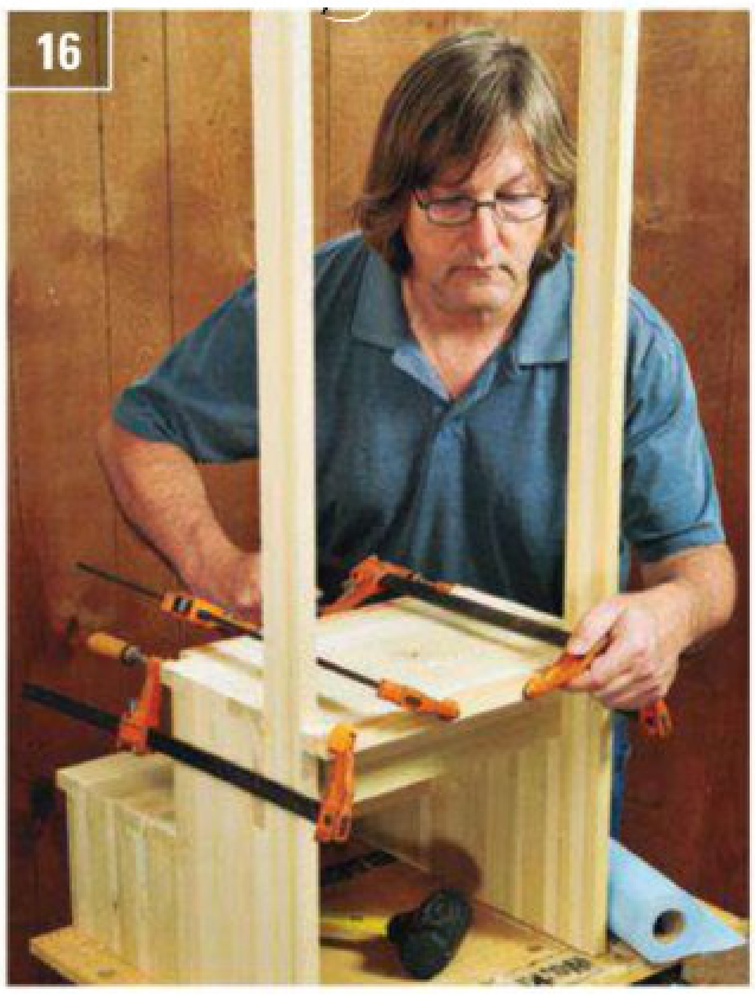
Glue-up in Four Stages

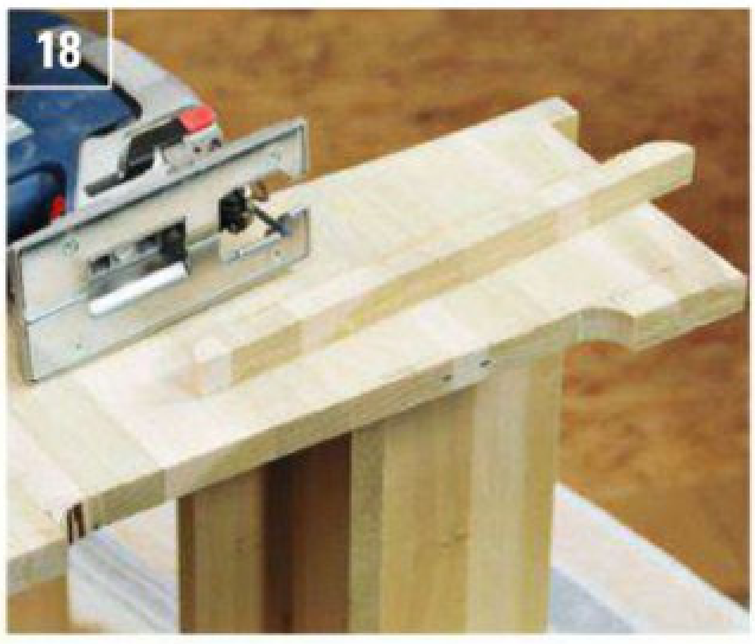
To make the assembly process easier, the kitchen stool should be glued up in no less than four stages: First, glue together the stool's back: long strips 1, 2, 3 (left and right) and top rail 24. Second, glue up the top step: sides 4, 5, 6, 7 (left and right), treads 15, 16, 17, and cross member 18. Third comes the bottom step: sides 8, 9, 10, 11, 12 (left and right), treads 19, 20, 21, 22, and cross member 23. Finally, glue on the back edge of the top step: treads 13 and 14. Before tackling each of these steps, it's important to do a trial dry assembly, to make sure that the parts fit together correctly and that you know the correct order in which the parts must be assembled. This dry run is also the best time to drive and snip brads, if you're using them to keep parts from sliding around during glue-up.

During the first glue-up stage, make sure that the ends of long strips 1 (left and right) are flush with the bottom end of the assembly form's base. Then, glue on strips 2 and 3, sandwiching the stool's rail (24) at the top, as shown in photo 11. Set your long clamp blocks atop this assembly and apply the clamps between the blocks and the bottom of the form base. After the glue has set, but not dried hard (45 minutes; less in a warmer shop) remove the clamps and scrape the rubbery glue beads from the sides of the stool's back (photo 12).

For the second stage, glue the sides and treads of the top step to the back, including the wide cross member (18) that keeps the stool from racking side to side. As you stack the parts for the sides, take care to keep their bottom edges flush with the assembly form's vertical panel (the back). Once all the parts for this stage are glued up, clamp the sides and stair treads together, using clamp blocks to protect all stool surfaces. To keep the side pieces straight, clamp the stack to the edges of the assembly form's back, as shown in photo 13, using long clamping blocks to distribute pressure. Let the glue set, then scrape off the squeeze-out as before.

The third stage of assembling the bottom step requires gluing the most pieces

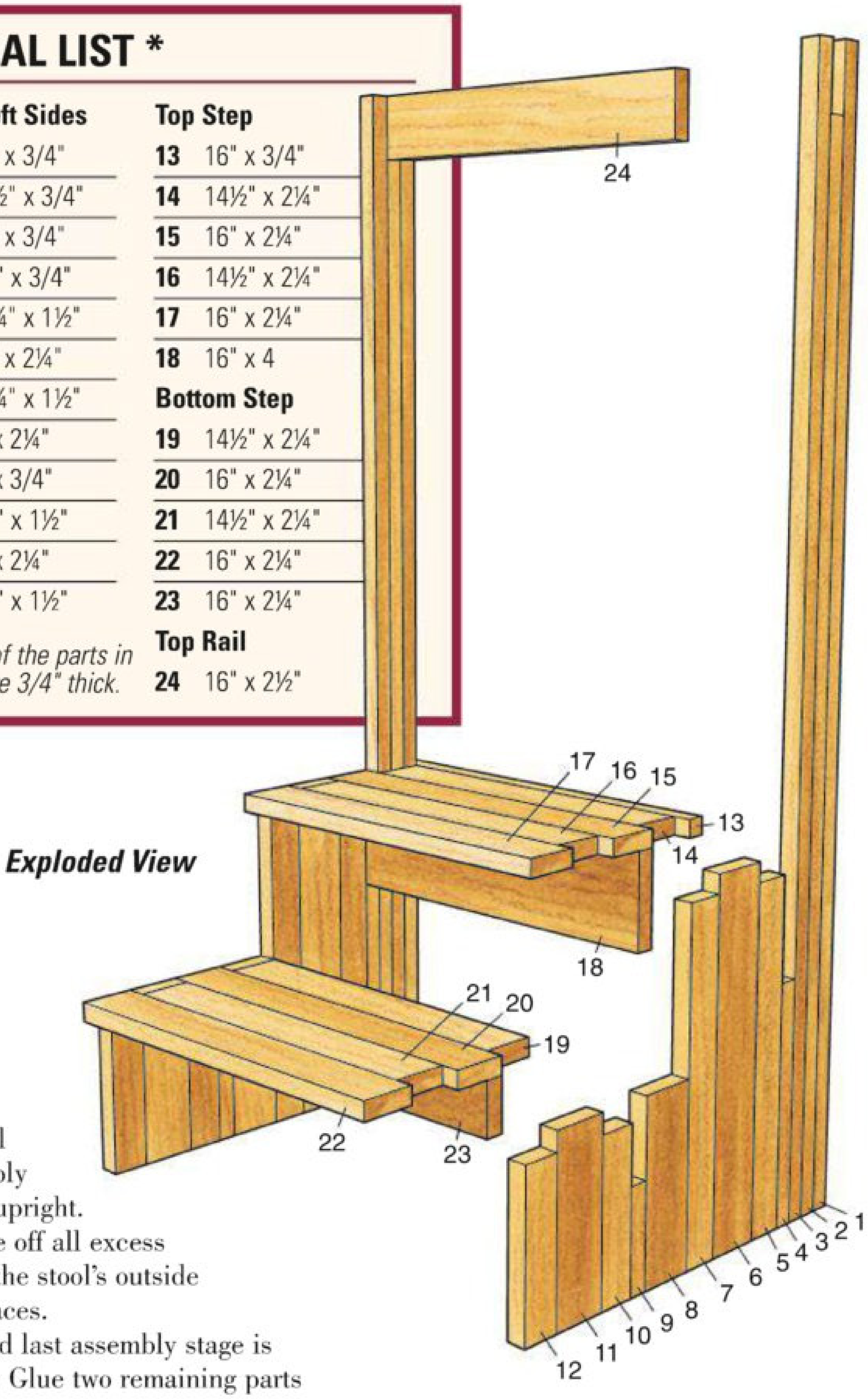




MATERIAL LIST *

Right and Left Sides		**Top Step**	
1	2 @ 42" x 3/4"	**13**	16" x 3/4"
2	2 @ 39½" x 3/4"	**14**	14½" x 2¼"
3	2 @ 42" x 3/4"	**15**	16" x 2¼"
4	2 @ 9¼" x 3/4"	**16**	14½" x 2¼"
5	2 @ 13¼" x 1½"	**17**	16" x 2¼"
6	2 @ 14" x 2¼"	**18**	16" x 4
7	2 @ 13¼" x 1½"	**Bottom Step**	
8	2 @ 7" x 2¼"	**19**	14½" x 2¼"
9	2 @ 4" x 3/4"	**20**	16" x 2¼"
10	2 @ 6¼" x 1½"	**21**	14½" x 2¼"
11	2 @ 7" x 2¼"	**22**	16" x 2¼"
12	2 @ 6¼" x 1½"	**23**	16" x 2¼"
		Top Rail	
		24	16" x 2½"

* ***Note:*** *All 36 of the parts in this project are 3/4" thick.*



Exploded View

at once, so be prepared to hustle a bit. It's best to tackle this stage on a cool day, to give the glue the longest open time before clamps must be tight (alternatively, you could break this stage into two sub-stages). Work as before, applying glue and stacking the parts in order, taking care to keep their edges flush and aligned (photo 14). To clamp the bottom step's tread members together, set the heads of three bar-style clamps into the holes you bored in the middle brace earlier (photo 15). If necessary, clamp the longer sides to the shorter tread members to keep them from slipping out of position; for example, tread 19 between sides 8 (left and right). After the glue sets, remove the stool from the assembly form and set it upright. Carefully scrape off all excess glue from both the stool's outside and inside surfaces.

The fourth and last assembly stage is also the easiest: Glue two remaining parts to the back edge of the top step, using clamping pressure or a rubber mallet to gently drive part 14 between the stool's vertical back members. After gluing and setting part 13 in place, clamp the finished top step together (photo 16).

Sanding and Finishing

If all the assembly stages have gone well and the parts were carefully aligned, there's very little sanding or scraping necessary to smooth the stool's surfaces. On areas where parts have slipped a bit, a portable belt or random-orbit sander fitted with an 80- or 100-grit belt or disc will level surfaces in short order (see photo 17). Once all surfaces are flat and smooth, what happens next depends on your taste: If you like the austere, angular look of the stool as it sits, simply ease all sharp edges with a little hand sanding. If you'd prefer a more finished looking piece, you may use a router fitted with either a roundover or chamfer bit to profile the edges of the treads, and maybe the sides, back uprights and top rail as well. To make the stool appear a little visually lighter, use a jigsaw to cut away the hollow section along its bottom edge (photo 18). This essentially gives the stool four feet, which tend to sit stably on an uneven floor. You may also create a similar hollow cutout on the bottom edge of the top rail, to give it a hand hold as well as add some visual detail. These details are shown in the lead photo on page 34.

Finishing the stool is also up to you — apply a durable wipe-on polyurethane finish or a grain-figure-and-wood-color-revealing oil finish. Of course, if you don't like the patchwork look of your stool, you can always paint it!

Sandor Nagyszalanczy is a contributing editor to Woodworker's Journal. *His books are available at* amazon.com.

Planer Cart

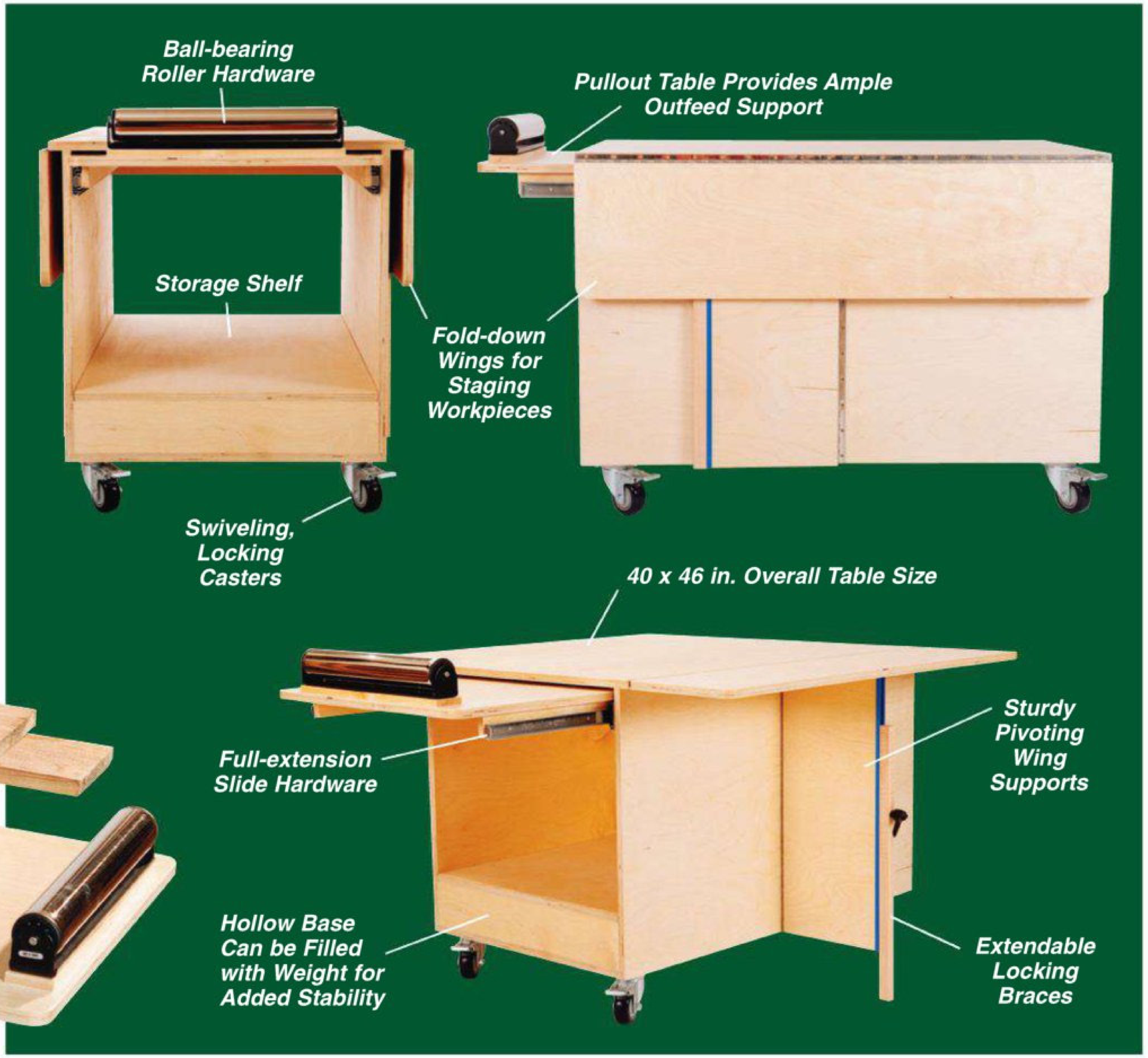
By Chris Marshall

Designed to be universal, with support surfaces on three sides, this mobile cart is a benchtop planer's perfect companion.

