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DECEMBER 1998 #70

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12 >



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**Excellence in
Craftsmanship[®] Winners
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- Rotation: forward and reverse
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MODEL G4181 \$699⁹⁵

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John McAlister Jr. did. John, a 73 year old North Carolina native, and self taught wood worker for the past 31 years, researched and built this Goddard-Townsend secretary.



Photo: Pat Shanklin

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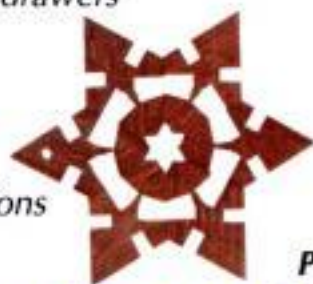
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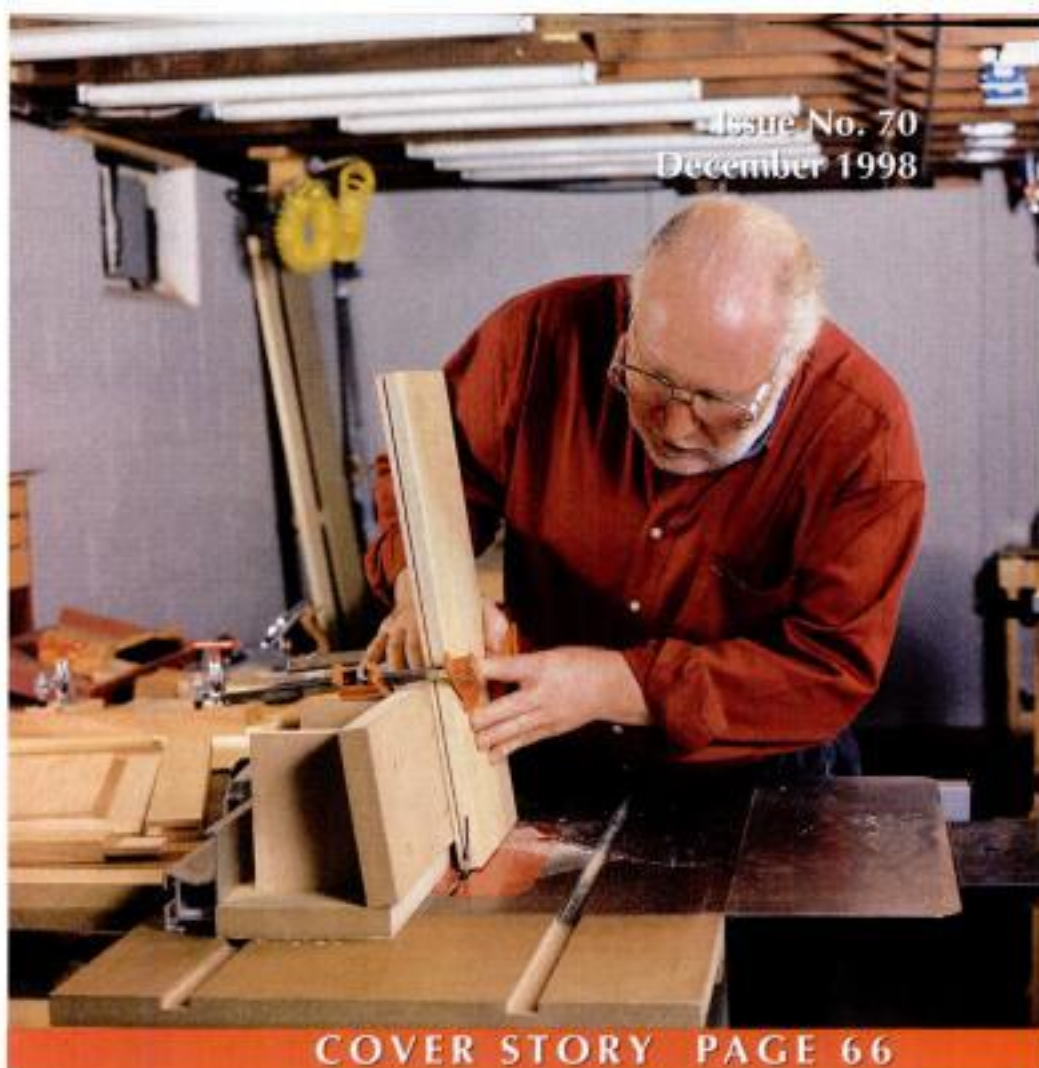
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Time for prize-winning projects

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On the cover: Ian Kirby cuts a perfect raised panel.

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Lee Valley and Veritas® Tools bring you a selection of Christmas gift ideas from their full-color, 252-page catalog.

A. Veritas® Sliding Bevel

We got the germ of the idea for the cam locking mechanism on this sliding bevel from a turn-of-the-century model. We improved it substantially, making a better mechanism of bronze (using the lost-wax process), combining it with a 10" stainless-steel blade and housing both in a resin-impregnated wood body; it could be used under water without damage. The obvious benefit of this design is that the locking mechanism is completely flush, allowing the bevel to be used on either side. But more important, it can be used in the most restricted places since the lever cam lock can be operated with a single finger. You can reach way back into a corner to measure angles. Since the locking mechanism operates by compression with no rotary movement, accuracy is perfect. This is the best sliding bevel design on the market.

AW565 10" Sliding Bevel

\$19.95



Bevel has a quick-release locking mechanism.

Stainless Insulated Mugs

Insulated and indestructible, these stainless-steel mugs function much like a vacuum bottle. The double-walled construction prevents rapid temperature change of contents. They will keep coffee hot and, possibly more important, keep cold drinks from perspiring, which can ruin a table finish (or leave a rust ring on your table saw or jointer bed). Even better, if you knock one of these off the bench, it won't break. The 10 oz coffee-mug style and the 15 oz stein are fully polished. The 20 oz travel mug has a satin finish and a rubber ring base. The low center of gravity defeats most attempts at tipping. All mugs come with a plastic lid that has an O-ring seal. These mugs will quickly become favorites.



Double-walled construction

- B. AW529 Stainless 20 oz Travel Mug \$16.95
- C. AW527 Stainless 15 oz Stein \$14.95
- D. AW525 Stainless 10 oz Mug \$10.95

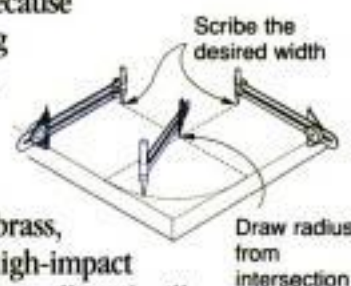
E. Veritas® Carpenter's Gauge

The Veritas® Carpenter's Gauge was specifically designed to be carried in an apron or pocket. It is both a direct-reading compass and a marking gauge, two things that carpenters frequently need but find hard to carry. This tool has a rotatable head, which locks vertically for use and horizontally for storage and tip protection. It is direct reading, both for radius and diameter, in inches and centimetres. It is useful

in a cabinet shop because of the direct-reading feature, which substantially reduces errors, as well as for the fast corner radiusing. Made of brass, stainless steel and high-impact ABS, it is 7½" long overall, and will scribe circles up to 12" diameter.

AW514 Carpenter's Gauge

\$14.95

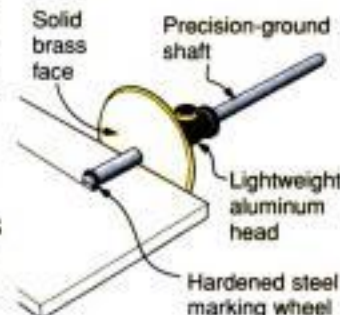


F. Veritas® Wheel Marking Gauge

Avoid the shortcomings of standard pin marking gauges. Our marking gauge will perfectly scribe at any point of its circumference. Since the hardened steel wheel is sharp, bevelled only on the inside, and is non-rotating, it cuts through grain and forces the gauge face against the stock, maintaining accuracy. It cuts rather than tears and leaves a clean mark, even on cross grain. The gauge is easy to set since it has an internal O-ring to keep light but constant friction on the stem. The anodized aluminum head has a ⅛" thick brass face and a brass thumbscrew.

AW520 Wheel Marking Gauge

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Micro-Plane Rasps

These rasps do an incredible job on wood, plastic and resins. Each blade has hundreds of small, razor-sharp teeth that are slightly rounded like a scrub plane blade. The teeth are formed by etching and are sharp on three edges. Wood shavings emerge through the throat of each tooth, making a packed rasp a thing of the past.

The rasp blades fit a standard 12" hacksaw frame or can be used free hand. Available in 3 styles: a half-round shape, a rigid flat blade and a flexible flat blade (for gentle curves). All are made from tempered stainless steel; they won't rust – the usual cause of dulling of normal files and rasps. These are real wood hogs.

- G. AW501 Rasp Blade – Half-Round \$8.95
- H. AW502 Rasp Blade – Rigid Flat \$8.95
- J. AW503 Rasp Blade – Flexible \$8.95

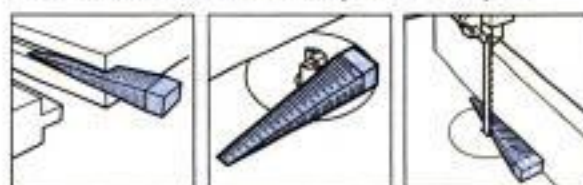
K. Restorer's Cat's Paw

A cat's paw is a versatile bar for pulling and driving nails. The straight end is used to start removing the nail and the "cat's paw" is used to finish the job. This style of cat's paw has a wafer thin pry-tip ideal for easing apart cabinets in repair work without marring the wood. Until you have used this tool, you can't appreciate its versatility. Removing molding, separating miter joints in frames and easing off paint-seized hardware are just a few examples. At 8" long, it is easy to carry or store. Excellent tool value. Made in Japan.

- AW575 Restorer's Cat's Paw \$11.95

Veritas® Tapered Gauges

A tapered gauge gets its accuracy by effectively stretching any scale for accurate reading. These stretch the standard scale by a factor of seven. When a thickness difference of $\frac{1}{8}$ " is stretched over $\frac{7}{8}$ " of the scale, small differences in thickness can easily be measured with fine accuracy. The aluminum gauges can be used many ways – for setting fences, router bits and drill-press stops, as well as making any gap easy to measure and, therefore, easy to fill – if you



Joinery – Measure groove for tongue thickness. Router – Setting height of router bit. Bandsaw – Check fence setting.

happen to be repairing work. All are hard anodized, a process that makes the surface as hard to scratch as tool steel, yet leaves it easy to write on with a pencil. In most uses accurate to ± 0.002 ", they are guaranteed to have no greater error than 0.005" in any measurement. Simple, effective tools in the scale of your choice – fractional in $\frac{1}{64}$ " graduations, decimal in 0.010" graduations, and metric in 0.2mm graduations. All have fine tips ($\frac{1}{32}$ " thick) and measure up to $1\frac{1}{8}$ " (or equivalent) thickness. Case included.

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- M. AW551 Tapered Gauge – Decimal \$19.95
- AW552 Tapered Gauge – Metric \$19.95
- AW555 Tapered Gauges, set of 3 \$52.00

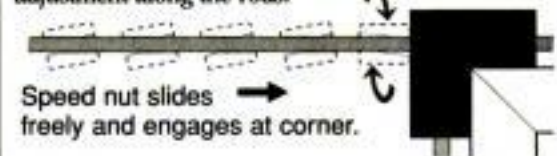
N. Veritas® 4-Way Speed Frame Clamp

The fastest-adjusting frame clamp on the market. Completely knurled for good grip, the speed-clamping nuts* are designed to let you make fast adjustments, yet hold securely when you tighten them. They are cross drilled to slide easily on the rods until they come up against a corner clamp; then their threads engage. To release them, you just have to back them off a turn or two and they are then free sliding again. The clamp includes four corners (strong, glass-filled nylon with brass inserts), four speed-clamping nuts, eight $\frac{1}{4}$ -20 threaded rods, and four coupling nuts. The rods and coupling nuts have a black-oxide finish. Maximum capacity is 44" square or 65" x 23" rectangle.

- AW505 Frame Clamp Set \$24.95
- AW506 Speed Nuts, set of 4 \$ 7.95

*Speed-Clamping Nuts

These nuts are quick adjusting because they are cross drilled (at first glance the hole appears to be off center). This unique design allows you to move them along a threaded rod without turning them; their threads do not engage until they meet the clamping corner (or any obstruction). Then you tighten them. The threads disengage when you loosen the nuts, allowing the same free-sliding adjustment along the rods.



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Straight and Square

In uncertain times, it's great to be a woodworker

Welcome to our December issue. Our last blast of 1998 is scheduled to hit the newsstands in mid-November. But I'm sitting down to write this column in some heavy September turbulence. Ken Starr's exhaustive report on alleged presidential misconduct has just hit the news, and the stock market is bouncing up and down like a yo-yo. Like many Americans, I feel disappointed, disillusioned, and very uncertain about how things are going to turn out.

If you're bracing for commentary on politics, morality, or investment strategy, don't worry. There are plenty of other places you can go for these opinions. I do have one thing to say, however: It's great to be a woodworker.

Political issues, stock market performance, and legal maneuvering are marvelously far away when you step into your workshop and get immersed in a project. And when woodworkers get together, we don't indulge in fuzzy definitions or hide behind technicalities. We

like straight talk. There's no mistaking the feel of a sharp edge or the look of a tight joint. Sure, we like to debate on sharpening techniques, tool reviews, furniture styles, and other subjects. But we're united in our pursuit of good work and improved skills. In fact, our interaction with each other almost always brings about this positive result. We've got common ground that's solid, honest, and open to anyone who loves to work wood.

Our mission at AW is to build a great community of woodworking enthusiasts. Fulfilling this mission has never been more enjoyable or more rewarding. I want to thank everyone who has helped make 1998 an unforgettable year: subscribers, authors, staff members, advertisers, and thousands of visitors to our woodworking shows and our Web site. Best wishes for the holiday season ahead and for the coming year. '98 was great. '99 will be even better. ▲

Tim Snyder
Executive editor

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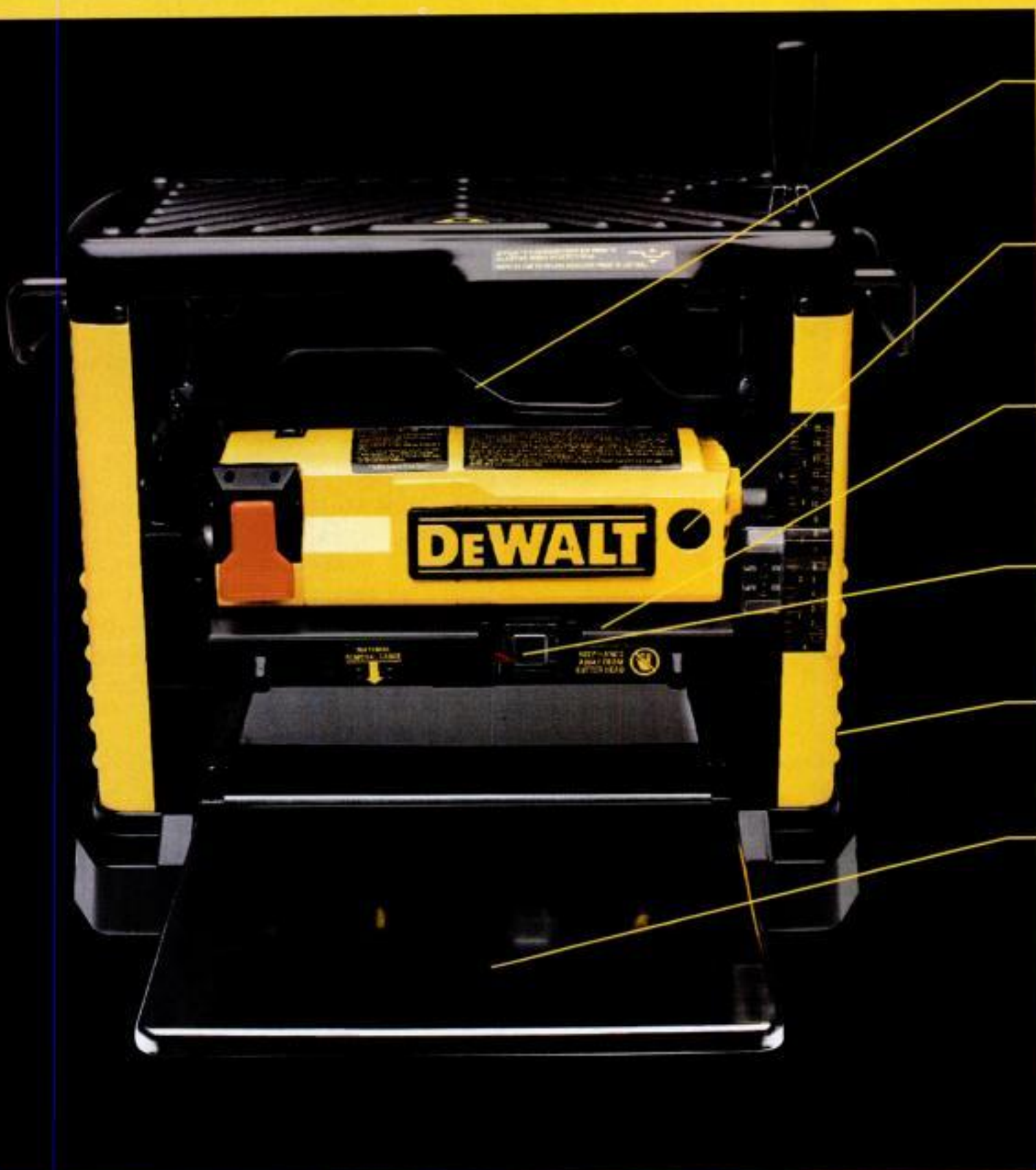
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CIRCLE NO. 23 ON PRODUCT INFORMATION FORM
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Top 10, Again

Congratulations on your 10-year anniversary—let's hope for at least 10 more. Your "Best of 10" feature really hit home—the truth hurts, doesn't it? Anyone who can't admit to at least a couple of the transgressions mentioned must go by the nickname "Pinocchio."

Neil Rosenquest
Rolling Meadows, IL

Sorry, guys, but you blew it! Ian Kirby makes a much better Gene Hackman, and Ellis Valentine seems to be turning into movie critic Gene Shalit. I hate to inform you that there's an imposter on your staff: Stephen King is trying to pass himself off as a guy named Blenk.

Harry Clark
Daytona Beach, FL

Corian Instead of Glass

The "Scary Sharp" article (AW #66) was excellent. I've been using Mike Dunbar's sharpening technique for some time now, with one variation that might be helpful to other woodworkers. Instead of using glass as a platen for various grits of sandpaper, I use Corian, a synthetic, solid-surface material used in expensive countertops. A local countertop fabricator provided me with some Corian scraps for just a few dollars. You can cut this material to size on your tablesaw, using a carbide-tipped, premium cutoff blade, and it works very well as a backup for sandpaper.

Allan Munro
Houston, TX

More Mackintosh!

I hope that readers enjoyed your recent "Great Scot!" article (AW #67) about the innovative furniture designed by the Glasgow-born architect Charles Rennie Mackintosh. If any AMERICAN WOODWORKER readers are interested in supporting the work of the Glasgow School of Art in its efforts to maintain its Mackintosh heritage, the American Friends of Glasgow School of Art would appreciate hearing from you. You can contact the AFGSA at 31 West 56th St., New York, NY 10019; (212) 245-4680.

Peter Trowles
Taffner Curator, Mackintosh Collection
Glasgow School of Art
Scotland

More on Altering Hand Tools

In issue #67's "Letters," three woodworkers blasted Ray Hannula for attaching a fence to a hand plane and defacing it for future generations. Let's face it: It takes some woodworkers a lot longer than others to get the right "feel" for jointing an edge with a hand plane. Therefore we need to modify the tool to get the job at hand done right. Sometimes we do not have the time nor the funds to search for a factory-made fence that might be out of production for 10 years.

The evolution of both hand and power tools continues due to tips like Ray Hannula's. Just the same, no one is forced to follow anyone else's shortcuts. So keep the tips coming, and let us make our own choices.

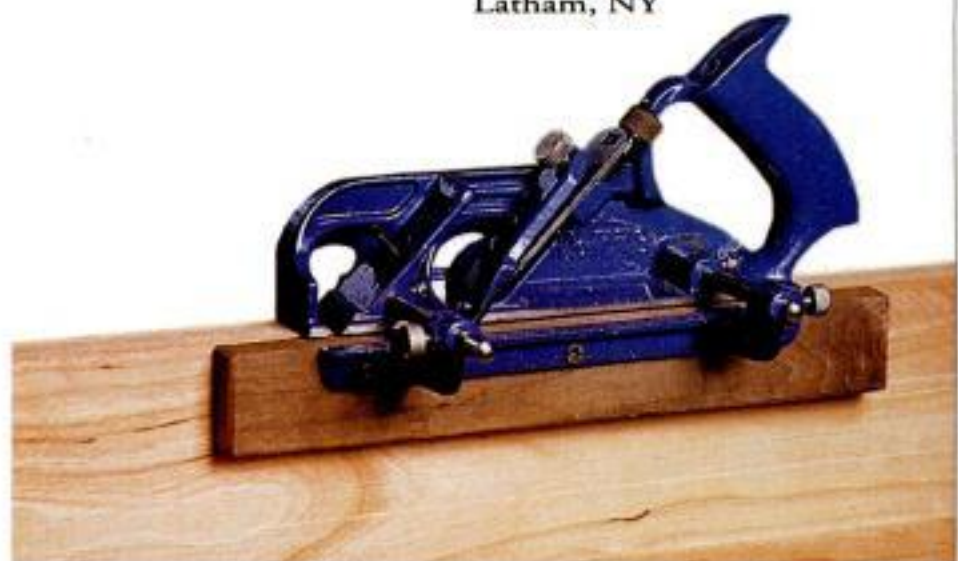
John Kiehart
Mayfield, PA

In principle, I'm a believer in Mr. Hannula's idea that a plane with a fence does make for exactly square jointing. But I also agree that drilling the sole of a metal hand plane to install a fence could turn a good tool into one that's hard to flatten and tune correctly.

At the very least, Mr. Hannula's letter did provoke a healthy debate on hand-tool use and modification. Let me propose a solution that should please antique-tool purists as well as pragmatists like Mr. Hannula. For years, I've used a Record #778 rabbeting plane to joint the edges of boards as

thick as 1½ in. This plane has an integral fence that's adjustable and very stable. It's still in production and readily available (\$94 from Lee Valley Tools, 800-871-8158). Adding a wood auxiliary fence to the #778's standard fence makes it very easy to plane a right-angled edge. (See photo.) The plane will also rabbet to adjustable widths and depths, both with and across the grain. It's a great hand tool to have in your arsenal.

Tom White
Latham, NY



A built-in fence. Record's model #778 rabbeting plane can also be used to plane right-angled edges. The wooden auxiliary fence enhances control.

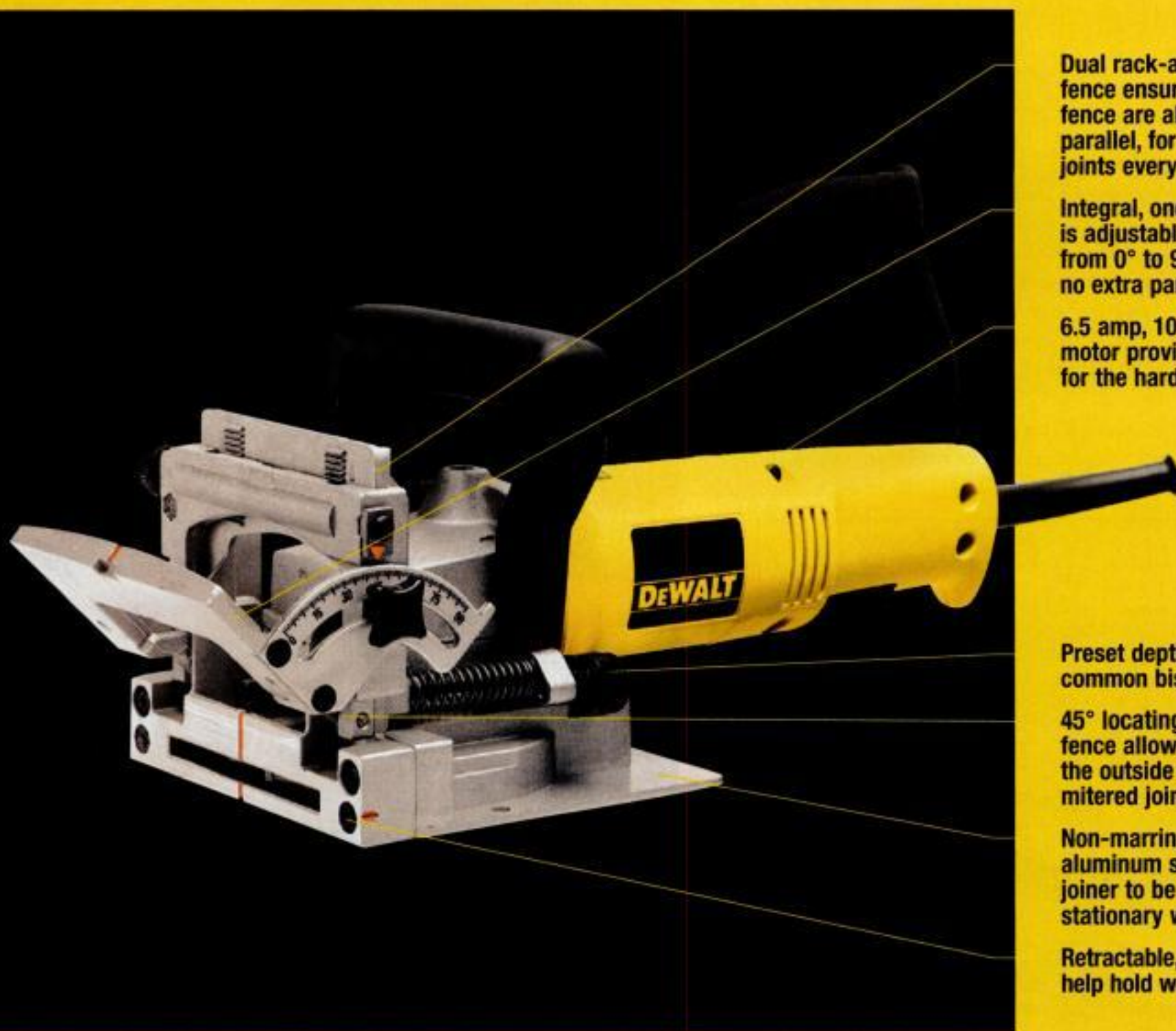
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CIRCLE NO. 24 ON PRODUCT INFORMATION FORM



Exotic Dust is Dangerous

We enjoy the magazine a lot. After reading "Wood Facts" in the August issue (#67), we feel you left out some important information—especially for novice woodworkers who might not have access to research materials. African padauk is beautiful; we use it whenever possible. But the dust can be toxic. Please let your readers know about this danger. Health is important to everyone.

Peg and Bill Gausmann
St. Petersburg, FL

The Onager

Thanks for the "Trebuchet!" article in last December's issue (#63). I built one following your plans. Readers might also be interested in hearing about the catapult that preceded the trebuchet—the *onager*. The word derives from the Roman *equus onager*, which translates as "wild jackass." These early hurling devices must have packed a vicious kick. My version is built at



Another catapult. Used in medieval military campaigns, the "onager" got its hurling power from a twisted skein of cords. This model was built at a scale of 1 in. = 1 ft.

a scale of 1 in. = 1 ft. (See photo.) The legionary standing beside the onager is the same scale. (He would be 5 ft., 8 in. tall.)

Unlike the trebuchet, the onager was a field piece that could be wheeled about easily and handled by a squad.

The trebuchet was a siege engine that would have required dozens of soldiers. The onager got its power from a twisted skein of cord, wound up by the cog wheels on the sides of the frame. Even this small size is extremely powerful. It can only be cocked by using the winch, and it fires marbles more than 70 ft. with surprising accuracy. My grandson can stand in one spot and catch them as they arrive.

Charles Schafer
Annandale, VA

Proper Chess Etiquette, Please

Frank Pollaro's chessboard is beautiful, but Pollaro and his opponent have set their board up incorrectly in the photo on page 82 (AW #68). A white square is always placed in the right-hand corner nearest each player. Your board is pictured with a black square in this position.

Charles E. Windsor
Oakland, CA

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CIRCLE NO. 25 ON PRODUCT INFORMATION FORM

AMERICAN WOODWORKER ▲ DECEMBER 1998 17



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Bench Marks

I would like to tell you how much I enjoyed Robert Whitley's article on his workbench (AW #65). I liked his bench so much that over the last three months I built my own version. I learned some techniques that I hadn't used before and ended up with a very good bench. Please pass thanks on to Mr. Whitley.

David Jones
O'Fallon, MO

Puzzle Additions

Japanese puzzle expert Kozy Kitajima deserves some credit for his contributions to my article in issue #68 ("Nob's Neverending Puzzle"). He not only solved the puzzle in the 11 ways shown on page 59, but he also generated the computer drawings used to create the artwork in the magazine. Let me also correct the spelling of the puzzle's inventor: it's Nobuyuki Yoshigahara.

Allan Boardman
Woodland Hills, OR

Soften a File to Make a Scraper

The Tech Tip in issue #63 titled "From File to Scraper" prompted me to write. Files are made from hardened steel, and they are far too brittle to be used safely as lathe tools. If a file were caught in the wood and it broke, there would be pieces of very sharp-edged metal flying about!

It's far safer to first "soften" a file by heating to red heat and then allowing it to cool slowly. In this soft condition the metal can be shaped as necessary, and the teeth can be removed on a belt sander. The edge and its adjacent area can then be hardened and tempered before final sharpening.

To harden: Heat to red heat, then quench quickly in a large volume of cold water with a "slick" of thin oil or soap on the surface. When cool, polish off the oxide coating with a fine abrasive. To temper: Heat slowly from below the hardened area, and watch the colors of the oxide layer as it re-forms.

When the hardened area is a pale to mid-yellow color, re-quench in cold water as before.

George A. Mills
Southampton, England

Tablesaw Safety

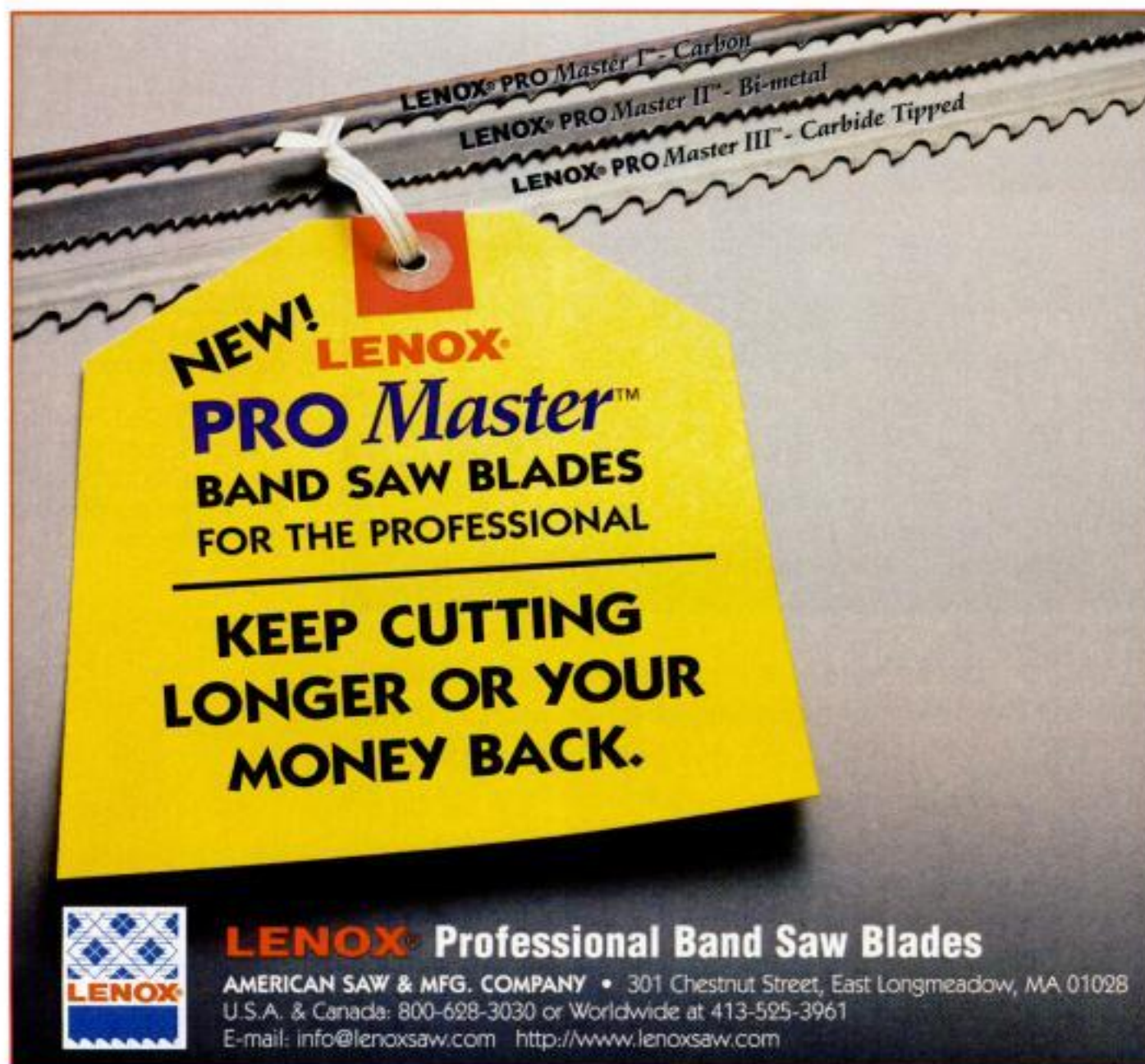
I am a reader of several woodworking magazines. Your article on tablesaw safety is the first I've seen that so graphically illustrates mishaps that can occur when using this machine. A great number of amateur woodworkers don't have formal coaching in the use of woodworking machines. Your article fills this void.

Harry B. Sands
Nassau, The Bahamas

Web Site Feedback

I've been working with wood for several years and enjoy your Web site tremendously. I like the dialogue with knowledgeable people as well as the links to other sites. Thanks.

James Ross
Stevenson, AL



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David White

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Casters for Shop-Table Mobility

Q I made a fairly small roll-around utility table with cubbyholes underneath for storage. I mounted four swivel casters underneath at the corners, so I can maneuver it easily into tight spots when I want it out of the way. But when I try to steer it from one end of my shop to another, the casters swerve with every dip and hump in the floor. What configuration of fixed and/or swivel casters allows both easy maneuvering and smooth long-distance travel?

Al Peche
Pueblo, CO

A As you correctly surmised, four swivel casters respond instantly to directional change, which gives you maximum maneuverability in crowded conditions. But that configuration

is recommended only for short distances.

For longer distances, you'll steer a straighter line with two swivel casters at one end and two rigid (or fixed) casters at the other end. The two rigid casters will resist following all your floor contours. But this configuration isn't as responsive to directional change, so it's not as maneuverable in a crowded workshop.

If you want to compromise and achieve both good maneuverability and fairly easy long-distance steering, use one of the other mounting combinations shown below. For tables bearing heavy loads, four casters are safer than three.

Brian Robb, manager
Faultless Caster Division
Evansville, IN

FOUR WAYS TO MOUNT CASTERS

Different combinations of swivel and rigid casters give you different kinds of mobility. Here are four common ways to mount casters under a mobile table or machine base. S = swivel casters; R = rigid casters

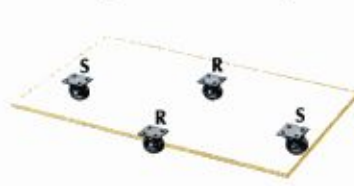
Best maneuverability in tight spots.



Easiest steering over long distances.



Good maneuverability and long-distance steering.



Very good maneuverability and long distance steering, but only for light loads.



Removable Face Frame

Q I am building a cabinet for electronic media, including stereo components. The cabinet will have a glass door hinged to a face frame. Because of space constraints, I'm forced to build the cabinet with inside dimensions of 17 1/4 in. Some of the stereo components measure 17 1/8 in. wide, so if I permanently mount the face frame to the 3/4-in. plywood carcass, I won't have enough clearance for moving some components in and out of the cabinet. I'd like to make the face frame (door and all) removable. What kind of fastener would you recommend to connect the frame to the carcass—something that won't show on the outside?

Larry Klein
Seaford, NY

8 to 10 in. on the vertical edges of the 3/4-in. plywood and on the backs of the face-frame stiles. Insert each aluminum fastener with a drop of two-part epoxy. Then you can simply hang your frame on the carcass, and lift it off to remove it.



Lamello fittings are available from specialty hardware catalogs and dealers, or call the Lamello Hotline at (800) 252-6355.

Frank Klausz
Cabinetmaker and
AW contributing editor
Pluckemin, NJ

Polyurethane Glue Needs Moisture to Cure

Q The directions on my bottle of polyurethane glue say that the wood needs to be at a minimum of 8% moisture content for the curing process

to work well. Don't tell me I have to buy a moisture meter to do it right! Is there a simpler way to tell if there's enough moisture for the poly glue to work well?

Will Heatherington
Charlotte, NC

A Polyurethane adhesive needs moisture to cure properly. But you don't need a moisture meter. Just apply the polyurethane adhesive to one of the two mating surfaces, take a damp rag and "swipe" it lightly across the other surface, and assemble. If the wood turns a slightly darker color when you wet it, it's moist enough.

Chuck Ring
Albuquerque, New Mexico

ID and KO Wood Pests

Q A couple of years ago I purchased three beautiful slabs of black walnut. Recently I noticed small holes in the wood and debris that looks like insect

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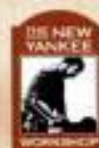
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droppings. Is there an inexpensive way to get rid of these pests myself, or do I have to call a professional fumigator?

Dan Clardy
Santa Maria, CA

A The best way to kill insects, insect eggs, or destructive microorganisms is to heat the slabs in an oven, drying kiln, or other hot chamber for at least a day. No organism can survive long at 130°F or hotter. However, a commercial saw mill or kiln operator would probably be reluctant to let you bring bug-infested lumber onto his property.

For termites or lyctid powder-post beetles, the only other alternative is fumigation. Hire a professional fumigator. Don't try it yourself—it's extremely dangerous and probably illegal.

I don't think you have termites. Except in Florida, termites don't commonly live in wood—they live in soil and invade the wood only when they're feeding. So you typically don't see ter-

mite droppings coming from the wood, just a lot of fine dust. To identify the bug that's living in your walnut, I suggest calling your county agriculture extension agent. They can often tell just by inspecting the slab, but it would help if you could tell the agent how the slabs were dried and where the boards were stored before you bought them. Then they can advise you how to kill the pests.

Eugene Wengert
Department of Forestry
University of Wisconsin at Madison

Square Peg in a Round Hole

Q I've read that when pegging a mortise-and-tenon joint, you should put a "square peg in a round hole." The suggested method was to make a square peg and carve one end of it round. The peg is tapped into a round hole and the square part is driven into the face of the joint. I have two questions: What is the advantage of a square peg? And how do I peg a

mortise-and-tenon joint so that the peg appears square on both faces of the frame?

Jeff Peake
Wyoming, OH

A The square peg is used extensively in Arts and Crafts furniture made by Greene and Greene. It's purely decorative—it offers no mechanical advantage over a round peg. Whether square or round, the peg helps prevent the tenon from slipping out of its mortise.

There is no single correct or traditional way to make a square peg and cut the hole for it. I've used several different methods over the years, and other woodworkers have methods that are different

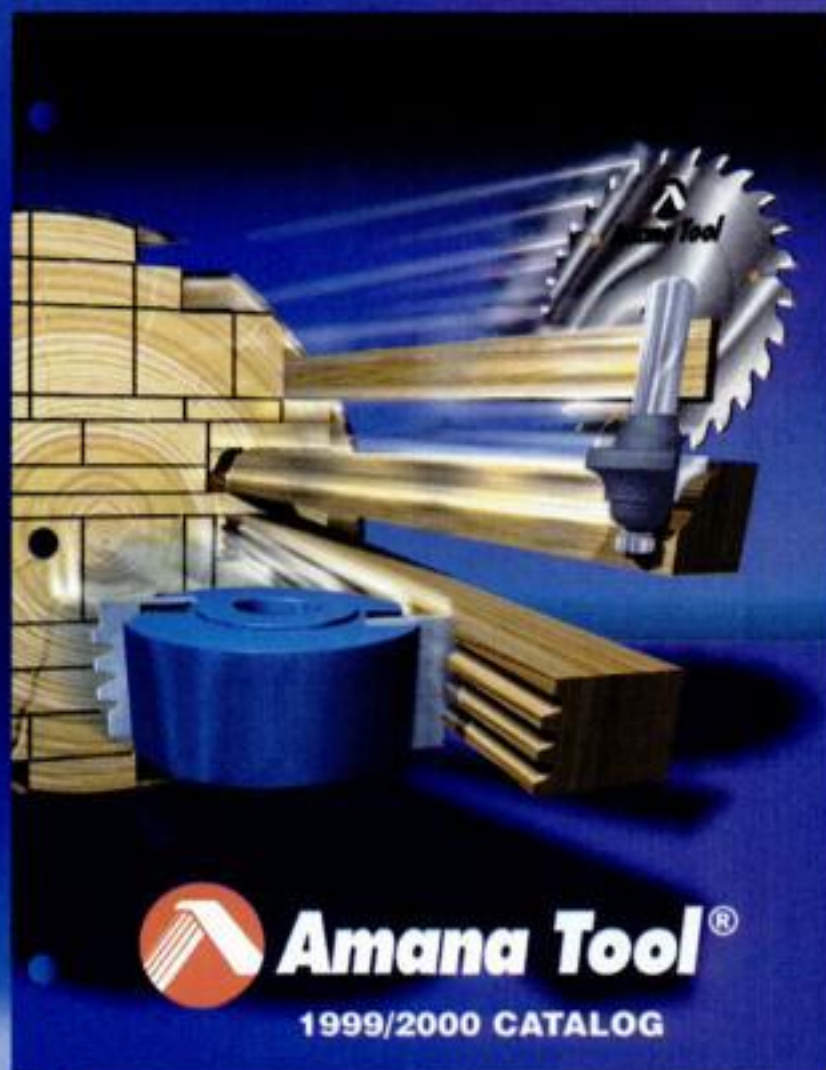
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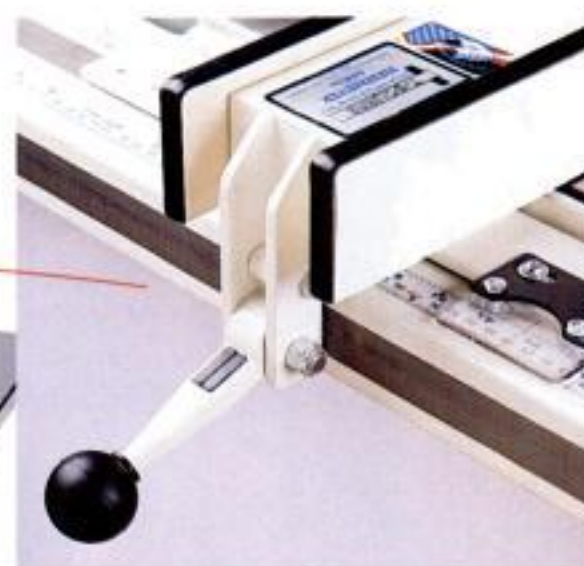
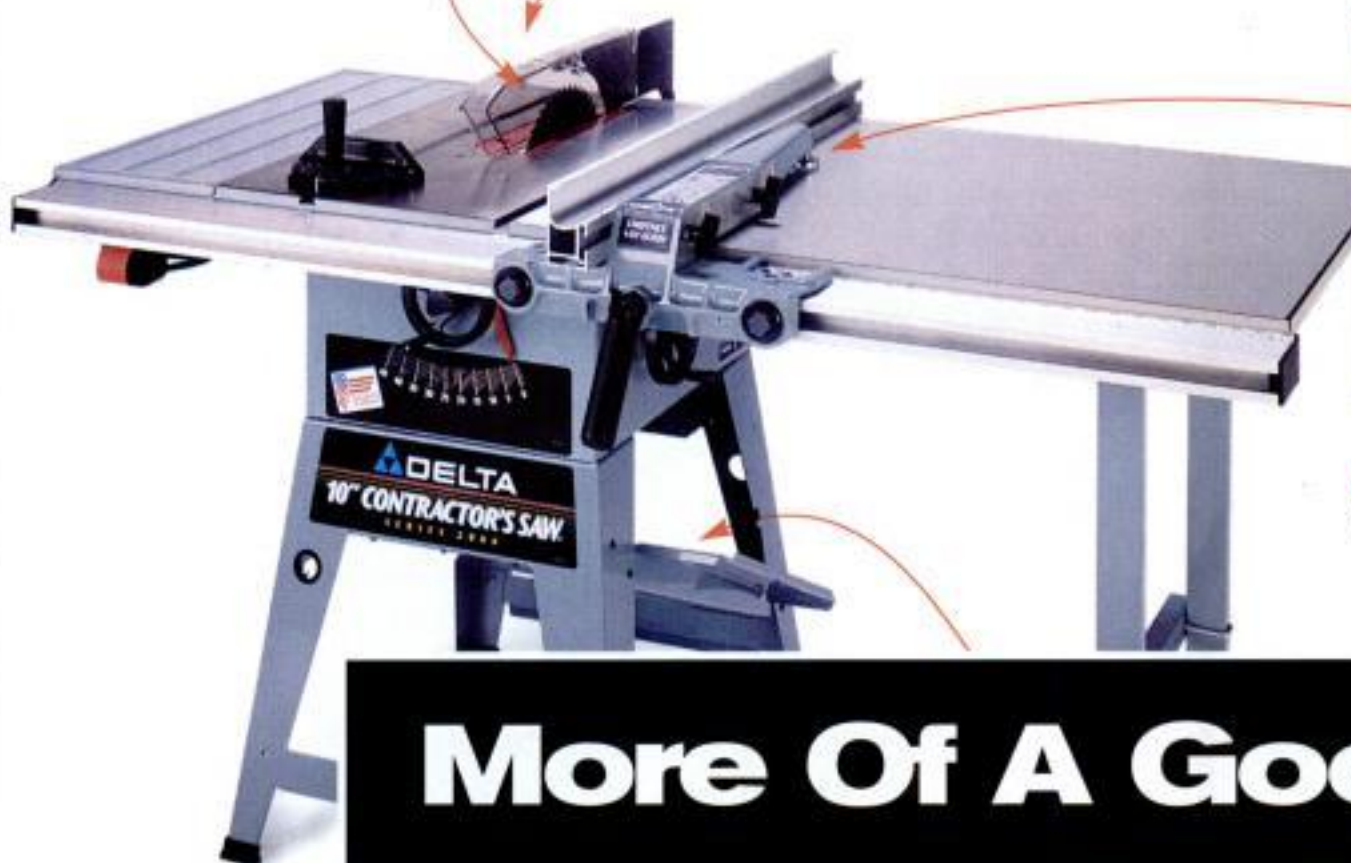
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from mine. The way you suggest—carving the peg with a knife—is fine. I recommend squaring off the top of the peg's round hole with a chisel, though, so the peg's corners won't compress or split the wood around it when you drive it home.

The method I prefer is leaving the entire peg square and cutting a square hole (actually a mortise) for the peg with a mortising attachment on the drill press. The peg's mortise should go about three-fourths of the way through the joint (all the way through the tenon), but you can also cut the peg mortise all the way through the joint if you want it to show on both sides. I also leave the pin $\frac{1}{16}$ to $\frac{1}{8}$ in. proud (at each end if it's all the way through) and pre-chamfer the ends. I apply a few drops of glue on the peg and into its mortise before driving the peg into the joint.

Use hard wood for pegs—hickory and beech are best. They won't break or dent when tapped into place.

Jeffrey Lohr
Schwenksville, PA

Repairing Blushed Lacquer

Q A friend has a Danish-style dining table surfaced with teak veneer. He placed a hot Styrofoam container on the table, which discolored the lacquer finish—it looks gray or faded. The veneer wasn't damaged. Can this be repaired?

Frank Rudowski
Wyandotte, MI

A From your description, it sounds like "blush," which can usually be removed with a quick alcohol wipe.

Thermoplastic finishes, like lacquer, are particularly susceptible to blush. A hot, moist container, such as a pizza box or a Styrofoam food container, can force steam into the finish, where it is trapped. It looks pale or white, almost as if a small cloud were caught in the finish.

Sometimes blush disappears when the surface cools and dries. When it doesn't, you can usually remove it by wiping the area with a cloth dampened with denatured alcohol. Don't get the cloth too wet or it will etch the surface. (I've heard it

described as "no wetter than a healthy dog's nose.") The blush will usually come out in one or two passes. Let the alcohol dry (two minutes) between wipes.

Applying another coat of lacquer often works as well.

Michael Dresdner
Industrial finishing consultant
and AW contributing editor
Puyallup, WA

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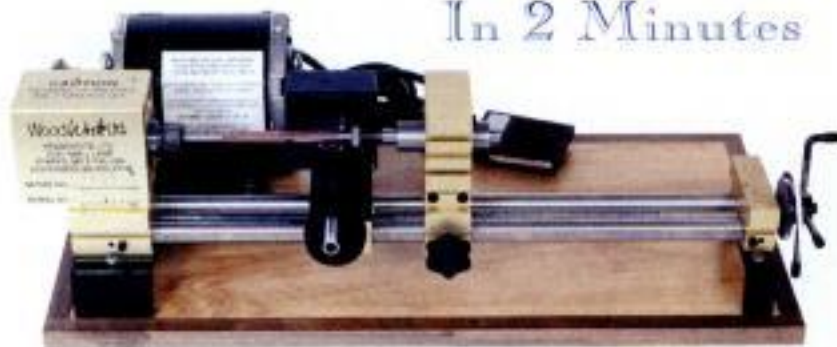
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Bits and pieces of woodworking news

Furniture Fest #2

Last June, over 325 furniture makers, educators, students, collectors, and other woodworking aficionados gathered for The Second Annual Conference of The Furniture Society. The four-day conference was held at the California College of Arts and Crafts in San Francisco and the Oakland Museum of California. Panel discussion topics ranged from "Meaning and Value in Studio Furniture" and "The Nature of the Commission Process" to "Women in Woodworking" and "Collectors' Issues."

Workshops and demonstrations drew big crowds. Some highlights: Toshio Odate constructed shoji motifs, Kristina Madsen shared carving techniques learned in Fiji, and Yeung Chan demystified Ming Dynasty chair joinery. David Marks taught gilding, Gary Knox Bennett discussed bronze casting, and other top furniture makers presented slide shows of their work. A gallery of showgoers' furniture provided a venue for spirited discussion between programs.

The 1999 conference will take place June 17-19 at the Appalachian Center for Crafts, near Smithville, TN. The Furniture Society's mission is to "educate and advance the art of furniture making and to foster understanding of this art and its place in society." For more info, contact The Furniture Society at (804) 973-0336, or visit their Web site at www.avenue.org/Arts/Furniture.



Tour de force. Yeung Chan reveals his elaborate chair joinery at The 1998 Furniture Society Conference in San Francisco.

PHOTO BY PAUL ANTHONY



TOOL CHEST CHAMPION

Ernie Conover's "Heirloom Tool Chest" article in AW #60 won first prize "Feature" honors in the annual writing contest sponsored by The National Association of Home and Workshop Writers (NAHWW) and The Stanley Works. The contest awards writers who have achieved excellence in their work. Way to go, Ernie.

MARQUETRY MASTERPIECES

Marquetry is sometimes called "the art of painting with wood." This highly creative technique allows artists to fashion wooden patterns and pictures from intricately cut wood of different species. The compositions can be overlaid onto a furniture surface or mounted on a wooden substrate.

The art of marquetry emigrated from Europe to the U.S. in the mid-1800s. Its popularity quickly spread, spawning practitioners that included farmers, sailors, and even prisoners.

To celebrate this uniquely American form of the craft, New York City's Museum of American Folk Art is hosting "Masterpieces in Wood: American Folk Marquetry." The exhibit is the first large-scale examination of American folk marquetry. It includes a secretary adorned with 21,000 pieces of veneer representing 300 species of wood. The show runs from October 3, 1998, to January 10, 1999.

For more information, contact the Museum of American Folk Art, Two Lincoln Square, New York, NY 10023, (212) 595-9533; www.folkartmuse.org.



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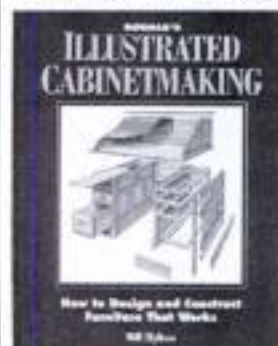
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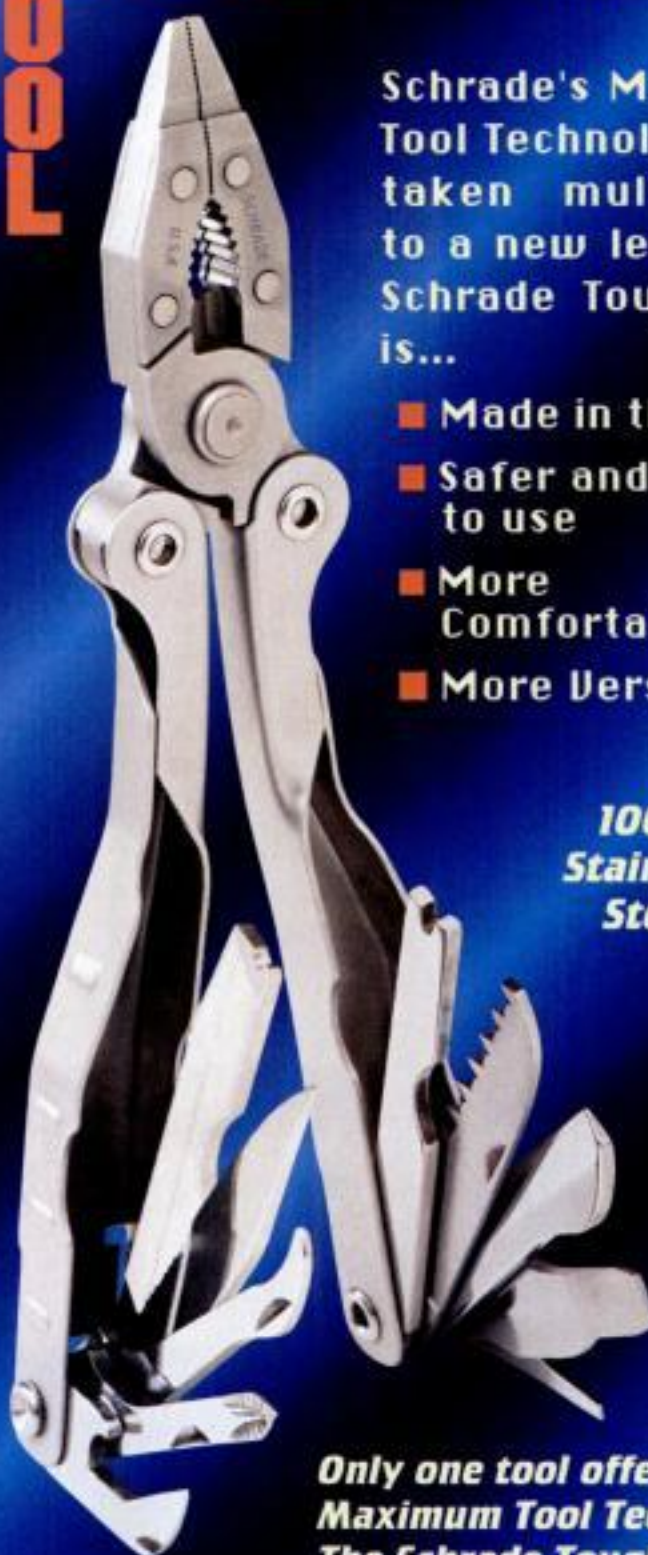
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CIRCLE NO. 43 ON PRODUCT INFORMATION FORM

offcuts

BEST NEW ARTIST AWARD

The fourth annual Philadelphia Furniture and Furnishings Show, held in April, drew nearly 250 exhibitors who displayed work ranging from pottery and metalwork to furniture

and accessories. Styles ranged from classical to whimsical.

AMERICAN WOODWORKER sponsored the show's most coveted woodworking prize—the Best New Artist in Wood Media Award. This year's award went to Ross S. Peterson, whose work was impressive in its superb attention to proportion, detail, and craftsmanship.

Winning work. AW's Ellis Walentine presents Ross Peterson with the Best New Artist in Wood Media Award.



FACTOID

Big Appetite

The U.S. consumes twice as much wood per year as any other industrialized nation.



Source: Rainforest Action Network

Butternut in Trouble

Similar to walnut but lighter in color, butternut is familiar to many carvers and furniture makers. (See "Wood Facts," page 94.) Unfortunately, this valuable tree is reeling from a disease called "butternut canker." Caused by a fungus, the sunken, elongated cankers blacken and destroy a tree's cambium layer, gradually killing

it. (See photo.) There is no known cure.

But there is hope for saving the species. The U.S. Forest Service is collecting cuttings from canker-resistant butternut trees to propagate a strain of resistant trees. A candidate tree is one that is canker-free, living within 100 ft. of infected trees, and at least 10 in. in diameter

at 54 in. above the ground. For more information on the propagation program, contact Mike Ostry, North Central Forest Experiment Station, 1992 Folwell Ave., St. Paul, MN 55108, (651) 649-5111.

The blight. Butternut cankers destroy the tree's cambium.



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Photo by Rene'e Booth Borek

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Cut It Close.

Our line of bandsaws is truly remarkable. Not only for the selection, with over a dozen models to drool over, but for the amount of machine you get for your money. We give you larger re-saw capacity, greater power, and bigger blade widths. Exquisite European



craftsmanship built to last and perform cut after cut. Buy the only bandsaw you'll ever need from the largest and most experienced direct seller in



North America, Laguna Tools. Consistently the choice for value, you can't buy a more dependable bandsaw. Backed by the most complete customer support in the industry. Call our 800 number today to receive your free demo video and you'll drool too.



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Make perfect Raised Panel Doors

with your 1/4" or 1/2" Router, or your 1/2" or 3/4" Shaper.

It's simple, inexpensive, and easy with professional production quality MLCS carbide tipped door sets! Our reversible combination bit makes a matching rail and stile frame. The panel raising bit with ball bearing guide makes a perfect raised panel every time!

Includes Instructions and Professional Tips!

Raised Panel Door Sets *Ball bearing included

SET #	BIT STYLE	LRG. DIA.	SET PRICE
#1301	1/4" Shank Router	*2"	\$69.95
#1302	1/2" Shank Router	*3-1/2"	\$79.95
#1303	1/2" & 3/4" Shaper	4-5/8"	\$99.95

Raised Panel Door Instructional Video

#1438 Special Sale Price\$9.95



*Raised Panel Router Bit

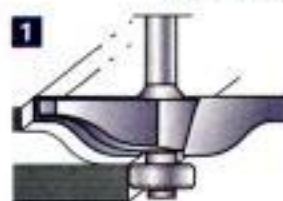


*Reversible Combination Rail & Stile Bit
Works with stock from 11/16" to 7/8".



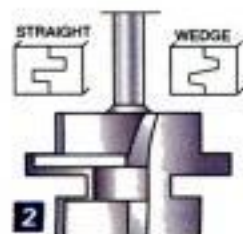
1/4" Shank Carbide Tipped Router Bits

Professional Production Quality Guaranteed!



1 OGEE RAISED PANEL

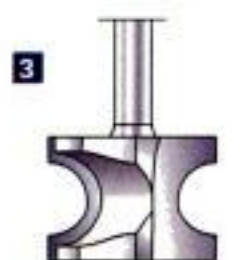
#1423 2" Large Diameter\$29.95



2 TONGUE AND GROOVE

#1333 Straight.....\$29.00

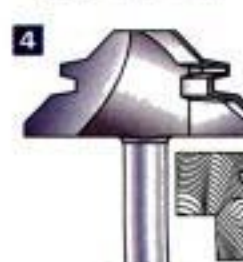
#1335 Wedge\$29.00



3 BULL NOSE

#1330 1/2" Dia. of Circle.....\$16.00

#1331 3/4" Dia. of Circle.....\$21.00



4 LOCK MITRE BIT

#1433

2" Dia., Stock thickness: 1/2"-3/4".....\$37.50



5 RABBETING KIT

4 depth of cuts: 3/8", 7/16", 5/16", 1/4".
Set: 1/4" shank rabbeting bit, 4 bearings
(3/8", 1/2", 5/8", 3/4") & hex key.

#1425 1-1/4" Large Diameter.....\$25.00



6 BRASS PILOTTED

Rout into tight spaces and sharp corners.
These bits have Brass Pilots, measuring only
5/32" in dia., instead of usual 1/2" bearing.

#1428 1/8" R Round Over.....\$16.00

#1429 1/4" R Round Over.....\$17.00

#1430 3/8" R Round Over.....\$19.00



7 SOLID CARBIDE UPCUT AND DOWNCUT SET

2 flute flat bottom cutters. Upcut spiral
ideal for mortise and tenon joints. Downcut
will plunge cut and plane edges.

#1437 1/4" dia., 3/4" cutting length

Special Set Price\$19.95

Round Over/Beading Bit Set

1/4" shank, Carbide Tipped, 4 Round Over Bits with 1/2" OD bearing: (1/8", 1/4", 3/8", 1/2"), plus 3/8" OD bearing & allen wrench.



ITEM #1434

\$72 Individually.....Sale \$39.95

Biscuit Joining Set

5/32" Slot Cutter-1/4" Shank and 250 #20 Biscuits

Instruction sheet included.



ITEM #1385

REG. \$35.00.....Sale \$29.95



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- Aluminum & Steel construction

ITEM #1420

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The Can-Do Clamp

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Sturdy aluminum clamp is great for framing, drilling, doweling, and more.

- High clamping pressure
- Movable jaws • Two swivel points

ITEM #1367 REG. \$29.95Sale \$24.95



16 Piece Forstner Bit Set

High Quality Steel - ground for heavy use

This set comes with the following sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1-1/8", 1-1/4", 1-3/8", 1-1/2", 1-5/8", 1-3/4", 1-7/8", 2", 2-1/8".

ITEM #1418 REG. \$141.20Sale \$43.95



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Makes perfect fitting recesses and inlays!

Easy to use inlay kit follows a 1/4" thick pattern template of almost any shape to produce the recess. Fits Porter Cable, Black & Decker or any router with an adaptor for Porter Cable bushings. Kit includes 1/8" solid carbide downcut spiral bit, brass bushing, brass template guide, brass retainer nut & instructions.

ITEM #1426 REG. \$35.95Sale \$21.95



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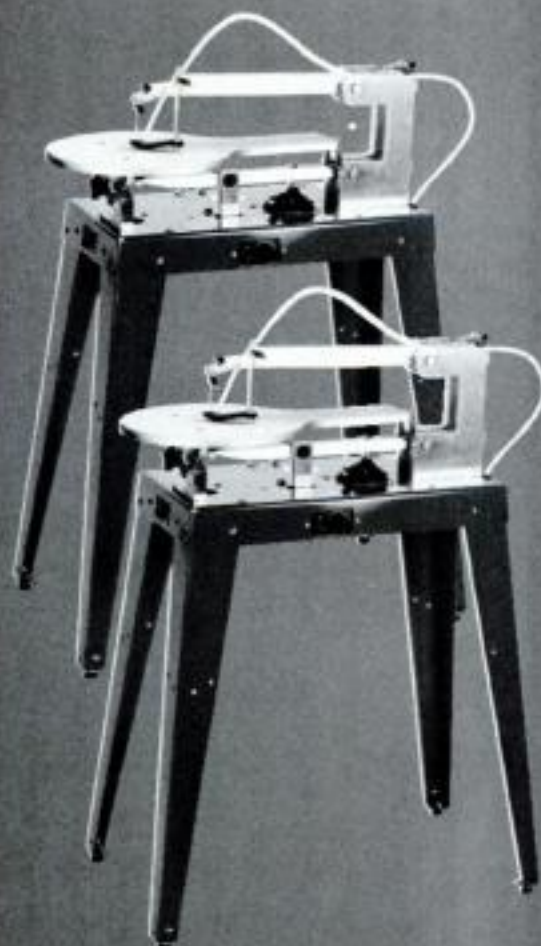
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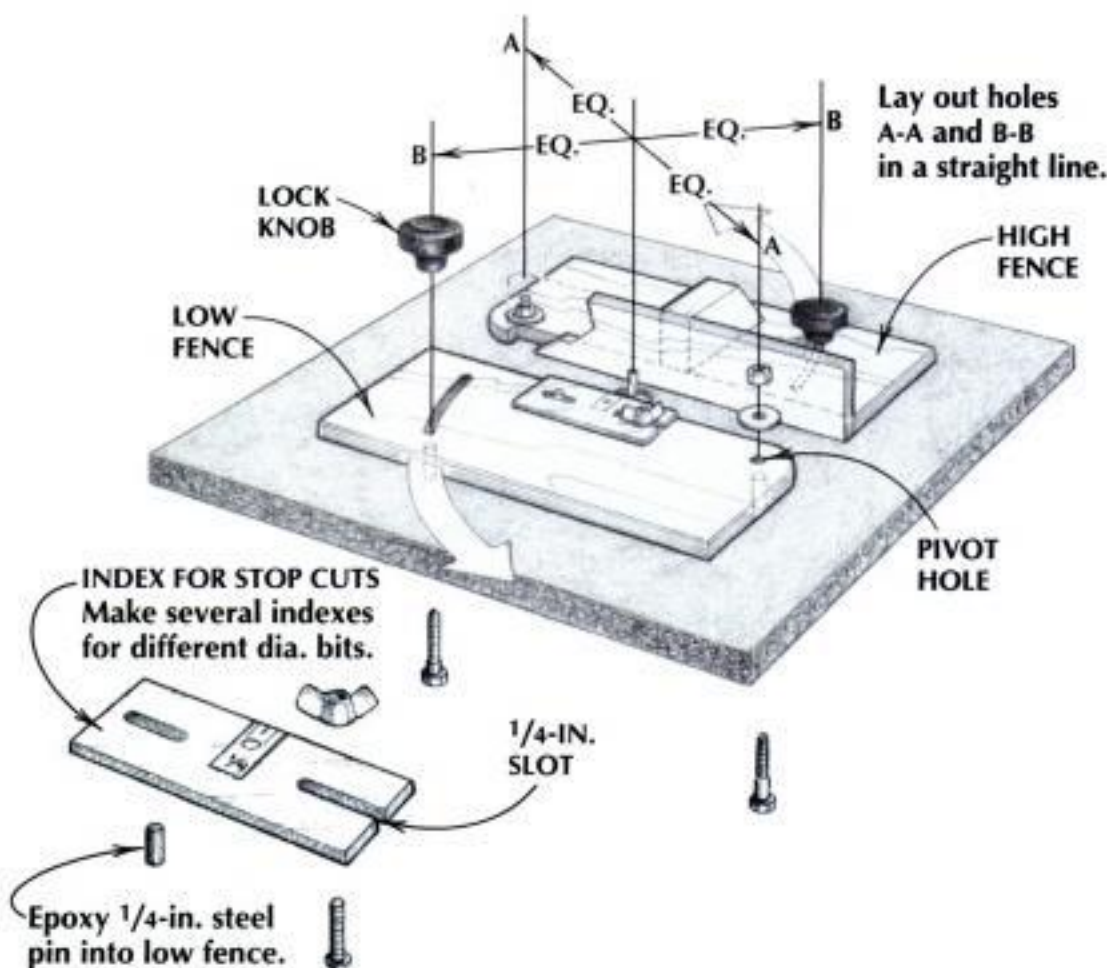
Self-Centering Router Fences

Best tip of the issue

This setup enables me to rout mortises or cut dados in the exact center of a workpiece without measuring. I made two fences, a high one and a low one, which swing around pivot points. The key to making the setup accurately is to locate the holes in the router table's top in a straight line with the center of the router-bit opening, and equidistant from each other. Once you've drilled the pivot hole in each fence, swing an arc from the hole to lay out the curved slot for the lock knob and bolt.

To use the jig, I spread the two fences, insert the workpiece, then close the fences around the workpiece and lock the fences with the knobs. A refinement is the sliding index with scribed reference lines. I set the centerline of the index to the exact center of the bit so I know where to start and stop the cut.

Steven Murphy
Berkeley, CA

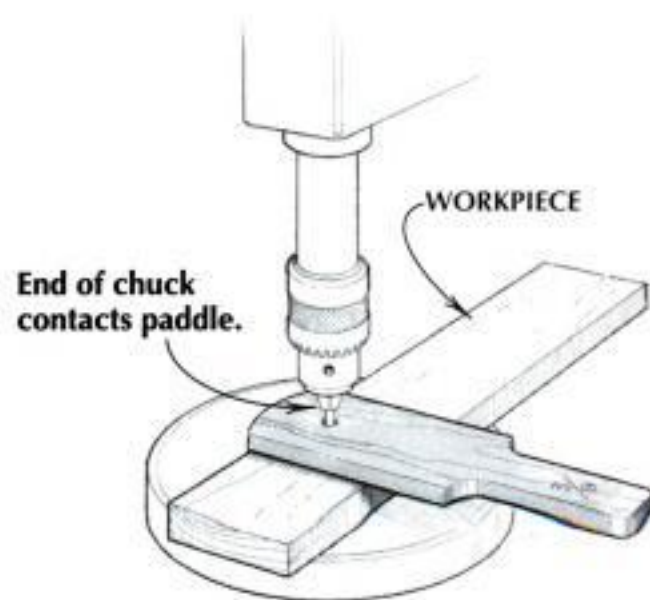


Best tip wins \$200. Know a better way of doing something? Designed a clever jig? Send your original woodworking tips, along with a sketch or a snapshot to: "Tech Tips," AMERICAN WOODWORKER, 33 E. Minor St., Emmaus, PA 18098. We'll pay \$50 for each tip we publish and \$200 for the best tip of the issue.