A benchtop thickness planer is an effective and economical way to surface your stock, but very few manufacturers provide a workstand with it — and you definitely need one. A planer should be clamped or bolted securely to a stable surface so it won't tip when planing long or heavy stock. I'd sure appreciate having convenient surfaces nearby to stack the lumber as I mill it, and wouldn't it be nice to have a handy form of outfeed support behind the machine when a helper isn't available? If you're nodding yes with me, then here's a project you should build this fall.

Our planer cart is sized to fit most benchtop planers on the market. It features two

Tip-up wings on either side offer surfaces for staging your workpieces, while the cart's pullout table provides outfeed support during planing passes.



tip-up wings on either side that rest on pivoting supports when needed and hinge down flat when you're done. Finally, a place to park that lumber when processing it! For really heavy loads, we've provided drop-down braces on the ends of the supports with locking hardware. Behind the cart, an outfeed table pulls out on full-extension drawer slides. It provides nearly four feet of "helping hand," with a ball-bearing roller to catch the stock as it exits the machine. No more sprinting around the planer to grab boards at the end of each pass. You can extend the table all the way for really long stock, or retract it some to suit shorter material. A lower shelf will stow even more lumber or other shop sundries, and the cart rolls into position or out of the way on swiveling and locking casters. Pretty cool, huh?

I built the one you see here from the better part of three 5' x 5' sheets of Baltic birch plywood. If that isn't available, two 4' x 8' sheets of cabinet-grade plywood will be sufficient, but you'll have to band the exposed edges of the parts with veneer edge tape.

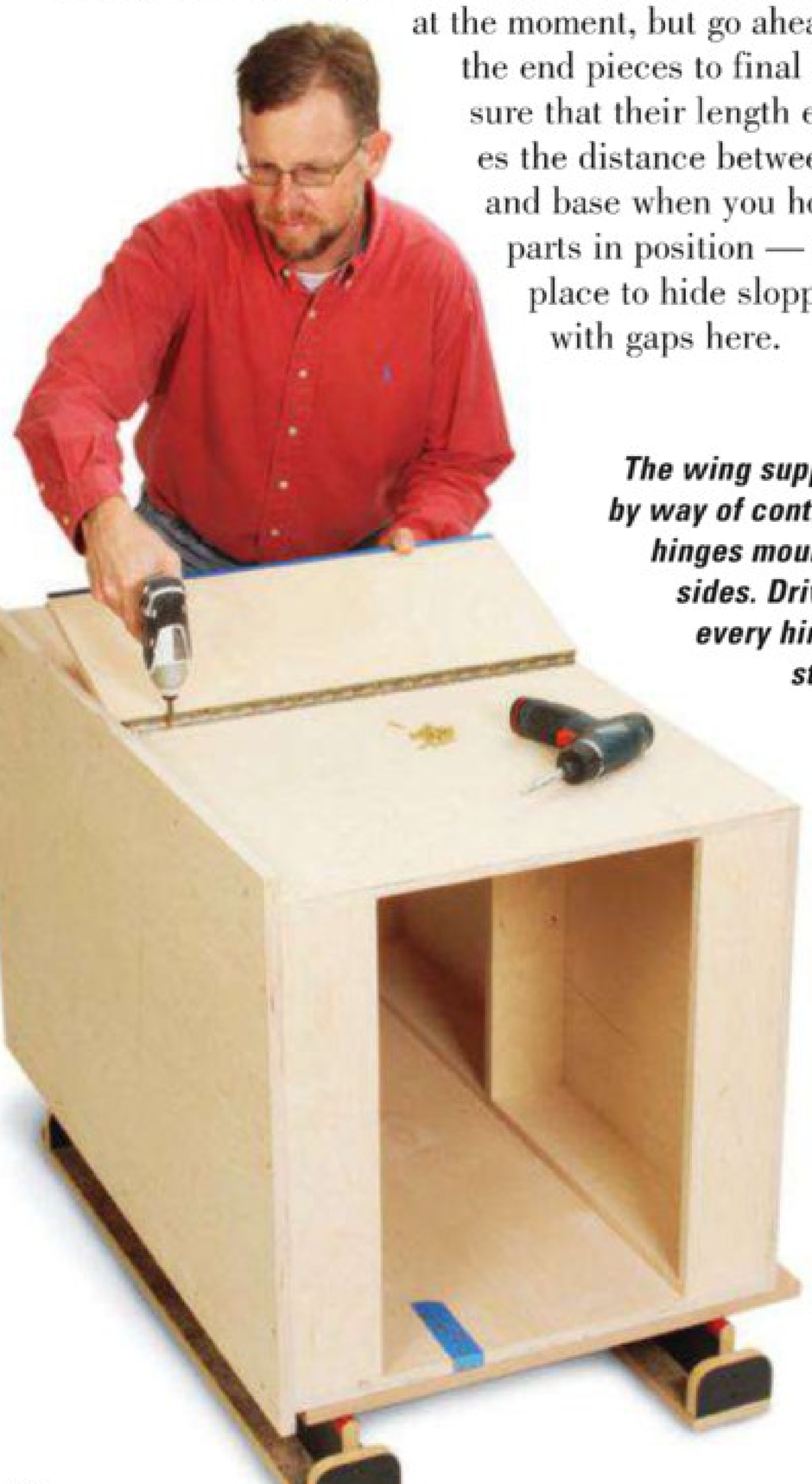
Assembling the Carcass

Let's get this cart project rolling by cutting the base and sides to size (pieces 1 and 2). Notice in the *Drawings* that the bottom edges of the side panels are rabbeted to fit over the long edges of the base. To set up for cutting those rabbets, install a wide dado blade in your saw, and clamp a sacrificial fence to the rip fence so you can bury part of the blade in it. Raise the blade for a 3/8"-deep cut, and adjust the fence so the blade's cutting width matches the thickness of your project plywood. Make a test cut to check your settings, then mill each rabbet on the side

Three end pieces and an interlocking crosspiece help to stiffen the cart's carcass. The cart needs to be sturdy because there may be a significant amount of weight to support in the lumber being planed.

panels. I also used a pair of featherboards clamped to my rip fence to press these workpieces down flat against the saw table — even expensive Baltic birch ply can have bows or twists in it that could make your rabbet cuts inconsistently deep.

Switch from your dadoing setup back to the standard blade so you can cut the three ends, shelf supports and crosspiece (pieces 3 through 5) next. Leave the supports and crosspiece overly long at the moment, but go ahead and crosscut the end pieces to final length. Make sure that their length exactly matches the distance between the sides and base when you hold those three parts in position — there's no place to hide sloppy butt joinery with gaps here.



The wing supports articulate by way of continuous "piano" hinges mounted to the cart sides. Drive a screw into every hinge leaf hole to strengthen these connections.

Adjustable extension braces slide along T-tracks using shallow tongues cut at the table saw (top). Secure the braces on lengths of metal T-track using lever knobs and T-bolts installed in a hole bored through each brace (bottom).

Before you can get down to some assembly, load the dado blade back in the saw and set its width carefully for cutting dadoes across the shelf supports to house the crosspiece. Plow them 3/8" deep and centered on the part lengths.

Tote all of your carcass parts over to the workbench for a thorough sanding up to 150- or 180-grit. It's much easier to smooth these surfaces now while everything still lies flat and open. Once the dust clears, you can fasten the side panels to the base with glue and countersunk wood screws. I first tacked the sides into place with a few brads, then followed behind with screws. Slip two ends into position on the base, and locate the third end piece at the top rear corner of the sides to help the carcass resist racking. Secure these parts with more screws.

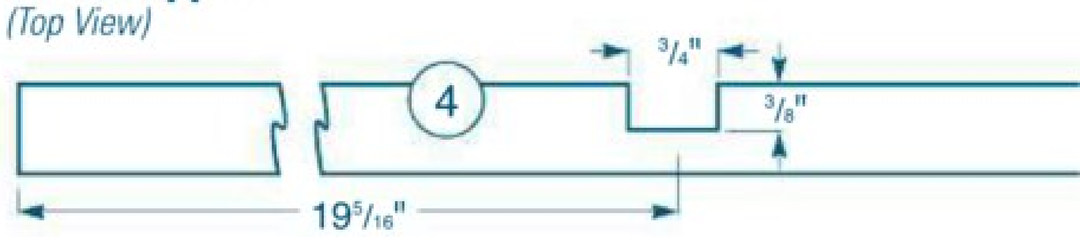
The shelf supports come next. Check their length against the actual distance between the installed ends, and trim as needed. Glue and nail them to the side panels. Now install the crosspiece in its dadoes in the shelf supports, cutting it to final length for a snug fit. I brushed a little glue into the dadoes first, slid the crosspiece home and drove brads at an angle and into the supports to pin the crosspiece permanently. Complete the carcass by easing its sharp edges with a 1/8" roundover bit in your trim router, or use a file or sanding block. Skip the top edges of the sides and the top edges of the end pieces — the

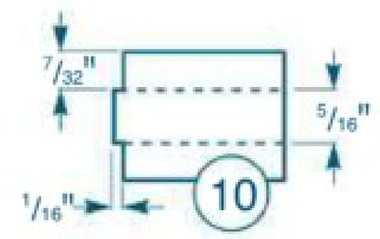
Planer Cart Hard-to-Find Hardware

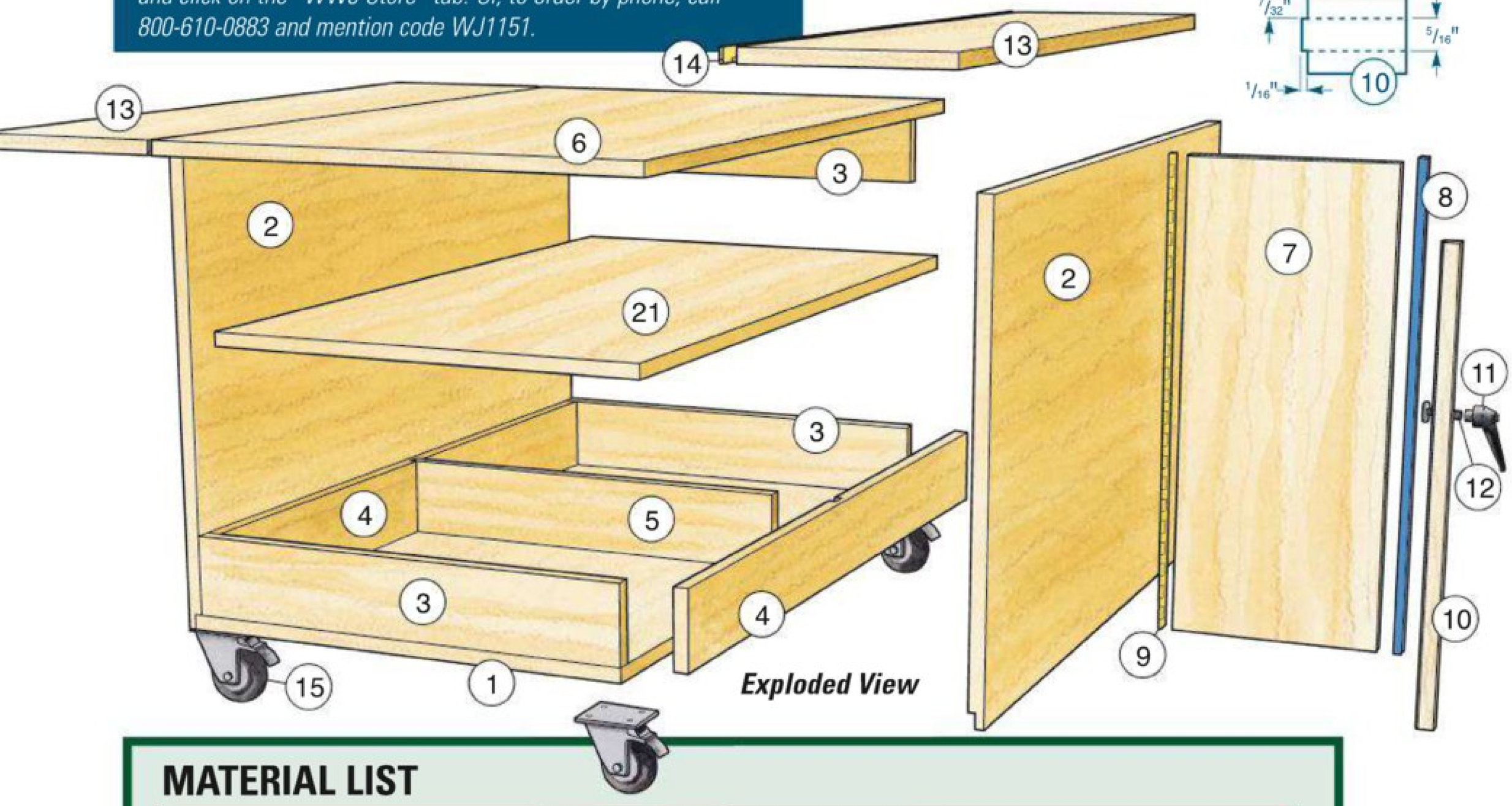
The following supplies are available from Woodworker's Journal.

Universal T-tracks (2) #22104 ..... $13.99 ea.
Piano Hinges (2) #33305 ..... $21.99 ea.
Ratchet Lever Knobs (2) #90910 ..... $4.99 ea.
T-bolts (2) #83311 ..... $1.29 ea.
3" Swivel Locking Plate Casters (2pr) #38865 .... $40.49 pr.
34" Full-Extension TopSlides (1pr) #21637 ..... $65.49 pr.
Roller Assembly (1) #20829 ..... $27.49 ea.

To purchase products online, visit www.woodworkersjournal.com *and click on the "WWJ Store" tab. Or, to order by phone, call 800-610-0883 and mention code WJ1151.*







MATERIAL LIST

		T x W x L
1	Base (1)	3/4" x 23¼" x 40"
2	Sides (2)	3/4" x 23¼" x 40"
3	Ends (3)	3/4" x 4" x 22⅝"
4	Shelf Supports (2)	3/4" x 4" x 38⅝"
5	Crosspiece (1)	3/4" x 4" x 21⅞"
6	Top (1)	3/4" x 26" x 40"
7	Wing Supports (2)	3/4" x 9⅝" x 23¼"
8	T-Track (2)	3/4" x 23¼"

		T x W x L
9	Support Hinges (2)	1⅛" x 23¼" Continuous
10	Braces (2)	3/4" x 1" x 23¼"
11	Lever Knobs (2)	5/16"-18 Insert
12	T-bolts (2)	5/16" x 1½"
13	Wings (2)	3/4" x 10" x 40"
14	Wing Hinges (2)	1⅛" x 40 in. Continuous
15	Casters (4)	3" Dia. Swivel/Lock

top panel and bottom shelf will cover them. Cut and position the top panel (piece 6) so its edges overhang the side panels evenly. Drive countersunk screws down into the cart sides to secure it.

Building the Wing Assemblies

Each of the tip-up wings have wing supports (pieces 7) that pivot out from the cart on continuous hinges (pieces 9). Cut and sand these support panels, and grab a hacksaw to cut lengths of hinges to suit them. I laid out my hinge cuts first to make sure the endmost holes in the hinge leaves were evenly spaced from both ends. Fasten a hinge to one edge of each support, driving short screws into every hole; orient the knuckles of the hinges flush with the face of the plywood.

Notice in the photos that the lever knob hardware holding the extendable braces up or down mounts on the aluminum T-track (pieces 8). Mark two strips of T-track to length. You can cut it quickly and accurately at the miter saw or table saw, but be sure to wear eye protection to protect against metal shavings. Ease the sharp corners of the tracks with a file, then screw them to the other long edges of the supports. You're ready to mount the supports to the carcass at this point. Just center the supports front to back on the side panels and flush with the top and bottom edges. Screw them in place. You can face the hinge knuckles forward or backward, depending on how you want the supports to fold up; either way works fine, but arrange both supports to fold in the same direction for convenience.

I made both braces (pieces 10) from a wide piece of scrap maple. Use a dado blade to trim a centered tongue along both edges of the workpiece to fit into the T-track channels. These tongues need only be about 1/16" long — any longer, and the T-bolts won't tighten properly inside the tracks. Adjust the width of the tongues a tad narrower than necessary so the braces will

Continuous hinges are quite pliable but should be installed straight and true to swivel properly. Clamp each wing to your bench to give the hinges a flat surface to rest on as you drive the attachment screws.

The author used a long shim to space each drawer slide evenly inside the cart during installation. While the project was inverted, he also bolted the locking casters into place on the bottom.

Detach the "drawer side" sections of the slide hardware, and fasten them to the outfeed table cleats so the bottom edges of these parts are flush. Reattach the slides to hang the table in the cart.

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MORE ON THE WEB

To see this Planer Cart in action and watch Chris Marshall's video overview, go to woodworkersjournal.com and click on the "More on the Web" tab shown above.

slide smoothly up and down in the track channels. Rip both braces free and cut them to final length. Now head to the drill press to bore a 5/16" centered hole through each brace, 7½" from one end, for the T-bolts. Step to your router table to knock off the long edges and bottom corners of the braces with a 1/8" roundover bit, and sand them smooth. Install the bolt hardware, and slide the braces into place on the support tracks.

The two wings (pieces 13) start out as square-cornered panels, but I rounded the two outside corners with 1" radii to make them more "leg friendly" on the final project. Here again, the wings pivot on long hinges (pieces 14), hacksawed to length. I fastened those in place with the wings clamped flat on my bench and the hinges folded open to an "L" shape, with the knuckles facing inward. It kept the hinge hardware flat and aligned, while providing me good backup support when drilling pilot holes and driving all of those little screws! When it comes to hanging the wings, those fancy new pivoting supports and braces won't help you yet. Fold them out of the way. Instead, you'll need to ask a helper to hold the wing hinge leaves against the top panel edges while you drive a screw at each end and one in the center. Check to make sure the wings will be flush with the top panel when tipped up. Once these first few screws are driven, you can fasten it the rest of the way on your own.

Adding the Outfeed Support and Casters

Hopefully, your helper is still within earshot to help you flip the project upside down on your bench ... I found that to be the easiest way to install the rather heavy full-extension drawer slides (pieces 16). But first, grab a length of rope or a ratcheting tie-down to hold the wings closed before inverting the cart.

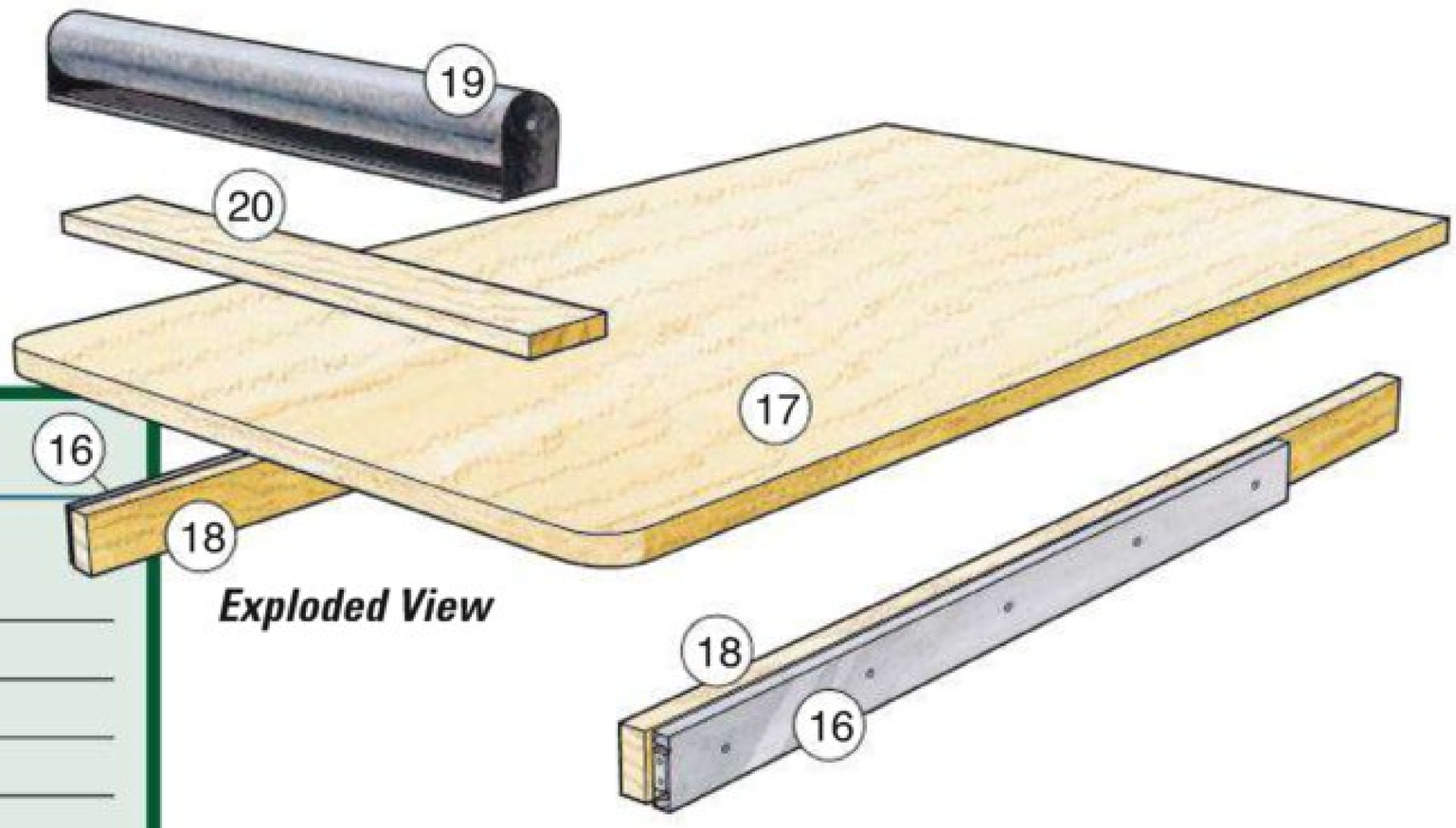
When you study the *Drawings*, you'll see that the outfeed table must be positioned low enough to close up inside the cart and accommodate for the height of the roller hardware — the top curve of the roller has to be even with or slightly lower than workpieces exiting your planer. All of this considered, I determined that my slides could be located 1" down from the top inside face of the cart top. Then, I could shim the roller up as needed to suit my planer's bed height. So, I used a long 1"-wide spacer to align each slide on the side panels while I drove the attachment screws (photo center, left). Position the ends of the slide housings flush with the back (outfeed) end of the cart when fully closed.

Once the slides are attached and ready to go, install the locking casters (pieces 15) to the cart bottom. I positioned mine 1/2" in from the outside corners and drove 1/4" x 3/4" lag screws with washers to secure them. Flip the cart upright again.

Head back to the table saw to cut the outfeed table and a pair of cleats (pieces 17 and 18) to size. Round the outer corners of the table panel with 1" radii, and ease its edges as you've done previously. Finish-sand these parts before fastening the cleats underneath the table panel so their rear ends are even with its back edge. Space the cleats accurately apart so they'll align

MATERIAL LIST

	T x W x L
16 Drawer Slides (2)	TopSlide 758 34"
17 Outfeed Table (1)	3/4" x 22½" x 37"
18 Table Cleats (2)	3/4" x 1¾" x 34"
19 Roller Assembly (1)	15¾" Roller
20 Roller Shim (1)	1/2" x 2¼" x 17"
21 Bottom Shelf (1)	3/4" x 22⅝" x 40"



Exploded View

Place a straightedge on the planer's bed, and measure the distance from the outfeed table up to the bed (top). Subtract the roller assembly height to find the shim thickness. Install the shim, then the roller bracket (inset).

The Final Details

Given the locking casters, an overall low stance and the weight of the plywood, this cart is very stable already. But since I anticipate needing to plane really thick and long stock now and again, I added 50 lbs. of mortar sand to the base. With this ballast, I may not even need to lock the casters for typical jobs. Then I cut the bottom shelf (piece 21) to size, sanded it and screwed it to the shelf supports and crosspiece.

Fill all the screw counterbores with wood plugs, and chisel them flush. The last step that stands between you and many hours of convenient planing to come is to finish your cart. Instead of removing all of the hardware, I simply masked off the metal parts and casters, and I sprayed on four coats of satin aerosol lacquer. It's easy to apply, sufficiently durable and dries fast as lightning. I was all done spraying and the finish was dry in about two hours' time. Finally, drill holes for the bolts you'll need to secure your planer to the "deck." I used carriage bolts, which allowed enough clearance for the outfeed table beneath. I fastened them with washers and nylon-insert lock nuts from above. Here's a project that's already getting a workout from me each time I process new lumber. I'm sure your cart will, too!

A bag or two of washed sand will help keep this project stationary during planing sessions, especially if you also lock the casters. Add the lower shelf to seal in the "ballast" underneath.

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

3x21 Belt Sanders: Power in Small Packages

by Sandor Nagyszalanczy

Don't have forearms like Popeye? Give your arms a break and turn to one of these smaller units when it's time to remove some serious stock.

Ever switched from driving a large SUV to a sporty compact coupe? That's kind of how it feels to switch from a brutish 4x24 belt sander to a lithe 3x21 model. Although you might miss the power and wide "road coverage" of a 4x24, you'll delight at the 3x21's maneuverability and handiness — and their slightly lower price tag.

To provide you with a better idea of what's happening in the world of 3x21 belt sanders, *Woodworker's Journal* made sure I had eight of the top models currently available. While half of these models are conventional in overall form, a couple sport innovative designs and features. I was anxious to see how these compared, and whether the newer designs bested the classics. I spent about a week running each sander through a bevy of common woodshop belt sanding tasks: flattening large panels, smoothing smaller parts, evening up solid-wood cabinet face frames with plywood cabinet sides, and more. Before I give you the rundown on each model, check out some of the important factors I considered when evaluating these compact sanding machines in the far column on the next page — these specs are summarized in the chart on page 52.

The Test Group:

Nicknamed the "Dragster" because of its long tapered body and large rear/small front roller combination, the stylish **Black & Decker DS321** offers some nice features for a price that's the lowest in this group. Let's start with the innovative design: Reducing the size of the front roller increases the overall length of the belt loop, giving the sander a nice long platen that puts more abrasive in contact with the work surface. Even more innovative, the Dragster has a sort of front "hatch" that opens above the front of the belt, allowing the tool to sand in very low or narrow spaces; say, the slats in a louvered shutter.

I liked the DS321's front handle, which rapidly adjusts to any of three positions tool-lessly thanks to a built-in locking lever. Its rear handle and trigger are basic, but

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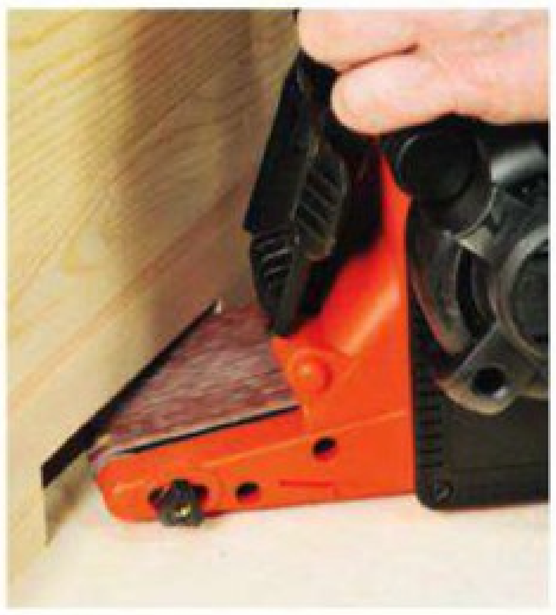


The Black & Decker DS321 has a unique shape that is unmistakable. It is the lightest sander in the bunch, featuring a 7-amp motor. The flip-up front cover allows sanding in low and tight spots.

serviceable. The sander lacks variable speed control — a 7-amp motor runs the belt at a fixed 800 FPM. It also comes with an almost comically small dust bag, but it mounts with ease and is covered in a finer-woven fabric than most of the other dust bags. No vacuum hose adapter is available.

While the DS321 functioned well enough, it didn't have a very solid feel when switched on and put to wood. Belt tracking was ponderous at best, and the small adjustment knob offered little control over the belt. I don't think this sander would be a good purchase for someone who needs to do a lot of heavy sanding or precise work. But for light work, the DS321 is priced just right.

A product of the European school of power tool design, the **Bosch 1274DVS** looks more like an ultramodern locomotive than it does a belt

Bosch's 1274DVS sander has several high quality features, such as a cast alloy platen with a graphite lubricated pad. The Bosch's flat-top shape and in-line handles also allow it to be flipped on its top, clamped to a bench and used as a stationary sander.

Key Belt Sander Features To Consider

Balance and Comfort: How well a sander's weight is distributed and balanced affects how it handles. Handle size and placement, as well as trigger location and functionality, determine comfort and handling friendliness.

Power and Speed: Most of us lean into the sander now and again. Pressing down takes power, and not all belt sanders have the same amount on tap. The speed of the belt also affects how quickly the tool sands wood: Faster belt speeds translate into rapid stock removal. Slower belt speeds are useful for delicate sanding jobs.

Platen Size: In addition to a sander's power and belt speed, the amount of abrasive belt in full contact with the work surface affects sanding efficiency. The more length a platen has, the more the grit particles are abrading wood. Having a platen that's a bit wider than the sanding belt keeps the abrasive in good contact with the work.

Belt Change and Tracking: Any sander is only as good as its abrasive belt, so keeping fresh abrasive particles working for your 3x21 means changing the belt. This can be effortless or tedious, depending on the design and construction of the tool's belt tension release mechanism. Once a new belt is in place, an effective and easy-to-use belt tracking knob gets you back to work quickly.

Good Dust Collection: All belt sanders make a ton of fine wood dust. The best way to keep your shop clear of dust is to use the tool's built-in dust port connected to a shop vacuum. The included dust bag is better than nothing, if you must work without a vacuum.

Body Insulation and Cord Length: A tool with a double-insulated body offers just a touch more protection for the user when working in wet conditions or when the cord or wiring short out. Non-insulated models provide this protection by having a ground wire, so it's essential that you plug such tools into grounded (and preferably ground-fault protected) outlets. Because of the amount of tool motion that's often required when sanding large panels and cabinets, long power cords are preferred.

Shop Test continued

The DW433 is the only sander with three rollers. This accounts for its bulldog appearance and helps it sand close to a wall or cabinet divider. The DeWALT has an "On/Off" control for the dust blower, allowing use without the collection bag.

Hitachi's SB 8V2 sander features a 9-amp motor and ribbed drive belt that deliver the power smoothly. The tool also has a clear plastic window on the front and a good-sized zippered dust bag.

sander. That's in part due to its in-line-motor design, with its motor mounted lengthwise directly over the belt. With almost the entire weight of the tool centered directly over the belt, the 1274DVS is the best balanced sander in this group. An added bonus of the unit's flat-topped body design is that it can be clamped upside down on a bench and used as a stationary sander — brilliant!

The 1274DVS handles are basic, but serviceable. The front handle is removable, allowing the tool to sand closer to a vertical obstruction, such as the wall when sanding a floor. The Bosch 3x21 has a very nice cast-alloy platen covered with a graphite-impregnated pad. The pad noticeably reduces friction between the platen and belt. The down side is that the graphite rubs off onto the inside of the belt, making it difficult to see the belt's grit designation and directional arrows. Both of the Bosch's rollers are sealed on the ends — a nice touch that keeps sawdust from accumulating inside them.

The 1274DVS comes with a smallish flat rectangular canvas dust bag and a vacuum hose adapter, but when used, the hose protrudes so far out that it makes the sander awkward to use.

In terms of handling, the lightweight and easy maneuvering Bosch was my hands-down favorite. If you often sand small parts or must sand vertical or even overhead surfaces, this is the belt sander for you. Despite having the lowest-rated amperage motor in the group, the Bosch turned in a middle-of-the-pack performance in terms of sanding power.