Depth-Stop Paddle

I often drill pilot holes in thin stock where the drill point comes perilously close to a finished surface. My drill press has no reliable depth stop, so I made wooden paddles in various thicknesses, depending on the depth I want to drill. I use them singly or in combination to provide depth control. The chuck itself is the stop.

Bob Weigel
Tucson, AZ



Speedy Tape

When I need many short lengths of masking tape, I score a roll of tape with a razor knife as shown in the sketch. I can remove the number of pieces I need quickly and easily.

C.M. Wegner
Bloomington, MN



Instant Rubber Gloves

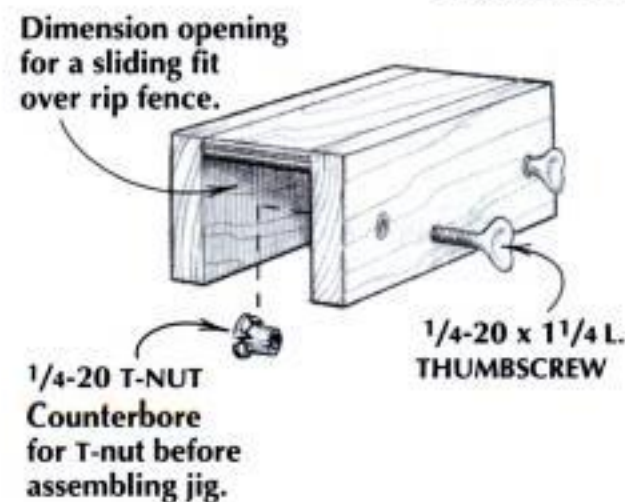
Just mixed a batch of epoxy and found you're out of rubber gloves? Slip your hand into an empty plastic bread wrapper, put a rubber band around your wrist, and you're back in business.

Randy Lee
Fairfield, OH

Sliding Stop Block

Using the tablesaw fence as a stop block can be a dangerous practice: Small off-cuts get trapped between the blade and the fence and can be thrown at you. Instead of clamping a block to the fence each time, I made this simple jig that fits over the fence and can be locked in any position with two thumbscrews. Make the left side exactly 1 in. thick so you can still use your fence's tape scale. When the fence is on the left side of the blade, turn the jig around.

John Fridrick
Dayton, OH

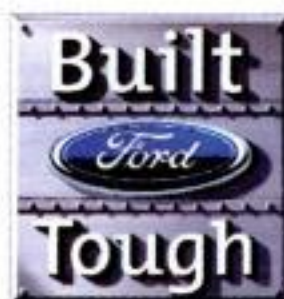




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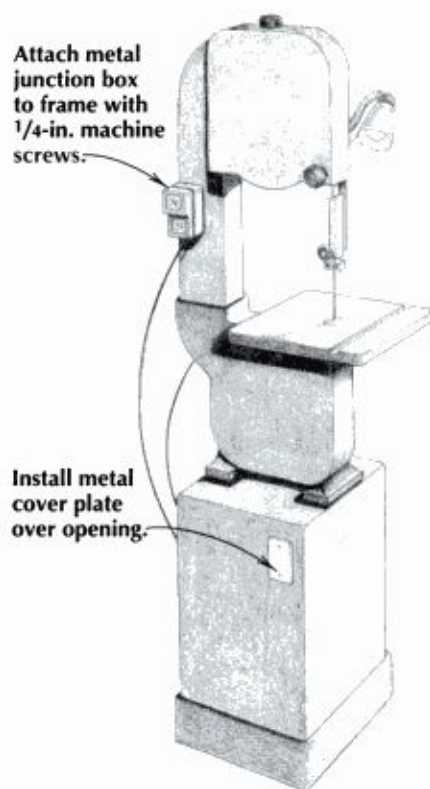
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www.fordvehicles.com

*Based on MSRP comparison of Chevrolet and Ford base models.

Bandsaw Safety Switch

Many bandsaws have their switches screwed to the steel stand around knee level, an awkward and potentially dangerous arrangement. I moved the switch on my Delta bandsaw closer to eye level so I can reach it without bending down or taking my eyes off the work. I also wired the light into the same switch so both machine and lamp turn on together.

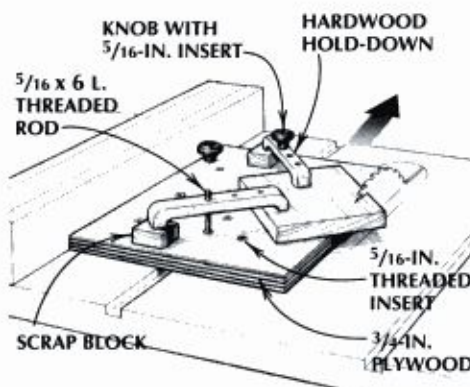
Audrey Osprey
Hawksville, ID



Angle-Cutting Jig

This jig enables you to saw angles or compound bevels safely and accurately. The 3/4-in. plywood carrier board must be rectangular but can be any convenient size. Distribute a dozen or so threaded inserts over the plywood and screw them down until they are flush with the surface. Cut two lengths of threaded rod and make two wood hold-downs, drilling three holes in each.

To use the jig, cut some scrap blocks the same thickness as the work, and place them under one leg of the hold-downs as shown. Set the saw to the required angle, then slide the fence over until the top edge of the carrier board is barely touching the saw blade. If the



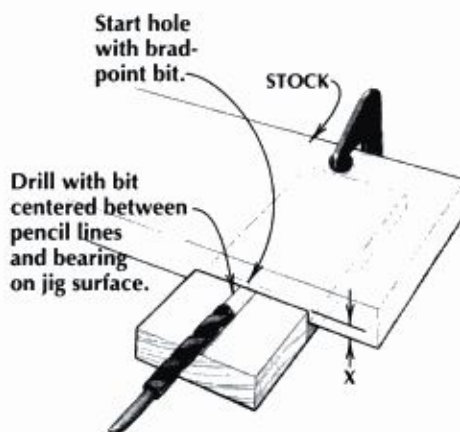
work is very large, you may have to add a plywood spacer between the fence and the carrier board.

Bill Nielsen
Ashland, OR

Drilling Long Holes

We often have to drill holes through solid wood, a foot deep or longer, when assembling rudders or centerboards. Drill bits this long tend to wander and emerge in unexpected places. This simple jig both guides the bit and supports it so it cannot flex. Start by drilling a shallow hole with a self-centering jig or use a brad-point bit. Then clamp the jig to the work and drill, withdrawing the bit as necessary to clear chips. The results so far have been 100%.

Simon Watts
The Arques School
of Traditional Boatbuilding
Sausalito, CA



$x = 1/2$ STOCK THICKNESS - $1/2$ BIT DIA.

Safety Paint Storage

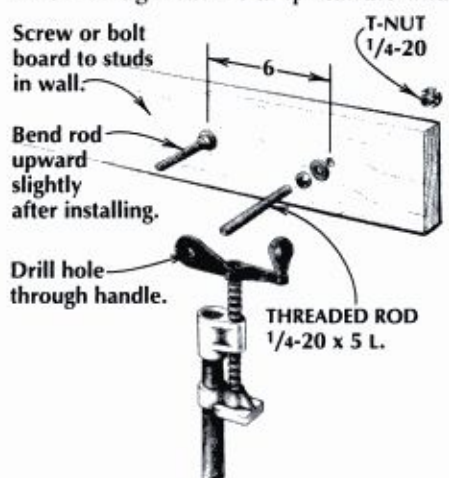
Surplus steel ammunition boxes provide safe, convenient storage for paints, thinners, and other flammable liquids. They come with steel lifting handles and a weather-resistant top held with six

hasps. Boxes are available for about \$10 from army surplus stores or Northern Handyman at (800) 533-5545.

Mark Zuener
Warner Robins, GA

Pipe-Clamp Hanger

I believe this to be the simplest and most effective method to hang T-handled pipe clamps. Drill a 5/16-in.-dia. hole through each clamp handle and

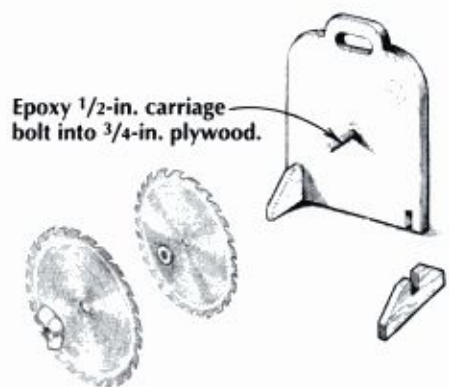


assemble the threaded rods as shown in a 1-in.-thick board. Allow 6 in. between rods for each clamp.

Bill Boyd
Salem, SC

Saw-Blade Carrier

I made this plywood carrier because I usually take in several saw blades at a time for sharpening. Instead of wrapping each blade up, I slip them onto the bolt with a washer between them, and



tighten the wing nut. The carrier has my name and phone number on it and can be set on a bench or hung on the wall.

Fred Matlack
Emmaus, PA

It's JET's birthday,



but you get the presents!



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With Rip Fence and
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With 2 Sets of Knives

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15" Planer

With Enclosed Stand
and Rollers

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The D4 Dovetail Jig
Create Through, Half-blind and Sliding Dovetail Joints with the D4 Jig



Create Square and Rounded Finger Joints with the F1 Template

At the center of the Leigh Router Jig System is the amazing 24" D4 Dovetail Jig.

Create through, half-blind and sliding dovetails with *infinite adjustment* of joint spacing and tightness of fit in wood up to 1 1/2" thick.

Add the F1 Finger Joint Template for an incredible range of square or unique *rounded* finger joints from 1/2" down to a tiny 1/16". All infinitely adjustable for fit with the Leigh Variable Guidebush System (VGS).

With the Multiple Mortise and Tenon Attachment you'll rout perfectly snug rows of multiple mortises and tenons, in virtually any layout you can imagine, and in material from 5/16" to 1 1/2" in thickness.

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CIRCLE NO. 162 ON PRODUCT INFORMATION FORM

Model	Description	List	Sale
50-660	NEW 850 CFM Air Cleaner	239	
31-695	6" Belt/9" Disc Sander	441	299
23-710	Sharpening Center	217	145
23-680	6" Bench Grinder 1/4 HP	90	69
31-466	4" Belt/Disc Sander	198	119
40-560	16" 2 speed Scroll Saw	230	129
40-540	16" variable speed scroll saw	249	179
11-990	12" Bench Drill Press	255	184
11-990	32" Radial Bench Drill Press	405	279
43-505	1/2" Bench Router/Shaper	388	269
22-540	12" Bench Top Planer	259	
28-195	10" Band Saw	390	309
22-560	12-1/2" Planer w/ extra knives	329	
36-865	Versa Feeder Stock Feeder	249	
36-220	10" Compound Miter Saw	294	199
28-185	Bench Band Saw	213	168
36-240	10" Sliding Mitre Saw	589	439
37-070	6" vspd Bench Jointer	351	265
14-650	Hollow Chisel Mortiser	390	239
17-900	16-1/2" Floor Drill Press	490	349
36-285	8-1/4" Builders Saw w/ stand	458	289
34-555	Sliding Table	467	289
36-250	10" Slide Compound Saw	825	449
31-780	Oscillating Spindle Sander	253	194
31-780K1	780 w/ 31-781 spindle set	209	
46-700	12" Wood Lathe	575	465
40-550	Q3 18" Scroll Saw	348	289
36-905	30" Unifence	346	255
36-906	50" Unifence	444	325
34-444	10" Contractors Table Saw	579	

The following tools have a \$50.00 rebate!
Price shown is before rebate.

36-455	10" Contractors Table Saw w/ 30" unifence, cast iron wing, 34-914 table board, & carbide blade	Sale 839
22-675	DC380 15" Planer	Sale 1175
28-275	14" Band Saw 3/4 HP	Sale 595
28-280	14" Band Saw 1 HP motor with enclosed stand	Sale 739
28-270	14" Band Saw 1 HP w/ 50-274 mobile base, 28-855 rip fence, & 28-266 cool blocks	Sale 839
31-280	Shaping Center w/ stand	Sale 789
37-190	6" Deluxe Jointer	603 445

NEW Single Stage Dust Collectors			
50-850	1-1/2 HP, 1200 CFM	Sale 285	
50-851	2 HP, 1500 CFM	Sale 455	

MILWAUKEE TOOLS			
6527	NEW Sawzall with case	343	169
6537-2	6527 w/grip lok blade change	224	175
6047-2212V	Drill w/keys chuck&2 batt	390	175
0224-1	3/8" Drill 4.5 amp magnum	236	132
0234-6	1/2" Drill 4.5A mag 0-850 rpm/255	134	
0235-1	1/2" Drill w/keyless chuck	255	142
0244-1	1/2" Drill 4.5A mag 0-600 rpm/255	134	
0222-1	3/8" Drill 3.5 amp 0-1000 rpm/213	119	
0228-6	3/8" Drill 3.5 amp 0-1000 rpm/207	109	
0375-1	3/8" close quarter Drill	255	148
0379-1	1/2" close quarter Drill	288	165
6546-6	Screwdriver 200 & 400 rpm, 150	89	
6547-6	6546-6 w/bits, 1/4" chuck & cs185	108	
5399	1/2" D-hill Hammer Drill Kit	356	219
5397-1	3/8" w/ spd Hammer Drill Kit	275	145
5371-6	1/2" w/ spd Hammer Drill Kit	360	194
3107-6	1/2" w/ spd right angle Drill Kit	341	234
3300-1	1/2" w/ spd right angle Drill	378	219
6142	4-1/2" Grinder w/ case & acc.	224	129
6490-6	10" Mitre Saw	496	265
6491	6490 w/ carbide blade & bag	594	328
6494-6	10" Compound Mitre Saw	585	315
6286-6	Top Handle Jig Saw	315	159
6496-6	10" Slide Compound Saw	1050	569

FREUD CARBIDE TIPPED SAW BLADES			
Item	Description	Teeth	List Sale
LUT2M010	Gen Pur. A.T.B. 10"	69	42
LUT2M010	Cut-off 10"	60	34
LUT4M011	Comb 10"	50	78
LUT8M010	Super Cut-off 10"	80	115
LUT7M010	Ripping 10"	24	69
LUT7M010	Cut-off 10"	60	34
LUT8M010	Thin Kerf 10"	24	72
LUT8M010	Thin Kerf 10"	60	88
LUT8M010	Ultimate 10"	60	128
LUT8M010	Compnd Mitre 10"	60	88
F410	Quiet Blade 10"	40	95
SD308	8" Dado - Carbide	230	119
SD308	8" carbide w/case & shims	344	168
FB100	16 piece Forstner Bit Set	338	194
94-100	5 pc. Router Bit Door System	320	169
FT2000E	Plunge Router	Sale 189	
JS102	Biscuit Joiner	Sale 119	

HITACHI TOOLS			
C8FB2	8-1/2" Side Compound Saw	1169	449
C10F5	10" Side Compound Saw	1627	579
C15B1	15" Mitre Saw	1346	645
NV45AB	Coil Roofing Nailer	935	379
NT32AE	NEW Planer 5" - 1-1/4"	Sale 85	
NT50AE	NEW Planer 3/4" - 2"	Sale 129	
C10RA	NEW 10" Table Saw	632	319

MAKITA TOOLS			
Model	Description	List	Sale
5990DW	3-3/8" Saw Kit 9.6 volt	280	155
DA391D	3/8" angle Drill 9.6V	166	114
DA391DW	3/8" angle Drill Kit 9.6V	341	189
ML902	Incandescent Flashlight 9.6V	14.95	

6095DW9E	6 volt Drill Kit w/2 batt.	Sale 125	
6095DWLE	6095DWE w/flashlight	Sale 139	
632007-4	9.6 volt Battery	47	30
632002-4	7.2 volt Battery	39	28

NEW 18 VOLT MAKITA TOOLS			
6343DWAE	1/2" Drill Kit	Sale 249	
5620DWA	6-1/2" Circular Saw Kit	Sale 259	

CORDLESS DRILLS			
WITH 2.0 AMP HIGH CAPACITY BATTERIES			
6213DWAE	12V 3/8" Drill Kit	325	169
6213DWAE	14.4V 3/8" Drill Kit	358	205

9900B	3"x21" Belt Sander w/bag	347	179
99240B	3"x24" Belt Sander w/bag	360	189
NI900B	3-1/4" Planer with case	263	142
1912B	4-3/8" Planer with case	352	205
99154B	4" Disc Grinder 4.6 amp	118	65
DA3000R3/8"	Angle Drill	355	185
2709W	8-1/4" Table Saw	637	295
9405	3/8" Drill Rev. 0-2100 rpm	115	65
6213BR	1/2" Drill Rev. 0-2100 rpm	270	159
9401	4" x 24" Belt Sander w/bag	458	235
5007NBK7-1/4"	Circ Saw w/ case	250	125
LS1011	10" Slide Compound Saw	995	429
LS1211	12" Slide Compound Saw	1620	695
3901	Plate Joiner Kit	376	209
3612C	3 HP Plunge Router	492	269
LS1040	10" Compound Mitre Saw	460	259
LS1013	10" Dual Compound Slide Mitre Saw	1088	599
BO5010	5" Random Orbit Sander	142	72
LS1220	NEW 12" Compound Mitre Saw	379	
9227C	NEW 7/9" Polisher	350	195
SJ401	NEW 16" Bench Scroll Saw	300	175
2702	NEW 8-1/4" Table Saw	Sale 299	
2703	NEW 10" Table Saw	Sale 319	

SENCO AIR NAILERS			
SNF11	Finishing Nailer 1" - 2" w/ cs448	299	
SN325	Nailer 1-7/8" - 3-1/4"	465	365
SLP20	Pinner w/cs 5/8" - 1-5/8"	422	229
SKS	Stapler 5/8" - 1-1/2"	390	279
SN70	Framing - Clip Hd 2 - 3-1/2"	725	449
SN85	Framing - Full Hd 2 - 3-1/2"	709	379
SN600	NEW Framing 2 - 3-1/2"	699	369
SNF400	Finish Nailer 1-1/4" - 2-1/2"	569	349

NEW Accusert Nailers by SENCO			
A100LS	Finish Stapler 1/2" - 1"	180	119
A150LS	Finish Stapler 1/2" - 1-1/2"	220	149
A125BN	Brad Nailer 5/8" - 1-1/4"	160	99
A200BN	Brad Nailer 5/8" - 2"	215	139

BOSTITCH AIR NAILERS			
Model	Description	List	Sale
N805-1	Stick Nailer	Super Sale 325	
RN45	Coil Roof Nailer 3/4" - 1-3/4"	345	259
N60FH-2K	Finishing Nailer w/ case	557	379
BT35-2K	Brad Tacker 5/8" - 1-3/8" with case	279	125
MIIPS	Flooring Stapler 15 gauge	902	529
S32SX-1K	Finish Stapler 1/2" - 1-3/8" with case & oil	269	145

JORGENSEN ADJUSTABLE HANDSCREWS			
Item	Length	Capacity	List Sale of 6
#0	8"	4-1/2"	20.35 12.10 66.95
#1	10"	5"	23.30 12.90 71.95
#2	12"	6-1/2"	25.75 14.90 83.95
#3	14"	10"	33.85 18.55 105.75

PONY CLAMP FIXTURES			
Model	Description	List	Sale of 12
50	3/4" Black Pipe	15.45	8.50 92.50
52	1/2" Black Pipe	12.65	6.55 74.95

PANASONIC CORDLESS			
EY610FQKW	12V 3/8" Drill kit w/ 2 li-ion batteries, 15 min. charger, & case	379	179
EY610FQKW	12V 1/2" Drill w/ 2 li-ion batteries, 15 min. charger, & case	424	199
EY6230FQKW	NEW 15.6V Drill Kit w/ 2 li-ion batteries, 30 minute charger & case	425	209
EY3503FQKW	5-3/8" 12V Wood Cutting Circular Saw Kit	500	259

BIESEMEYER FENCES			
B-50	50" Commer. Saw	443	325
T-SQUARE 52	52" Homeshop	360	275
T-SQUARE 40	40" Homeshop	335	255
T-SQUARE 28	28" Homeshop	325	245

AIRY AIR NAILERS			
Model	Description	List	Sale
0241SK	Brad Nailer 3/8" - 1-9/16"	180	98
0626SK	1/4" Crown Stapler 3/8" - 1-1/4"	98	

STABILA LEVELS			
25010	10" die cast Torpedo Level	43	29
24640	24" Level w/ hand holes	62	40
24670	48" Level w/ hand holes	79	58

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DEWALT TOOLS			
Model	Description	List	Sale
DW309KNEW	Recipro Saw 10 amp	318	169
DW310KNEW	7-1/4" Framers Saw	210	169
DW222	3/8" Drill, 0-1200 rpm	184	99
DW231	1/2" Drill, 0-850 rpm, 7.0 amp	240	129

DW236	1/2" Drill, 0-850 rpm, 7.8 amp with keyless chuck	264	149
DW124K	1/2" right angle Drill	390	229
DW321K	Top Handle Jigsaw Kit	300	164
DW364	7-1/4" Circ. Saw w/broke	294	162
DW160	1-1/2 HP 2 handle Router	256	149
DW411K1/4	sheet Palm Sander w/ case	448	169
DW682K	Biscuit Joiner with case	448	169
DW705	12" Compound Mitre Saw	734	359
DW621	2 HP Plunge Router	400	218
DWE21 comes with Free DWE956 line height adjuster!			
DW675K	3-1/8" Planer with case	292	154
DW677K	3-1/4" Planer w/ case	262	165
DW431	3 x 21 vspd Belt Sander	338	188
DW421	5" Palm Ran. Orb Sander	144	74
DW423	Palmgrub Random Orbit Sander - variable speed	170	94
DWA21 & DWA23 come with Free DWA317 case!			
DW737KL	Laminating Trimmer Kit	364	188
DW272	Drywall Gun, 0-4000, 6.3 amp/160	95	
DW276	Drywall Gun, 0-2500, 6.5 amp/160	95	
DW935K	14.4V 5-3/8" Trim Saw Kit	444	237

DEWALT CORDLESS DRILLS			
DW952K-2	3/8" vspd w/ two 9.6V XR batteries	284	129
DW972K-2	3/8" variable speed w/ two 12V XR batteries	362	182
DW972KQ-2	Above drill kit with 15 minute charger	Sale 229	
DW991K-2	3/8" variable speed w/ two 14.4V XR batteries	415	209
DW991KQ-2	Above drill kit with 15 minute charger	Sale 245	
DW994KQ	1/2" variable speed w/ one 14.4V XR batteries	458	239
Above drill kits come w/ charger & steel case!			
DW991KQ-2	DW991K drill, DW935 trim saw, 2 XR batteries & case	Sale 345	

DEWALT 18 VOLT CORDLESS TOOLS			
DW938K	Recipro Saw Kit	520	269
DW955K	1/2" Drill Kit w/ 1 battery	428	229
DW955K-2	1/2" Drill Kit w/ 2 batt.	Sale 240	
DW997K	1/2" Drill/Hammer Drill Kit	454	249
DW936K	5-3/8" Saw Kit	458	249
DW995K-2	DW995K Drill, DW936 Saw and case	Sale 385	
DW991KQ-2	DW991K 14.4V drill kit, DW937 14.4V reciproc saw & case	375	
DW995K-2	DW995K 18V drill kit, DW938 18V reciproc saw, & case	395	
DW997K-2	DW997K 18V drill kit, DW938 18V reciproc saw, & case	415	

DEWALT BENCH TOP TOOLS			
DW708	12" Dual Compound Slide Mitre Saw	Sale 649	
DW788	20" Scroll Saw	Sale 469	
DW733	12" Planer w/ extra blades	Sale 435	
DW744	10" Portable Table Saw	Sale 499	
DW756	NEW 6" Bench Grinder	164	75
DW758	NEW 8" Bench Grinder	184	115

BOSCH			
Model	Description	List	Sale
1587VS	Top Handle "CLIC" Jig Saw	292	139
1587AVSC	1587VS Saw Kit with case and New Progressor blades	Sale 149	
1584VS	Barrel "CLIC" Jig Saw	288	139
Bosch Metal Case for above Jig Saws ... 24			
Bosch 30 blade assortment for Jig Saws 29.99			
1584VS or 1587VS with steel case and 30 Bosch blades Sale 175			

1295DH	5" Random Orb Palm Sndr	145	89
1274DVS	3"x21" vspd Belt Sander	301	175
1278VSK	1-1/2"x12" Belt Sander	218	129
1275DVS	3"x24" vsp Belt Sndr	379	214
1276DVS	4"x24" vsp Belt Sndr	408	229
1194VSR12	1/2" w/spd Hammer Drill	272	155
1194VSRK	above Drill w/c case	303	169
1504A	1-3/4 HP 2 Handle Router	269	142
1613EVS	3 HP w/spd Plunge Router	356	199
1613EVS	2 HP w/spd Plunge Router	356	309
1634VSK	12" Sander Smp 10.5 amp	335	185
1634VSK	12" Sander Drill Kae	345	185
1634VSK	12" Sander 4V Drill Kae	345	174
3107DVS	5" Random Orbit Sander	165	96
3107DVS	3107DVS with case	195	115
3725DVS	5" Random Orbit Sander	256	145
3727DVS	6" Random Orbit Sander	266	146
3915	10" Slide Compound Saw	550	559
3912	NEW 12" Compound Mtr Saw	638	559
11224VSR	7/8" SDS Rotary Drill	404	229
1730AESV	5" Grinder - 8.5 amp	245	139

SHOP TEST

Mainstream machines. Midsize bandsaws are the choice for small-shop bandsawing chores. We tested eight popular models (left to right): Grizzly 14½ in., Jet, Euroshop, Powermatic, Grizzly 17½ in., General, Delta, and Laguna.



Midsize Bandsaws

We rate **8 top machines** in the 14 in. to 16 in. category

If you were allowed to have only one woodworking machine in your shop, which one would you choose? Several of us on the AW staff would pick the bandsaw.

This isn't too surprising when you consider the range of cuts a bandsaw can make—straight or curved, square or angled, in thick stock or thin.

Furniture makers use the bandsaw to cut out parts with a particular grain orientation, to resaw veneer and book-matched components from heavy stock, and for joinery. Turners use it to prepare turning blocks from logs and planks. And there's no better or faster machine for cutting circles and odd shapes from plywood.

For this test, we selected eight popular *midsize* bandsaws—the most versatile size range for hobbyists and small-shop pros. We tested one model from each of the major bandsaw manufacturers. Powermatic, which makes a pricey, high-quality 14-in. bandsaw, opted to have us test their lower-cost Artisan Series model.

Three Kinds of Blade Guides

BLOCK-STYLE GUIDES



Block-style guides adjust flat against the sides of the blade. Metal blocks are tougher but heat up more than plastic blocks; plastic wears faster.

BALL-BEARING GUIDES



Ball-bearing guides, shown here on the Powermatic Artisan saw, spin when they contact the blade for reduced friction and heat buildup.

EURO-STYLE GUIDES



Euro-style guides flank the blade with bearing faces, providing firm control and low friction.

The “size” of a bandsaw traditionally refers to its wheel diameter, but not all manufacturers follow this rule of thumb: Our test saws (see photo, page 44), marketed as 14-in., 15-in. and 16-in. models, have wheels ranging from 13 $\frac{1}{4}$ -in. to 17 $\frac{1}{8}$ -in. dia.

Midsize bandsaws are a good choice for most shops. They can do everything smaller bandsaws can do, yet they’re sturdy and powerful enough to handle the thicker, heavier, and wider workpieces that furniture and cabinetry demand.

If you’ll use your saw mainly for routine cutting in plywood and dimensioned stock—along with occasional resawing—the lighter-duty saws (under 16 in.) in this group will do the trick. (See chart, pages 48 and 49.) If you’ll be sawing heavy timbers or thick bowl blanks often, you’ll want the extra power and capacity of a larger, 16-in.-or-over saw.

In this article, we’ll explain what’s important in a new bandsaw and tell which models performed best in our tests. On pages 46 and 47, you’ll find the pros, cons, and overall ratings.

What’s Important?

We’ve found that three factors are most important in a bandsaw: *power*, *accuracy*, and *ease of use*. You want enough

power to slice through any stock your saw will accommodate, without bogging down the motor. For accuracy, you want *blade guides* that support the blade solidly. *Fit and finish* often affects accuracy too. And, to save yourself time and aggravation, you want the saw’s controls to be smooth, accessible, and easy to use.

Other things matter as well: Convenient *blade changing* is important, especially if you’re going to change blades often; and effective *dust collection* cuts down on airborne sawdust and keeps sawdust from piling up inside the saw.

How We Tested

We began our test by carefully unpacking the boxes and crates and taking note of damaged or missing parts. Then we assembled the saws.

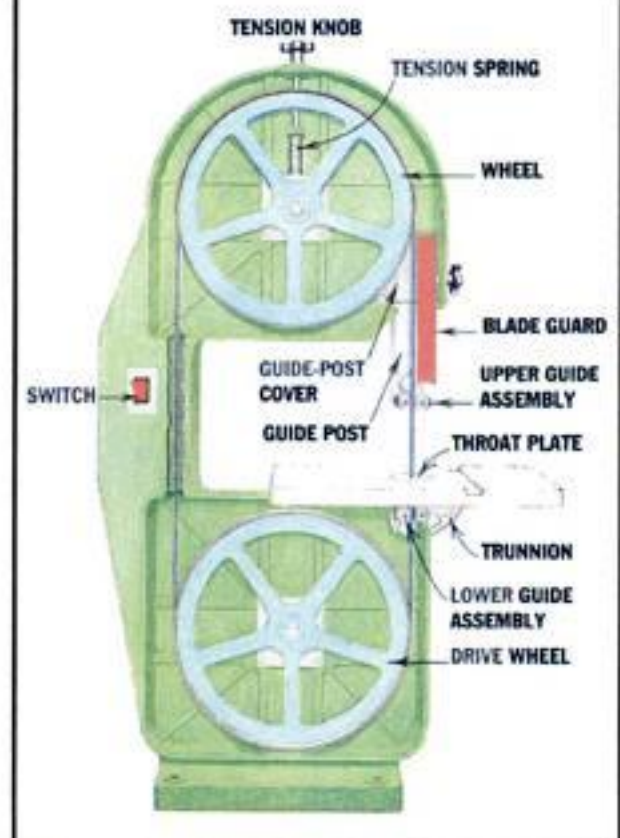
Assembly took two men an average of two hours per machine, using ordinary tools. The Euroshop and Laguna saws—both made in Italy—came fully assembled but needed to be wired. The Powermatic and General saws went together the quickest—in about an hour—while the Grizzly G1073 took almost three hours to assemble. At 430 lb., it was also the heaviest saw in the

test—more than twice as heavy as the 14-in. models—and it required three people to lift the saw onto its stand.

The owner’s manuals, with the exception of the General’s, were clearly written and informative. Laguna’s manual was contained in a three-ring binder.

Text continued on page 48.

Bandsaw Anatomy



MIDSIZE BANDSAWS



Delta 28-280

(800) 438-2486

Circle #603

STREET PRICE: \$749

OPTIONS: Fence, \$89; miter gauge, \$49; 6-in. riser block, \$100.

PROS: Top-rated fit and finish; best lower blade guides of all the saws tested; clever aluminum fence available with "unipoint" resawing attachment; lockable safety switch; smooth table tilt.

CONS: Dust-collection port gets in the way of blade changing.

FINAL CUT: A very smooth operator, with all the power and features you could expect in a 14-in. bandsaw. The Delta earns an Editors' Choice award.



Jet JWBS-14CS

(800) 274-6848

Circle #605

STREET PRICE: \$580

OPTIONS: Rip fence, \$75; miter gauge, \$45; 6-in. riser block, \$73; Carter ball-bearing guides, \$149.

PROS: Top-rated fit and finish; very low vibration; cool-running plastic guide blocks; dust-collection port connected to lower door, so it's out of the way for blade changing; lockable safety switch; smooth table tilt.

CONS: Blade-tension knob is small and too close to upper wheel cover to access easily; small thumbscrews on blade guides difficult to grasp.

FINAL CUT: A solid, well-made saw that delivers great performance at a good price, making it a Best Buy.



General 490-1

(819) 472-1161

Circle #607

STREET PRICE: \$1,250

OPTIONS: Rip fence, \$165; miter gauge, \$125.

PROS: Top-rated fit and finish; smooth guide post and table tilt; very low vibration; good power; easy assembly.

CONS: No optional riser block to increase resaw capacity; clear acrylic guard obscures view of cut; poor owner's manual; pricey optional cast-iron rip fence and miter gauge.

FINAL CUT: Very well-made machine with a great feel, but resaw capacity is limited for a saw this size.



Powermatic Artisan 44

(800) 248-0144

Circle #604

STREET PRICE: \$650

OPTIONS: Fence, \$80.

PROS: Largest resaw capacity of the 14-in. saws; massive adjustable guide post; easy assembly; easiest table-stop bolt to adjust.

CONS: Blade guides difficult to adjust—upper and lower ball bearings require different wrenches and move out of position when tightened; small thumbscrews holding blade guides give way in heavy cutting—must be tightened with pliers.

FINAL CUT: This is a solid machine with respectable resaw capacity. We wish Powermatic had paid more attention to the blade guides.

BEST IN TEST

BEST FOR RESAWING: Delta (under 16 in.), Laguna (16 in. & up) **LEAST VIBRATION:** Euroshop **BEST OWNER'S MANUAL:** Delta, Jet, both Grizzlys, Laguna



Grizzly G1019Z

(800) 541-5537

Circle #602

STREET PRICE: \$325, including standard fence and miter gauge.

OPTIONS: 4-in. riser block, \$40; ball-bearing guides, \$40.

PROS: Blade guides easy to adjust; table tilts easily; low price.

CONS: Motor bogs down in heavy cutting; blade tension indicator not calibrated to specified blade length; blade changing more difficult than most; vibrates more than average.

FINAL CUT: Though underpowered, this saw is intelligently engineered for low-cost production, with plenty of adjustability built in. Its best feature is its cost—more than \$250 less than other 14-in. saws.



Laguna LT16HD

(800) 234-1976

Circle #601

STREET PRICE: \$1,595, including aluminum fence.

OPTIONS: Cast-iron miter gauge, \$95; aluminum miter gauge, \$35; cast-iron rip fence, \$95.

PROS: Top-rated fit and finish; Easiest blade changing; very low vibration; the most powerful saw tested; low table surface makes resawing easier; rack-and-pinion allows control of guide post adjustment; panic button shutoff switch; foot brake stops free-wheeling after shutoff.

CONS: Table tilt requires a wrench to loosen trunnion bolt; foot brake doesn't shut off motor.

FINAL CUT: A slick, powerful machine, best in its class. We gave it an Editors' Choice award.



Euroshop B16

(800) 203-0023

Circle #606

STREET PRICE: \$1,395, including adjustable fence.

OPTIONS: Miter gauge, \$45.

PROS: Easiest blade changing; least vibration; low table surface makes resawing easier; foot pedal acts as brake and shuts off saw; panic button shutoff switch; rack and pinion allows control of guide post adjustment.