Another unusually designed sander, the **DeWALT DW433** is a heavy beast, with a large cast-alloy body and a low-slung motor and three rollers. Three rollers? Yes, you read that right. The DeWALT has a large rubber-covered drive roller and a pair of small-diameter rollers in the front, one above the other. This arrangement allows the DW433 to sand very close to front vertical obstructions. It also creates enough space between the rollers to mount the motor inside the belt loop, which keeps the tool's center of gravity very low.

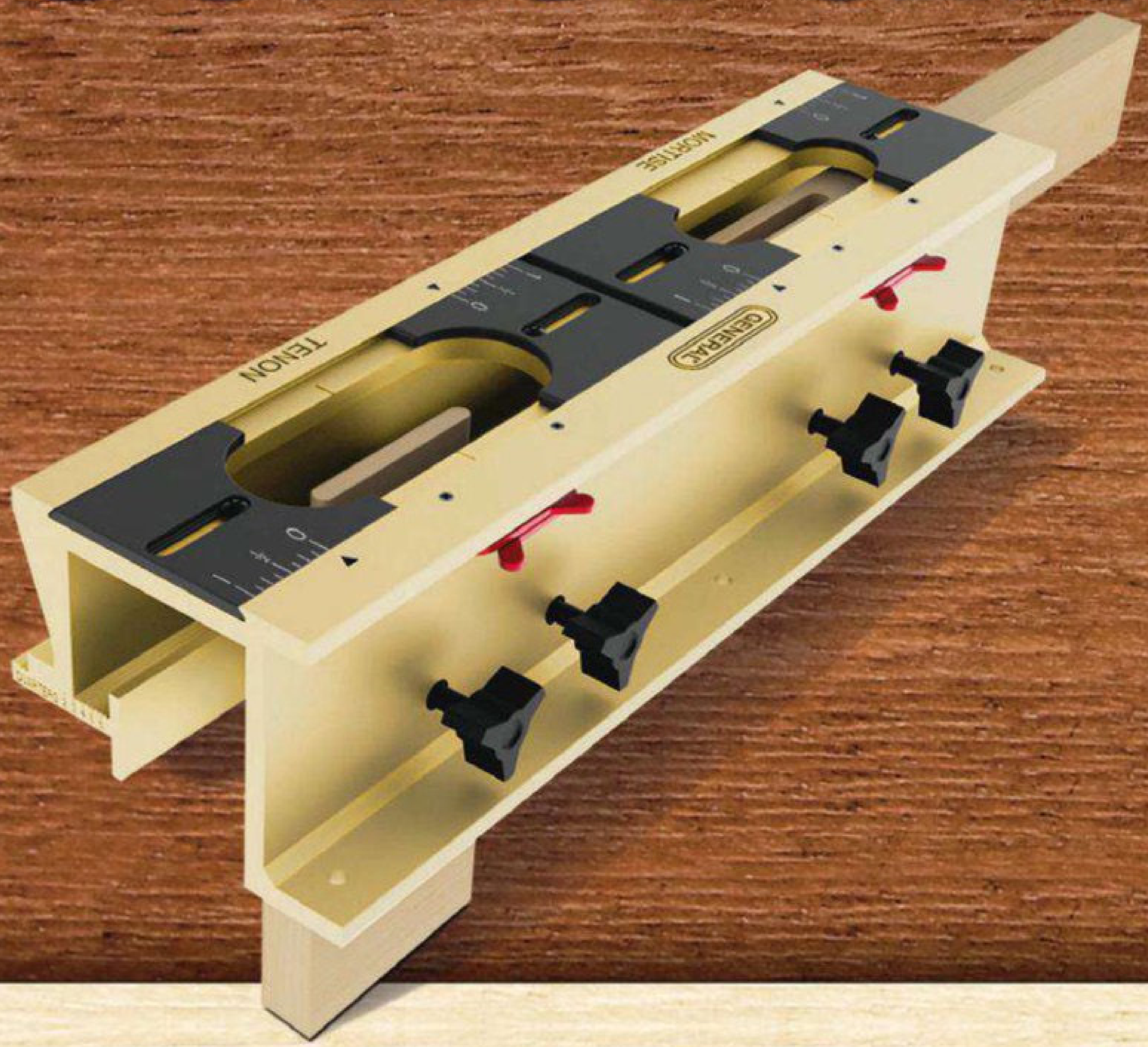
Dust collection is well implemented on the DeWALT, which uses a large fabric-covered dust canister instead of the usual bag. Further, there's a unique "On/Off" control, allowing you to use the sander *sans* dust canister, without spraying dust everywhere. On the flip side, it's not that easy to attach and detach the canister from the sander, and the clip that secures it is located so close to the rear handle that it dug into my thumb occasionally.

The DeWALT felt generally unflappable, even when I leaned on it hard while flattening a rough glued-up panel. The belt tracking knob felt a little spongy, but once the belt was adjusted, it tended to track stably. Although this sander's low center of gravity made it feel rock solid on wide panels, its substantial weight made it less nimble when sanding face frames or vertical panels.

Big, black and green, the **Hitachi SB 8V2** is quite a handful. Its 9-amp motor is mounted atop the belt assembly, just like the Makita, Porter-Cable and Craftsman. But the SB 8V2's drive belt, motor cover and dust fan — almost half of the width of the sander — protrude to the left of the belt, making it the widest sander in this group. Fortunately, the Hitachi is very user-friendly, with comfortable rubber overmolds covering both handles. I liked the unit's wide trigger, although the location of its variable-speed dial is less than optimal. The Hitachi's sanding belt runs between a solid-

Shop Test continues on page 48 ...

Relieves Joint Pain



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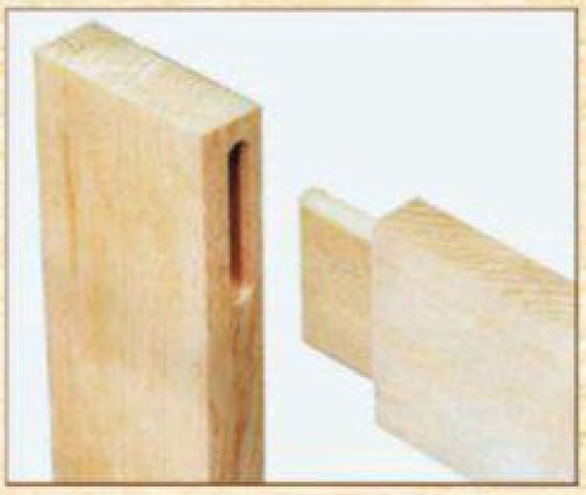

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Shop Test continued

The 9903 from Makita has a really well-designed rear handle and smooth "On/Off" trigger. Its 16-foot power cord is the longest in the bunch. But the dust bag sealing system was not up to standards.

rubber drive roller and cast-alloy front roller that's the same diameter. It has a nice, thick steel platen with a rubber pad and thin stainless steel cover. The belt tracked well, although the tracking knob is located so far back and below the enormous belt cover assembly that it wasn't easy to reach. The sander has a clear plastic cover on the front to provide a window for viewing the belt and to assist tracking, but I found this feature virtually useless.

The dust port atop the left motor bell cover is made of durable cast alloy instead of plastic as on most of the other sanders. Its clip-on canvas bag has a zipper that's located on the top edge, rather than on the bottom; a nice touch.

The first thing I noticed when I powered up the Hitachi was how smoothly it ran, I imagine that this is due to its ribbed drive belt; all the other models use toothed belts. But the SB 8V2's power output disappointed me, as its motor slowed noticeably when I used the tool with a coarse belt for some heavy stock removal.

Porter-Cable's 325VS is a workshop workhorse. Its cast-alloy body is tough and sturdy, and its 8-amp motor delivers enough power to handle heavy sanding jobs.

The **Makita 9903** is a compact 3x21 belt sander with clean, simple body lines. Like the majority of belt sanders, most of the Makita's body — the motor housing, belt cover and handles — are made from strong, durable reinforced plastic. Some components that overhang the left-hand side of the tool are cast metal. This makes it feel a bit imbalanced, especially when sanding on narrower work surfaces.

The Makita's rear grip was really terrific, and its smooth-operating "On/Off" trigger and trigger lock were very easy to use. I didn't like the location of its variable-speed dial, as you have to tip the sander up to see the markings. I thought the Makita's front handle was oddly designed looks-wise, and its bulky shape wasn't particularly comfortable to grip. I did appreciate the Makita's nice, long 16-ft. power cord.

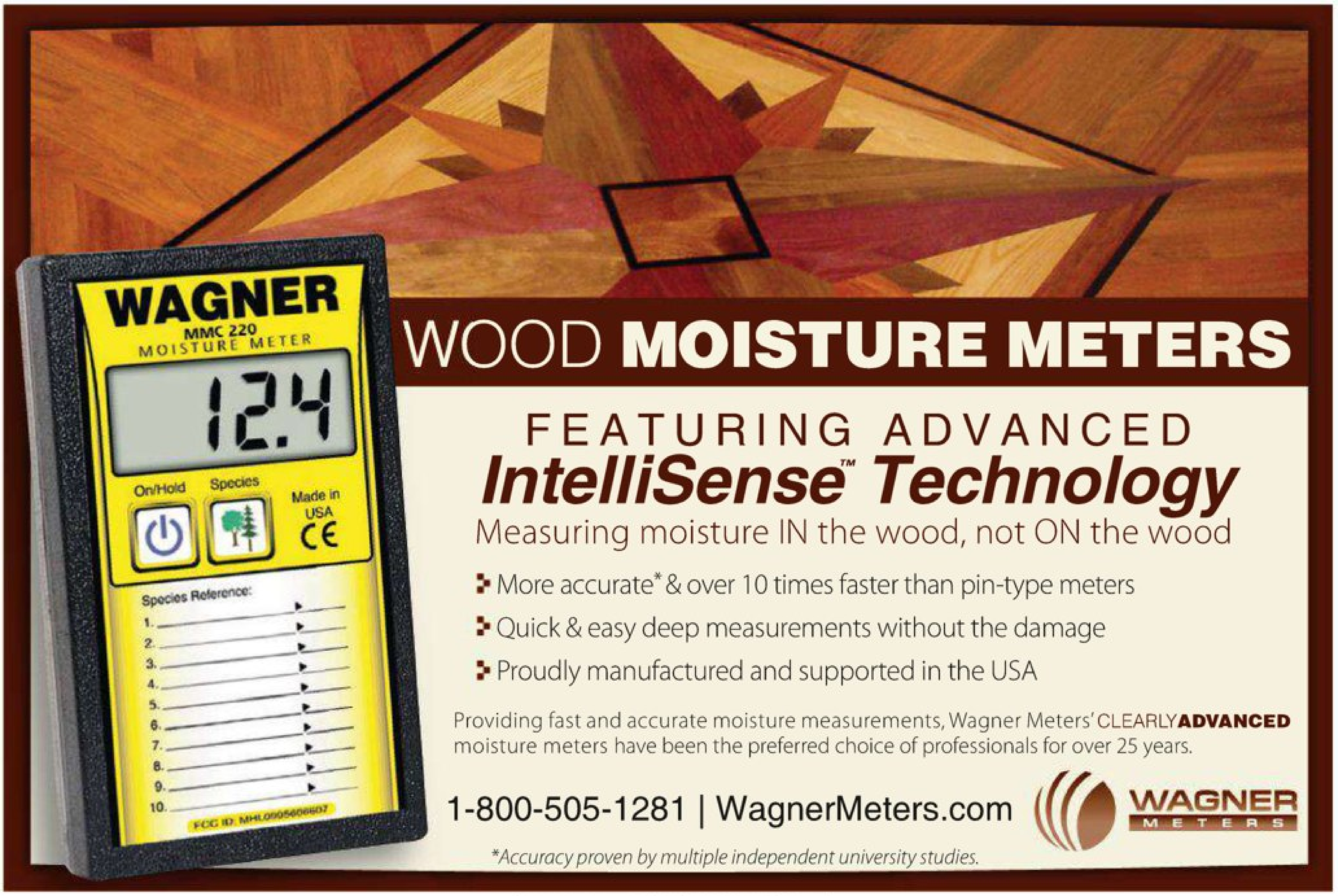
The 9903 comes with a largish canvas dust bag with a plastic clip that slides on and off the bottom edge. In theory, a clip is less likely to clog and jam than a zipper. But in use, the clip sometimes caught on the edge of the workpiece and slid off, dumping the bag's dusty contents all over!

When put through its paces, the Makita ran smoothly and tracked its belt very evenly. Its tracking adjustment knob worked better and more precisely than the adjusters on any of the other 3x21s. I was somewhat underwhelmed by the Makita's power delivery. Its motor slowed noticeably even when the running belt simply came in contact with the work surface. Pressing down on the sander slowed the motor — and reduced sanding aggressiveness — even more. Disappointing, especially when you consider the 9903's highest-in-group price tag.

While American power tool powerhouse Porter-Cable lately seems to be gutting its model lines, downgrading many tools to compete with inexpensive home centers and department store brands, it's nice to see that they're still making high quality belt sanders. The **Porter-Cable 352VS** is a hefty tool, with an all-cast-alloy body — only the handles and motor belt cover are plastic. This is a machine that can take a bruisin' and keep on cruisin'. Although the 352VS's belt drive overhangs the left side of the body, I found it to be better balanced than most other left-hand-belt-drive sanders.

The Porter-Cable's hard-plastic handles are well placed and comfortable to grip. The front handle overhangs the body enough to prevent the unit from sanding as close to vertical surfaces, but you could temporarily

Shop Test continues on page 50 ...



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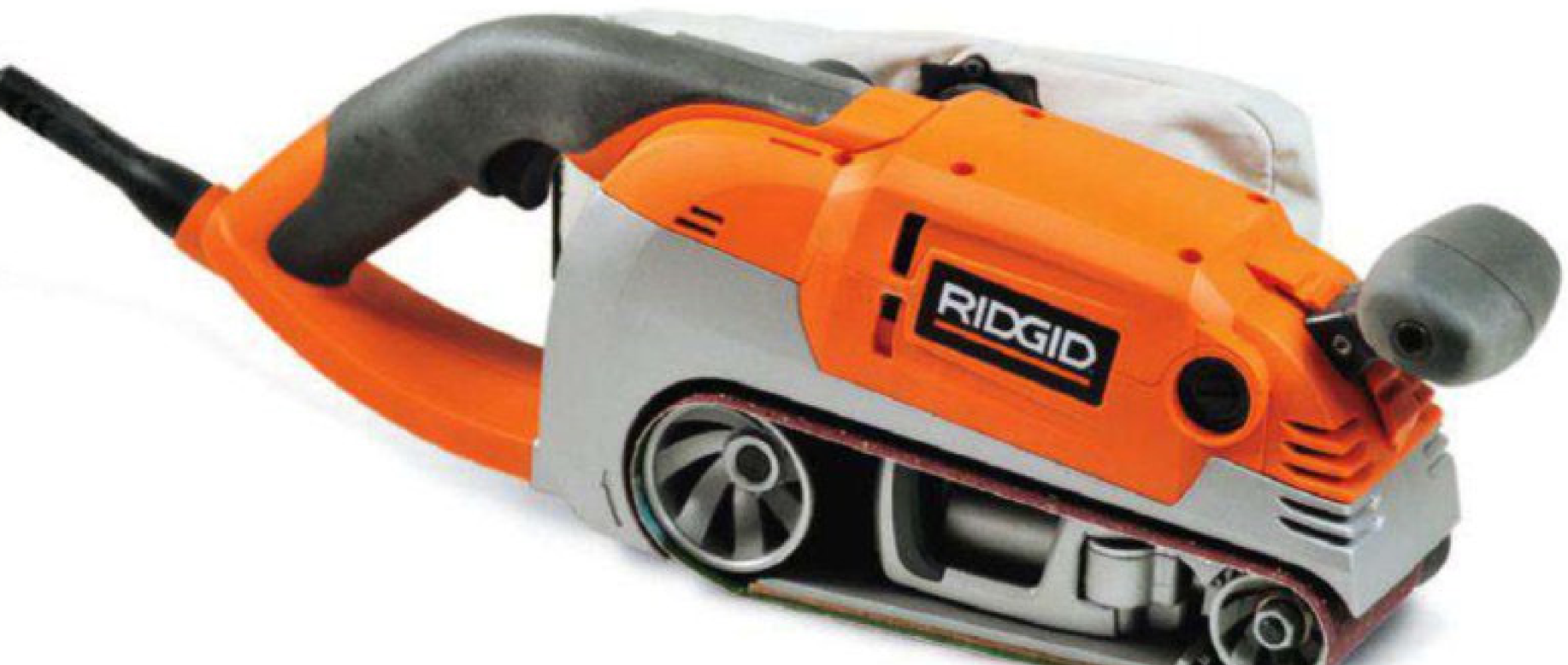

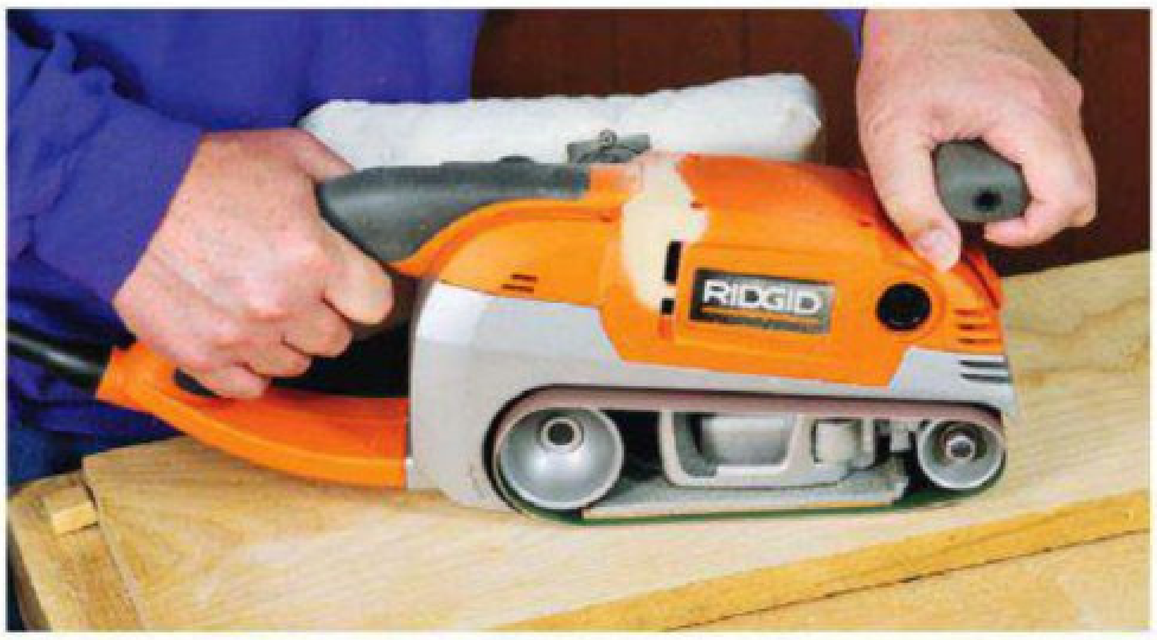

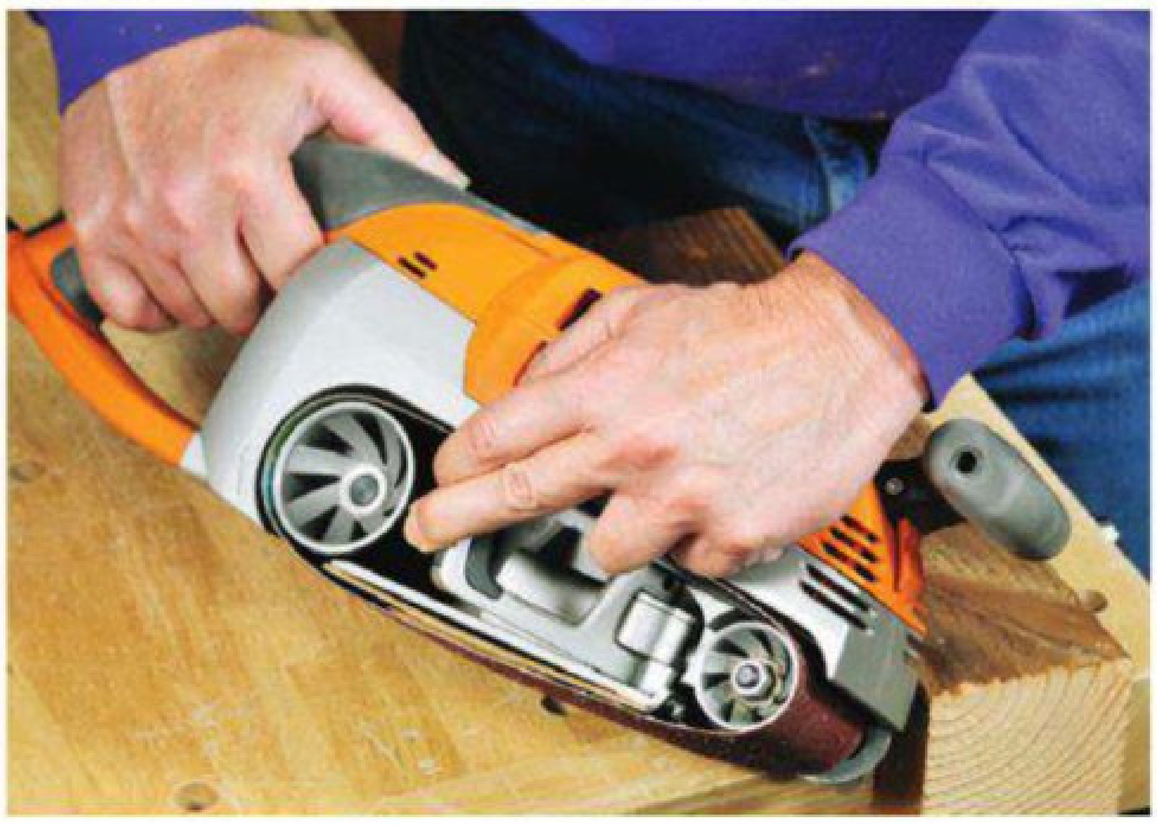

Slick industrial styling characterizes the R2720 from RIDGID. Overmolded rubber handles add to its ergonomic design — but the switch lock button is difficult to engage.

unscrew it as necessary. The variable-speed dial is mounted below and to the left of the handle, where it's very easy to see and set. The Porter-Cable's belt tracking and release mechanism is made from pressed steel, with a release lever that's easy enough to operate but a little hard on the fingers. Its heavy steel platen is overlaid with a traditional cork pad and stainless steel cover. The sander comes with a large-capacity canvas dust bag with a less-than-ideal bottom-mounted zipper. But its top-mounted metal dust port is well-located, so the bag stays well out of the way during sanding. The port also accepts a vacuum hose without need for a special adapter.

The Porter-Cable's power delivery is as smooth and ample as the DeWALT — not surprising as both sanders are driven by 8-amp motors. In stock removal aggressiveness, the 9903 is subjectively just a hair behind the DeWALT, perhaps due to the DW433's larger platen and higher maximum belt speed. But the 352VS is also lighter, which makes it more maneuverable and easier to heft.

With a streamlined shape that's somewhere in between a racecar and a futuristic train, the **RIDGID R2720** has an in-line motor layout similar to the Bosch. However, its raked body that's lower in front than in back (due to different sized rollers) doesn't allow the tool to be inverted and used as a small stationary sander. Both of the RIDGID's handles have comfortable rubber overmolds, and the front pommel handle adjusts to any of three positions, to accommodate the task at hand. The tool's trigger (which is padded with rubber overmold) snaps on and off crisply, but I found the switch lock button nearly impossible to set with the side of my thumb, as I'm used to doing with other belt sanders. The R2720's variable speed dial is well-positioned atop the rear handle, but was very stiff and difficult to rotate.

The R2720 has absolutely the nicest, most solidly built front roller suspension of any belt sander. For belt changes, it features an overmolded lever that's easy to use.

Like the Bosch, the RIDGID's canvas dust bag attaches to the left-hand side of the sander, but its bag has greater capacity. The R2720 doesn't come with a vacuum hose adapter, nor is one available. When put to wood, the RIDGID R2720 felt good in my hands, had excellent balance and was very easy to control. But even though it boasts the highest amperage motor (10 amps) and the fastest belt speed (1,500 FPM), the RIDGID just didn't seem to sand as aggressively as the DeWALT or Porter-Cable. I also didn't much care for the RIDGID's unique soft-start motor electronics, which ramp up motor speed gradually. There was also a glitch in the RIDGID's dust collection: The fan that blows sawdust into the bag also blew dust out of the air vents on the body.

The **Sears Craftsman 11726** isn't the only 3x21 model that Sears makes. The other one, model #11722, looks like a clone of the Black & Decker "Dragster," so I chose not to include it in this review. The 11726 doesn't have the fancy features found on other models, but is a solid, affordable belt sander with an all-reinforced-plastic body and an 8-amp, non-variable-speed motor. I really liked the Craftsman sander's handles: The rear handle's curved shape and

Shop Test continues on page 52 ...

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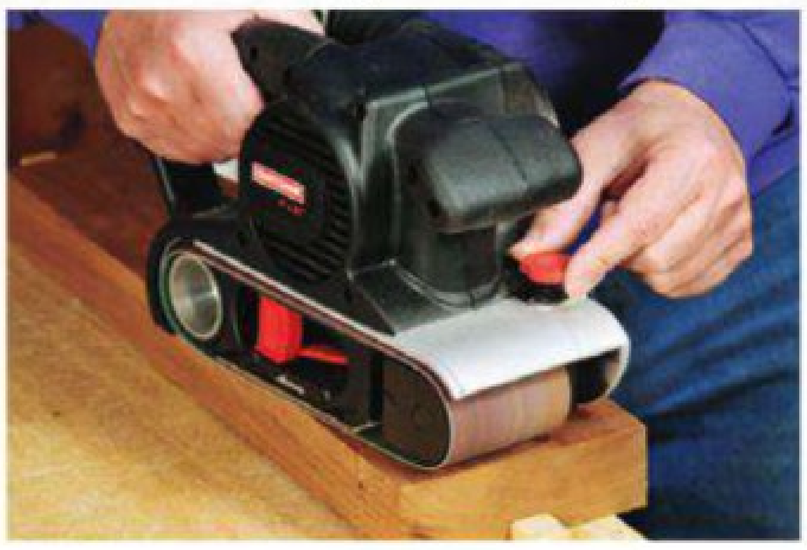
overmolded surface are comfortable to grip, and the single-finger trigger is shaped and positioned just right. Like the Black & Decker, this unit has a rubber-covered alloy rear roller and a plastic front roller, although the 11726's two rollers are the same size.

One unique feature is the Craftsman's belt-tracking adjustment knob, which is located atop the belt housing, just below the front handle. The knob is very handy to use, especially when you need to tweak belt tracking during sanding. I also liked the 11726's belt tension release mechanism, which features a wide plastic lever that's easy to get two fingers under. For dust collection, a smallish canvas bag slides onto a plastic port, which also accepts a small-diameter hose without an adapter.

The Craftsman 11726 features a good belt-changing lever and a user-friendly belt tracking knob. The overall performance from this tool was positive, and its dust collection port is well-designed.



Despite its no-frills character, I was pleasantly surprised at the unit's overall performance. It stayed well balanced during most operations and offered decent power; even when pushed, it removed stock with gusto.

Picking a Winner

Now that the dust has settled, and I'm left contemplating the eight 3x21 belt sanders I've just tested, I'm reminded that statistical numbers, such as motor amperage and belt speed, don't necessarily provide the truest measure of a good belt sander. In this case, the chart-topping RIDGID didn't seem to sand as aggressively as models with lower motor amp and belt speed ratings. Nor did Bosch turn in a bad performance, despite its lowest-in-class motor amp rating.

My two top picks in this review are the DeWALT DW433 and the Porter-Cable 352VS. I'd happily choose either of these impressive machines as my "daily driver," for tackling any of the milieu of different belt-sanding tasks that regularly crop up in my shop. Both sanders display an excellent build quality, too, so I'd expect them to survive an occasional crash and last for years without need of costly repairs. But since there's only one "Best Bet" award, I'll have to give it to the Porter-Cable. I like the 352VS's controls and dust collection just a bit better than the DeWALT's, plus it's more than a pound and a half lighter. And that means a lot to me, especially since I don't have forearms like a WWF wrestler, but I often do have miles of cabinet face frames to belt sand.

Sandor Nagyszalanczy is a contributing editor with Woodworker's Journal.

3 X 21 Belt Sanders at a Glance

Make/ Model	Street Price	Motor Amperage	Double-Insulated Body?	Belt Speed (in feet per minute)	Effective Platen Size (length x width)	Cord Length	Weight *
Black & Decker DS321	$60	7 amps	Yes	800 FPM	6¾ x 2 15/16	6 ft.	6 lbs. 8 oz.
Bosch 1274DVS	$158	6.6 amps	Yes	550-1100 FPM	5¾ x 3	13 ft.	7 lbs. 5 oz.
DeWALT DW433	$183	8 amps	No	850-1400 FPM	5⅛ x 3	7½ ft.	12 lbs. 4 oz.
Hitachi SB 8V2	$148	9 amps	Yes	820-1475 FPM	4⅝ x 3⅝	7½ ft.	9 lbs. 14 oz.
Makita 9903	$202	8.8 amps	Yes	690-1440 FPM	5 x 3½	16 ft.	9 lbs. 15 oz.
Porter-Cable 352VS	$190	8 amps	No	850-1300 FPM	4¾ x 3	6½ ft.	10 lbs. 10 oz.
RIDGID R2720	$127	10 amps	Yes	800-1500 FPM	5¾ x 3⅜	12 ft. **	10 lbs. 11 oz.
Sears Craftsman 11726	$85	8 amps	Yes	1300 FPM	4¾ x 3½	8 ft.	9 lbs. 12 oz.

* Approximate actual weight of sander fitted with belt and dust bag that user would heft during use (weight doesn't include full weight of the cord).
** Comes with a Velcro® cord wrap and a power plug that glows when connected to electricity.

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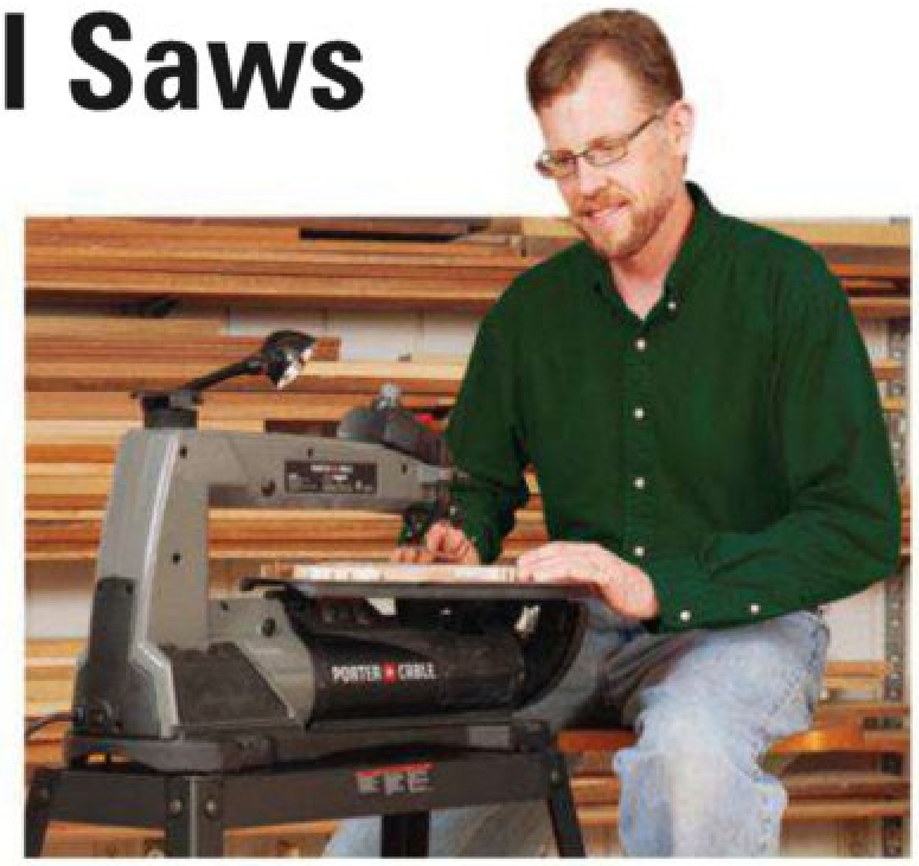
Tool Review

Seven Budget-priced Scroll Saws

By Chris Marshall



Add intarsia, fretwork and other intricate cutting to your repertoire with one of these affordable benchtop saws.