CONS: Table tilt requires a wrench to loosen trunnion bolt; lower blade guards must be removed to tilt table past 27° right and 0° left; primitive wooden throat plate not flush with table surface and interferes with blade when table is tilted.

FINAL CUT: A solid entry in the heavy-duty category.



Grizzly G1073

(800) 541-5537

Circle #602

STREET PRICE: \$595, including rip fence and miter gauge.

OPTIONS: Ball-bearing guides, \$40.

PROS: Table and guide post work smoothly; solid, adjustable aluminum fence standard; miter gauge standard; low price.

CONS: Weak table support casting allows table to deflect excessively; no blade-tension gauge; underpowered compared to other 16-in. machines; so heavy it requires three people to assemble; vibrated more than any of the other saws; blade guides don't work well with blades over 1/2 in. wide.

FINAL CUT: For a saw of its size and weight, it's underpowered and has limited resaw capacity.

EASIEST TO ASSEMBLE: General and Powermatic (Laguna and Euroshop came preassembled.) **SMOOTHEST TABLE TILTING:** Delta, General, Jet

Midsize Bandsaws

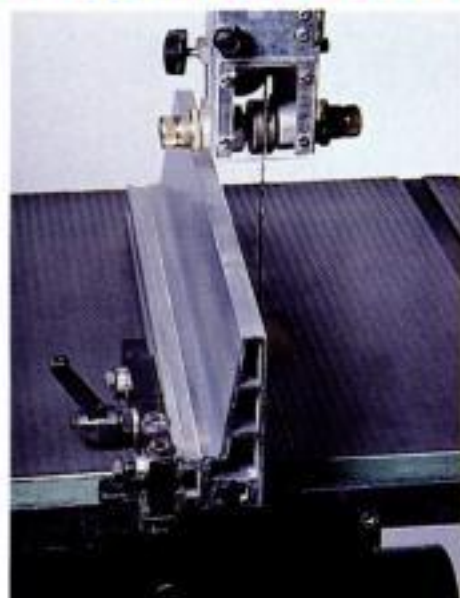
Performance Ratings

Specifications

	Brand & Model	Street Price	Power	Fit & Finish	Blade Guides	Blade Changing	Ease of Use	Overall Rating (in.)	Wheel Dia. (in.)	Throat Capacity (in.)
								1 2 3 4 5		
UNDER 16 IN.	Delta 28-280	\$749	4	4.5	4.5	4	4.5		14	13 ⁵ / ₈
	Jet JWBS-14CS	\$580	4	4.5	4	4	4		13 ¹ / ₄	13 ³ / ₁₆
	General 490-1	\$1,250	4	4.5	4	4	4		14 ⁷ / ₈	14 ³ / ₄
	Powermatic Artisan 44	\$650	4	4	1	3	4		13 ⁷ / ₈	13 ⁹ / ₁₆
	Grizzly G1019Z	\$325	2	3.5	3	2.5	3		14 ⁷ / ₈	14 ¹ / ₄
16 IN. & OVER	Laguna LT16HD	\$1,595	5	4.5	4.5	5	4		16	15 ¹ / ₄
	Euroshop B16	\$1,395	5	3.5	4.5	5	4		15 ³ / ₄	14 ⁷ / ₈
	Grizzly G1073	\$595	3.5	3.5	2	4	4.5		17 ¹ / ₈	16 ⁵ / ₈

KEY: Blade Guide Type (See main text.): MB = metal blocks, PB = plastic blocks, BB = ball bearing, E = Euro-style. *optional (\$149). **optional (\$40).

Features Worth Noting



Adjustable fence. The Euroshop's adjustable, high-low fence makes it easy to compensate for blade "drift" when resawing.



Single-point fence. Delta's ingenious rip fence includes a movable steel pin that makes point-contact resawing easy and convenient.



Blade tensioning. To set the Laguna's blade tension, you turn the handwheel until the blade width appears in the gauge's window.



Better blade support. Delta's angled lower guide block allows the guide to be mounted close to the table for improved support.

Fit and finish. During and after assembly, we evaluated the saws' fit and finish. We looked for signs of manufacturing quality that can influence performance and ease of use: flat tables with smooth tilting mechanisms; rigid upper guide posts that moved parallel to the blade; balanced, coplanar (in line with each other) wheels that tracked the blades properly; finger-friendly wheel castings; and locking mechanisms that were both effective and comfortable.

While all the saws rated "good" or

better in fit and finish, the Delta, General, Jet, and Laguna were standouts in this category. (See chart, above.)

Blade guides. A bandsaw's blade guides—one set mounted under the table and the other on a movable guide post above it—are critical for accurate sawing. They keep the blade from wandering sideways or jumping backward off the wheels as you cut.

All three types of blade guides on our test saws ([see photos, page 45](#)) have a thrust bearing behind the blade to stop it from moving backward as you feed

your work. What varies is how they control side-to-side blade movement and twist.

Block-type guides have metal or plastic blocks that adjust flat against the sides of the blade when you loosen thumbscrews or setscrews in the guide housing. Plastic blocks, such as those in the Jet guides, aren't as rigid or long-wearing as metal blocks, but they run cooler, especially during curved cuts. Plastic blocks also provide a unique kind of support, especially for very narrow (less than 1/4-in.-wide) blades; you

Resaw Capacity (in.)	Blade Speed(s) (sfpm)	Blade Widths (min.-max.)	Blade Guide Type	Table Size (in.)	Table Tilt (R, L) (°)	Motor HP	Volts/ Amps	Weight (lb.)
6 1/2	3,000	1/8 - 3/4	MB	14 x 14	45, 10	1	115/9.6, 230/4.8	224
6 1/8	3,000	1/8 - 3/4	PB, BB*	15 x 15	45, 10	1	115/16, 230/8	185
6 1/8	3,000	1/8 - 3/4	MB	15 x 15	45, 10	3/4	115/10.8	320
8 7/8	3,000	1/8 - 3/4	BB	15 x 15	45, 15	1	115/7, 230/3.5	200
6	1,750; 2,650	1/8 - 3/4	MB, BB**	13 3/4 x 14	14, 15	3/4	115/9, 230/4.5	148
12	3,600	1/8 - 1 3/8	E	16 3/4 x 23	45, 5	3	230/15.2	350
9 7/8	3,950	1/8 - 1 1/4	E	17 x 22	45, 5	2	230/10.1	288
7 3/4	1,900; 2,400; 2,900	1/8 - 1	MB, BB**	17 x 17	45, 10	1 1/2	115/16, 230/8	430

Guide to the Ratings

5=Excellent; 4=Very Good; 3=Good; 2=Fair; 1=Poor

POWER—We tested the relative speed of cutting through 6-in.-thick stock without bogging down, and the ability to cut stock up to full resaw capacity of the saw.

FIT AND FINISH—General surface and machining quality, smooth mechanisms, lack of vibration.

BLADE GUIDES—Precision, ease of adjustment, rigidity, adequate support for blade.

BLADE CHANGING—Speed and ease of removing one blade and installing another.

EASE OF USE—Summary "hands-on" rating, including switches, table tilting, adjustability of blade guides and guide post.

can actually cover the full width of the blade with the blocks without damaging the teeth.

You can also substitute graphite-impregnated Cool Blocks (available from major mail-order catalogs) for your saw's stock blocks. They work like plastic blocks, but last much longer.

The Delta's lower guides scored high because the outer block is angled at 45° to the blade. This angle allows the guide to be located a mere 3/4 in. under the table—an advantage for resawing control—without interfering with table tilt.

Ball-bearing guides and **Euro-style guides** provide their side support with ball bearings instead of blocks. Since the bearings spin when the blade rubs against them, they generate less heat than metal blocks. Still, in repetitive heavy resawing, even the heavy-duty Euro-style guides became quite hot.

The Powermatic Artisan was the only saw in our test equipped with ball-bearing guides, and we found them difficult to adjust. The bearings on the upper and lower guides required different-size wrenches to adjust, and they moved out of position every time we tried to tighten them. We also found that, under average resawing pressure, both thrust bearings worked loose because their tiny locking thumbscrews wouldn't hold with only hand-tightening.

In contrast, the Laguna and Euroshop saws had identical Euro-style guides that

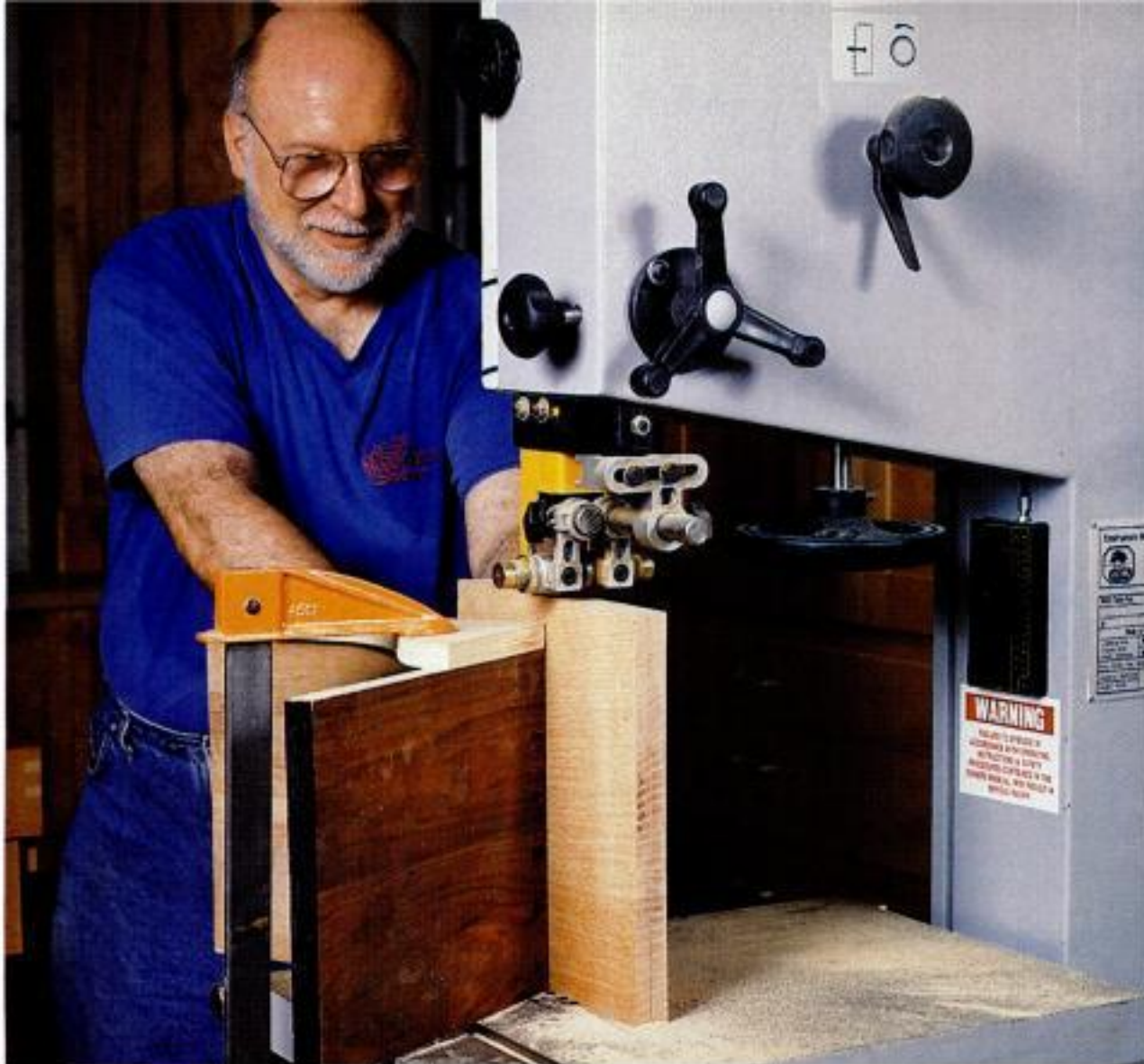
we judged easiest to adjust of all the guides we tested. We did find, however, that we needed to tighten the locking rings very securely to prevent the side bearings from backing off during heavy resawing.

The upper guide post of a bandsaw is as important as the guides for cutting accuracy. A flimsy or wobbly guide post can cause the blade to drift or chatter while cutting. And if the guide post doesn't stay parallel to the blade as it moves up and down, the angle of the blade to the table changes with each new height setting.

We didn't rate the guide posts separately, because they were all either parallel or adjustable to parallel. They all locked rigidly into position, though the

lock knob on the Grizzly G1019Z needed extra tightening to hold its setting. We particularly liked the one-handed convenience of the rack-and-pinion mechanisms on the Euroshop and Laguna saws for raising and lowering their heavy guide posts.

Blade changing. Bandsaw blades need to be changed frequently; and when they do, you want the job to go as quickly and easily as possible. When we evaluated each saw's blade-changing routine, we gave our highest ratings to the Laguna and Euroshop because they offered the straightest path for the blade through the slot in the front of the table and had hinged blade guard covers that could be opened for easy access to the blade path.



Power to spare. Resawing is the ultimate test of a bandsaw's power. Laguna and Euroshop earned top ratings in our power tests.

The other saws had side-slotted tables that require you to twist the blade in contorted ways to get it into the slot and around the blade guard. On these saws, we found the easiest way was to remove the blade guards, although the instructions didn't say so.

Blade-tensioning scales, standard on all the saws except the Grizzly G1073, are supposed to indicate proper tensioning for each common blade width. But when we tested actual blade tension using an accurate tension meter, we found the readings varied a great deal; in fact, the owner's manuals themselves recommend using the tension scales only as an approximation. We prefer to gauge tension the old-fashioned way—increase tension until the blade deflects sideways only about $\frac{1}{4}$ in. under moderate hand pressure with the guide post about 6 in. above the table.

Power. How much power you need depends on the kind of cutting you normally do. All of our test saws had more than enough power, and all were able to get through the thickest stock that would fit under their blade guides. But we found that the Laguna and Euroshop saws were a breed apart when it came to fast, efficient, high-capacity resawing. If you intend to cut heavy stock frequent-

ly, it's worth considering one of these more expensive, heavier-duty machines.

To compare power, we resawed some 6-in.-wide ash planks—the smaller saws' maximum capacity. We used identical Lenox $\frac{1}{2}$ -in.-wide, 3-tpi (teeth per in.) hook-tooth blades, supplied by American Saw and Manufacturing, on all the saws. (Read more about resawing blades on the opposite page.)

Although their stated motor horsepower and amp ratings differed considerably, most of the 14-in. and 15-in. saws resawed the test planks at about the same rate. The Powermatic Artisan 44 took a little longer than average, and the Grizzly G1019Z took about twice as long as the others to hog through the same amount of wood. Their motors bogged down unless we lessened the feed pressure.

In the 16-in.-and-over category, the Grizzly G1073 saw was disappointing in the power department, performing about the same as saws with lower horsepower ratings and lesser capacities. Predictably, the Laguna and Euroshop models, with their larger motors, ripped through the 6-in.-wide stock almost twice as fast as the other saws, with no tendency to bog down.

When we tested the larger-capacity

saws with their maximum-width stock, the Laguna (12-in. capacity) and Euroshop (9 $\frac{7}{8}$ -in. capacity) had no trouble at all, while the Grizzly G1073 (7 $\frac{3}{4}$ -in. capacity) and the Powermatic Artisan 44 (8 $\frac{7}{8}$ -in. capacity) required slower feed rates to complete the cuts.

Dust collection. Though all the saws had ports for hooking up a shop vacuum or dust collector, we found that none of them did a very good job of removing airborne dust from the vicinity of the cutting action. The Laguna and Euroshop, with their larger ports, fared slightly better than the others, but we'd recommend using a dust mask with any of these machines.

Safety. A bandsaw is an inherently dangerous machine—and it's downright unforgiving if your fingers or hands should wander into the blade. All of our test saws had adequate metal blade guards attached to the upper guide posts, and several had lower guards as well.

We liked the large, panic-button-type switches and foot brakes on the Laguna and Euroshop. A freewheeling blade can do as much damage as one under power. We particularly liked the Euroshop's foot pedal, which stops the wheels and switches off the motor at the same time.

Recommendations

If you're looking for a midsize bandsaw that will handle all the routine jobs you regularly face, including resawing, a machine in the under-16-in. category should fit the bill. In this category, we awarded Editors' Choice honors—best performance regardless of price—to the Delta 28-280, which was an outstanding performer.

Not far behind in our ratings were the General 490-1 and the Jet JWBS-14CS. At less than half the price of the General, the Jet earns our Best Buy award—best performance for the price—in the under-16-in. category.

At the upper end of the power spectrum, if heavy production or high-capacity resawing is on your agenda, you can't do better than the Laguna LT16HD—our Editors' Choice winner in the 16-in.-and-over category.

If price is your main concern, both Grizzly saws are worth a look. Though they vibrate a lot and are underpowered for heavy-duty resawing, these saws get the job done for less money than other saws in their respective categories. ▲

Blades for Resawing

We compare **six heavyweight slicers**

The ability to cut cleanly through heavy stock is one of the best reasons to own a bandsaw. You can saw bookmatched panels or get more from fancy lumber by resawing it into matched veneers. But resawing can be difficult without the right blade. A blade that's too narrow or has too many teeth will cut slowly and overheat, shortening blade life and burning the workpiece.

The best resawing blades have hook-style teeth with a pitch (tooth spacing) of 1½ to 4 teeth per inch (tpi). The best-selling size is the ½-in., 3-tpi blade.

Widely-spaced hook teeth cut aggressively without overheating or clogging with sawdust. But there are alternative blades that cut smoother or faster—or last longer—than regular carbon-steel blades.

Tips Make a Difference

Three of the blades we tested—two from American Saw and one from Laguna—had super-hard carbide or Stellite tips brazed to a carbon-steel band. They cut aggressively but required more feed pressure and left an unusually smooth surface. Though these blades can cost 10

times as much as carbon-steel alloy blades, they pay for themselves if you do a lot of resawing, especially in very hard woods. Manufacturers claim the tips stay sharp up to 40 times longer than steel; they're also resharpenable.

Variable-pitch teeth are another nice feature on two of our test blades—the Wood Slicer® and the Lenox Pro Master III™. The unequal tooth spacing prevents blades from resonating at different feed speeds, resulting in smoother cuts.

Here are the specifications and the results of our tests on six resaw blades.

STANDARD CARBON-STEEL BLADE

AVAILABLE FROM: Hardware stores, industrial suppliers, common mail order catalogs

BLADE SPECS: ½ in. wide, .025 in. thick, 3 tpi, hook tooth

PRICE: \$14*

SMOOTHNESS OF CUT: 3

FEED RATE: 4.5

COMMENTS: Cuts quickly and aggressively when sharp; leaves pronounced scratch pattern on cut surfaces; dulls quickly.



WOOD SLICER®

AVAILABLE FROM: Highland Hardware, (800) 241-6748
Circle #617

BLADE SPECS: ½ in. wide, .022 in. thick, variable pitch (average 3 tpi), hook tooth

PRICE: \$30*

SMOOTHNESS OF CUT: 4.5

FEED RATE: 4

COMMENTS: Saws very smoothly with minimal feed pressure; thinnest kerf of blades tested; leaves a very fine, uniform scratch pattern.



PS WOOD TIMBERWOLF™

AVAILABLE FROM: PS Wood Machines, (800) 939-4414
Circle #618

BLADE SPECS: ½ in. wide, .025 in. thick, 4 tpi, hook tooth

PRICE: \$25*

SMOOTHNESS OF CUT: 4.5

FEED RATE: 4

COMMENTS: Saws very smoothly with minimal feed pressure; leaves a very fine, uniform scratch pattern.



LENOX PRO MASTER III™

AVAILABLE FROM: American Saw & Mfg., (800) 628-3030
Circle #619

BLADE SPECS: ¾ in. wide, variable pitch (average 3.5 tpi), carbide tipped, hook tooth

PRICE: \$150*

SMOOTHNESS OF CUT: 5

FEED RATE: 3.5

COMMENTS: Excellent tracking and surface quality; no chattering at fast or slow feed rates; ideal for exotic or abrasive woods; resharpenable for long blade life and good value.



LENOX TRI-MASTER™

AVAILABLE FROM: American Saw & Mfg., (800) 628-3030
Circle #619

BLADE SPECS: ½ in., 3 tpi, carbide tipped, hook tooth

PRICE: \$150*

SMOOTHNESS OF CUT: 3

FEED RATE: 5

COMMENTS: Fast cutting; leaves uniform but pronounced tooth marks on cut surfaces; excellent for exotic or abrasive woods; resharpenable for long blade life and good value.



LAGUNA BARRACUDA

AVAILABLE FROM: Laguna Tools, (800) 234-1976
Circle #601

BLADE SPECS: ¾ in. wide, 1.6 tpi, Stellite tipped, hook tooth

PRICE: \$94*

SMOOTHNESS OF CUT: 5

FEED RATE: 5

COMMENTS: Leaves a planer-smooth surface when fed at faster rates; chatters slightly at slower rates; Stellite tips are tougher than carbide but not as hard; lasts up to 30 times longer than carbon-steel teeth.



KEY: 5 = Excellent; 4 = Very Good; 3 = Good. *Average retail for a 93½-in. blade; fits most 14-in. saws.

Build a Showcase Table

Use a chop saw and router to make a three-way joint that's strong and attractive by Ian J. Kirby



Showing off. The table's glass-covered display space can hold a variety of treasures.

A showcase table can display personal treasures and also show off your woodworking prowess. This Parsons-style table features a three-way mitered joint that creates a strong, attractive, and flush-fitting corner. You can use the same joint to build showcases and cabinets of different sizes.

A chop saw and plunge router are the crucial portable power tools you'll need to make these joints. When fitted with a premium blade, the chop saw makes accurate, smooth cuts on the ends of your legs and rails. The plunge router cuts mortises for the loose tenons necessary for strong joints. However, the real secret to success is meticulous preparation of stock. All the wood has to be dead square in section, per-

fectly flat and straight, and cut to exact length. Deviations don't cancel, they multiply, leading to joints you'll never be able to fiddle home.

Mitering Precisely

All the parts for this table measure $1\frac{3}{4}$ in. square in section. Once you've prepared a face side and edge, and thickened your stock square, cut all parts to final length. Use a stop block and clamp each piece to the chop saw fence, because what really matters here is having all four legs, and all four rails, match one another precisely.

Now it's time to miter. As shown in the photo opposite, each part that meets in a three-way joint contains two miters,

and all three parts are exactly the same. Mitering the legs is no problem because the bottom of each remains square and thus easy to reference against a stop block.

The rail miters are tricky. Sawing the first end leaves a sharp, fragile point that can't reference accurately against a simple stop. A three-piece stop block solves the problem. A mitered offcut glued to a right-angled fence captures the face of the miter, protecting its point. The square end of the block indexes against a fixed point created by clamping a stop to the chop-saw fence or table. (See photo 1, page 54.) Hand-holding is not accurate, so clamp the stop block to the rail, and the rail to the saw fence.

Two chop-saw operations remain: chamfering the bottom of each leg and cutting the loose tenons. Good stop-block strategies for these steps are shown in photos 3 and 4.

Mortising for Loose Tenons

A simple block jig holds each part for mortising (see photo 5). Make the jig with spare lengths of leg and rail stock. Each mortise is 1 in. deep, 1 in. long, and $\frac{3}{8}$ in. wide.

After routing the mortises, pare them square. Sever the fibers with a chisel just barely smaller than the width of the mortise, then free them with a wider one. Pare the mortise back to within $\frac{1}{64}$ in. of the miter root.

Assembling Many Miters

Normally, you assemble tables by joining each pair of legs to a rail. That approach doesn't work here, because there are too many joints to align all at once. Instead, begin by gluing the four rails into a flat frame. Once that glue-up has cured, you can glue each leg into its socket.

To make this method work, first glue mitered clamping blocks on each side of each joint. (See photo 7.) The blocks allow you to clamp directly across the rail miters. Be sure to brush glue onto every mating surface; don't expect it to transfer from one to the other. After the glue sets, unclamp the frame, saw the clamping blocks off, and plane the residue away. Then smooth-plane the top surface of the frame while it lies flat on the bench, before you glue up the legs.

Clamp the legs in their sockets, using clamping blocks to protect the wood. I do one leg at a time (see photo 8). When you've got all four done, plane everything smooth and flush.

Show Time

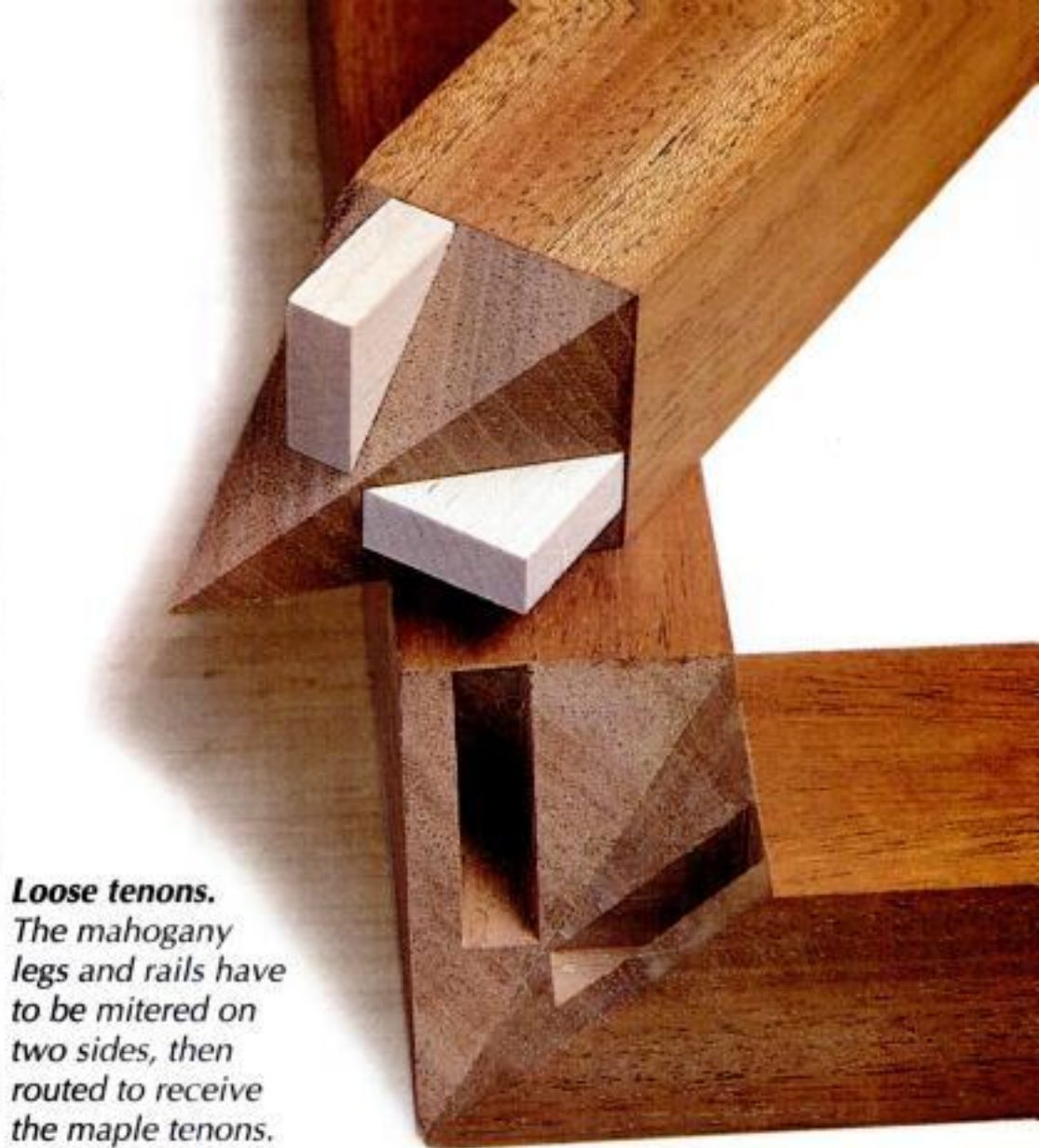
A tray inside the frame and a covering of $\frac{1}{4}$ -in. plate glass complete the showcase table. To support the glass flush with the top of the frame, I glued a mahogany semicircle to the inside face of each rail, setting the top surface of each support $\frac{1}{4}$ in. below the frame's top. (See drawing.)

To make the showcase tray, I covered a piece of $\frac{1}{4}$ -in. Masonite with leather, then nailed the tray to the undersides of the rails, using brass escutcheon pins. Now you're set for the fun part—arranging your treasure in the showcase, and showing off to your family and friends. ▲



IAN J. KIRBY is a furniture designer and woodworking teacher with studios in Connecticut.

Step-by-step photos begin on the next page. ►

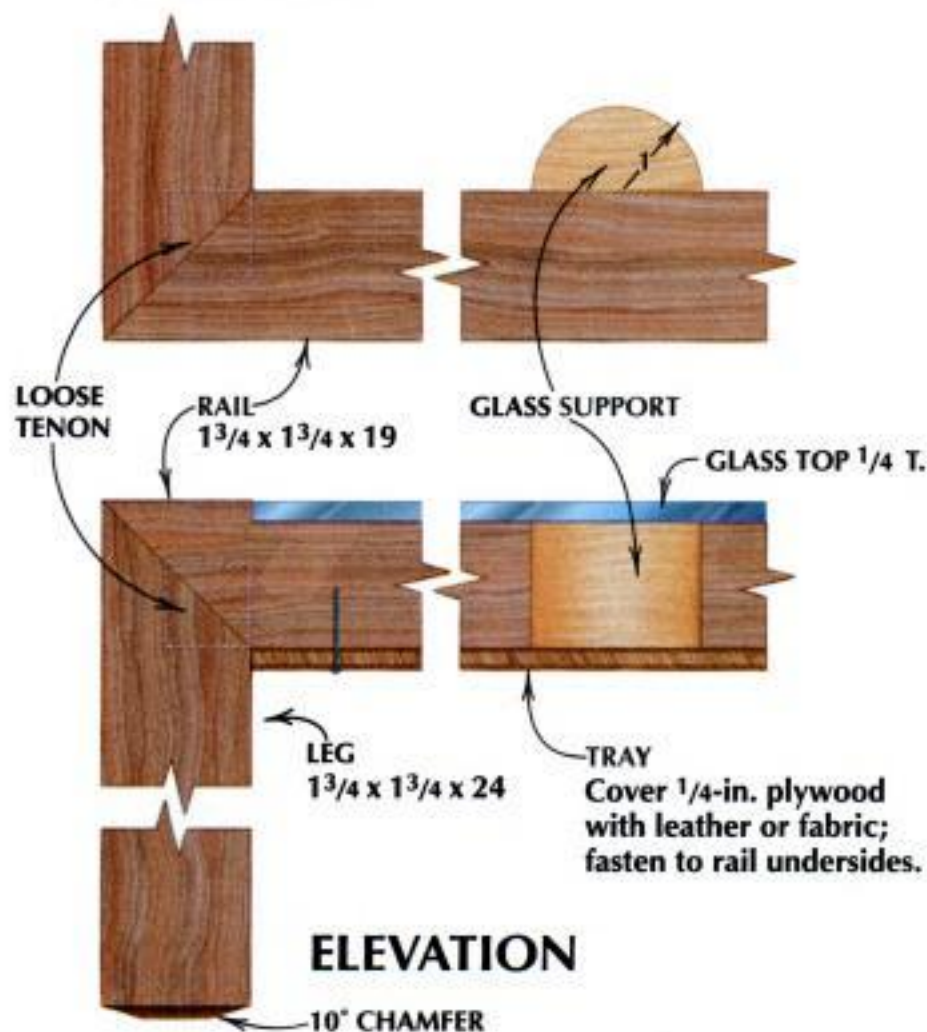


Loose tenons.
The mahogany legs and rails have to be mitered on two sides, then routed to receive the maple tenons.

SHOWCASE TABLE

The drawing provides key dimensions and details for building the author's table, but the design can be duplicated at any scale. Eliminate the tray if you simply want to build a glass-top table.

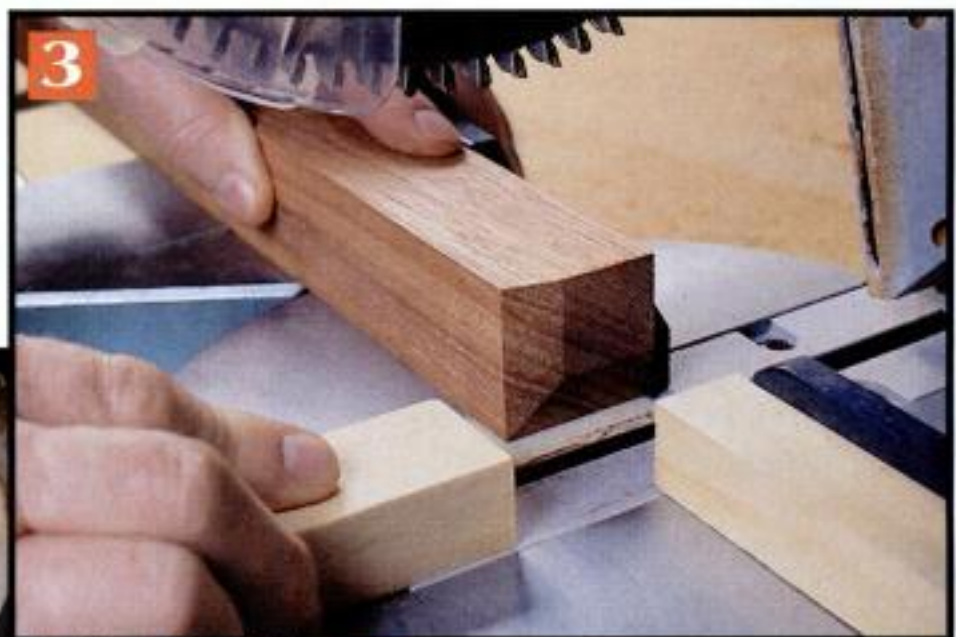
PLAN VIEW



MASTERING THE THREE-WAY JOINT

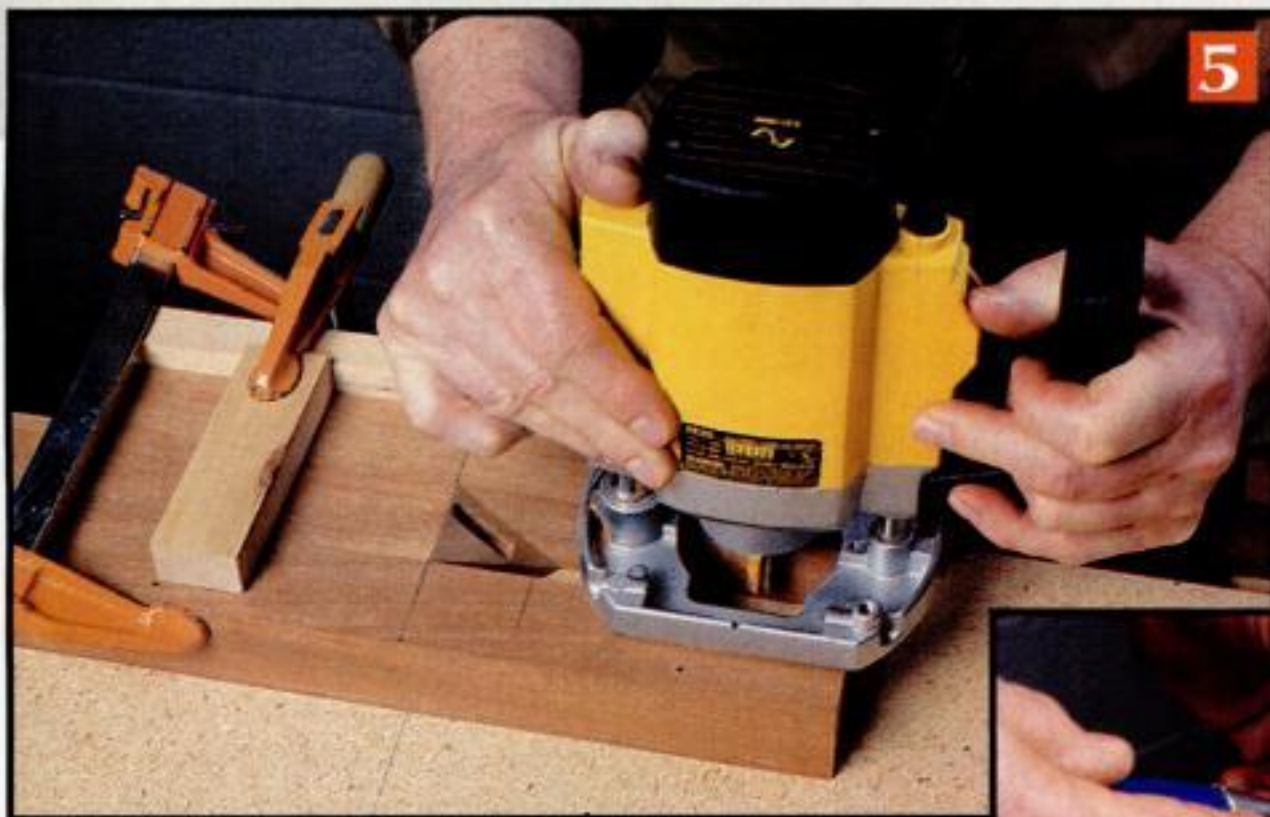
1 *A special stop.* Aligning the double-mitered end cut in each rail calls for a custom-made stop block. The block fits against a previously cut miter and a rail corner. Cutting length is established by a fixed stop clamped to the chop-saw table.