The late Rodney Dangerfield probably would have felt a solidarity with scroll saws because, among all other woodworking machines, these seem to get the least respect — or more fairly, the least amount of press. When we need to cut curves, we tend to head to the band saw, and that's a logical choice. It does that task and much more. Still, nothing beats a scroll saw for incredible accuracy when cutting out intricate patterns and complex curves. These machines literally take blades thinner than a pin, and you can feed them through tiny starter holes easily for making inside cutouts. Try doing that with a band saw blade!

You can spend a small fortune on a professional scroll saw, but we felt the wiser choice would be to review machines priced at

Craftsman 21602

Porter Cable PCB370SS

Proxxon DSH/E

Rikon 10-600VS

Ryobi SC164VS

Shop Fox W1713

Skil 3335-01

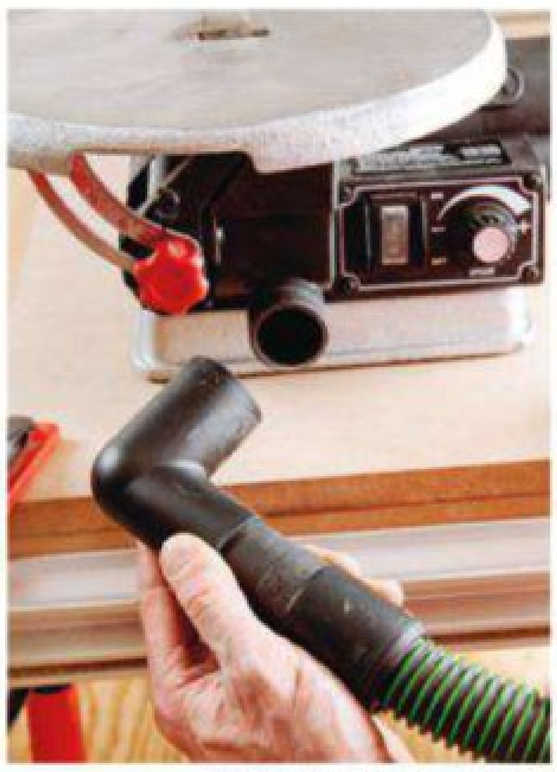
under $300 — some of these are well below that figure. That way, you can invest in one of these scrollers at an affordable cost for occasional use and still benefit from its precision and convenience.

I set these 16" models up with a new reverse-tooth No. 5 blade and turned them loose on a trivet pattern mounted to 1/2"-thick red oak blanks. I considered it to be a good "real world" cutting trial. After steering my way through many little twists and turns, all of these machines were sufficiently powerful for the cutting test. I bolted each one to a piece of MDF and clamped it to my bench, so vibration wasn't particularly objectionable on any saw. So, three make-or-break aspects separated the pack for me: ease of blade changing, clarity to the cutting line and other unique user-friendly features. Here's how each test machine met these benchmarks.

Craftsman 21602

Street price: $119.99
Throat Depth/Stroke: 16" / ¾"
Speed range: 400-1600 SPM*
Table size: 10¼" x 17⅛"
Motor: 1.6 amps
Blade style: Plain end or pin

* Strokes per minute



A vacuum hose stays out of your lap when seated in front of Craftsman's saw, thanks to this elbow.

Craftsman 21602

During a typical scrolling project, you'll spend a great deal of time installing and removing the blade to thread it through starter holes, then re-tensioning before you can continue. Blades are held in place by small clamps or notches on the ends of the saw's upper and lower arms. What I typically do is keep the bottom end fixed in the saw, and release the top clamp to gain access to the blade end. Eventually, you'll need to loosen that bottom clamp as well to change out the blade when it breaks, dulls or you need a different tooth profile. The easier this whole process is to repeat, the better!

Craftsman provides a wider opening under the table than some other machines, in order to reach the bottom Allen screw that releases the blade. I appreciated that access. Trouble was, the included T-wrench wasn't quite long enough to reach the bolt easily. The top mount also clamps with an Allen screw that holds the blade securely, and that was easier to do. A removeable throatplate in the saw table would be helpful for visibility's sake below the table, but this saw has none.

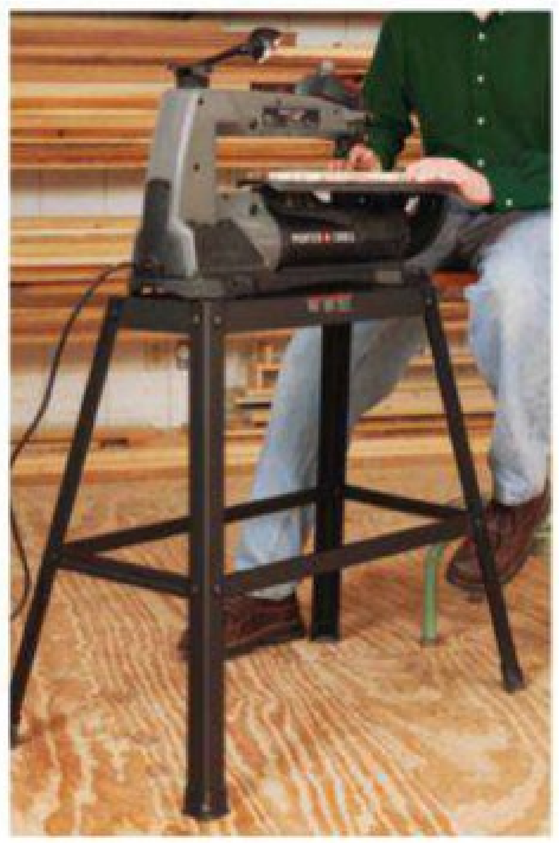
The 21602 has effective dust-clearing provisions. An articulating blower arm on top keeps the cutting area clean, and Craftsman provides an elbow underneath to attach the saw to a 1¼" shop vacuum

Tool Review continues on page 56 ...

Tool Review continued

Porter-Cable PCB370SS

Street price: $189
Throat Depth/Stroke: 16 1/16" / 1 1/16"
Speed range: 500-1500 SPM
Table size: 12 5/8" x 18 1/2"
Motor: 1.6 amps
Blade style: Plain end or pin



Porter-Cable's stand gives this saw a sturdy home base from day one in your shop.

Recent historical findings date the modern scroll saw's invention to 1829, when Mr. M'Duff, a member of the London (England) Mechanics' Institution, received an award from that group for the best machine invented by a member: a foot pedal-powered scroll saw. — *scrollsawer.com*

Porter-Cable PCB370SS

Porter-Cable's saw was a really pleasant surprise! It provides an excellent combination of sensible features, located right where you want them to be. Up top, the saw has a huge "On/Off" switch that's easy to activate — and you'll never have to grope under the table to find it as you may with other saws in this group. Once it's up and running, you can set the variable-speed motor with a dial just above the power switch — also helpful.

A gooseneck worklight and replaceable bulb shed light on your cutting line, and a dust blower puffs away the debris. The tool's table can be tipped to a variety of bevel angles, like every saw here, but this is the only model to provide both a tilt angle indicator — it's built right into the tabletop — and seven preset detent angles. The table tilted easily with a telescoping knob combination below and in front, and it locked positively.

Blade changing was pretty easy, thanks to a knurled nut on top that you can tighten without a wrench and a wingnut to lock the bottom blade clamp. Both of these provisions can also be tightened with a hex wrench.

This saw also comes with a quick-release flip lever, nested inside a large knob in back and on top. Quick-release is a blade tensioning feature I really love, because it speeds the process of setting up internal cuts: just flip the lever to slacken the blade. Once it is reattached, flip the lever back again to bring the blade up to its previous tension — or nearly so. It's very handy!

On-board blade and tool storage were also good plusses, and I appreciated the side-mounted vacuum dust port below the table. The hose stays connected and conveniently out of your way.

But here's one final sterling detail of this goodie-loaded saw: it comes with a steel workstand. Kudos to P-C for including that! One hit to the pocketbook provides everything you need to get up and running for $189 ... less than the cost of the highest priced saw here. If you choose to purchase the Porter-Cable scroll saw, you'll need to make a special trip to Lowe's® — it's only sold there.

Proxxon DSH/E

In more than 10 years of tool testing, this was my first chance to lay hands on a Proxxon machine. Designed in Germany, Proxxon tools cater to the precision hobbyist, so the DSH/E Scroll Saw had some unique features that distinguished it from other machines here.

For starters, unlike the pear-shaped table on other scroll saws, Proxxon provides a rectangular cast table here. The bigger the table, the better, in my book. When you're turning a workpiece around in all directions to follow a curvy line, it's nice to have table underneath wherever you need it for better workpiece handling.

Variable-speed and "On/Off" controls are below the table, but they're set further forward than some other saws, making them easier to find while you work without looking down.

Next to the articulating-arm style dust blower, which I like best, Proxxon's solution comes in a close second. It's a long metal arm that can be tilted up or down as well as swiveled left and right with a tool-free knurled knob. Lock it where you need it, or tip it up and out of the way when

Tool Review continues on page 58 ...

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Tool Review continued

making adjustments.

The soft, clear rubber tubing that connects the metal end to the internal baffle would, at times, come off of its mount, because the nipple seems too short. That would need to be remedied in some fashion.

Scroll saws all come with a hold-down foot to keep workpieces from doing the jitterbug during cutting. Most conventional foot designs are mounted to a post that you raise and lower. Proxxon's foot design is clear plastic, and it remains under constant spring tension, which can be a bother when you need to make frequent inside cutouts or remove offcuts. On the other hand, I really appreciated the blade quick-release lever, situated right over the top blade mount in front.

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Proxxon DSH/E

- Street price: $269
- Throat Depth/Stroke: 15¾" / ¾"
- Speed range: 400-1600 SPM
- Table size: 10½" x 14¼"
- Motor: 1.6 amps
- Blade style: Plain end or pin

The quick-release lever on Proxxon's DSH/E controls blade tension with minimal fuss.

Dust collection here was very good, with a 1⅜" O.D. rear-mounted port that comes with a soft-rubber attachment coupling. It makes connecting a vac hose simple and sure.

A $269 sticker price seems a bit steep here and sets the high bar for this group, but the saw functioned admirably and sports that nice, big table.

Rikon 10-600VS

Rikon's variable-speed saw had both plusses and minuses for me, which leaves me with mixed feelings about it. As I said at the outset, blade installation is key to a pleasant scroll saw experience for me. I chose to use plain-ended (also called "pin-less") blades for this test, because they fit through much smaller starter holes than pin-style blades. I'm told they are the preferred choice among serious scrollers. The challenge with Rikon's saw is that you first have to attach a plain-ended blade to two loose metal adapters, then slip these adapters over a pair of notched mounts on the saw arms. Once tensioned, the system works fine, but when you de-tension the blade, the adapters are free to come off their mounts. It's a real hassle to set up

Tool Review continues on page 62 ...

Rikon 10-600VS

- Street price: $149.99
- Throat Depth/Stroke: 15¾" / ⅝"
- Speed range: 550-1650 SPM
- Table size: 10 1/16" x 16 5/16"
- Motor: 1.2 amps
- Blade style: Plain end or pin

A power take-off port on the Rikon saw motor expands its versatility for driving flex-shaft tools as well.

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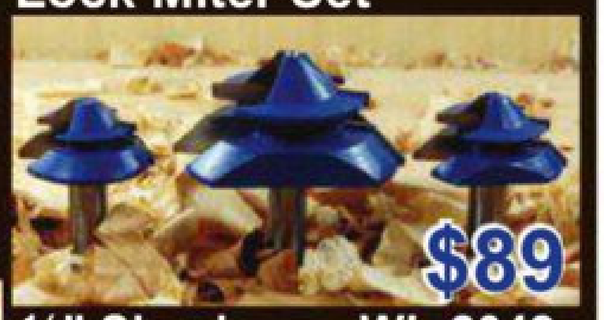

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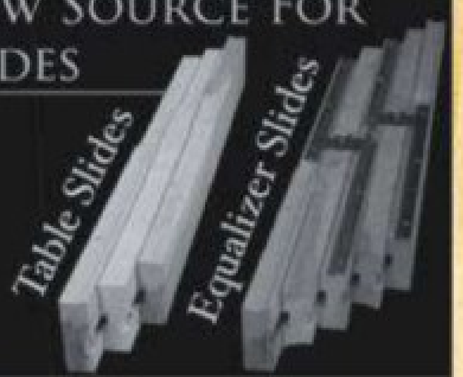

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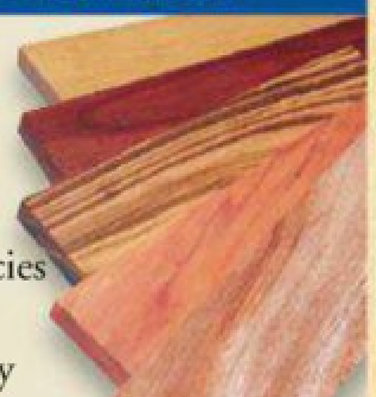

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Tool Review continued

Ryobi SC164VS

- Street price: $119
- Throat Depth/Stroke: 16"/ ⅞"
- Speed range: 400-1600 SPM
- Table size: 10" x 16¼"
- Motor: 1.2 amps
- Blade style: Plain end or pin

Wingnut style knobs on Ryobi's upper and lower blade clamps allow for swapping pin-less blades tool-free. When you do this often, that's a real bonus.

frequent inside cutouts when you have to wrangle the blade this way. One loose blade end is much better than two for that task. This saw is better suited for pin-style blades that don't require those pesky adapters.

The large, clear blade guard surrounding the hold-down foot tended to vibrate against it during cutting, but it didn't hamper my view of the cutting line. I liked the on-board adjustable worklight, and for serious crafters, this saw also has a unique power take-off on the motor to drive a flex-shaft tool (not included). The front-mounted dust port needs an elbow to point the vac hose in some other direction.

While it certainly cut wood up to par with the other tools, the adapter blade mount system hinders the Rikon's user convenience for me.

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MORE ON THE WEB

For a downloadable PDF of the oak leaf trivet pattern Chris Marshall used during his scroll saw tests (shown on page 54), visit woodworkersjournal.com and click on the "More on the Web" tab shown above.

Ryobi SC164VS

At $119, Ryobi offers enough good features to make this tool a worthy buy for the occasional scroll saw user. Blade installation is made easier with tool-less wingnuts on the top and bottom mounts. It has a large throatplate insert which, when removed, makes it easier to look down into the dark lower blade mount area. The bottom blade wingnut is bright yellow like the top one, so it's easy to find. That mounting screw was harder to manipulate by hand, though; there's a metal flange on the side of the lower tool housing that gets in the way. But, you can reach past it well enough with the supplied T-wrench.

Pin-style blades, if you go that route, are also simple to install, fitting the pins over notches in the arm mounts.

The hold-down foot offers a wide stance that keeps your cutting path clearly visible, and a metal dust blower tube can be adjusted with a set screw if needed. Here again, the vac dust port is located in front, just where the hose will get in your way.

Dollar for dollar, I think Craftsman's and Skil's saws offer slightly better value than this Ryobi machine, given their additional features for the same price.

Shop Fox W1713

With the exception of its off-white paint scheme, yellow knobs and a button in front that turns the worklight on and off separately from the motor switch, Shop Fox's W1713 Scroll Saw bears a striking resemblance to Rikon's 10-600VS. But, other points of departure include a table with a more triangular profile and the absence of Rikon's power takeoff.

In overall testing, this saw performed similarly to the Rikon machine. The clear guard mounted crookedly on the hold-down foot's post,

which caused it to rest against the foot and rattle during the cutting test.