2 *Making the miter.* Make sure to clamp the workpiece to the chop-saw table to eliminate any chance of movement during the cut.



3 *Chop-saw chamfer.* Set the saw to 10° for the leg chamfer. To align the leg end for each chamfer cut, use a loose block in combination with a stop block clamped to the right fence.

4 *Tenon-cutting trick.* A long stop block (clamped to the left fence) controls the length of the loose tenon, while a handheld hold-down safely presses the tenon down as the cut is made.



5

5 A jig for mortising. The workpiece is sandwiched between two pieces of rail stock. A straight fence and a clamped stop block control the router's travel.



6

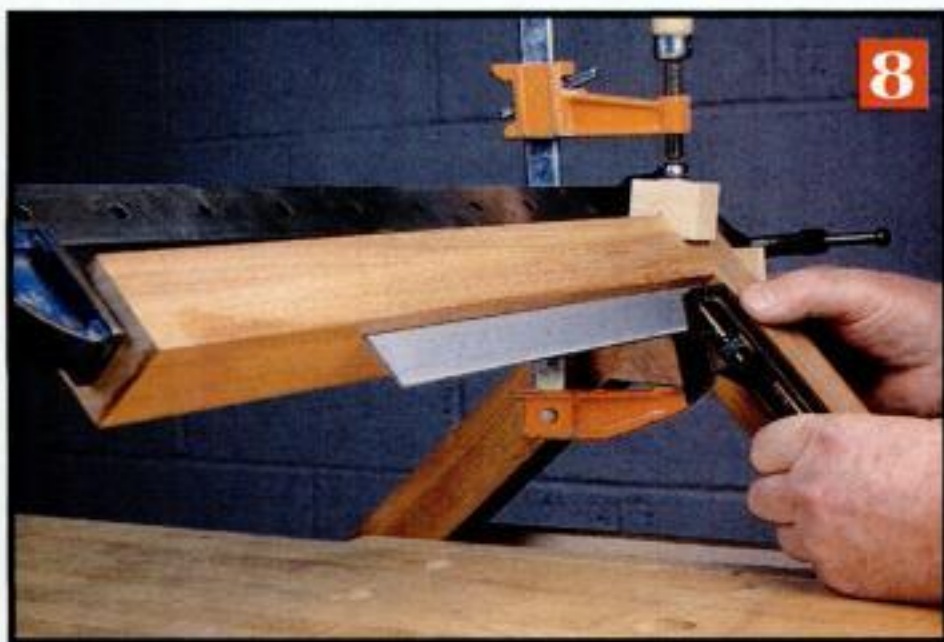
6 Squaring up. Pare the rounded mortise ends flat and square. Pare back to $\frac{1}{64}$ in. from the root of the miter.



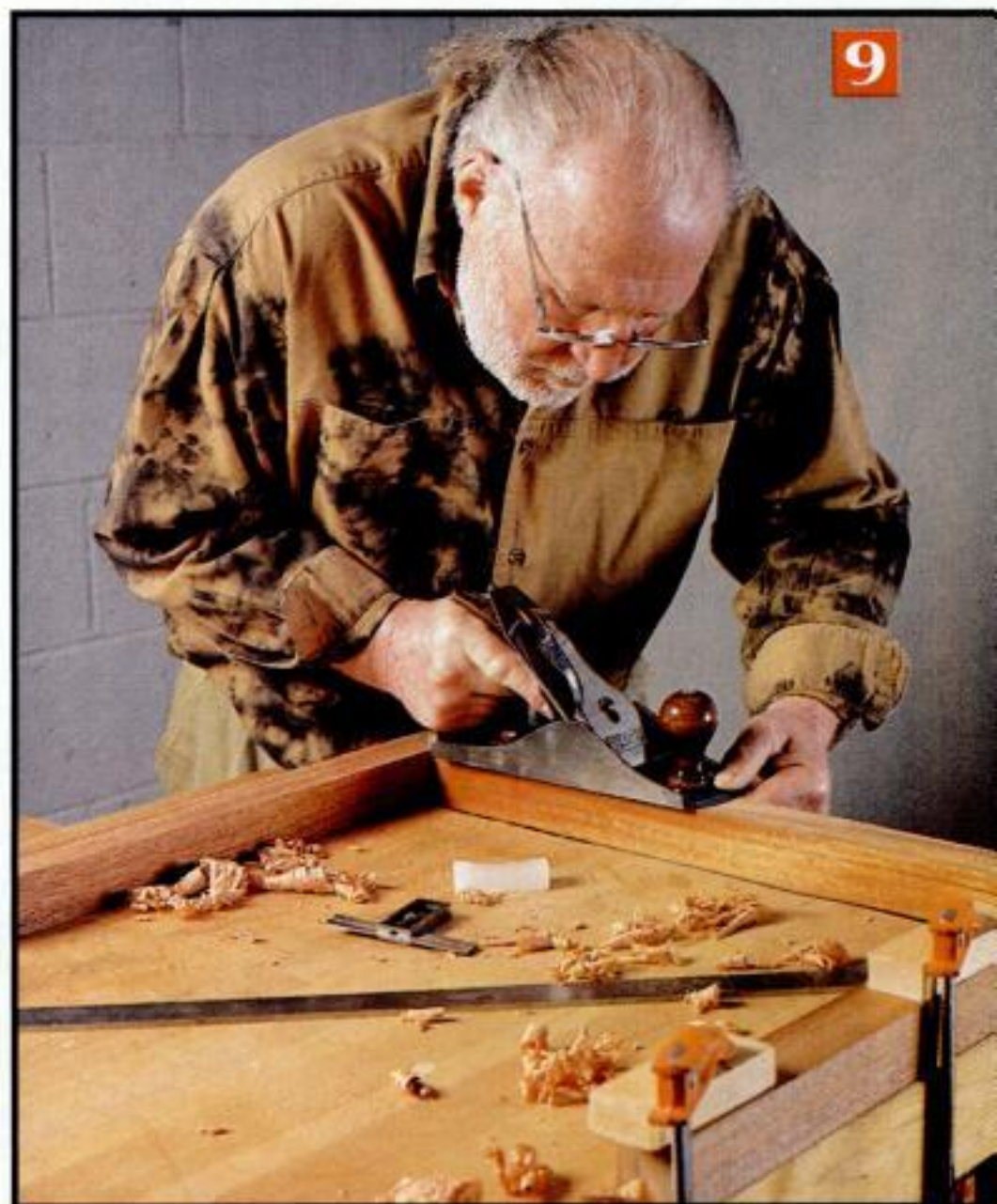
7

7 Gluing up the rails. Mitered blocks, preglued to rail pieces, make clamping easy and precise. Saw and plane the glue blocks off afterward.

8 Glue legs one at a time. Clamp each leg into its socket from both directions. Adjust the clamps to bring the leg perfectly square with the rails.



8



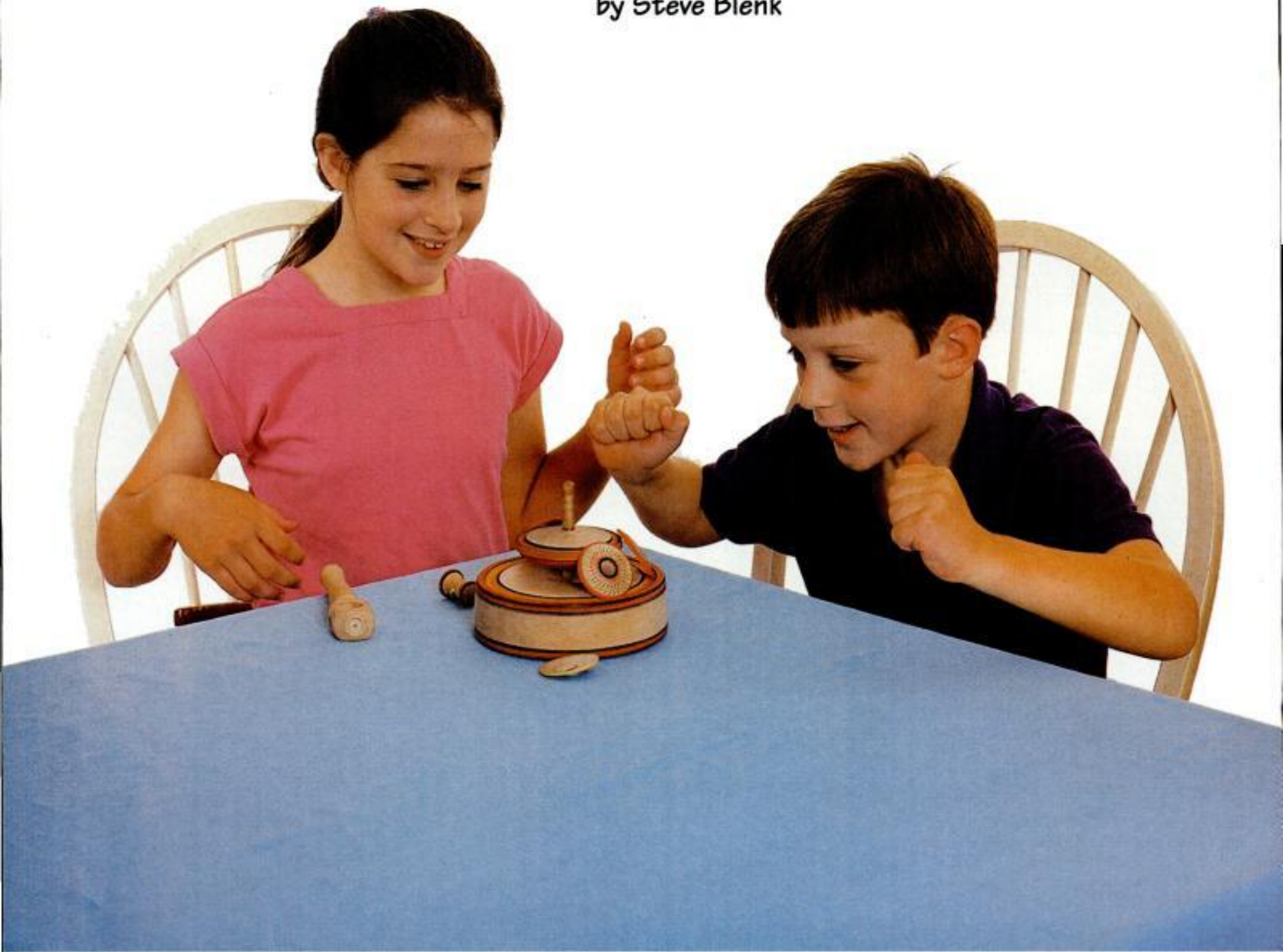
9

9 Plane it smooth and flush. If the grain behaves, you can turn the plane around the corners. If not, you'll have to lift off and change direction at each miter.

Dueling Disks!

A spinning top makes the disks duke it out

by Steve Blenk



Game time. Watch the fun as the wooden disks race around the base, powered by a spinning top.

The classic turned toy shown here is a great project for an afternoon on the lathe. Put to use, it'll stir the competitive juices of old and young alike as wooden disks race. You spin a top in the center of a wooden base, then place two or more disks so their edges rest against the top and a groove around the base. The disks proceed to run around the base, powered by the top. It's anyone's guess as to which disk will lead as they sneak up and slip by each other. The action can get even more hectic—sometimes a passing disk knocks another right off the base. With a well-balanced top, the excitement can last for several minutes.

Tools and supplies for this turning project are minimal. You'll need a screw chuck or a standard faceplate for your lathe. I like to use a good four-jawed chuck for most of the turning, such as the Oneway Stronghold, available from Woodcraft (800-225-1153). Alternatively, you can turn all the parts between centers if you wish. Experimentation has proved to me that you'll get the best results using eastern

hard maple for the set, but any stable, medium-dense hardwood such as cherry or birch will do. If you'd like to decorate the parts as I did, have some colored felt-tip markers on hand.

Turn the Base

Start by bandsawing a 6-in.-dia. disk from 8/4 (nominal 2-in.-thick) stock. Mount the disk on the lathe with a screw chuck or faceplate. Turn the disk true, and face the top surface so it's flat. I use a shallow gouge for these jobs, using a cutting action instead of scraping for a cleaner surface.

Once the disk is true, cut the perimeter groove and turn the hollow in the center. (See drawing.) I made both these cuts with a small gouge. Sand the base up through 220 grit, and add decoration if you like by holding colored markers against the piece as it spins. Slow down the lathe when marking to avoid drying out or melting the tips of your markers.

Turn the Top

I create the top as a two-part turning: I rough-turn the shaft first, then glue a sawn disk onto the shaft and turn this to the shape of the top. (See drawing.)

Rough out the shaft by chucking a 5-in.-long piece of square stock between centers. Turn a 2-in. length at the tail-stock end to a diameter of 1/2 in.

Next, bandsaw some 1 1/4-in.-thick stock to 3 1/2-in. dia., and drill a 1/2-in.-dia. through-hole in the center of the disk on the drill press. Now glue the disk to the shaft. I like using cyanoacrylate glue for the adhesive because it's fast and foolproof. Make sure one end of the shaft extends 1/2 in. or so beyond the disk.

Once the disk and shaft are together, it's important to follow the correct turning sequence. This will promote accuracy and avoid snapping the shaft. Chuck the assembly between centers and begin truing the edge of the disk to the axis of the shaft. Then shape the top's body with a gouge. Keep your cuts light. Rough-shape the tip, but don't turn the point itself.

Once you've shaped the top, turn the shaft a hair under 3/8-in. dia., again using light cuts. Carefully turn the bead at the end of the shaft, but leave some waste. You'll hand-sand the final shape later.

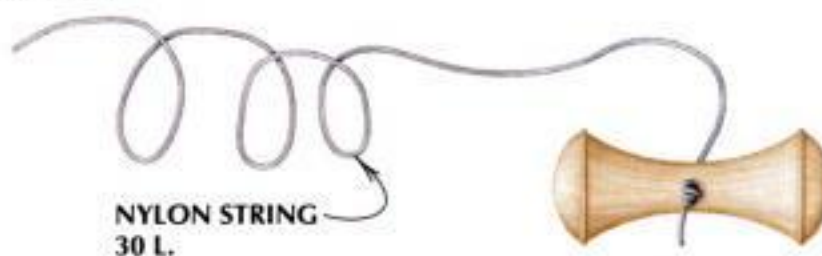
Now sand the top and the shaft and apply the colors of your choice with markers, as you did on the base.

DUELING GAME PARTS

Hard maple is ideal for all the game parts. The handle, launcher, top (including the shaft), base, and disk can all be turned on the lathe.

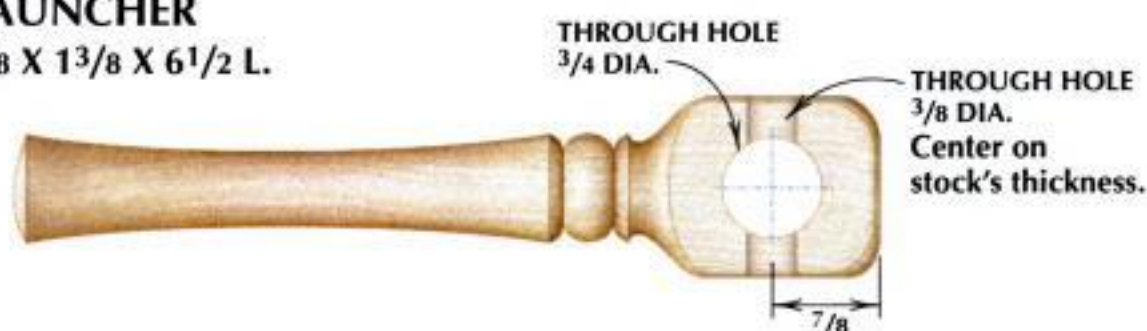
HANDLE

3/4 DIA. X 2 L.



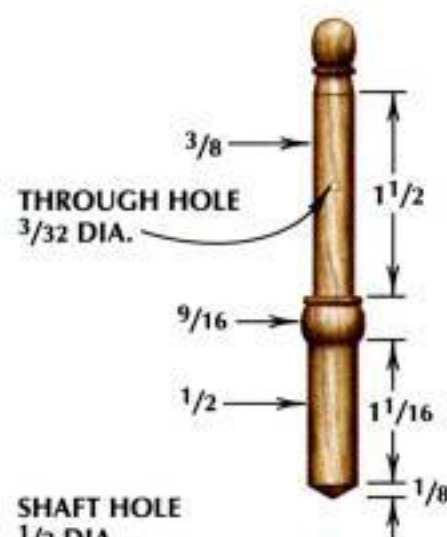
LAUNCHER

7/8 X 13/8 X 6 1/2 L.



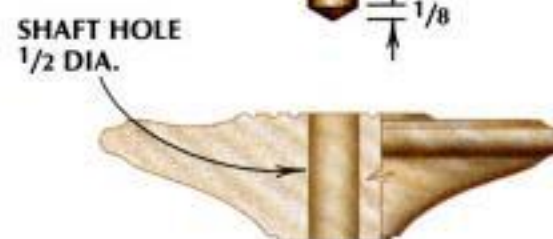
SHAFT

1/2 DIA. X 3 1/8 L.



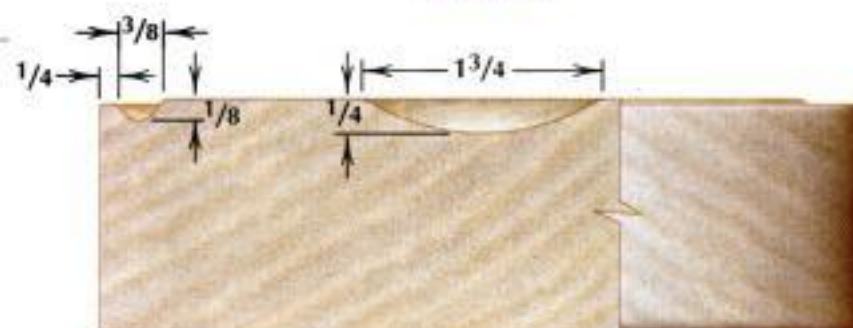
TOP

1 T. X 3 3/8 DIA.



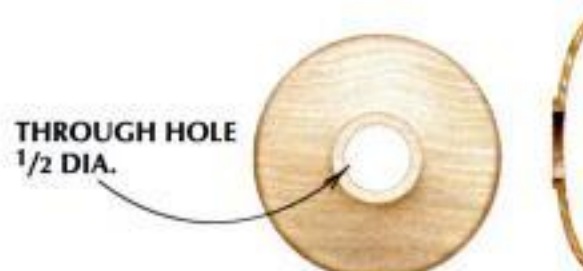
BASE

1 3/4 T. X 5 3/4 DIA.



DISK

1/8 T. X 1 7/8 DIA.





Turn the tip last. For a dead-center tip, turn it after the rest of the body and shaft, using light cuts with a skew's tip.



A handle with two holes. Bore the right-angled holes before mounting the blank for rounding.



Part a disk. Turn and decorate the outside of the blank, then make a concave parting cut to free the disk.

Go back to the tip and turn the point with a skew, again using light cuts. Turning the tip last ensures that it's centered on the top for a balanced, long-lasting spin. (See photo, above left.)

Finally, part the top off the lathe at the shaft end, and drill a $\frac{3}{32}$ -in. hole through the shaft for the pull string. (See drawing, previous page.)

Making the Launcher

It's not necessary, but I like to turn the launcher on the lathe. A simpler approach is to bandsaw and carve the launcher by hand. Below I'll describe how it's done on the lathe.

Start with a blank that's $\frac{7}{8}$ in. thick by $1\frac{3}{8}$ in. wide and about 7 in. long. Before turning, I bore two intersecting, perpendicular holes in the stock. (See drawing.) I get the cleanest holes using a Forstner bit on my drill press.

After drilling the holes, mount the stock on the lathe between centers. Use a gouge or a skew to soften the corners on the end where you've bored the holes, taking light cuts to avoid tearing out. Then turn the remainder down to a round handle. (See middle photo, above.)

Once you're satisfied with the shape, sand and color the launcher on the lathe. Part off the headstock end of the launcher, removing the center drive marks. I usually leave the drive marks on the tailstock end, since I use a live center and the circular marks it leaves complement the overall design.

Turning the Disks

Turning the fighting disks is fast and fun. First, I saw a piece of $\frac{8}{4}$, 5-in.-long stock into an octagon, tilting the table on my bandsaw to roughly 45° and slicing off each of the four corners. Then I mount the stock in my four-jaw chuck and turn it round.

Next, I bore a $\frac{1}{2}$ -in. hole into the end grain of the cylinder, about 3 in. deep. I use a $\frac{1}{2}$ -in. twist bit in a three-jaw chuck fitted in my tailstock for this drilling operation, but you can just as easily bore the hole with a gouge.

Once I've drilled the hole, I use a gouge to turn the end slightly convex. (See drawing.) At this point you can part off the disk, but I like to add some textural decoration with chatterwork. To cut these chisel-like patterns into the end grain, I use a Sorby Chattertool, available from Craft Supplies USA (800-551-8876). For more information on chatterwork, see AW #45. Once I've chattered the end, I decorate it further with markers.

Finally, use a parting tool to undercut the back side of the disk, following the convex curve on the end of the cylinder. (See drawing.) Aim for a disk thickness of $\frac{1}{8}$ in. to $\frac{3}{16}$ in. I make the final cut into the bored hole with the tip of the skew, parting off the disk cleanly. After a quick sanding by hand to the back of the disk, you're all done. I like to make four disks—in different color patterns—so that everyone can join in the fun.

Turn the String Handle

As a finishing touch for the set, I turn a handle between centers for the pull string. (See drawing.) Use a gouge to cut the cove, then shave each end with a skew. Before parting the ends, don't forget to decorate them with markers to match the set. Finish up by drilling a hole in the handle, then tie on some nylon string and get ready to launch!

One, Two, Three...Launch!

To use this devilish dueler, place the base on a level surface. Insert the top's shaft into the smaller hole in the launcher, and poke the free end of the pull string into the hole in the shaft. Wind the string by spinning the top by hand.

Place the tip of the top lightly in the hollow at the center of the base, and pull the string hard to spin the top. Now take a disk and set it on edge in the outer groove, at the same time leaning it against the spinning rim of the top. Keep adding disks until all players are represented. The disks will race around the base, jostling and bumping one another as they go. Now place your bets! ▲



STEVE BLENK is a spin doctor and a professional woodturner in Washington state.

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SUPER TOOL, \$60**

13 tools, two scales

Includes pliers, wire cutters, screw-driving blades (two straight, one Phillips), serrated and straight knives, an aggressive saw, and a great file.

Leatherman

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Multi Tools

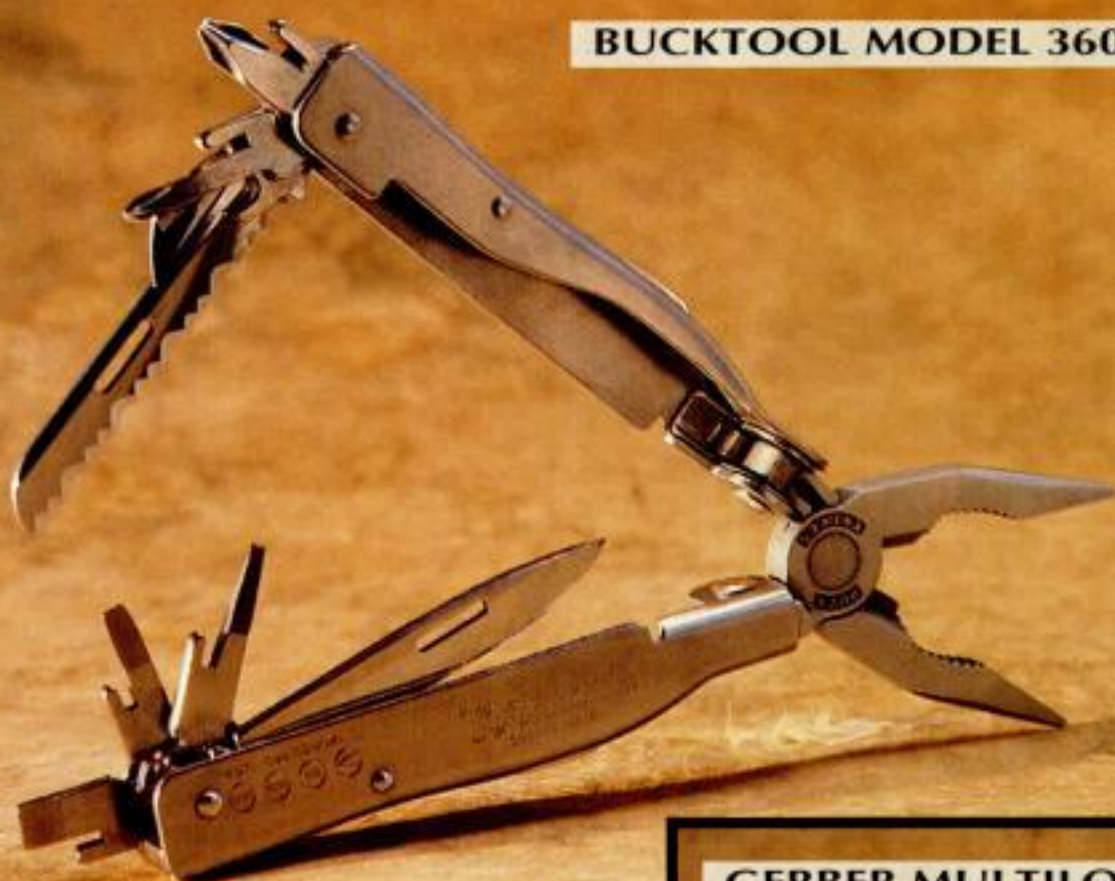
These hip toolkits pack pliers and plenty more

In size and function, the multi tool picks up where a jackknife leaves off, and stops somewhere short of a small toolbox. The main difference between a jackknife and a multi tool can be summed up in one word: pliers. And every multi tool has its own ingenious way of incorporating the gripping, wire-cutting jaws into a compact, folding design. But the models we tried are too big to sit well in a pants pocket. That's why the typical multi tool comes with a pouch meant to travel on your belt.

Beyond pliers, multi tools offer an assortment of blades you can unfold as needed. The arsenal usually includes several screwdriver tips, at least one knife, a can opener, awl, file, saw, and even a small chisel, if you're lucky. English and metric scales are inscribed on the handles of most models.

A multi tool won't improve your joinery work. But it's an awesome companion whenever you need to fix or fiddle with something.

Turn the page for our take on eight more multi tools. ►



BUCKTOOL MODEL 360, \$82

BUCKTOOL MODEL 360

10 tools, no scales

Compact, comfortable to grip, and well endowed, but the stubby screwdriver blades are difficult to open.

Buck Knives

(800) 326-2825 Circle #609

GERBER MULTILOCK WOODSMAN

12 tools, two scales

Retracting pliers and slide-lock action mean easy operation. The blade holder lets you mount any universal-type jigsaw blade—a great feature. The accessory toolkit (part #05200) includes an adaptor and six screwdriver bits.

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GERBER MULTILOCK WOODSMAN #07531, \$59.95
OPTIONAL TOOLKIT, \$24



KERSHAW A100, \$99.95



KERSHAW A100

Eight tools, two scales

The longest multi tool (6³/₄ in.) and the only one with locking pliers and a blade designed to cut metal instead of wood.

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SCHRADE TOUGH TOOL

11 tools, two scales

No need to open the handles to access the tools, the locking mechanism is easy to operate, and the file is first rate. But who needs three knives?

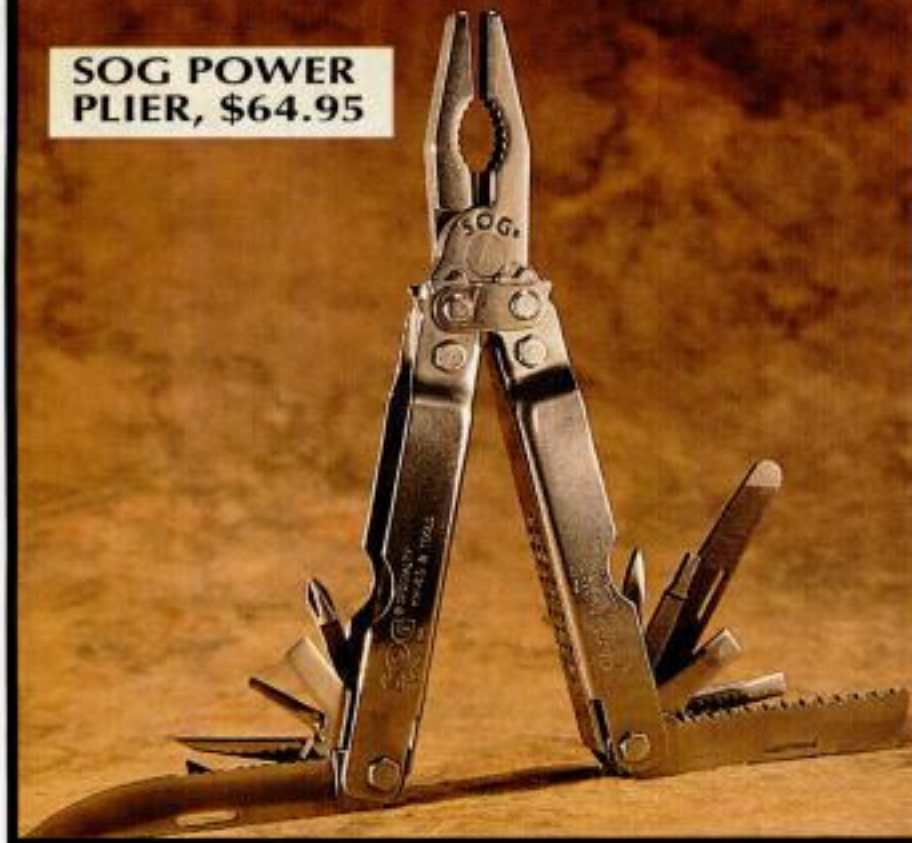
Schrade Cutlery

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SCHRADE TOUGH TOOL, \$59.95



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SOG POWER PLIER

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SWISSTOOL, \$79



SWISSTOOL

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Tools are easy to access, and include a $\frac{5}{16}$ -in.-wide chisel. The scale is long (9 in.) and the file works great.

Victorinox

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www.swissarmy.com Circle #614

**COLEMAN PRO-LOCK
CARTRIDGE TOOL SYSTEM, \$39.99**



**COLEMAN PRO-LOCK
CARTRIDGE TOOL SYSTEM**

11 tools, two scales

The plier handles hold interchangeable cartridges that contain different tools. The cartridges can be removed easily and used on their own—a nifty design.

Coleman

(800) 835-3278

www.coleman.com Circle #615

WENGER SWISS GRIP

Nine tools, no scales

Here's a jackknife that grew a pair of pliers. You get fewer tools, but they're bigger, and there's no better multi tool for driving screws. The file and saw work well, too.

Precise International

(800) 447-7422 Circle #616

WENGER SWISS GRIP #16966, \$99



Display Shelves

Use mitered moldings to dress up a simple shelf

by Lonnie Bird

Display shelves are what you need if you've run out of room on your mantelpiece, or if you simply want to add a shelf in any room. Prized photos, antique plates, ceramic figurines, trophies, and other treasures deserve the distinctive display that these dressed-up shelves provide.

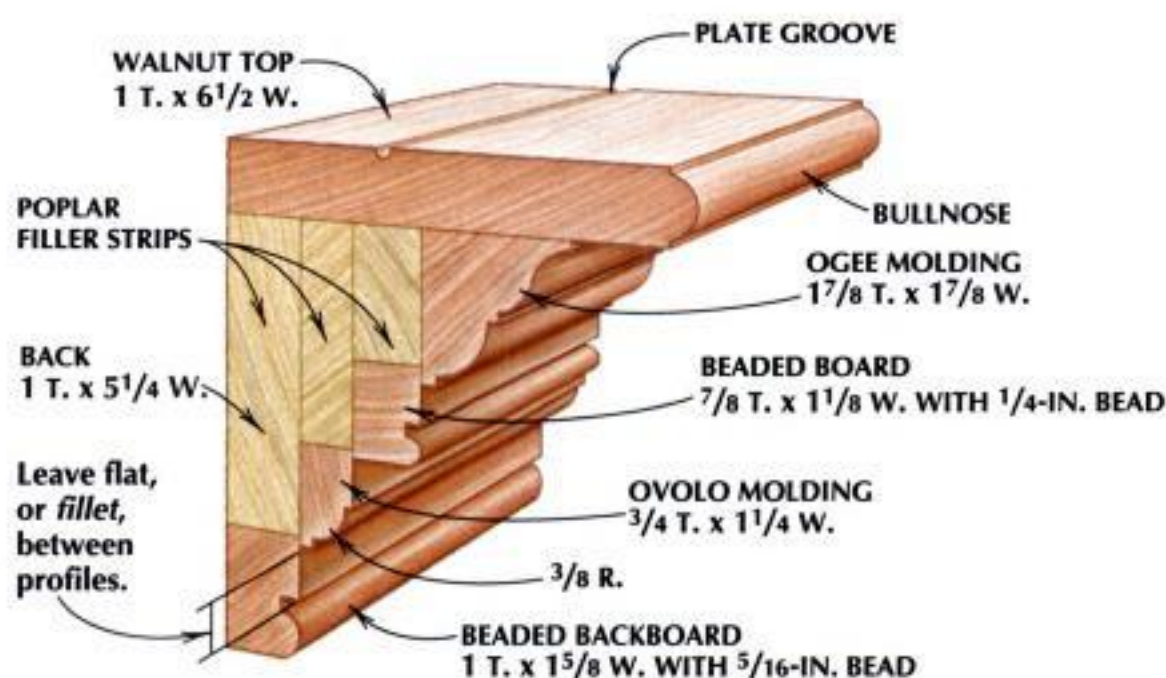
Home furnishing stores and catalogs offer their own high-cost versions of display shelves, but woodworkers can do a lot better for a lot less. In this article, I'll show you three different shelves and give you some useful advice about building your own.



Showing off. A display shelf is a fitting home for favorite objects. It also shows off your woodworking talents.

SHELF 1: STACKED MOLDINGS

This walnut shelf, shown in the lead photo, is made from layered moldings glued together and mitered at each end. To conserve expensive hardwood, first glue a secondary wood to the molding stock, then shape the molding profile on the hardwood.



A stack of moldings. Shown upside down, the author's shelf consists of walnut moldings stacked together, with poplar as a secondary wood.

ORDER OF WORK: 1. Glue walnut molding stock to poplar filler strips. 2. Shape or rout moldings. 3. Make beaded backboard, and rout two keyhole slots in back. 4. Miter and glue successive moldings to back. 5. Rout bullnose and plate groove in top. 6. Glue top to back and moldings. 7. Apply clear finish.

Materials and Tools

Moldings are what make these shelves special. You can make a display shelf using stock moldings from the lumberyard or home center, or you can make your own. Stock moldings are a good choice if you plan to paint the molded part of your shelf. With shop-made moldings, you've got more creative freedom in terms of molding profiles and wood selection. Router bits such as ogees, beads, coves, and round-overs let you make an assortment of profiles. For a variety of profiles from a single bit, use a large, multiple-profile router bit, available from MLCS (item #859, 800-533-9298).

Equipment requirements are minimal for display shelves. I rely on my chop saw to cut precise, super-smooth miters in shelf moldings. You can also get good results on the tablesaw, especially if you use a premium cut-off blade and a mitering sled. (See AW #66, page 44.)

Designing a Shelf

I designed my shelves following the patterns of traditional fireplace mantels. Typically, 18th-century craftsmen adorned fireplaces with elaborate, rich-looking mantels that had deep layers of

moldings. But as you'll see in my examples, you can use a variety of different moldings stacked together to achieve different effects.

Before cutting any wood, it's a good idea to draw a cross-section view of the shelf to get a feel for how different profiles will work together, and to determine the finished depth of the shelf.

When stacking two or more moldings together, remember to draw *fillets* between the molding profiles. These small, flat sections on a molding separate the profiles and give each one distinction. (See Shelf 3.)

Shelf depth can vary, but generally a depth of between 3 in. and 7 in. looks best. Once you've settled on the overall look and depth of the shelf, decide on the finished length. A 3-ft. to 4-ft.-long shelf will work best in most rooms.

Building Tips

It's easiest to build a shelf from the bottom up. Start with the bottom board or the back, depending on your design. Once you've glued the stack of mitered moldings together, you can glue the top shelf to the stack.

When stacking moldings together, you can avoid wasting expensive hardwood

by gluing a secondary wood to a narrower strip of the "show" wood, as shown in Shelf 1. Then shape the molding profile on the show wood. This technique has the added advantage of making the shaping or routing process safer than trying to mill narrow strips.

For shelves with beaded backboards (see Shelves 1 and 3), cut the back to length and then shape, or return, the bead profile on the ends of the board. (See lead photo.) Then miter the next higher molding and continue mitering each consecutive piece.

Cutting miters in crown molding requires a compound-angle cut. I do this on my chop saw with a jig. The jig holds the crown molding at its installed angle while I set the saw blade at a 45° miter angle. A wood strip near the front of the jig provides a stop for the molding. Position this stop for each particular molding, then cut the miters with the crown stock upside down. (See top photo, page 65.) You can use the same jig on the tablesaw by attaching it to your miter gauge.

Dentil molding gives a display shelf an appealing architectural look. (See Shelf 2.) These equally-spaced squares look like they're made from individual

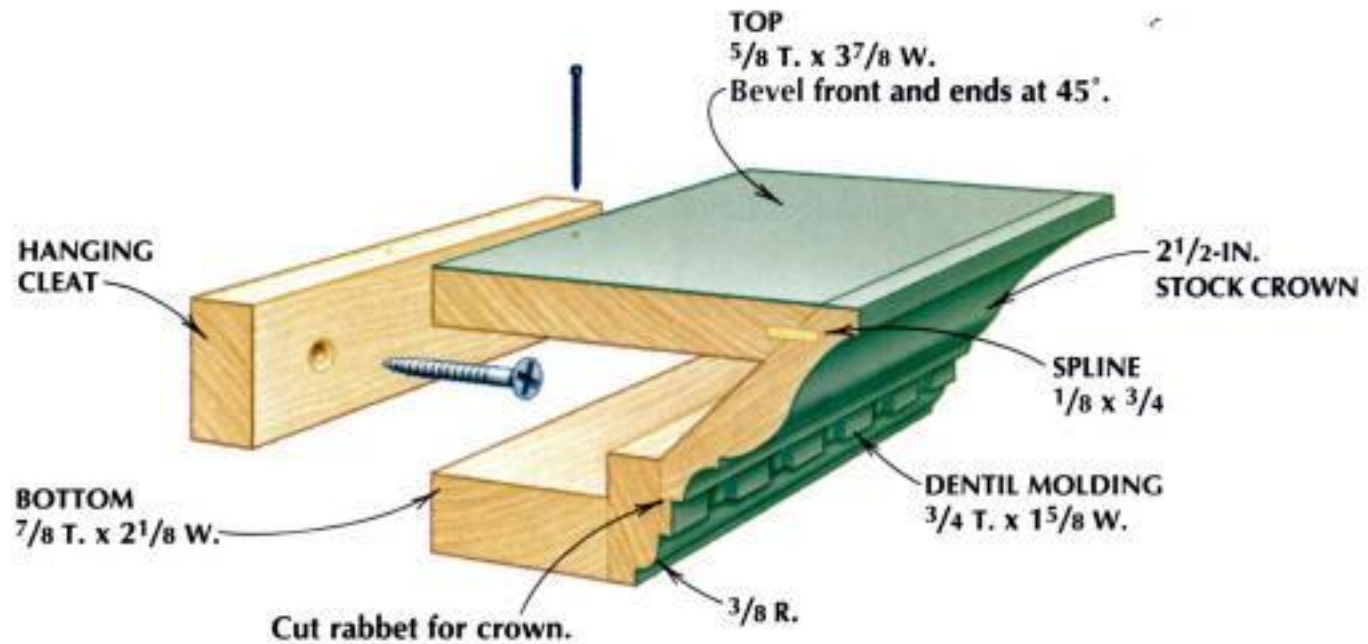
SHELF 2: STOCK CROWN WITH DENTIL MOLDING

A two-piece molding made from stock crown molding and shop-made dentil molding adds visual complexity. Paint accentuates the molding profiles. For more on making the dentil molding, see the center photo, opposite page.



ORDER OF WORK:

1. Make bottom.
2. Make dentil molding.
3. Groove crown stock for spline.
4. Miter and fit dentil and crown moldings to bottom.
5. Dry-assemble and measure for top.
6. Bevel top and groove for spline.
7. Glue up shelf.
8. Apply paint.



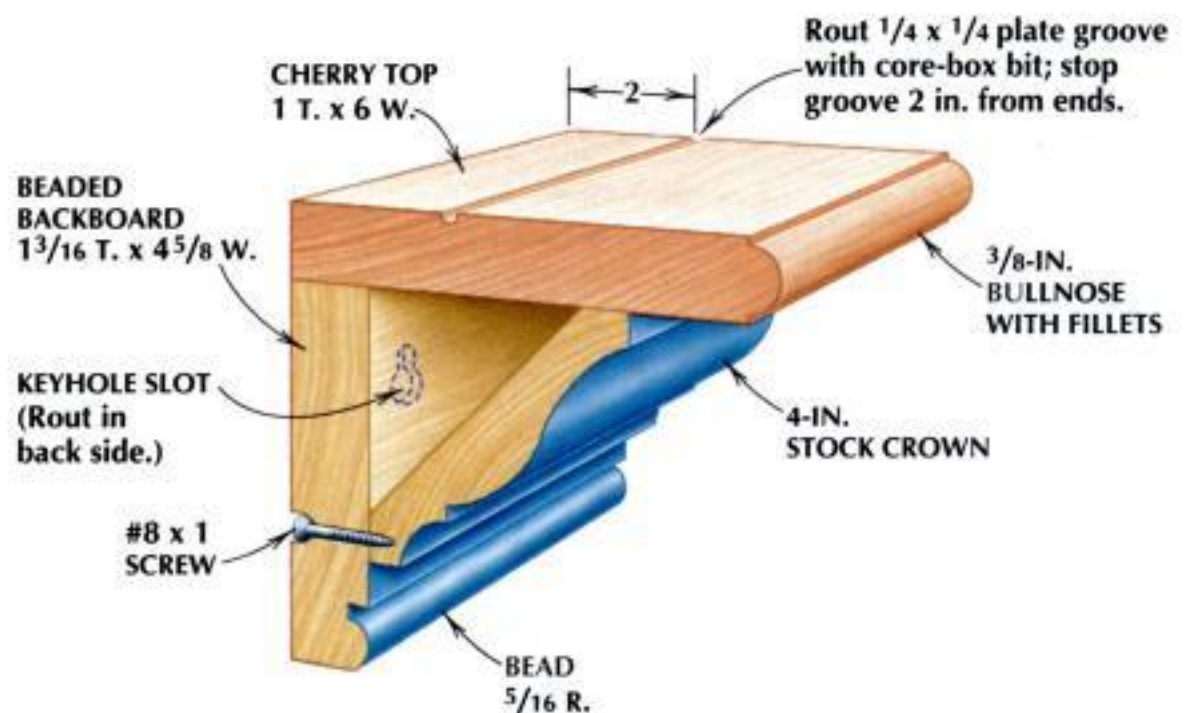
SHELF 3: STOCK CROWN WITH BEADED BACKBOARD

This shelf combines painted crown and a beaded backboard with a natural cherry top. A plate groove in the top lets you display platters or pictures.



ORDER OF WORK:

1. Make beaded backboard, and rout two keyhole slots in back.
2. Miter, glue, and screw crown to back.
3. Rout bullnose and plate groove in top.
4. Apply clear finish to top; paint crown-and-back assembly.
5. Glue top to back and crown.



blocks, but in fact are made from a single strip of solid wood. You make the dentils, or "teeth," by cutting a series of shallow notches along the molding. (See middle photo, right.)

Building the top depends on your design. On a shelf where crown molding covers the edges of the top, bevel the top's edges on the tablesaw to fit the angle of the crown. (See Shelf 2.) Then cut a 1/8-in. groove for a spline in both the crown molding stock and the beveled edges of the top. The spline helps to align these two pieces during glue-up, and it avoids having to use nails.

For a shelf with an overhanging top (see Shelves 1 and 3), shape a bullnose profile on the front and ends. Rout the profile on wide stock, then rip the top to final width after shaping to remove any tearout along the back corners.

A plate groove on the top of the shelf gives you the option to display plates, large platters, or picture frames. (See Shelf 3.) Locate the groove 2 in. from the back edge so your plates will have the appropriate tilt when they're displayed. Rout the groove with a core-box bit on the router table, or use a handheld router equipped with an edge guide.

Installation Options

I use two methods for hanging the shelves. For backless shelves, I attach a wood cleat to the wall. (See Shelf 2.) Use a bubble level to make sure the cleat is level. Locate the screws so they extend into wall framing. Then slip the hollow area at the back of the shelf over the cleat. Drive screws or finishing nails through the shelf and into the cleat's top edge.

Another option is to rout two keyhole slots into the back of the shelf. (See bottom photo, right.) Keyhole bits are available by mail from Woodline Arizona (item #WL1290, 800-472-6950). Lay out the slots so they conform to the stud spacing in your walls. Drive round-head screws into the studs, then slip the keyholes over the screw heads. With this method, you can easily remove the shelf from the wall, or replace it entirely with a new one. ▲

LONNIE BIRD

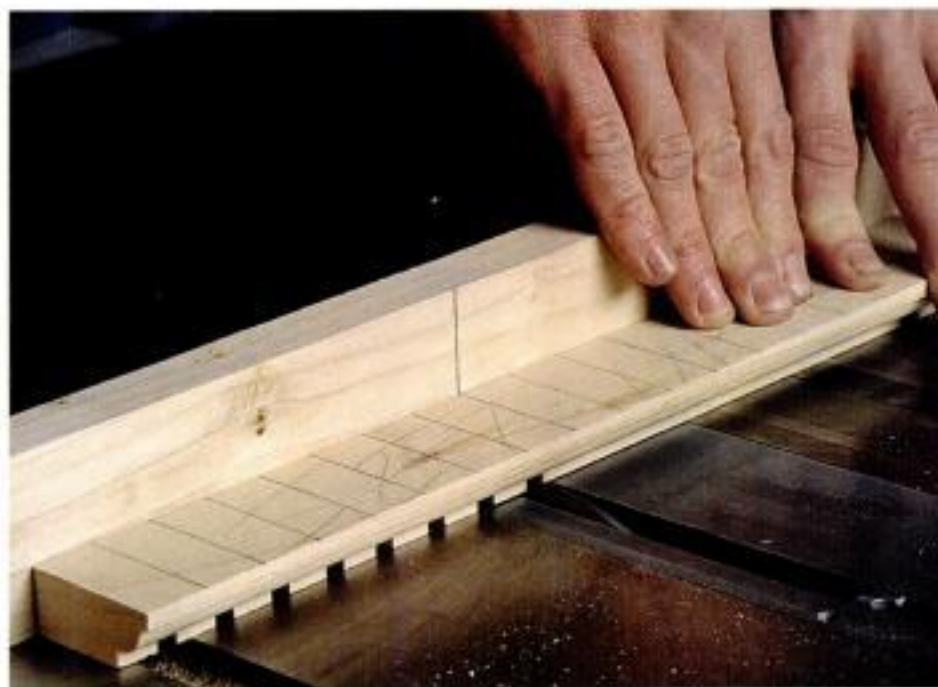
teaches furniture making at the University of Rio Grande, OH, and is a contributing editor to AW.



CONSTRUCTION TIPS



Compound miter jig. To cut a compound miter, screw this L-shaped jig to your saw's fence. Set the saw's miter angle to 45°, and position the stock upside down and against a wooden strip nailed to the jig.



Dadoing dentils. Attach an auxiliary fence to your table-saw miter gauge, then line up the marks on your molded stock with the mark on the fence. Cut a series of shallow recesses with a dado blade.

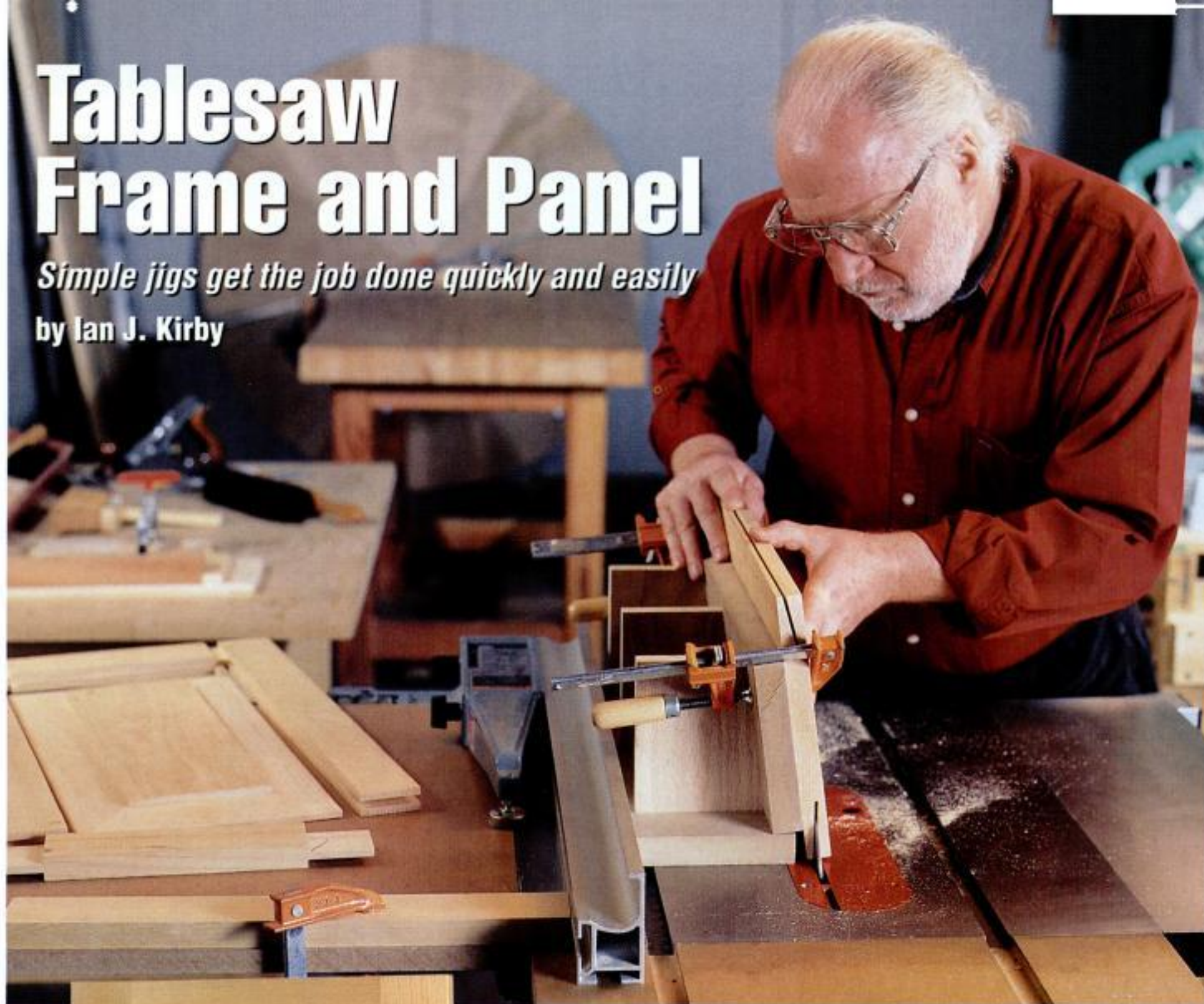


Keyholes at the back. This shelf installation method calls for routed keyhole slots that slip over round-head screws fastened to the wall. A T-profile keyhole bit gets the job done nicely.

Tablesaw Frame and Panel

Simple jigs get the job done quickly and easily

by Ian J. Kirby



Perfect panel raising. The tablesaw and a couple of jigs are all you need to make excellent frame-and-panel doors and cabinet parts. Above, the author's panel-raising jig does the job safely and precisely.

Assisted by a few simple jigs, your tablesaw can produce excellent frame-and-panel assemblies for doors and cabinet parts. One jig raises the panel; another makes the open mortise-and-tenon joint that holds the frame together. Though there are plenty of other ways to do these jobs, the tablesaw advantages are accuracy and convenience. You can walk up to a single machine with a pile of boards and walk away with first-class paneled doors. (See photo, left.)

Why Not to Tilt

Many woodworkers avoid raising panels on the tablesaw. That's because the standard method—tilting the blade so you can push the panel along the rip fence—doesn't produce accurate results. The board is wide, the fence is narrow, and balance is difficult. The slightest distortion in the wood or in your feed pressure translates into a bump, divot, or uneven slope in the bevel. You get a sloppy panel. To add to the aggravation, when you crank the blade back to square, it doesn't quite get there. These limitations are especially evident in contractor's saws.



There's a better way. Keep the blade vertical, clamp the panel to an angled sled that's guided by the rip fence, and push the sled jig and panel together through the blade. When you do this, all of the problems go away.

What a tablesaw does best is rip, and the saw's rip fence is the best way to guide jigs. If you can set the fence parallel to the blade, you can saw a straight and parallel edge on almost any wood that's clamped to a jig. For safety and precision, you've got to clamp the work, not hand-hold it.

First, Draw the Detail

Make a full-size drawing like the Section Detail shown at right. This simple drawing will give you all the crucial information you need to make your doors: the thickness of the parts, the width of frame members, the angle and length of the panel's bevel, the dimensions of the panel groove, and the panel's fit in the groove. You'll use this section drawing to set up your saw.

When you've got the drawing done, select and dimension your stock. Make sure to prepare some additional pieces that can be used for test cutting to confirm the accuracy of blade heights and fence positions.

Now Saw the Panel

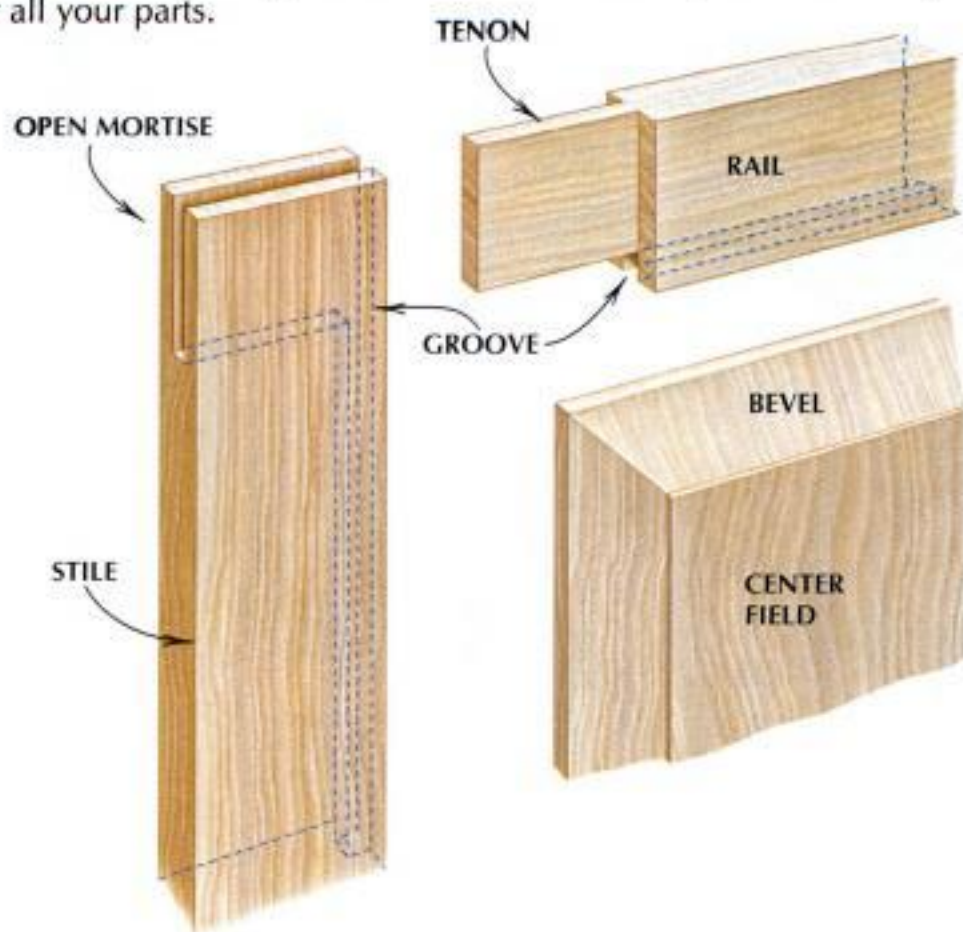
With this tablesaw technique, it's best to complete the panel before making the stiles and rails. Here's why: Once you've beveled the panel edges cleanly on the tablesaw, you don't want to fuss with these surfaces again. It's far easier to adjust the size of your panel grooves to get the fit you want. And your section drawing makes it easy to get the exact finished dimensions of the panel.

The panel-raising process calls for two sets of cuts, which are best made using a premium-quality alternate top bevel (ATB) blade. The first set of cuts bevels all four edges of each panel, and is done with the aid of the panel-raising jig. (See photo, opposite.) For the second set of cuts, the rip fence guides the workpiece. These cuts free the waste pieces from the edges, also creating the square shoulder that forms the panel's center field.

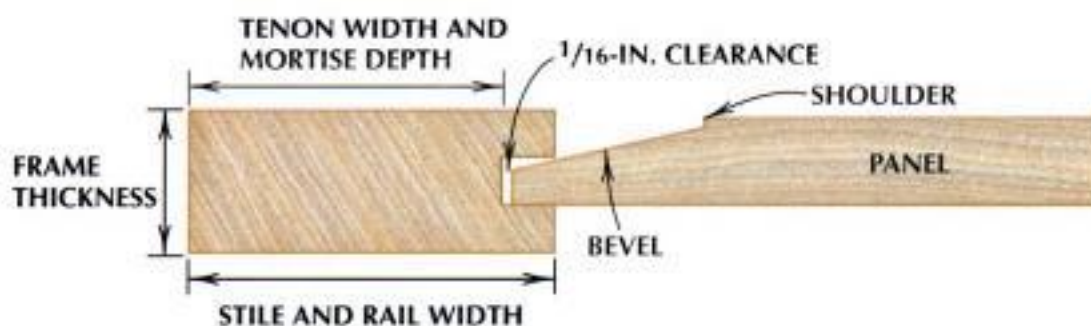
The panel-raising jig shown here does a great job of beveling a board's edges. To build your own version, see the sidebar on page 69. When you "load" the jig, the bottom edge of the panel should rest on the saw table. Adjust your rip fence position to align the blade with

FRAME AND PANEL ANATOMY

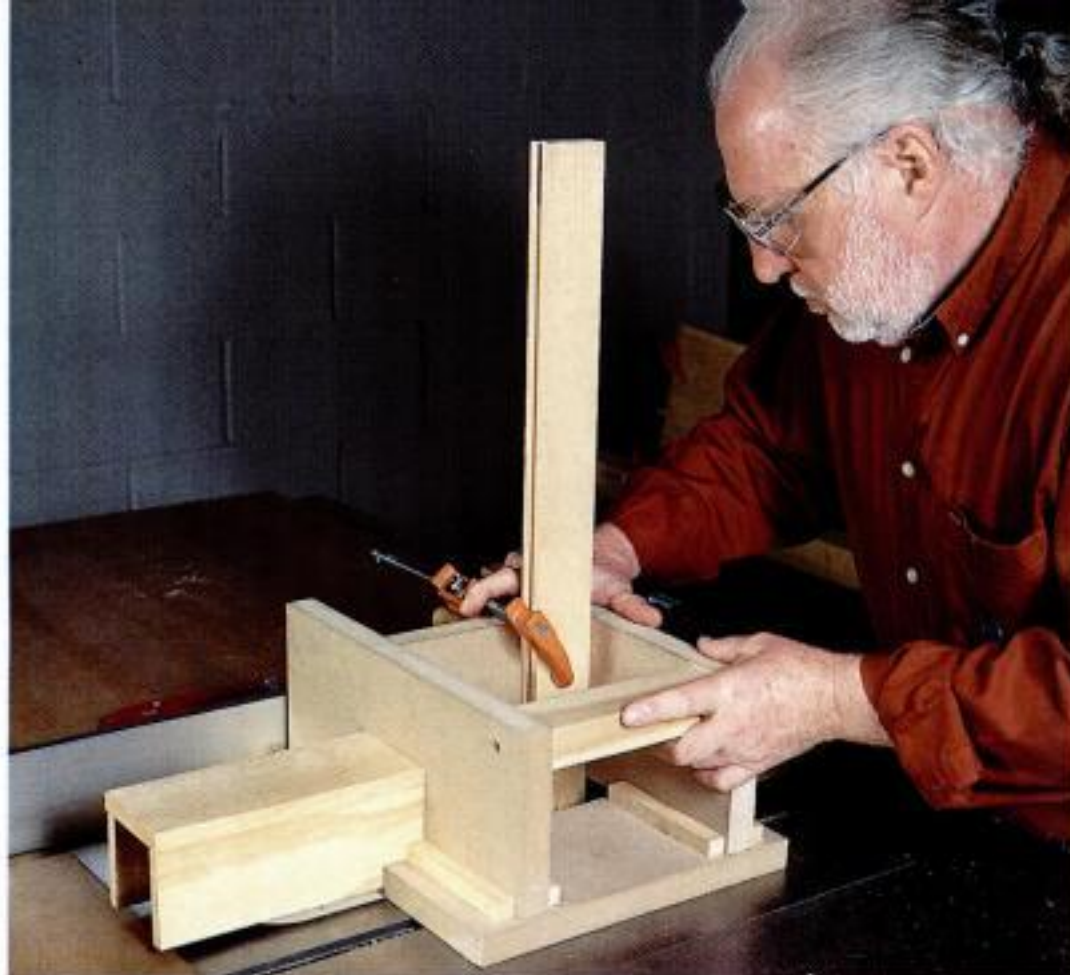
Frame-and-panel assemblies can be used as doors and as paneling elements in walls and cabinetry. A full-scale section detail provides the key dimensions for all your parts.



SECTION DETAIL (FULL SCALE)



The shoulder cut frees the waste. Blade height equals shoulder depth. The rip fence guides the edge of the panel.



Mortising the stiles. Kirby's tenoning jig is designed to run against the rip fence, and will also cut open mortises.



the desired location of the bevel. Raise the blade to reach the top of the bevel. Remember: You don't want to make a through cut here. Instead, cut only to the planned shoulder line as indicated on your section drawing. Now test and (if necessary) adjust your setup by making trial cuts in the extra sample pieces you prepared.

The combination of a weighty, easy-to-push sled jig and a workpiece held by clamps pays off handsomely as the first four cuts are made. Use the kerf of the bevel cut to set blade height for making the second set of cuts. The goal is to cut the triangular waste piece free without having the blade cut into the bevel. After setting blade height, adjust your rip fence to guide the panel edges, then turn on the saw and make your cuts.

The tablesawn bevels will surprise you. Try this technique with a high-quality blade on your saw and you'll get crisp, true surfaces that require little if any sanding.

The Frame Comes Last

Using an open mortise-and-tenon joint (also called a corner bridle joint) spares you the trouble of calculating finished lengths for stiles and rails—simply use the height and width of the door opening. To determine the depth of the open mortise, subtract the depth of the panel groove from the overall width of the rail.

Here's the order of work for cutting the stiles and rails: First, cut the mortises in the stiles, using a tenoning jig and a stack-type dado cutter. (See photos, above.) Note: If you don't own this type

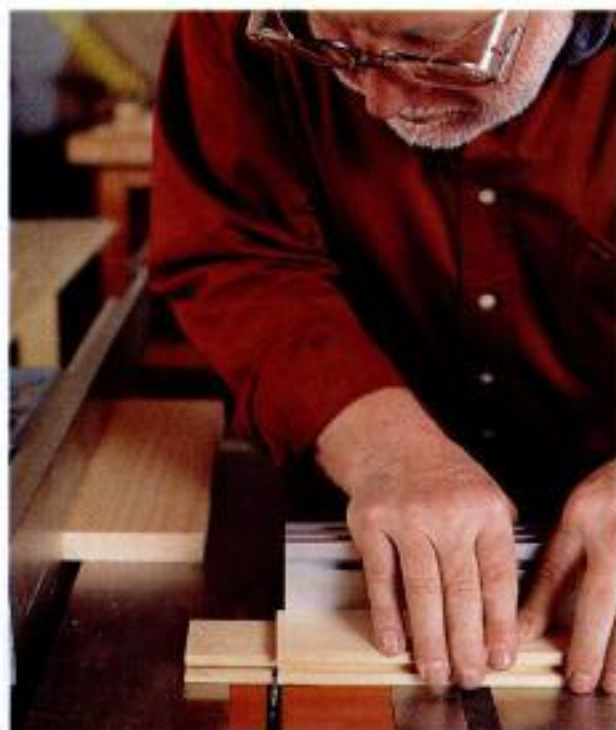
of dado cutter, you can cut grooves and mortises by making multiple passes with a flat-top ripping blade like the Freud LM72M. An ATB blade will leave unsightly angled voids at the base of each mortise.

Plow the panel grooves next, lowering the dado cutter and guiding the stiles and rails against the rip fence. Once this is done, you can replace your dado cutter with an ATB blade and cut the tenons to fit the mortises. Use your tenoning jig to make the cheek cuts, then cut the shoulders by guiding the stock against the miter gauge. (See left photo, below.)

Finishing and Assembly

The frame and panel is a perfect example of why it pays to prefinish parts before assembly. You'll want to finish the entire panel and the inside edge of each stile and rail before assembling the door.

The clamping strategy for an open-mortise frame is shown in the photo at left. A trick worth using is to make the mortise and the tenon just a hair shy of flush. This makes it easy to clamp in both directions. You'll also need a C-clamp or short bar clamp and two clamping blocks to compress each open mortise against its tenon. ▲



Cutting the shoulders. Saw the tenon using the miter gauge and a stop block set against the rip fence.



Clamping it up. Long bar clamps pull the frame tight; shorter ones close up the corner joints.



This article is adapted from Ian J. Kirby's new book, The Accurate Table Saw (Cambium Press, 203-426-6481).

MAKING A PANEL-RAISING JIG

Single-purpose “sled” jigs are the most basic and most underused of all tablesaw jigs. A sled jig is just a flat slab of medium-density fiberboard (MDF) guided by the rip fence. Sled jigs are inexpensive, easily made, and accurate; you can fashion a new one for each new application.

Here I’ll show you how to make two sled jigs—a jig for duplicating angled buttress parts, and a jig for raising panels. The first jig begets the second one.

Have MDF on hand and you’ll always be able to make sled jigs. Smooth, flat, and inexpensive, MDF is an ideal material for sled bases and platforms. But MDF edges don’t hold screws well, so plywood is better for small, edge-fastened parts like buttresses.

An air nailer is the dream tool for jig-building because of the speed it affords. If you have to screw parts together, clamp them first so they don’t shift while you drill countersunk pilot holes. Without pilot holes, screws will cause surface bulges in MDF, which can lead to strength and alignment problems.

First, Make a Duplicate Parts Jig

The parts jig saws angled buttresses from rectangular blanks. It’s nothing more than an MDF sled, two stop blocks, and a toggle clamp.

To make the jig, clamp the workpiece onto a 6-in. by 20-in. MDF sled with the cutting line right over the sled’s edge. Then attach both stop blocks and the toggle clamp. Make sure to position the clamp so it won’t contact the saw guard or fence.