This machine features the same adapters as Rikon for holding plain-end blades on the arms, but I discovered on the second go-around that they are somewhat easier to install if you tilt the table to open up wider access to the saw's lower arm. Still, it's much easier to make repetitive inside cutouts when the bottom of the blade can remain fixed in the machine; that's what the blade mounting systems on other saws offer.

Shop Fox sells the W1713 for slightly more than Rikon's machine at $169.95.

Skil 3335-01

Speaking of similarities, Skil's 3335-01 Scroll Saw also seems to share some pedigree with Ryobi's entry here, but there are a few feature differences. The 3335-01 comes with a flexible LED worklight, which should stand up well to the vibration produced by scroll sawing. It shines with a focused, bright beam to illuminate the cutting area. The saw has Allen-screw clamps for holding plain-end blades in place, and they tighten easily with a T-wrench. Clearance to the lower blade clamp is better than most of these machines, thanks to a little window, and a quick-release lever at the top rear of the saw housing speeds up blade tensioning.

I didn't care for the tall, black hold-down foot; it limits your view during cutting. But, it adjusts easily up and down to suit various thicknesses, like other saws here.

Skil 3335-01

- Street price: $119
- Throat Depth/Stroke: 16"/ ⅞"
- Speed range: 500-1700 SPM
- Table size: 10" x 16¼"
- Motor: 1.2 amps
- Blade style: Plain end or pin

Shop Fox W1713

- Street price: $169.95
- Throat Depth/Stroke: 16"/ ¾"
- Speed range: 550-1700 SPM
- Table size: 9" x 16"
- Motor: 1.2 amps
- Blade style: Plain end or pin

Independent adapters are necessary for installing plain-end blades on the Shop Fox and Rikon saws.

Who's a Cut Above?

For a bargain price, both Craftsman and Skil offer good buys, but my "Best Bet" tool honors go to Porter-Cable. The saw leaves nothing much to be desired, and the stand is a welcomed convenience. User-friendly features, ample power and task lighting made for a pleasurable test drive. I found myself cutting more than I even needed to, which is exactly the experience you want from a good scroll saw.

Chris Marshall is Woodworker's Journal's *Field Editor.*

An on-board task light illuminates the cutting area, and Skil's LED version should prove to be as long-lived as it is bright.

Woodturning

Turned Salad Forks

By Ernie Conover

When the average Joe thinks of a turned piece of wood, they usually think of something completely round. Our new turning columnist is anything but an average Joe — please welcome turning expert Ernie Conover to our pages!

www.woodworkersjournal.com
MORE ON THE WEB

To see the author discuss this project, go to woodworkersjournal.com and click on the "More on the Web" tab shown above to watch his video overview.

Treen:
Small wooden objects in daily domestic use, mostly, but not exclusively associated with the kitchen. The word is never applied to objects larger than a spinning wheel or for items primarily of a decorative nature.
— *dictionary.com*

Salad forks are treen, which is an archaic English word for useful household implements made of wood. Implements made of stamped steel or plastic today were made of wood in the past, and many of them were turned. These salad forks are typical of treenware and are the brainchild of my good friend King Heiple, who often assists me with my turning classes.

This is actually a pure spindle turning project, but it's challenging. To turn the tulip shape of the blades requires "turning on air." With a 3" wide blank, the three-inch circle circumscribed by the tips of the blade measures 3.424". Since it is 1/2" thick, you are only cutting wood 30 percent of the time (1" is 30 percent of the circle). More importantly, your tool is cutting air 70 percent of the time, so any wavering will cause havoc. A bit of speed really helps overcome the air, with 800 to 1,400 rpm being a good place to start, depending on lathe size and your bravery.

While this job can be done without band sawing the rough shape first, the beginner is well-advised to do so. It makes a great demonstration that amazes friends to simply chuck up the full-size blank and make chips fly, but it is much quicker to band saw first, especially if you are making a number of sets. You can also band saw the tines, if you want them, at the same time.

For this challenging spindle turning project, it's helpful to get up to a good speed — 800 to 1,400 rpm, to start — on your lathe. Keep in mind that 70 percent of the time you're turning air instead of wood.

Getting it Going

Start with a 1/2" x 3" by 12" blank of suitable wood. You can use almost any wood, but one that will resist salad oil is best. Cherry, maple or white oak are great choices.

Crucial to good results is to find a perfect center on both ends. Setting a marking gauge to 1½" best does this in the 3" dimension. Mark from both edges on the first blank to check centering and correct as necessary. Dividers are the best way to find the center in the 1/2" dimension. Centerpunch the resulting crosshairs, to make chucking quick and, above all — perfect.

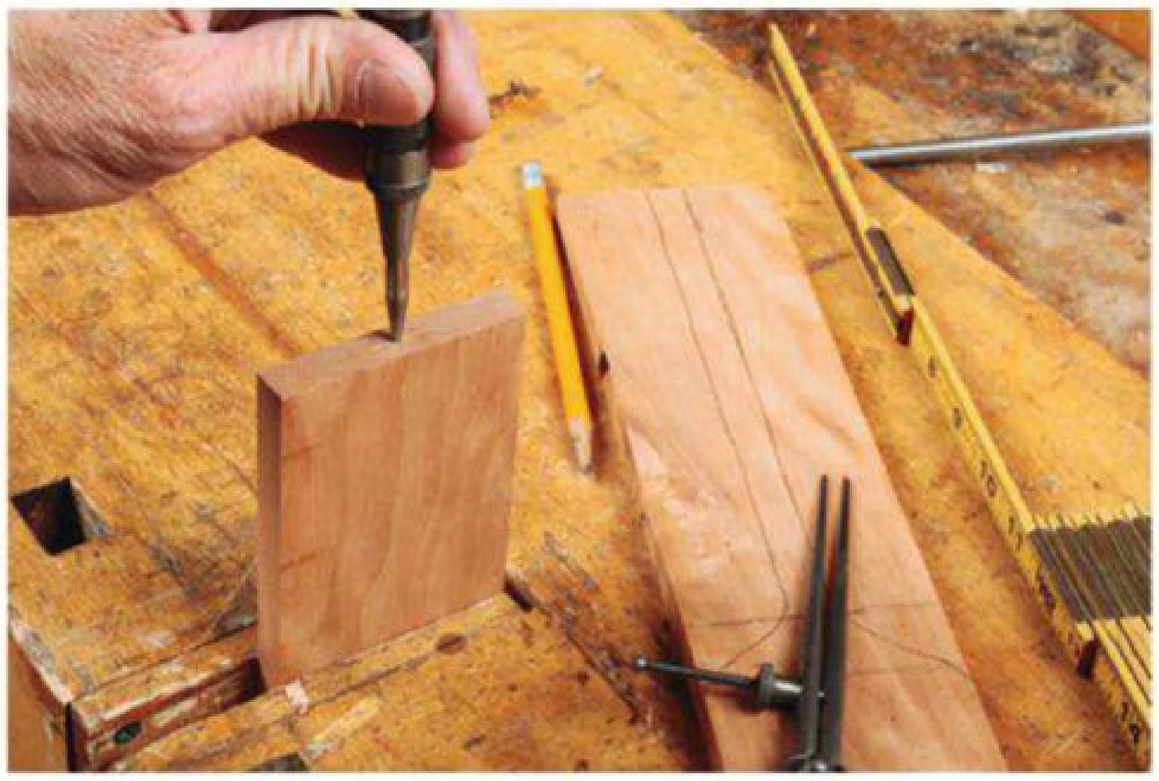
Next, band saw the rough shape of the fork, following the *Drawing* on page 66. The first rough blank can become the template for subsequent forks. This is also a good time to cut slots for the tines if you want them. Tines have no influence on functionality but I've found that they greatly influence saleability — tines make them look snazzy. Cutting tines on one and leaving the other plain is a popular approach for customers or relatives. Drilling a 1/8" to 1/4" hole at the terminus of the slot forming a tine is useful to prevent splitting later on, and a drill press is the best way to accomplish this task. It also helps in sawing to the proper place and is decorative. You can simply band saw the slots and sand with a folded sheet of sandpaper or use a scroll saw. If you own one, using a scroll saw to make two cuts can make the slots wider or even serpentine. A good scroll blade will leave such a clean finish that you may find it unnecessary to sand.

Mount the Blank

Now it is time to chuck the blank in the lathe. I use a mini stub center, but any small center will do. Once turning at a good clip, the resulting ghost looks like a tulip. The turning can be entirely accomplished with a roughing gouge; however, care must be taken that the tool does not ride back up the curved part of the blade as you approach the handle stem. The beginner will find it easier to use a spindle gouge in this area. Good design makes the blade taper toward the tip. The shaft should be smaller in diameter than good judgment would dictate at the point where it meets the blade and thicken gradually to the end. I do like to make the shaft more or less straight at the end where you grab it.

Once turned and sanded to the desired finish, it is time to

1. Start with 1/2" x 3" x 12" blanks made of almost any type of wood. Shown above, for example, are two cherry blanks.

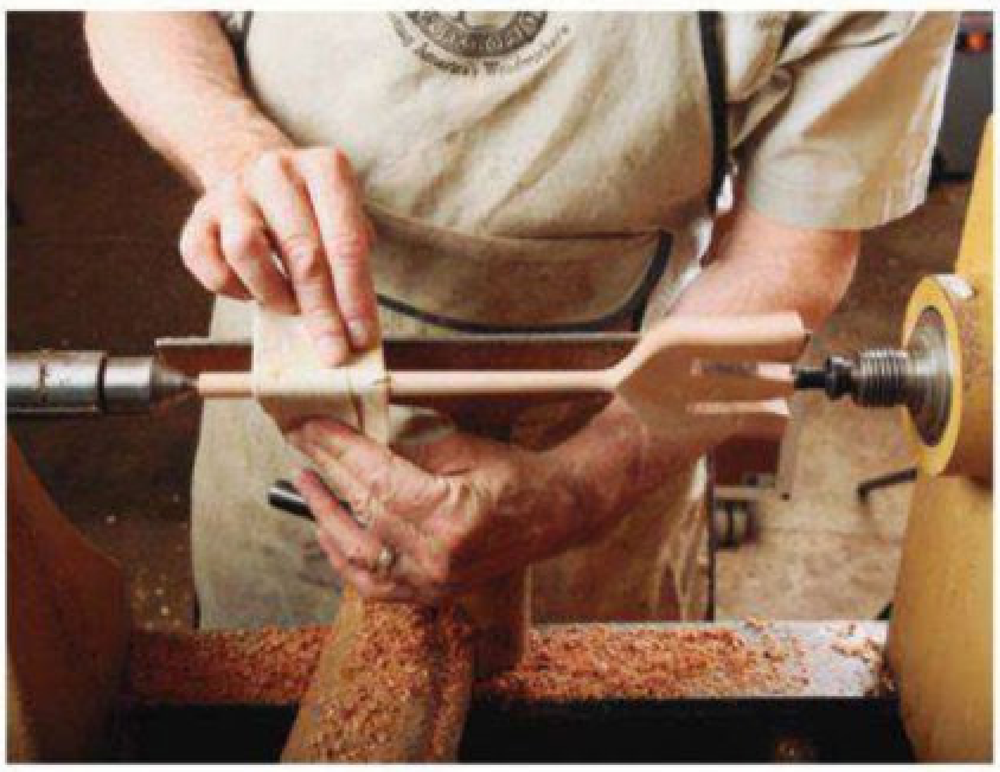


2. Use a marking gauge to find your center in the 3" dimension and dividers to find it in the 1/2" dimension. Centerpunch the crosshairs.

3. Rough out the shape of the fork on a band saw. Tines are a customer pleaser: "They look snazzy," says our author!

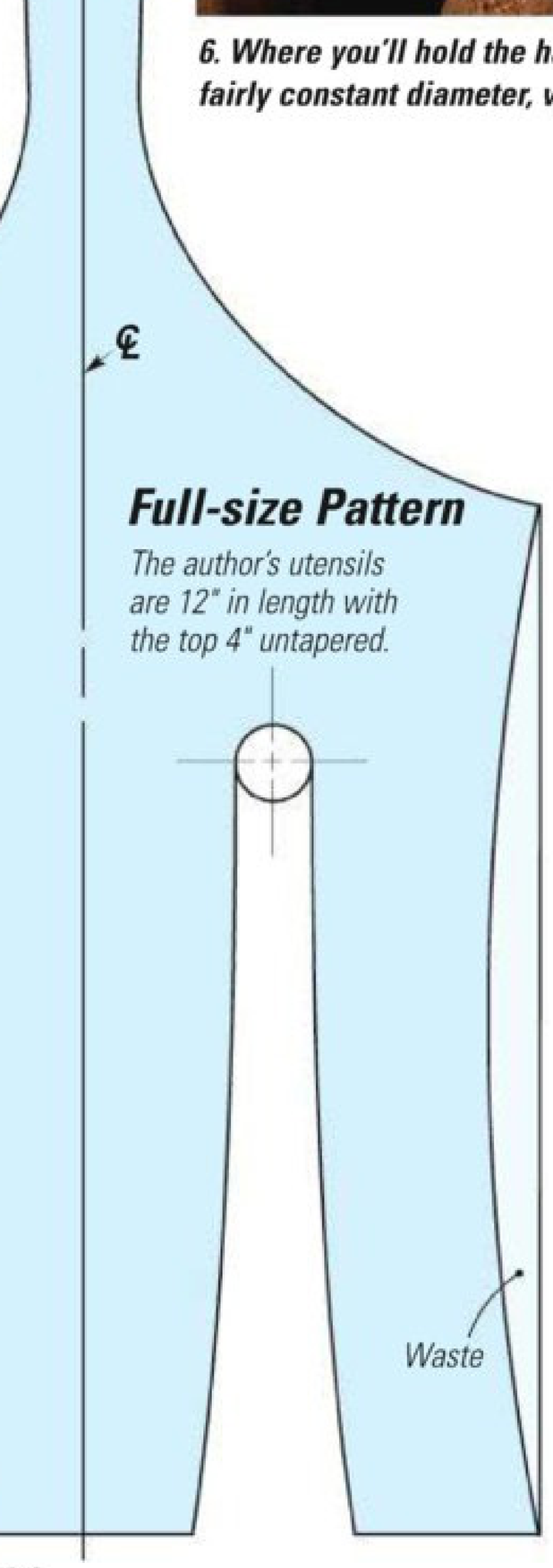
4. The roughing job can be done with a roughing gouge (as shown above) — being careful not to ride up the blade. A beginner will profit from using a spindle gouge in this area.

5. A skew is a great tool for most of the shaft, but a spindle gouge will be necessary to clean up the curve between the shaft and the blade: this tapers to "smaller than good judgment would indicate," says the author.