Now for the Panel Raiser

This jig consists of an MDF sled with an upright bed, also of MDF, set at the panel’s bevel angle. Three plywood buttresses made with the parts jig support the bed.

A 20-in. sled will accept panels ranging from 16 in. to 22 in. long. To assemble the jig, clamp each buttress to the sled, align it carefully, and screw it in place. Set the bed on the buttresses with its bottom edge resting on the saw table, and fasten it in place. The photo at right shows how this simple jig saws a perfect panel.



The blade stays vertical. This jig works great because it allows solid clamping and because the workpiece is beveled, not the blade.



A duplicate parts jig. A slab of MDF serves as the base, which runs against the rip fence. Stop blocks and a toggle clamp keep the buttress blank positioned exactly.



The panel raiser. A square and a straightedge align the buttresses on the MDF sled. Attach each buttress with glue and nails or screws, then fasten the bed onto the buttresses.

Saving the Center

Two new coring systems help you get several bowls from a single blank

by Steve Blenk

If you like bowl turning as much as I do, it doesn't take long to search out beautiful and expensive blanks. It's exciting to examine these turning treasures and visualize the bowl inside. But it's always made me feel guilty to hollow out a huge volume of expensive shavings just to get at the finished shape of a single bowl. I hate to

think how much money I've spent creating high-grade garden mulch.

For years, turners have struggled with different techniques for "harvesting" multiple cores from a single blank. Most early methods involved using overgrown parting tools to cut out cone-shaped cores with very limited bowl potential. These devices had a bad reputation for launching unwary woodturners into perilous trajectories across their shops.

Fortunately, the early dangerous days of coring are over, thanks to the coring systems I'll review here. Relatively new on the market, the Bowl Saver and Kel McNaughton systems offer significant advances in coring quality and quantity. They're also a lot safer than any of the earlier options.

Common Characteristics

Although these two systems are distinctly different from one another, there are some common characteristics and concerns. Both devices place a good deal of working torque against the drive system of the lathe. They are designed to be used on industrial-quality machines, not lightweight benchtop models. To use these coring systems safely and effectively, I recommend a minimum motor horsepower of 1 or 1.5. You should run the lathe at low rpm—I used 500 to 700 rpm, depending on the blank diameter.

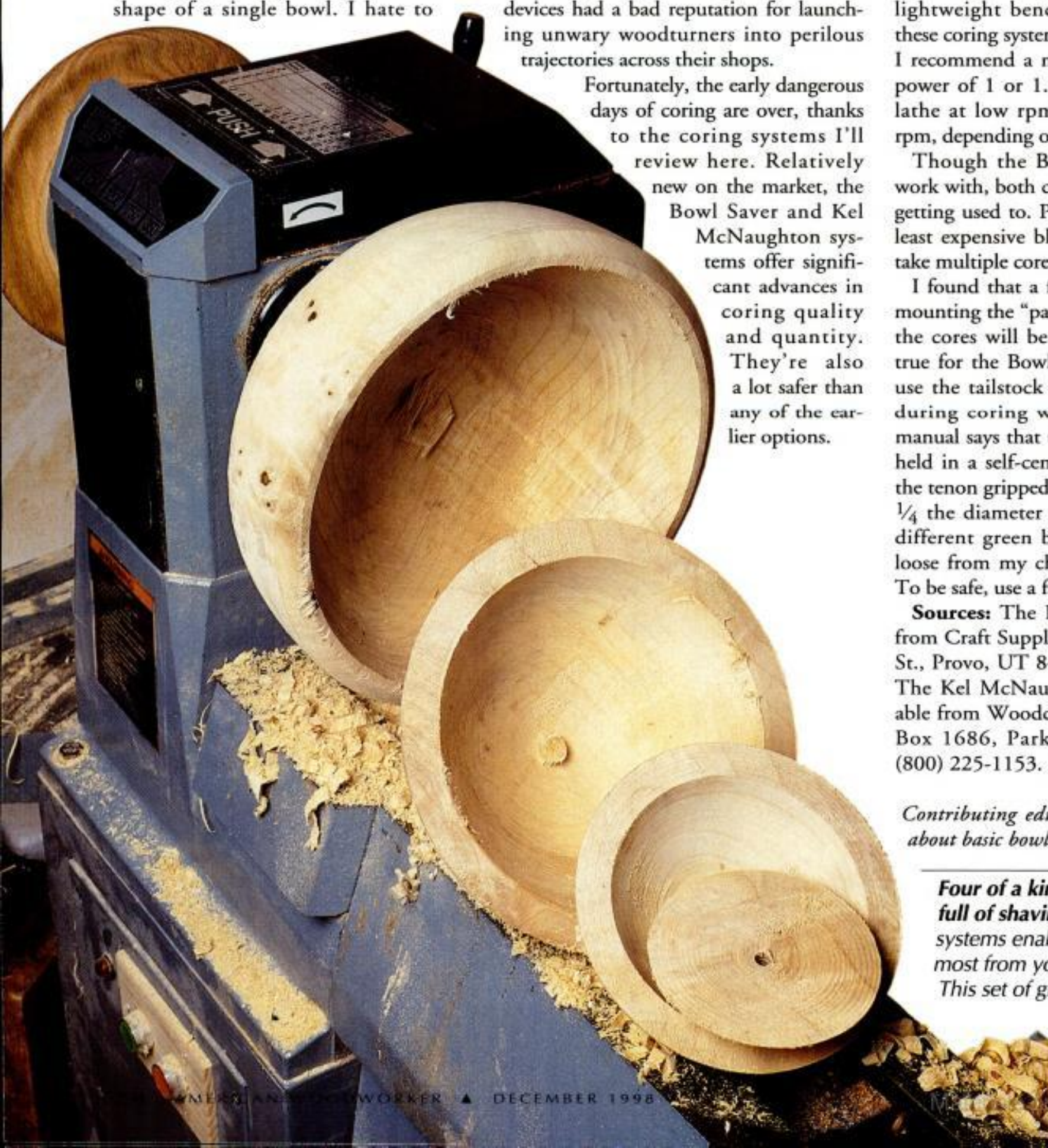
Though the Bowl Saver is easier to work with, both coring devices take some getting used to. Plan to practice on your least expensive blanks before you try to take multiple cores from premium wood.

I found that a faceplate works best for mounting the "parent" blank from which the cores will be cut. This is especially true for the Bowl Saver, since you can't use the tailstock for additional support during coring work. The Bowl Saver manual says that the parent blank can be held in a self-centering chuck, and that the tenon gripped by the chuck should be $\frac{1}{4}$ the diameter of the blank. But two different green blanks started to come loose from my chuck when I tried this. To be safe, use a faceplate mounting.

Sources: The Bowl Saver is available from Craft Supplies USA, 1287 E. 1120 St., Provo, UT 84606, (800) 551-8876. The Kel McNaughton System is available from Woodcraft, 5300 Briscoe Rd., Box 1686, Parkersburg, WV 26102, (800) 225-1153. ▲

Contributing editor Steve Blenk wrote about basic bowl turning in AW #68.

Four of a kind beats shop full of shavings. Two new coring systems enable you to get the most from your bowl blanks. This set of graduated blanks was produced by the Bowl Saver.



BOWL SAVER

Price: \$219.95



DESCRIPTION: This system consists of two curved knives, which pivot on a base that drops into the tool rest and is also secured to the tailstock. When properly secured and adjusted, the base provides rock-solid support.

The knives are used one at a time. The base must be adjusted to the proper starting position for each cut, using a supplied template. The smaller cutter will produce blanks up to about 9-in. dia. by 4 in. deep. The larger knife can cut a blank up to 12 in. by 5 in.

Each knife is fitted with a replaceable Stellite-tipped cutter. Like carbide, Stellite will hold an edge longer than high-speed steel, and it stands up very well to heat.

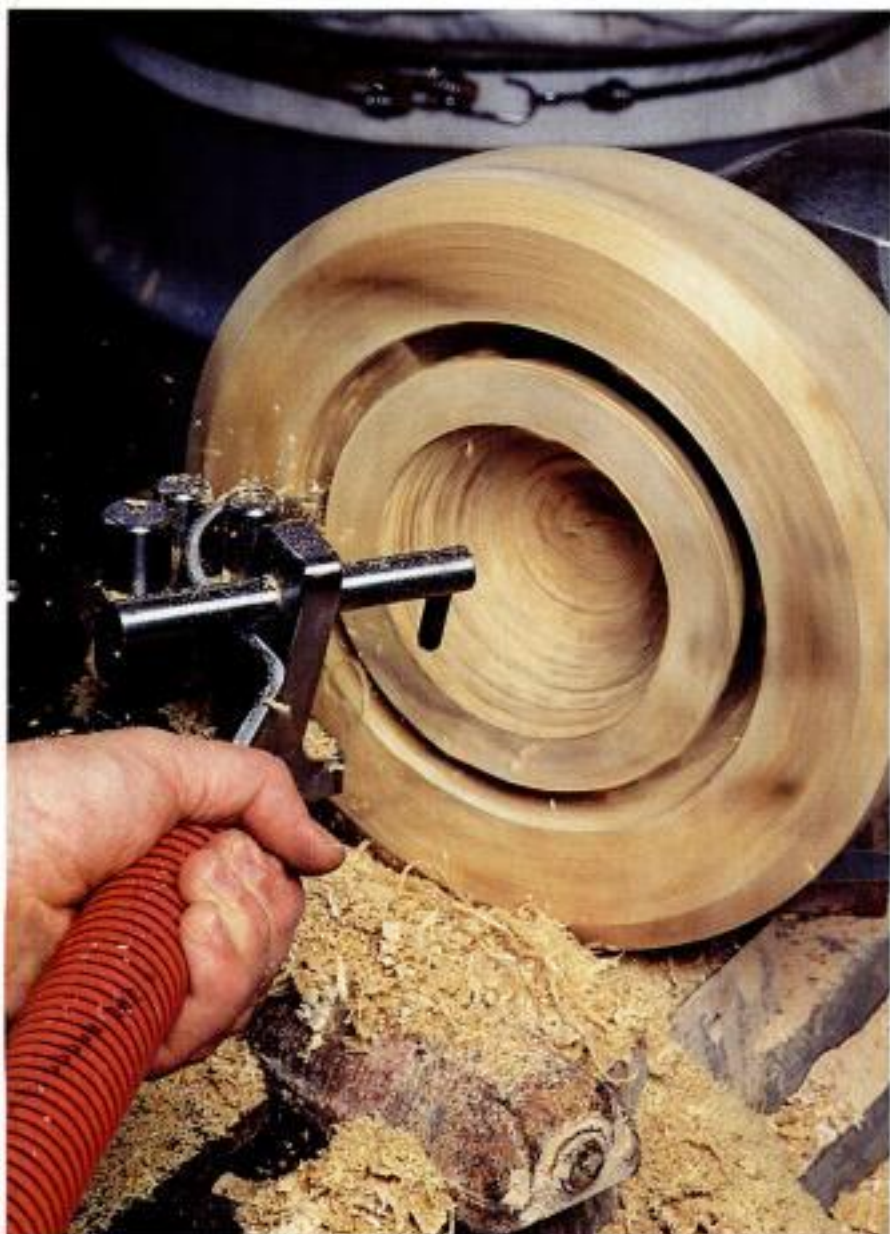
PROS: Easy to use; quick repeatability; Stellite cutters are durable and replaceable; cutter is wider than knife, providing good chip clearance.

CONS: Cumbersome setup; socket set required; shape of blanks is limited; tailstock is not available to help hold blank during coring cuts.

FINAL SPIN: This is a great system for a beginning to intermediate-level turner. The results are predictable, and the rock-solid support provided by the base makes coring work about as safe as it can get.

KEL MCNAUGHTON SYSTEM

Price: \$285 (standard system), \$319 (large system)



DESCRIPTION: This system can accommodate a wide variety of knives (up to seven are available) that fit into a large handle. I tested the standard four-knife system for working bowls up to 12-in. dia. A large-size system is also available (with three knives) for bowls up to 16-in. dia.

The tool rest is a pivoting gate that allows the knife to move in or out while enabling the turner to control the angle of attack. A crossbar prevents the knife from kicking up—a necessary safety feature. The mechanism is simple, sturdy, and easy to set up. But because it allows more freedom of movement, it's trickier to master.

With this system, the high-speed steel cutter is only slightly wider than the shaft that follows it into the cut. A good feel for the tool and frequent clearing are required to avoid jamming the cutter. McNaughton recommends setting the belts of your lathe's drive system slightly loose to allow for slippage in the event of a jam. You may also want to have the tailstock in place with a live center running to help stabilize the work when making large, deep coring cuts.

The other problem that can occur is difficulty in sliding the cutters through the gate. The instructions emphasize keeping the mechanism clean and well lubricated. I found both wax and oil helped here.

PROS: Turner has freedom to control core shape; many sizes and types of cutters available; tailstock available to hold blank during coring cuts.

CONS: Coring technique takes time to master; mechanism must be clean and well lubricated to prevent cutter shafts from binding in gate; cut must be cleared frequently.

FINAL SPIN: The Kel McNaughton's versatility will endear it to more capable turners who take the time to learn how to use it.

Installing a Half-Mortise Lock

Traditional security for doors and drawers

by Ben Erickson

Half-mortise locks have been around for a long time, and for good reason. They are strong, discreet, and easy to install. A half-mortise lock displays only a keyhole or protective metal escutcheon on the face of a drawer, door, or box. These locks are found on all kinds of antique and reproduction furniture. But this hardware can be just right for contemporary work as well.

Half-mortise locks can employ different types of catches and strike plates, depending on whether they're made to secure drawers, hinged doors, sliding doors, tambours, or hinged lids for boxes and chests. In all cases, though, installation of the lock body is the same. In this article I'll show you how to install locks used for flush-mounted drawers and cabinet doors. On these locks, a key drives a bolt into a mortise that you cut into the case.

Picking a Lock

Half-mortise locks are available in quite a few sizes and styles. When you're selecting a lock, pick one that suits the size of your work. For example, the 5-in. by 16-in. drawer fronts on my end table (see photo, left) use 2-in. by 2½-in. locks. Many locks are also available in either steel or brass. I prefer the look of brass.

Although many locks are made specifically for either drawers or doors, some have L-shaped, "two-way" key slots (see drawing), which allow use on either a drawer or door. However, when

Low-key lockup. Half-mortise locks are strong and discreet, displaying only the classic keyhole or protective escutcheon on the face of the work.



Escutcheon choices. Surface-mount versions simply tack in place atop the keyhole. The extruded escutcheons shown at right need to be mortised in. (See page 74.)

ordering locks for cabinet doors, be sure to specify whether the lock is for a right-hand or a left-hand door.

To protect your woodwork from key scratches, you can get either a surface-mounted or an inset escutcheon. (See examples above.) I prefer the look of inset escutcheons, even though they require more work to install. (See sidebar, page 74.)

Installing a Lock

Begin the installation by laying out the keyhole location on your drawer front or door. Measure the *backset* of the lock—the distance from the outside face of the selvage to the center of the lock pin. (See drawing.) Transfer this measurement onto your workpiece, marking

in from the edge of the drawer front or door. Then drill a hole through the workpiece the same size as the hole in the lock. Use a brad-point bit to prevent tearout. (Note: If you're going to install an inset escutcheon, complete the escutcheon installation before drilling the keyhole. [See sidebar, page 74.](#))

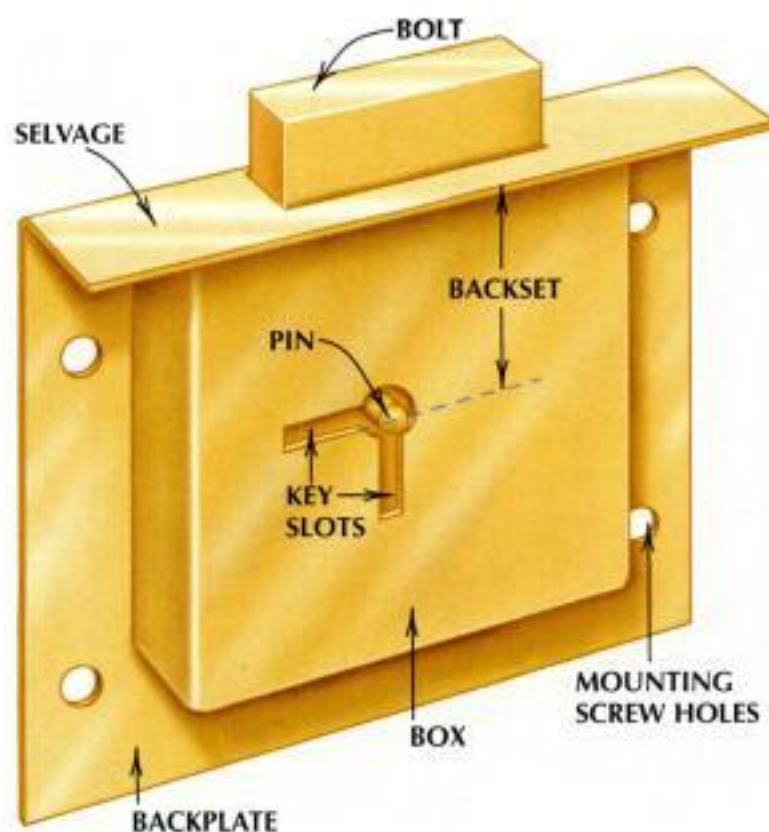
Next, cut the lock mortises. You'll need to cut three: the main mortise for the *box*, a mortise for the *backplate*, and a mortise for the *selvage*. Use a ruler and square to lay out the mortise for the box on the inside face of the drawer front or door. Lay out the mortise so that the lock pin will line up with the keyhole, then chisel or rout the mortise. Don't worry if it is a bit oversize—the backplate will cover it.

Now it's time to lay out the mortise for the backplate. First place the lock box in the mortise you just cut, carefully lining up the lock pin so that it's centered side-to-side on the keyhole. Then knife the outline of the backplate into the wood. Cut the mortise to the exact thickness of the plate. You can either chisel it out entirely or rout out most of the waste, then pare to your knife lines with a chisel.

The next step is to mortise the edge of the drawer front or door to inset the selvage. Place the lock in its mortises, carefully knife around the selvage, then cut to the exact thickness of the selvage. The last step in installing the lock is to widen the backplate mortise so the selvage can seat in its mortise.

LOCK ANATOMY

With its sliding bolt, this lock will secure flush-mounted drawers or doors.



Three mortises required. The last step in the mortising process is to widen the back mortise a bit so the selvage can slide down into its mortise.

INSTALLING AN INSET ESCUTCHEON

An inset escutcheon fits into a keyhole-shaped recess. (See photo, page 72.)

Install an inset escutcheon before cutting the lock mortises. Begin by drilling a hole to accept the escutcheon's circular head. Use a brad-point bit to prevent tearout, and drill only to the same depth as the escutcheon.

Next, clamp the escutcheon in place. Then knife the outline of the skirt onto the workpiece. (If the escutcheon is tapered, place the smaller side down.) Then, knife the outline of the skirt onto the workpiece. Alternatively, you can transfer the shape using a stopped drill press as shown below.

Chisel out the skirt waste to the same depth as the hole you drilled. Test-fit the escutcheon without pressing it all the way in. When you've got a good fit, mix sanding dust with epoxy and line the hole with the mix. Clamp the escutcheon into its hole using waxed paper between the clamp and the escutcheon. After the epoxy dries, sand the surface flush.

Using a bit that matches the inside diameter of the escutcheon head, bore a hole through the drawer front or door. You can use the escutcheon as a guide.

Now cut the lock mortises as described in the main text. Finish up by cutting out the rest of the keyhole with a coping saw. —B.E.



Pressing news. Chuck a bolt in the drill press and press the escutcheon against carbon paper to lay out the skirt mortise.



Cutting the keyhole skirt. Use a coping saw to cut out the skirted section of the keyhole, then clean up the edges with a chisel or file.

When the lock fits well, it's time to lay out and saw the skirt-shaped lower section of the keyhole. If you're going to be attaching a surface-mount escutcheon, use the escutcheon as a pattern for marking the cutout. Otherwise, lay out the skirt by first marking a rectangular keyhole slot that matches the size of the slot in the lock. Then create the skirt shape by drawing two symmetrical lines that flare out about 3° from each side of the slot's top. Use a coping saw to cut out the shape (see photo, above). Then clean up the walls with a chisel or a file.

Before installing the lock, place it in its mortises and check the key operation. If the lock pin isn't centered in the keyhole, widen the mortises as necessary to adjust the fit. Then you can screw the lock in place.

Cut the lock-bolt mortise. To locate the case mortise that accepts the bolt, close the door or drawer against the case with the bolt extended. Mark the width of the bolt across the edge of the drawer rail or the door stile. On the lock, measure the distance from the face of the bolt to the face of the drawer front or door, and transfer this measurement onto the rail or stile. Now chisel out your mortise.

If your lock comes with a metal "strike" plate, you'll have to mortise the strike plate flush. I use strike plates for locked doors, but generally not for

drawers because it's so difficult to maneuver a chisel or a router in a drawer opening. ▲



BEN ERICKSON
works wood
professionally
in Alabama.

SOURCES

Half-mortise locks and escutcheons are available from:

Lee Valley Tools
(800) 871-8158
www.leevalley.com
Circle #620

Paxton Hardware
(410) 592-8505
www.paxtonhardware.com
Circle #621

Whitechapel Ltd.
(800) 468-5534
Circle #622

The Woodworker's Store
(800) 279-4441
www.woodworkerstore.com
Circle #623

Tablesaw Snowflakes

A cleverly constructed blank yields dozens of delicate decorations

by Frank Klausz



Sliced wonders. Cutting individual snowflakes from a glued-up block is fast and fun. A miter gauge and a low fence clamped $\frac{1}{8}$ in. from the blade make the sawing operation foolproof.

When I was growing up in Hungary, holidays were lots of fun—especially Christmas. My family devoted their considerable talents to making decorations to hang on our tree or to give away as gifts. My grandfather covered walnut shells with gold leaf, while my mother and father made “snowflakes.”

My mother’s snowflakes were made of pure white yarn and crocheted into delicate patterns. But what really caught my young woodworker’s eye were the snowflakes that came from my father’s woodworking shop. His creations were made from a dazzling

assortment of different woods. Today, I continue his tradition by making my own snowflakes on the tablesaw.

Wooden snowflakes can come in a variety of patterns, just like their natural counterparts. But my snowmaking technique creates a built-up blank from which many identical flakes can be cut. (See photo, above.)

To make your own snowflakes, you can use any wood you like, although I think two contrasting species look best. Each snowflake consists of six diamond-shaped pieces into which you drill, rout, or shape grooves or other designs. You glue together the six diamonds into a star-shaped block, then slice off individual “flakes” from the block to reveal the intricate designs. In

TABLESAW SNOWFLAKE

Each snowflake consists of six "diamonds" grooved individually before being glued together. Each step in the sawing sequence is shown in the photos below.

- ❶ Saw $\frac{3}{4}$ -in.-thick x 10-in.-long blank into equal-sided diamonds.
- ❷ Saw first groove with blade at 90° .
- ❸ Saw second groove with blade tilted to 80° .
- ❹ Bevel tip with blade at 90° .
- ❺ Glue contrasting pairs together, end-grain to end-grain as shown. Then glue the three pairs into a star-shaped block.



Crosscut equal-sided diamonds. Tilt the blade to 30 on the bevel scale and push the stock with the miter gauge. Masking tape stuck to the saw's table gauges the correct width.

this article, I'll concentrate on one design that you can make entirely on the table saw.

Making Tablesaw Snowflakes

Begin by selecting the widest boards you have—10 in. is optimum—then plane the boards flat and to a consistent thickness. I usually use $\frac{3}{4}$ -in.-thick stock, which produces a snowflake about 3 in. in diameter. For larger flakes, use thicker stock; thinner stock makes smaller snowflakes.

The first sawing operation is to crosscut your stock into diamonds. (See photo, left.) Use a crosscut blade, and set the angle to 60° ("30" on the table saw's bevel scale). Miter one end of the stock with the miter gauge, then measure the length of the miter. Use that measurement to crosscut six equal-sided diamonds.

Now gather the six sawn diamonds and hold them upright together with the grain oriented as shown in the drawing at left. Mark an arrow on each diamond to indicate the outside tip so you can keep track of the appropriate faces for subsequent steps.

Each diamond gets a series of shallow, decorative grooves sawn on all four faces. You'll saw identical grooves on adjacent sides. (See drawing.)

Make the first groove on the two adjacent outside faces with the blade at 90° and $\frac{3}{16}$ in. above the saw's table. Because the diamonds are small, I devised a jig to help move them safely

GROOVING A DIAMOND



Cut the first groove at 90° . Use a jig made from leftover diamond stock to cut the grooves safely.



Cut the second groove with the blade at 80° . Use the opposite end of the jig for half of the angled groove cuts.



Bevel the tip. Crank the blade back to 90° to crosscut the inside tip of the diamond.

GLUING THE DIAMONDS



Glue up in pairs...Brush the end-grain surfaces twice, then glue up contrasting pairs of diamonds. Spring clamps hold each pair together.



...then glue the pairs into a block. Spread glue on the face grain surfaces and join the three assemblies into a star-shaped block.

past the spinning blade. (See photos, opposite page.) Make the jig from the same stock you used to cut the diamonds, and cut complementary 60° miters at each end. Nail fences on the top and sides of the mitered stock. The fences hold the diamonds securely and allow you to keep your fingers clear of the blade.



Sand 'em smooth. Use double-faced tape to hold the snowflake to a scrap block while sanding away saw marks.

Once you've sawn the first groove, tilt the blade to 80° ("10" on the bevel scale), and cut the second, angled groove. Use the same jig as before, but this time make one half of all the angled cuts by turning the jig around so the stock is held at the opposite end. (See bottom center photo, opposite page.)

Complete the tablesaw work by cross-cutting the inside tip of each diamond. Bring the blade back to 90° and hold the diamond at one end of the jig, making two complementary bevel cuts. (See bottom right photo, opposite page.)

You've spent about ten minutes at the tablesaw, and you're ready to glue up the diamonds into a blank. The trick to an easy glue-up is to glue each contrasting pair together before joining all six diamonds. Position a pair end-grain to end-grain, and brush a double coat of glue on the porous end-grain surfaces. Clamp the diamonds with spring clamps, adjusting them so the decorative grooves align with each other. (See left photo, above.)

Once the glue has set, join the three assemblies, again using spring clamps and keeping an eye on any slight misalignments. (See right photo, above.) After the glue has dried, finish-sand both ends of the star-shaped block on the disc sander with 180-grit paper.

Now prepare for a snowstorm. Clamp a low fence to the bandsaw table 1/8 in. away from the blade, and slice off a [snowflake from each sanded end](#). (See [photo, page 75](#).) Go back to the disc sander and clean up the sawn ends, then repeat the sawing procedure. You can figure on getting about 50 snowflakes from just one 10-in.-long blank.

I finish sanding my snowy treasures by sticking the sanded side of each flake to the end of a block with double-sided tape. I hold the block against the disc sander to smooth the opposite side. (See photo, left.)

Finally, drill a small hole near the tip of each flake, and spray or wipe on a few coats of your favorite finish. Sand by hand between coats with fine-grit paper. When the finish is dry, tie a loop through the hole with some festive-looking string or ribbon. This shop-made precipitation is bound to spread good cheer for many a year. ▲



FRANK KLAUSZ is a third-generation master cabinetmaker and a contributing editor of *AW*.

Excellence in Craftsmanship

As the June 12 deadline for this year's Excellence Awards approached, we were concerned about the small number of entries. Then a flood of envelopes arrived. Looking through this barrage of beautiful and varied work was a tremendous thrill. It was also a judging challenge. We graded the entries in three categories: design, degree of difficulty, and craftsmanship. Thanks to all who entered this year's competition, and congratulations to the winners featured here.



Amateur First Prize

**Newport-Style
Tall-Case Clock**
*by James Moon
Concord, NC*

Twenty-three years ago, James Moon made a tall clock for his new bride. The prize-winning clock shown here was built as a wedding present for his daughter, Heather. Moon studied several different Newport-style clocks, and combined different features to create a clock that is both authentic and original. The shell, rosettes, and most of the moldings are hand carved. The walnut is finished with Danish oil and lacquer. The hand-painted dial depicts a lighthouse and chapel on Bald Head Island, NC, where Heather's wedding took place. "The painting is a nice personalized touch," says Moon.

Amateur Second Prize

Chest of Drawers
*by Mike Stanton
San Luis Obispo, CA*

Mike Stanton was in college on a golf scholarship when he began to miss woodworking. "So I went down to Sears, pulled out my charge card, and bought a tablesaw," he explains.



ship[®] Awards



And the winners are... First-prize winners in the three award categories—amateur, student and professional—each receive an engraved Bridge City try square and \$1,000 cash. Second-prize winners receive \$300, and third-prize winners receive \$200.

Amateur Third Prize

Canoe
by Chuck Hoefer
Vista, CA

Today Stanton runs three popular eateries in his hometown of San Luis Obispo. But he spends a great deal of his spare time in his garage workshop. Stanton's five-drawer chest, shown here, was made from quartersawn white oak and curly maple. The carcass was built with traditional frame-and-panel construction. "The only tricky part of the project was gluing all the pieces together in the right order," Stanton recalls.

The chest's five drawers are all dovetailed together, with the size and spread of dovetails varied to suit the height of each drawer. The drawer pulls are patinated cast bronze. Stanton gave the piece an oil-varnish finish, topped off with a coat of paste wax.

"I like things that are ornate," admits Chuck Hoefer, who built his first canoe so that he and his wife could paddle together. He kept on building, improving his designs and woodworking skills in the process.

The redwood hull on this canoe is complemented by the contrasting color and grain of bird's-eye maple, ash, mahogany, and ebony. Hoefer cut and shaped every piece with hand tools and then coated exposed areas with epoxy to make the construction watertight. "It paddles great," he says.



Student First Prize

Credenza

by Nick Clark
Berkeley, CA

Nick Clark already had a woodworking apprenticeship and several years of furniture-making experience under his belt when he enrolled in James Krenov's woodworking program at the College of the Redwoods. Clark admits to being influenced by the master cabinetmaker, but adds: "I still like to keep an open mind about different furniture styles."

He calls the design for this credenza "a veneering challenge," explaining that the details evolved slowly from many drawings. The doors and side panels feature V-shaped granadillo veneer used in a repeating pattern. The center section opens to reveal eleven dovetailed drawers with carved pulls. There are also two secret drawers.



Student Second Prize

Jewelry Box

by Jefferson Shallenberger
Mt. View, CA

Jefferson Shallenberger had other career plans in mind when he chanced to attend a summer course at the College of the Redwoods. His exposure to Jim Krenov's woodworking program convinced him to change course. Explaining the unusual design of his jewelry box, Shallenberger says: "I wanted a piece of art that was functional without being obvious."

His solution was to construct a 9-in. cubic box whose panels and drawer fronts are mysteriously indistinguishable. The drawer fronts have no pulls. Instead, an ingenious magnetic mechanism (accessed via a single handled drawer on the top of the box) causes the drawers to open. The box is made from holly, narra, mahogany, and Alaskan yellow cedar.

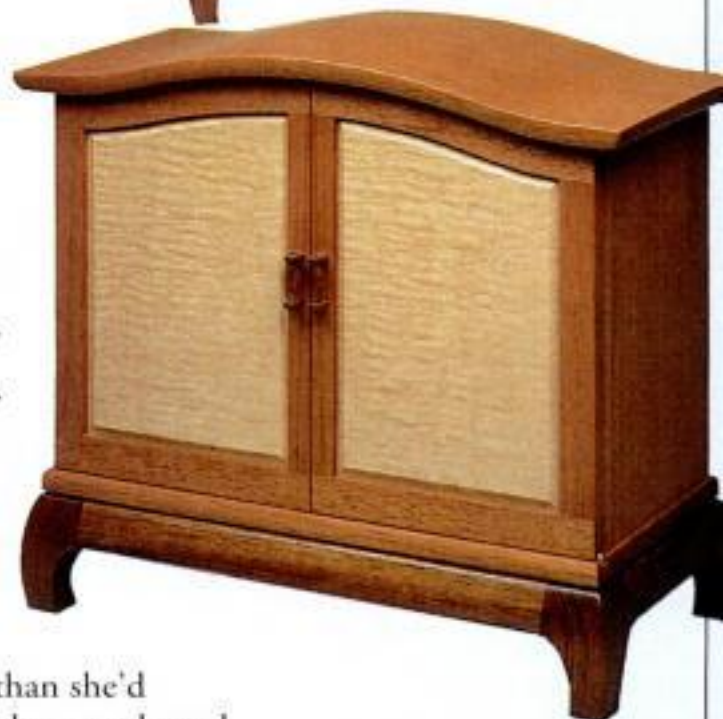


Student Third Prize

Jewelry Cabinet

by Nina Childs Johnson
St. Paul, MN

Even award-winning pieces can be unpredictable, as Nina Childs Johnson discovered while making this jewelry cabinet, her first project as a student at the College of the Redwoods. After band-sawing the curved top from a thick slab of mahogany, it cupped more than she'd planned for. Johnson adapted the cupping as a design element by shaping each side to match. "The wood told me what to do," she explains. Johnson designed the cabinet's interior after the case was built—a process she says was quite a challenge. And the result reflects her whimsical approach. The panels are curly western maple; the base and handles are kwila.