6. Where you'll hold the handle, you want to end up with a fairly constant diameter, with a shape that's "just round."

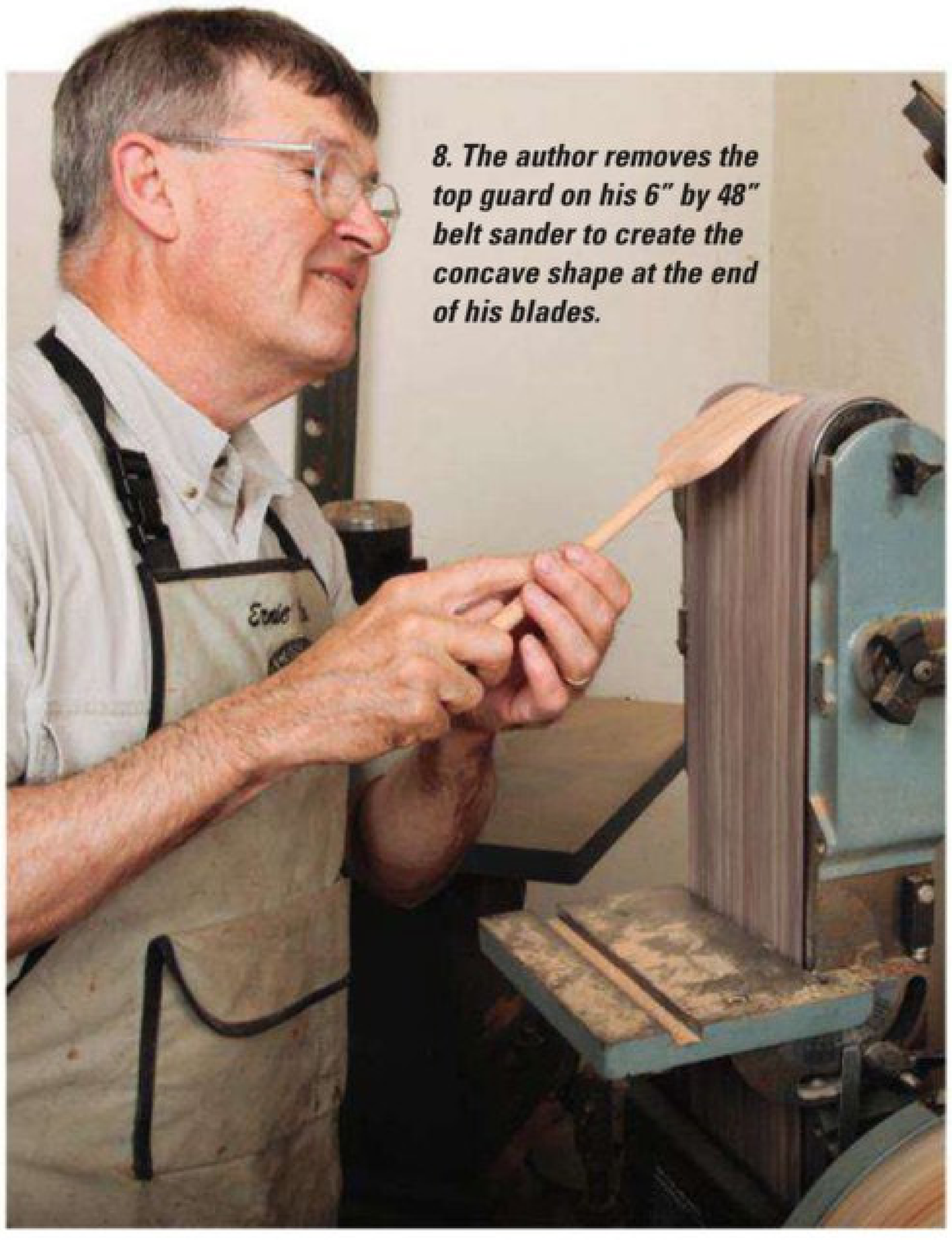
7. Use a good backer block to help hold the turned fork in position as you form the tapered shape of the inside face.



band saw the curve that forms a distinctive blade. At first, I penciled a line I wanted to saw to, but I quickly dropped this step, as it is child's play to do it by eye. More important is to use a good size backer block to hold the blade square to the table. This keeps fingers away from the saw blade, making the operation safer, and gets the fork blade to a uniform thickness throughout.

The final step is sanding, which I do with a 6" by 48" belt sander. I remove the top guard to sand the curved side of the blade and take a little bit off the leading edge, if there's any trace of the original center mark. This is a great production project and the holiday season looms!

Ernie Conover is a founder of Conover Workshops and the author of The Lathe Book.



8. The author removes the top guard on his 6" by 48" belt sander to create the concave shape at the end of his blades.

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Skill Builder

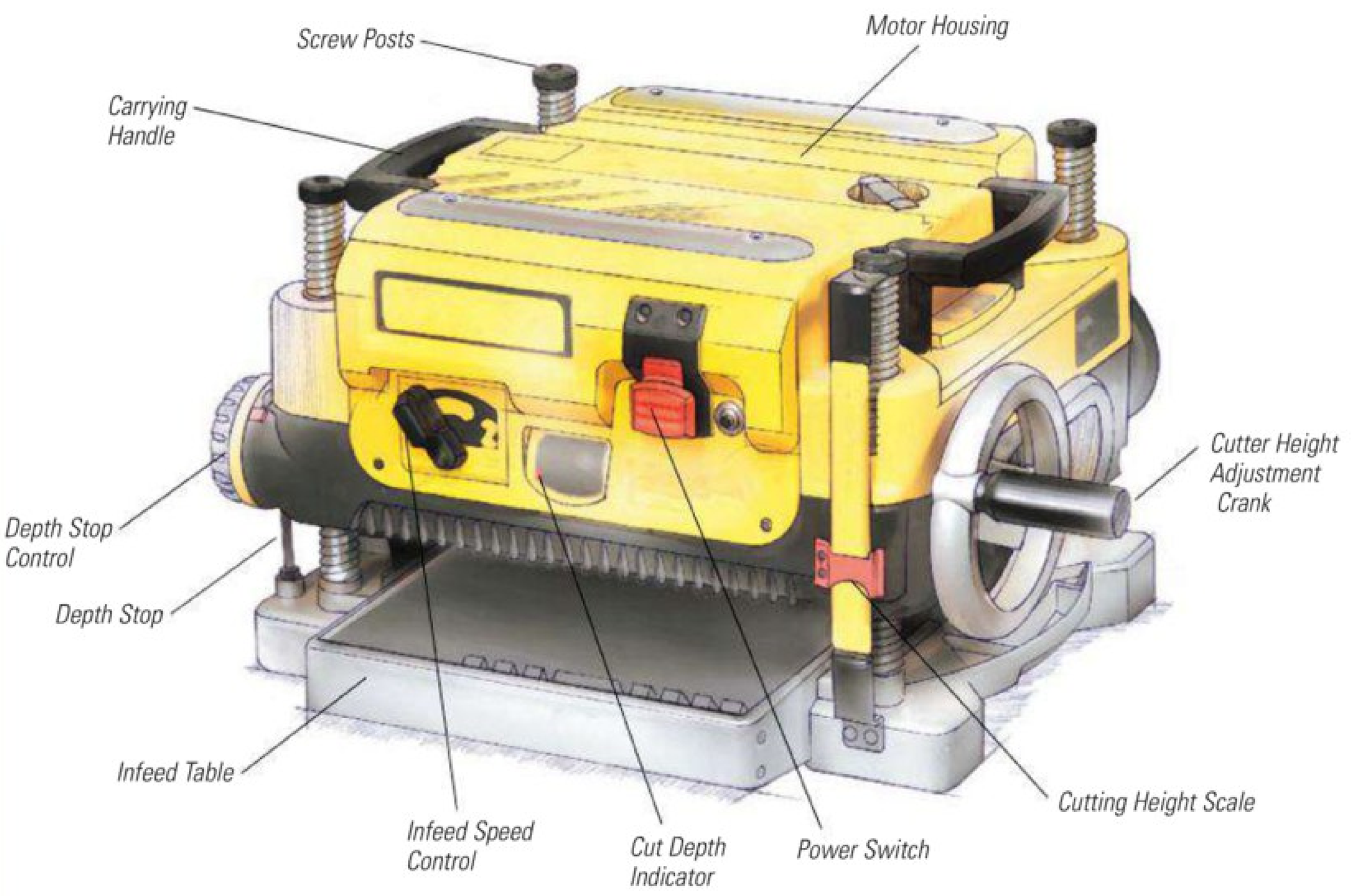
Benchtop Planer Maintenance

By Sandor Nagyszalanczy

Accurately machining wood to a proper thickness is important to a woodworker. Here are some tips to keep your planer in tip-top shape.

Power Tool Tune-ups: 2011 Schedule

- Table Saw — *February*
- Band Saw — *April*
- Jointer — *June*
- Drill Press — *August*
- Planer — *October*
- Dust Collection — *December*



Being able to quickly plane boards flat, smooth and to the exact thickness you need makes the thickness planer one of the most important machines in any workshop's power tool arsenal. But a planer is only useful if it's kept in good running condition. Some of the regular maintenance tasks you need to do include cleaning and lubricating the planer's bed and running gear, keeping its knives sharp, and adjusting its extension tables, depth stop and cutting thickness scale.

As with all of our Skill Builder articles, you will find a complete list of benchtop planer maintenance and upkeep tasks illustrated by photos at our website. Find it just by clicking on our More on the Web tab. And along with the article, there is a video on the same topic that will help you to understand this tune-up in more depth.

www.woodworkersjournal.com
MORE ON THE WEB

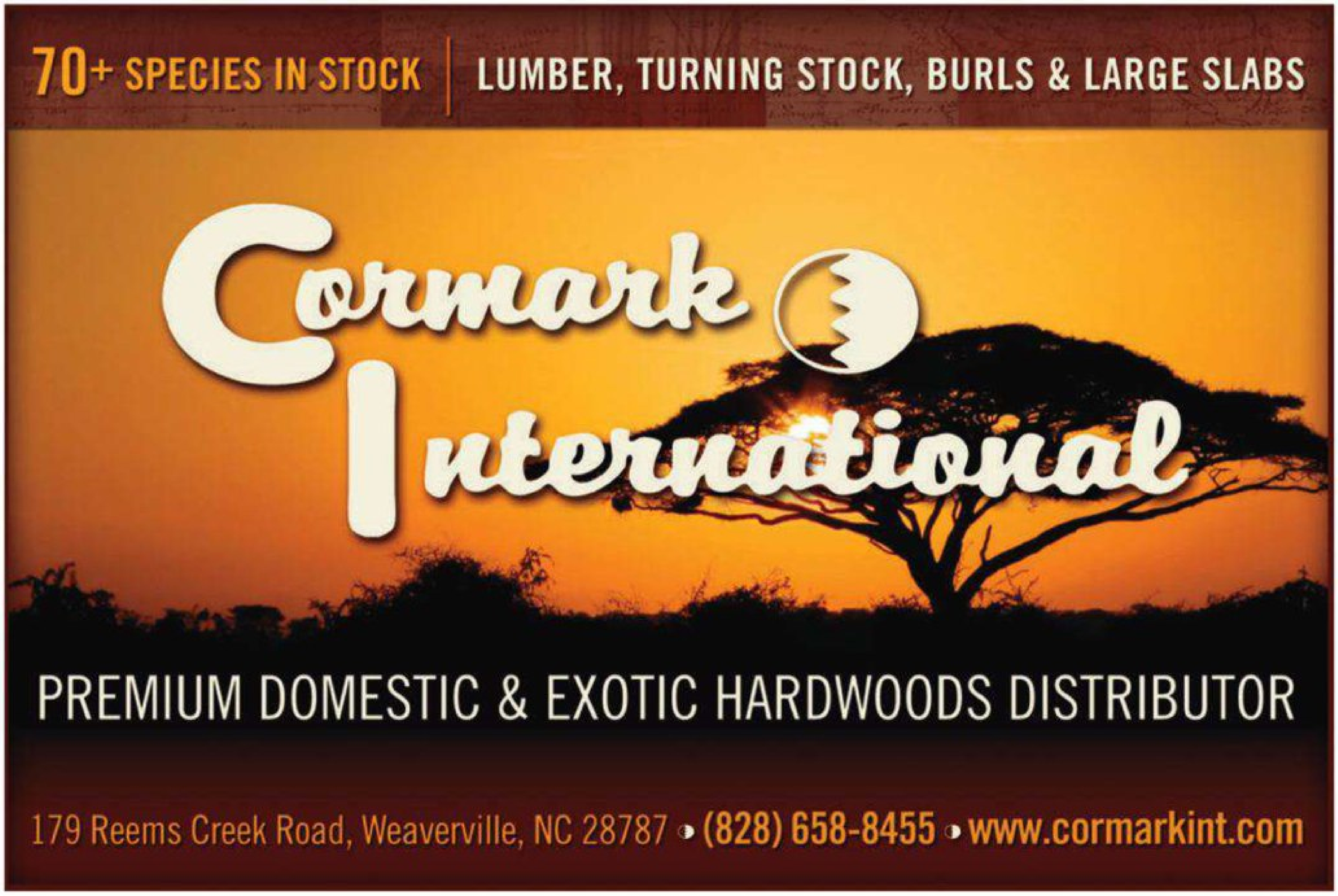
For a more extensive article and complementary video on maintaining your planer, visit woodworkersjournal.com and click on the "More on the Web" tab shown above. Or send a large SASE to Woodworker's Journal, Skill Builder 23, 4365 Willow Drive, Medina, MN 55340.

The first step in properly setting the depth stops and thickness scale is to run a board through your planer and then accurately measure it.

With an accurate reading of the thickness of the board in hand, set the depth stop to match — then don't forget to adjust the cursor on the scale (photo, below). This will prevent you from planing a board too thin or too thick.

Set the Depth Stops and Thickness Scale

Every planer has a scale and cursor to show just how thick a board will be after planing. But if the cursor setting is off, then you run the chance of ending up with stock that's too thick or thin. Many modern portable planers also have a depth stop feature that allows you to easily and accurately set the cut thickness to one of several common sizes: 1/2", 3/4", etc. To check the accuracy of the stop mechanism, set it to one of the middle settings, say 3/4 of an inch, and then plane a board. Use a dial caliper to check the board's thickness. If it's greater or less than 3/4", readjust the stop's depth rod. Recheck the stop's accuracy as before, and tweak it as needed until it's dead-on. Now, without changing the planer's depth of cut, reset the planer's cursor to read the same thickness on the scale as your planed board (in this case, 3/4"). It's especially important to check and reset the cursor after changing knives, especially if your planer has older style knives that lack registration pins in the cutterhead.



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Finishing Thoughts

Filling Cracks with Epoxy

by Michael Dresdner

Our finishing expert fills you in on dealing with cracks and other imperfections that might otherwise render a beautiful piece of wood completely useless.

Sometimes the perfect piece of wood is not all there. I'm not saying it's crazy; just missing some parts. There can be cracks in a knot, voids in a burl or other anomalies. Being able to fill them means you can still use that special plank.

Filling Choices

Besides wood putty, there are several glue-based fill options. For very small cracks, add drops of cyanoacrylate into the crack while sanding the area. The sanding dust, called "swarf," combines with the still-wet glue to fill the crack as you sand, making an instant patch quite close to the color of the wood.

Another glue and swarf option is hide glue mixed with sanding dust. It works for larger voids and also matches the wood color. However, the most versatile is epoxy mixed with some type of coloring agent. The color can come from wood dust, pigments that either match or contrast with the surrounding wood, or decorative additives, like metallic flake or pearlescent powders.

Mixing Limits

Both West System® and System Three offer an ideal option: epoxy tinting pastes in several colors. Add them to the resin part, usually part A, before mixing in the hardener.

The next best option is any dry pigment powder, wood swarf, metal flake or pearl powder. In a pinch, you can also use pigmented artist's oils and Japan colors. You can add epoxy pastes or pigments up to 10 percent by weight, or about four teaspoons per cup of mixed epoxy.

Small amounts of universal colorants or liquid dye concentrates, up to two

Epoxy, mixed with a coloring agent, is a very versatile glue-based fill option.

percent by weight, will also work, provided you leave a week before sanding and finishing to allow the solvents to escape from the cured epoxy. Two percent by weight equals about three quarters of a teaspoon per cup of mixed epoxy. With powders, pastes and concentrates, first mix the two parts of the epoxy together thoroughly, then stir in the colorant.

Avoid water-based materials, like artist's acrylics and mixed water-based dyes. I'd also avoid dry dye powders, as they may not show their true color even when mixed thoroughly. As always, test all mixtures and finishes on scrap before you try them on your project.

Under Finish

Fill the void just slightly proud of the surrounding surface so you can sand the cured epoxy flush. If the crack goes all the way through the wood, put masking tape on the bottom so the epoxy doesn't drip out before it cures.

Sometimes, cured epoxy will develop a waxy surface film called "amine blush" that can clog sandpaper and inhibit the cure of some finishes. Prevent problems by scrubbing the cured epoxy with water on a Scotch-Brite® pad prior to final sanding, especially if you plan to use oil-based varnish.

Very thin finishes, like a single coat of Danish oil wiped on and off, may appear shinier over the epoxy. Adding more coats will generally blend the sheen. Otherwise, any film-forming finish will do just fine over sanded epoxy.

"Often in turning, if we have to fill a crack or void, instead of hiding it we feature it. I use either CA glue or epoxy mixed with brass filings left from key making, dried coffee grounds, InLace bits or any other contrasting filler I can come up with."
— *womeninwoodworking.com*

CONTACT US with your "Finishing Thoughts" by writing to Woodworker's Journal, 4365 Willow Drive, Medina, MN 55340, or by emailing us at: finishing@woodworkersjournal.com. Please include your contact information with your thoughts or questions.

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