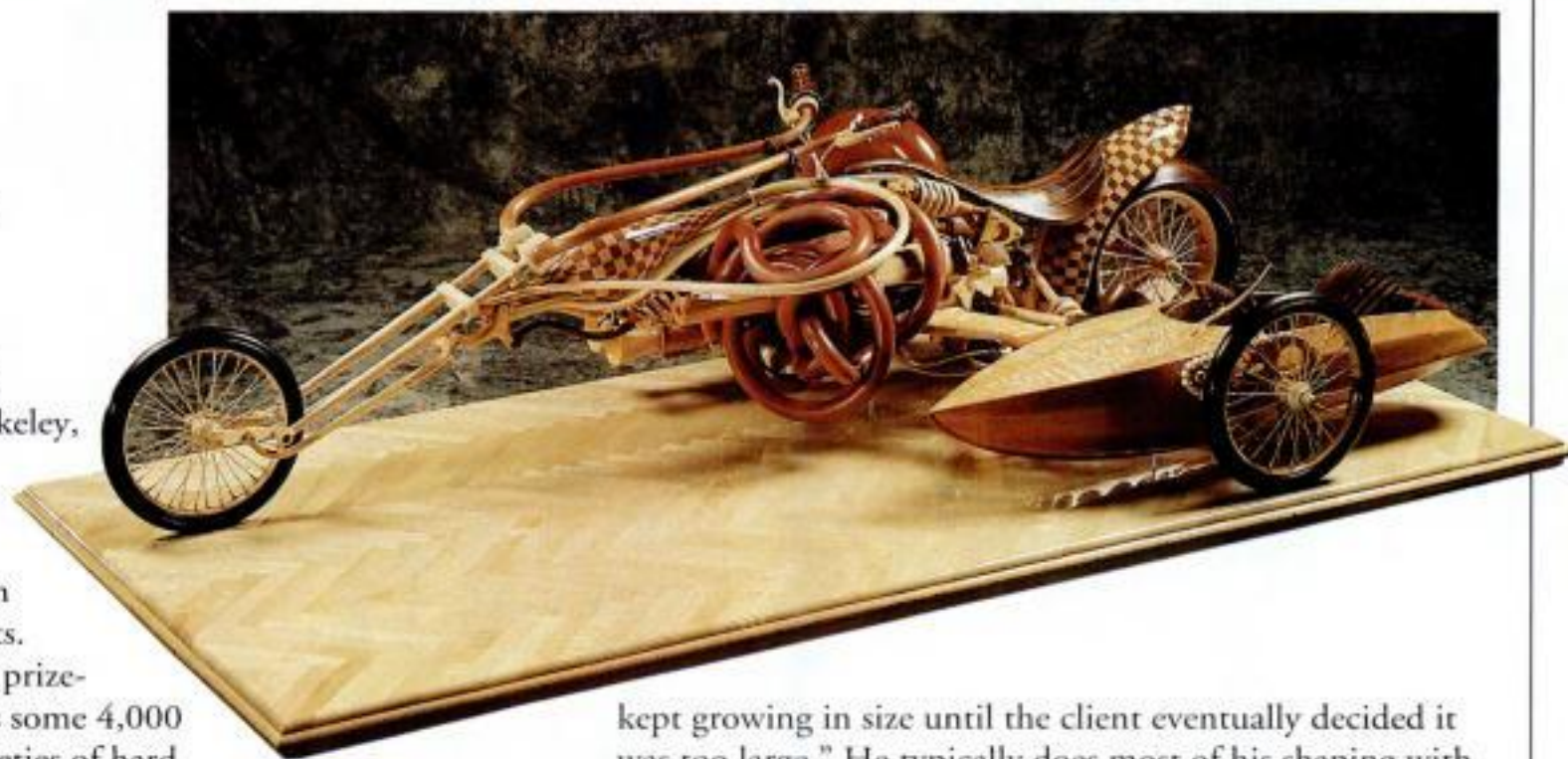


Professional First Prize

Motorcycle

by Michael J. Cooper
Sebastopol, CA

A background in sculpture, including an M.F.A. from U.C. Berkeley, led Michael J. Cooper to his specialty—creating elaborate wooden sculptures with thousands of small parts. Titled “Gun-shy,” this prize-winning entry contains some 4,000 pieces cut from 48 varieties of hardwood. The work evolved without the use of drawings. “It started as a private commission,” Cooper recounts, “but it



kept growing in size until the client eventually decided it was too large.” He typically does most of his shaping with powered grinders and carvers, and even makes some parts on a vertical milling machine.

Professional Second Prize

Art Nouveau Buffet

by Roger Heitzman
Scotts Valley, CA

“This is the most difficult piece I’ve ever built,” says Roger Heitzman, whose workshop we visited in issue #67. The curvaceous piece was a commission from clients owning a lavish Art Nouveau home. The entire buffet is mahogany—in the form of solid wood, veneer, and plywood. Beveled glass doors, a solid granite countertop, and

hand-cast bronze handles complement the

exceptional woodwork. Heitzman shaped most of the complex parts with a shop-made carving machine.



Professional Third Prize

Dragonfly Cabinet

by Craig Vandall
Stevens
Sunbury, OH

The “Dragonfly Cabinet” was designed for a client who wanted to “bring the outside in.” Craig Stevens complied by recreating a pond scene visible from inside the client’s house. The cabinet is made with handsawn veneers and dowel joinery. Iridescent fiddleback maple veneer is the “canvas” for Stevens’ composition. He created the marquetry reeds and grasses with granadillo, pau ferro, wenge, ebony, ziricote, satinwood, and holly. The inlaid dragonflies are made of abalone and mother-of-pearl. Nine dovetailed drawers made of ziricote and maple fill the inside of the cabinet.



MINI CUTTING BLOCK

A weekend project your favorite chef will love

by Andy Rae



Scaled-down slicer. *This diminutive chopping block, complete with knife holder, is always ready for cutting action on the kitchen counter.*

Take a traditional heavy butcher block with a thick cutting surface and beefy legs, and subject it to a shrinking ray. What you'll get is a miniature model fit for the finest kitchen countertop. I discovered a store-bought version of this cutting block in my mother-in-law's kitchen. She's a gourmet cook with no patience for cooking gadgets that don't pull their weight. This chef's companion earned her praise for its solid stance, convenient size, and built-in knife rack. I knew my wife would appreciate owning a replica. Our block, however, would come from my woodshop, not from the store.

I made my cutting block from some colorful hickory, but other hard and dense woods such as hard maple or beech are suitable.

The drawing opposite shows how to build the block. When milling the stock, joint all the edges precisely square. Then crosscut the 36 individual blocks to finished length, except for the four turning squares. Leave the squares about 1 in. over length, (about 6½ in. long) so you can remove any lathe-center marks once you've finished turning the legs.

Before gluing the blocks together, orient the annular growth rings in the same direction to equalize future wood movement. Glue up the entire cutting block in one shot, including the legs. My clamping setup consisted of two square-edged blocks of wood, which I clamped to the bench at right angles to each other. (See photo 2.)

White or yellow glue won't do here. Choose a waterproof glue such as resorcinol, plastic resin, or epoxy. (For more on glues, see AW #34.) I've had good results using West System Brand epoxy, available from Gougeon Brothers (517-684-7286). Brush the adhesive on all mating surfaces, then use scrap cauls and clamps to pull the assembly together.

Once the adhesive has dried, flatten and smooth the top and the sides with a hand plane. When planing end grain, bigger is better. I used a hefty Stanley #6, waxed the sole, and adjusted the blade for a light cut. (See photo 3.)

Once the top is flat, rout the drip channel around the perimeter with a core-box bit, using an edge guide fitted on your plunge router. (See photo 4.)

Make the knife holder by sawing apart a single $\frac{7}{8}$ -in.-thick strip of wood, cutting two dados in one piece, then gluing the two pieces back together. I found it safest to nibble the dados out on the bandsaw. Once you've glued the strip back together, rip and miter the 5° bevels. The top bevel keeps blades safely angled against the block.

To complete the project, you can use a "food-safe" finish such as raw linseed oil or pure tung oil. (For more on food-safe finishes, see AW #37.) I simply used my old standby: three coats of McCloskey's Tungseal "natural." I let each coat of this wiping varnish soak into the surface for about 20 minutes before removing any residue with a soft, clean cloth. ▲



ANDY RAE

relishes his wife's gourmet cooking and is senior editor of AW.

CUTTING BLOCK

This cutting block consists of 36 individual blocks, including four turned legs. Cut the blocks to size, turn the legs, then glue everything together at one time. After the glue has cured, level the top and rout a drip channel around the perimeter. Make the knife holder and attach it with two brass screws.

KNIFE HOLDER

Rip apart $\frac{7}{8} \times \frac{7}{8} \times 5\frac{1}{4}$ blank. Cut dados in thicker piece, then glue back together and bevel edges.

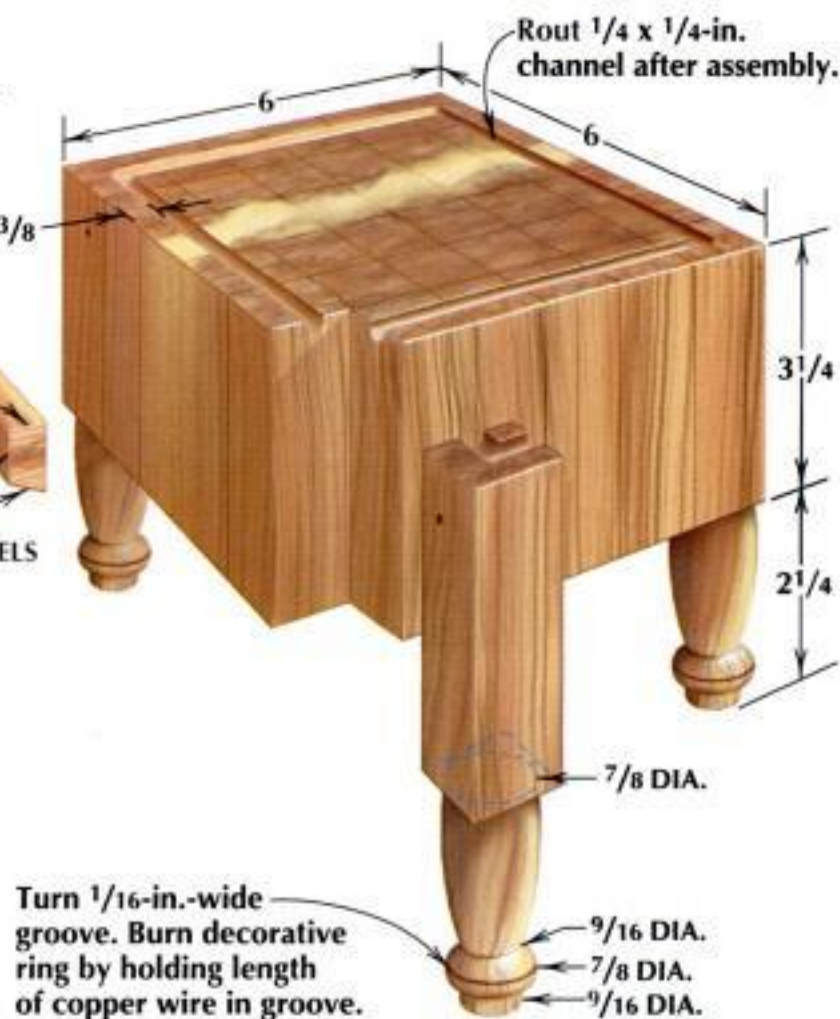
DADO

$\frac{1}{8}$ D. x $1\frac{1}{8}$ W.

#6 x $1\frac{1}{4}$ F.H. SCREW

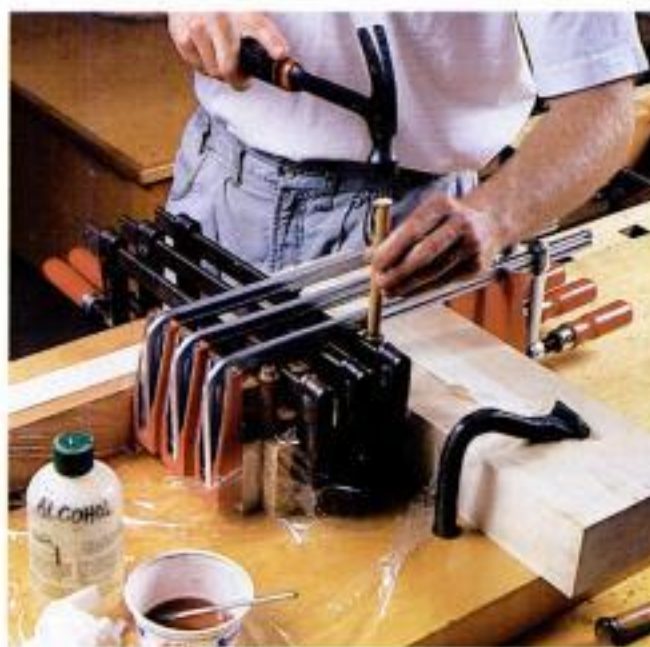
5° BEVELS

Make legs and individual blocks from 1-in.-sq. stock.



1

Turn the legs. Starting from the center of the bun foot, roll the long point of the skew over to shape the curve.



2

Glue up all the blocks at once. Clamp the blocks against a 90° corner, using cauls to distribute the clamping pressure. Tap each block flat to the benchtop with a dowel.



3

Plane the end grain flat. The author uses a #6 try plane to smooth away dried epoxy and flatten the top. Plane inward from each edge to avoid tearout.



4

Drip prevention. Use a $\frac{1}{4}$ -in. core-box bit and an edge guide to rout the drip channel. Mark each outside corner of the channel, and stop the cut when the bit reaches the mark.



Testing your technique. A painted plywood panel can serve as a practice surface when you're experimenting with different putty painting effects.



Decorating a drawer front. After applying glaze to a section, you can daub on some artist's colors to provide contrast.



Putty makes the pattern. Moving the putty roll in a circle creates a sunburst pattern while blending the glaze and highlight color.

Vinegar Putty Painting

The easy, inexpensive way to make and manipulate a decorative glaze finish

by Teri Masaschi

Whether you're working on a piece of furniture or an interior wall, decorative painting is a wonderful way to transform the drab into the dramatic. You can choose between traditional faux finishes like grain painting and marbling, or try something bold and unusual. The history of decorative glaze treatments is rich and inspiring. (See sidebar, opposite page.)

My favorite decorative finish provides you with plenty of creative possibilities, while requiring minimal fuss and expense. And it has the added benefit of being easily reversible. If you don't like the look you've produced, you can wipe the slate clean and begin again.

I call this technique "vinegar putty painting," because vinegar is used to make the glaze, and putty (window-glazing compound) is used to create the decorative effect. You can use this technique to imitate the look of wood grain, marble, or other stone. Or you can create a fantasy finish that's tasteful and tame or brassy and audacious.

The glaze is applied over a coat of oil-based house paint. Decorative effects are created by manipulating this creamy glaze using a wad of putty

(or another material) to wipe, streak, smear, daub, and texture the glaze. The effect is both positive and negative, as the basecoat shows through where glaze has been removed.

From Drab to Dramatic

My most recent putty painting project was an old three-drawer, lift-top blanket chest that needed a more vibrant personality. The steps I'll describe work on any kind of furniture or wood surface.

Prime and basecoat. I began by painting the chest with a good oil-based primer. I used Zinsser white-pigmented primer (available at paint stores), applying two full coats with a light sanding in between. I then applied two coats of oil-based semi-gloss enamel, choosing a deep yellow color. Make sure to use oil-based paint because the vinegar glaze can dissolve many acrylic and water-based paints.

Once the base paint thoroughly dried, I wet-sanded the surface with 320-grit wet/dry sandpaper. This sanding flattens the paint's sheen and gives it some "tooth" to better hold the vinegar glaze.

Preparing the glaze. Mixing instructions for the glaze are given in the box on the opposite page. You can add any combination of colors to your vinegar mixture. For the blanket chest, I combined brown and red with a little orange tempera to get a reddish-brown color. For more traditional wood-graining effects, start with sienna, burnt sienna, or burnt umber colors and mix them with reds, blacks, and greens.

When you've mixed your glaze, try it out on a test panel and adjust your color mixture as necessary. This trial run also enables you to experiment with different manipulation tools and techniques.

Application and manipulation. Here in the Southwest, glaze coats tend to dry quickly, so I worked about a square foot at a time. In a more humid climate, you could probably get away with working a larger area. I used a 1-in. paintbrush to apply glaze to a small area, not worrying about spreading it too evenly.

To add a bit of contrasting color, I applied some black and green artist's acrylic paint (available at art supply stores) on top of the wet glaze. (See middle photo, opposite page.) I used the colors straight from the tube, mixing them on a small scrapwood palette. These acrylic daubs are blended with the glaze in the next step.

THE GLORY OF GLAZES

When country folks made city visits in the early 1800s, they often encountered high-style furniture made from mahogany, bird's-eye maple, walnut burl, and marble. Returning home, an inspired farmer would recreate the look of these fancy materials, using his own ingenuity and just a few basic supplies.

Some surviving examples of decorative glazes are spectacular, depicting everything from realistic flowers to bold geometric patterns. Today, the rich history of this finishing technique is carried on by artists like Bill Russell, whose work is shown below.



Putty painting, circa 1860. This Pennsylvania German chest features bold painting framed by a putty-painted vinegar glaze.



A plate with personality. Decorative painter Bill Russell used putty painting technique to create this distinctive lazy susan.



Finish or fine veneers? Russell masks off different parts or areas and uses contrasting glazes and putty patterns to create a composition of glaze treatments.

MAKING A VINEGAR GLAZE

Among the many colorful recipes for decorative finishes, vinegar glaze is the easiest to use. The ingredients are inexpensive, and it's easy to mix, apply, and manipulate. And your work is reversible: If you don't like the finish you're getting, wipe it off and start again. Here's how to mix up enough glaze for a medium-size project, such as a dresser, writing desk, or blanket chest.

Mixing Instructions

Combine the vinegar and sugar in a wide-mouth mason jar. Add a squeeze of dish detergent. Measure the dry colored powder into a second mason jar, then begin blending your vinegar mixture into the powder a little at a time. Stir into a thick paste—it's OK if the mixture foams up. Keep adding the vinegar mixture until the glaze is about the consistency of thick cream. You can test its viscosity by brushing it onto a painted test panel held vertically. The glaze should brush on smoothly and easily, but not run or drip readily. Now the vinegar glaze is ready for application, and you're ready to have fun creating a lively finish.

Making A Test Panel

The putty painting technique is only one method for creating a decorative finish with vinegar glaze. The possibilities are limited only by your imagination and the tools you use to manipulate the glaze. That's why I recommend making test panels—you can experiment with a variety of decorative techniques.

Simply paint some plywood or hardboard with the same oil-based paint you'll use for your project. Use masking tape to divide the panel into several squares so you can try out different tools, techniques, and glazes. As shown in the photo below, you can get different decorative effects with graining combs, feathers, sponges, cardboard cards, and plastic wrap, just to name a few tools. —T.M.



Test panels and patterning tools. Different objects will create different effects. It's smart to try out tools and patterning techniques on test panels.

Vinegar Glaze Recipe

1/2 cup dry poster colors
(also called *tempera powder*, *artist's powder pigments*, or *fresco colors*),
available at art supply stores

1/2 cup distilled (white) vinegar

1 teaspoon sugar

1 dollop liquid dish detergent



Now for the fun part. I created a decorative circular pattern in the glaze by daubing and smearing it with a strip of putty. (See photos, page 84.) The putty I used is regular window-glazing compound, but plasticine modeling clay also works well. To improve the putty's working properties, I took a handful out of the can and let it sit for a day or two before using it. This dried it out a bit so it was less limp and oily. Refrigerating it also helps make it stiffer.

The putty's stickiness removes some of the wet glaze while smearing the glaze and acrylic paint together. Once the strip of putty is completely saturated with paint, it no longer works as well, so I replace it with a fresh glob. If the glaze dries before I've had a chance to finish working it, I simply brush on a thin coat of fresh glaze.

When the effect was complete in one area, I moved on to an adjacent area, carefully blending the glaze where the new and old areas met.

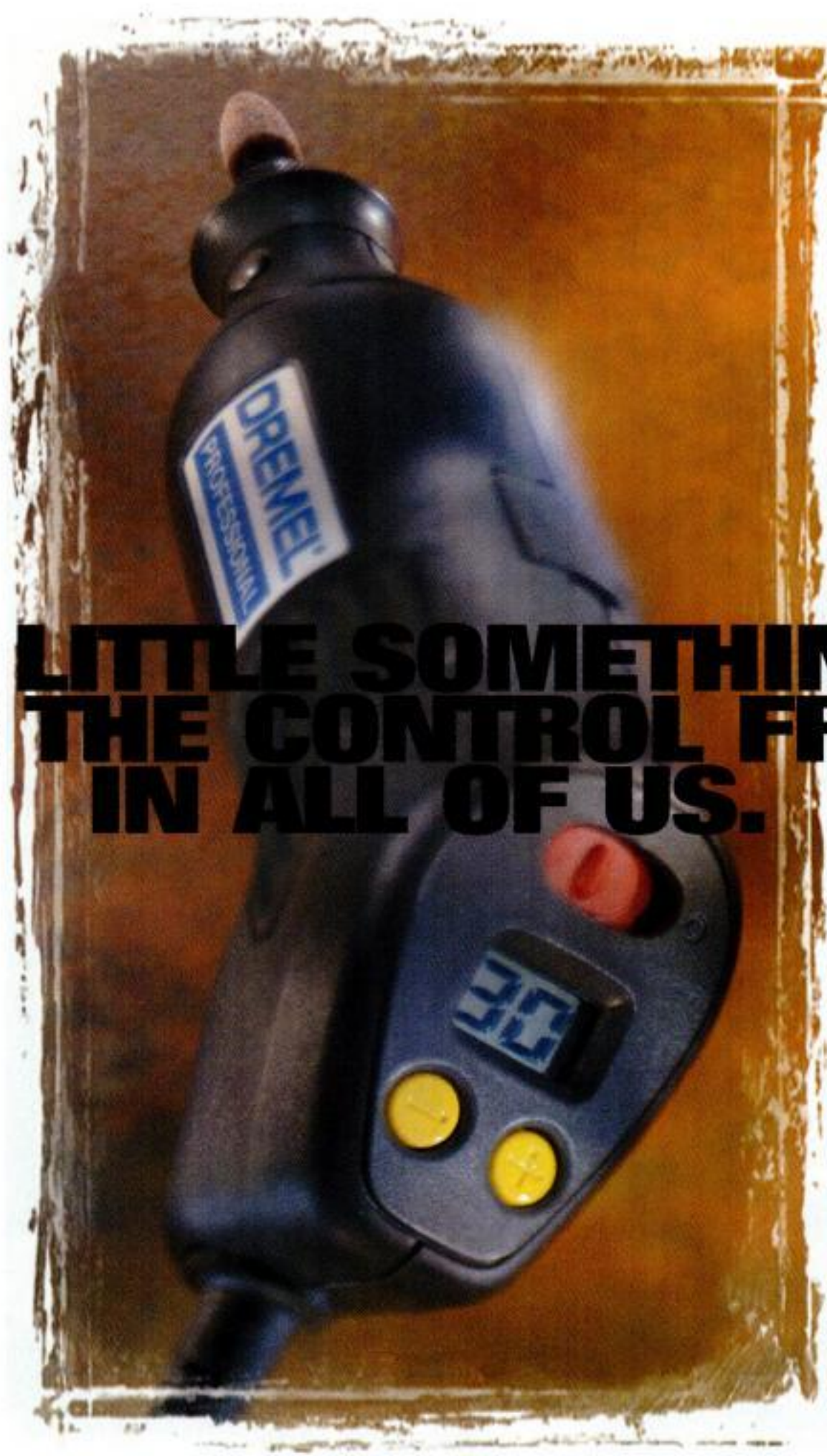
Corrections are easy. The real beauty of using vinegar glaze is that if you mess up a section or don't like the effect you're getting, you can wipe it off and start again—even if the glaze has completely dried. Simply spray on a little vinegar and wipe the glaze off with a damp rag.

A clear coat for protection. Once dry, the glaze needs the protection provided by several coats of varnish. I sprayed on spar varnish, but you can also use any alkyd-based varnish or polyurethane. Brush-applied varnish will also work.

Most alkyd- or oil-based varnishes, including oil-based polyurethane, will impart a slight amber color to your piece. If you want to add more warmth, or cut back the brightness of your color effects, you can add a tint (say a light brown) to the final coat of clear finish. ▲



TERI MASASCHI
is a woodworker
and finisher in
Albuquerque, NM.



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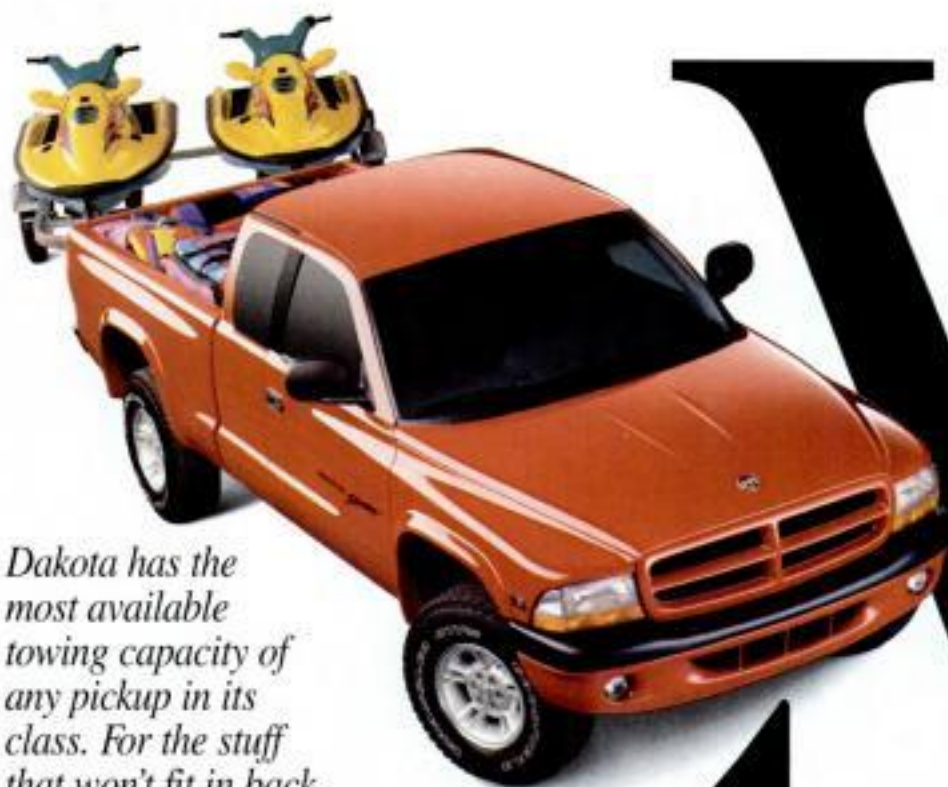
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Dakota  The New Dodge



Inner sanctum treasures. A small room on the property is home to some of Phillips' most prized tools, including this mint-condition, 1880s Victor compass plane.

SHOP SHOT

NAME: Bill Phillips

OCCUPATION:
Antique tool repair and sales

SHOP LOCATION:
New Tripoli, PA

SHOP SIZE: 1,100 sq. ft.

IN BUSINESS SINCE: 1984

MOST RECENT PROJECT:
Complete restoration of a hand-hewn oak carpet loom from the mid-1700s (shown below)



History in the Works

Antique tools are preserved, restored, and put to work in Bill Phillips' shop

Workshop, showroom, tool museum. Visit Bill Phillips and you'll find that these places are one and the same. Name an obscure hand tool or a forgotten machine from America's past: Bill Phillips can find it, fix it, and show you how to use it.

Every inch of Phillips' workshop is full of old implements of the trade: saws, spokeshaves, reamers, bits, braces, bevel squares, levels, and other contraptions. In one room, a wall of shelves holds sets of wooden molding planes and rare "transitional" hand planes with wooden bodies and metal adjustment mechanisms. On other shelves, there's an extensive selection of metal planes—every numbered Stanley plane you can imagine, plus models from obscure manufacturers.

How about buying a new machine? Phillips wouldn't think of it. Among the hundreds of working hand tools sits an operational antique 12-in. jointer and a 16-in. Crescent tablesaw, both made in the late 1800s.

In his tool repairs, Phillips is judicious, preserving the original wood and metal as much as possible. He knows there are

tales of sweat and skill in every original part. And he's determined that these tools live to work for future generations.

A woodworker himself for many years, Phillips has built cabinets, furniture, truck bodies, and even a reproduction antique apple-butter-stirring machine. He moved from Milford, NJ, to the Pennsylvania countryside in 1944. He and his wife, Mary, established a general store there, selling everything from clothing to hardware. Phillips was bitten by the tool-collecting bug in 1973. Before he knew it, antique planes and chisels started edging out the housewares on the store shelves. By the mid-1980s, tools had won out. Over the next few years, more buildings sprouted on his property as he expanded beyond hand tools into turn-of-the-century bandsaws and other machinery. One of his sheds houses a battalion of portable engines dating back to the early 1900s. Phillips has coaxed all of them into working condition.

Bill Phillips is a familiar face at local tool auctions, bidding with the best of them. Although he deals in a wide range of tools, he specializes in "primitives"—

limited-production tools crafted by makers who forged the metal parts by hand. He has customers all over the world.

But some of his treasures aren't for sale. In a small, protected room, an array of elegant plumb bobs and antique bevel squares hang out of the reach of buyers. Nearby, regiments of prized molding planes stand at attention. Phillips lifts one of his proudest acquisitions—a 19th-century nickel-plated cast-iron compass plane made by Victor. "You just don't see many of these in such perfect condition," he explains.

He's often able to tell you exactly where and when he found a particular tool, or how it found him.

Phillips has so many other historical restorations underway, he admits he'll need another lifetime to complete them. He recently restored a handhewn oak carpet loom that was built in the mid-1700s. "I bought it all in pieces, and they told me I'd never be able to put it together," he says with a grin. "Well, I started after dinner and had the thing together by 2:00 a.m." He is currently restoring a 1904 Orient, a motorized buckboard. ▲



SHOP RULES

(posted in Bill Phillips' workshop)

1. Dress to get dirty.
2. If you are stayin' long or coming late, bring some beer.
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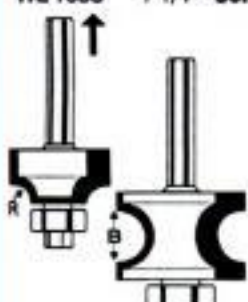
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WL-1045	3/8"	\$11.
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WL-1044-5	5/16"	\$10.
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WL-1052	1/2"	\$13.
WL-1053	5/8"	\$16.
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WL-1111	3/8"	\$14.
WL-1112	1/2"	\$16.
WL-1113	5/8"	\$18.
WL-1114	3/4"	\$19.
WL-1115	1"	\$22.
WL-1116	1-1/8"	\$25.
WL-1117	1-1/4"	\$28.
WL-1118	1-1/2"	\$32.



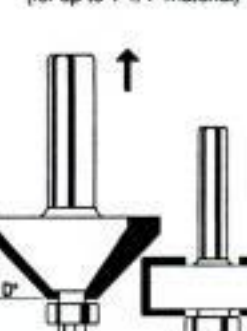
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WL-1220-2	1/16"	\$10.
WL-1220-3	1/8"	\$10.
WL-1220-4	1/4"	\$10.
WL-1220-5	3/8"	\$10.
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WL-1225-3	1/8"	\$10.
WL-1225-4	1/4"	\$10.
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WL-1225-6	3/4"	\$12.

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WL-1235	5/32"	\$13.
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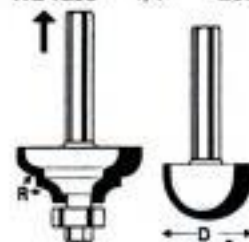
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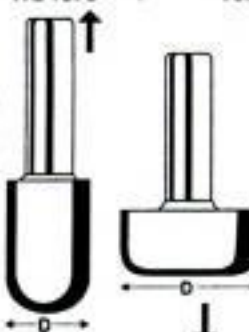


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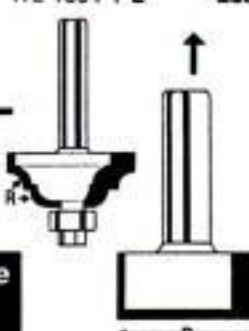


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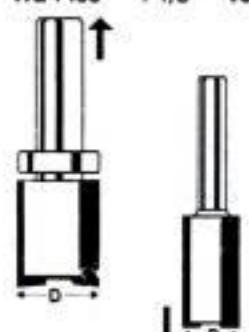
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WL-1008	9/16"	\$6.
WL-1009	5/8"	\$7.
WL-1010	23/32"	\$8.
(for undersized 3/4" plywood)		
WL-1011	3/4"	\$9.
WL-1012	1"	\$10.

1/2" Shank

1/2" Shank		
WL-1020	15/64"	\$5.
(for undersized 1/4" plywood)		
WL-1021	1/4"	\$5.
WL-1019	5/16"	\$5.
WL-1022	3/8"	\$5.
WL-1023	7/16"	\$5.
WL-1024	15/32"	\$5.
(for undersized 1/2" plywood)		
WL-1025	1/2"	\$6.
WL-1027	5/8"	\$8.
WL-1028	23/32"	\$8.
(for undersized 3/4" plywood)		
WL-1029	3/4"	\$9.



Corner Lock Mitres

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WL-1420-2 1/4" shank	\$25.
For 1/2" to 3/4" material	
WL-1420-1 1/2" shank	\$30.
For material 3/4" to 1-1/4"	
WL-1420 1/2" shank	\$38.

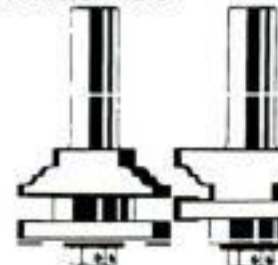
For the Shaper
Lock Mitre WL-1581 \$40.



Horizontal Panel Raiser

with Undercutter • 1/2" Shank

WL-1346	Ogee	\$49.
WL-1347	Traditional	\$49.
WL-1348	Convex (Cove)	\$49.
WL-1359	12° Facecut with Quarter Round	\$49.
WL-1363	Wave	\$49.



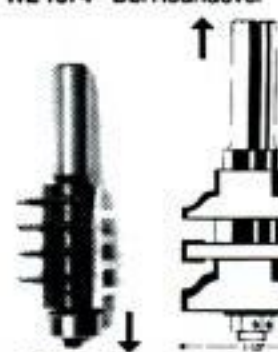
2-piece Rail & Stile Cutter Sets

1/2" Shank	Set	
WL-1360	Ogee Profile	\$59.
WL-1361	Roundover	\$59.
WL-1362	Cove & Bead	\$59.

1-piece Rail & Stile Cutter Sets

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1/2" Shank		
WL-1365	Ogee Profile	\$49.
WL-1366	Roundover	\$49.
WL-1367	Cove & Bead	\$49.
WL-1368	Wedge	\$49.
WL-1374	Dbl Roundover	\$49.



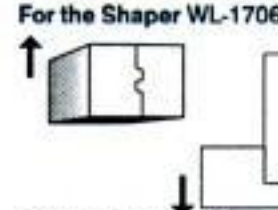
Finger Joiner Router Bit

For the Shaper WL-1580 \$89.

Reversible Glue Joint

WL-1430	1-3/4" Diam	\$35.
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For the Shaper WL-1706 \$35.



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1/2" Shank
WL-1435 For 1/2" material \$30.

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Corner Round

WL-1509	1/8"	\$22.
WL-1510	1/4"	\$24.
WL-1511	3/8"	\$26.
WL-1512	1/2"	\$26.
WL-1513	3/4"	\$30.
WL-1514	1"	\$32.
WL-1515	1-1/4"	\$38.

Bead

WL-1520	1/4"	\$24.
WL-1521	3/8"	\$26.
WL-1522	1/2"	\$26.
WL-1523	3/4"	\$28.
WL-1524	1"	\$30.

Flute

WL-1530	1/4"	\$24.
WL-1531	3/8"	\$26.
WL-1532	1/2"	\$26.
WL-1533	3/4"	\$28.
WL-1534	1"	\$30.

Rabbeting/Straight

WL-1540	1/4"	\$24.
WL-1541	3/8"	\$26.
WL-1542	1/2"	\$26.
WL-1543	3/4"	\$28.
WL-1544	1"	\$30.
WL-1545	1-1/2"	\$32.
WL-1546	2"	\$48.

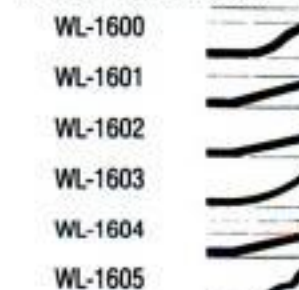


SHAPER CUTTERS 3/4" BORE

1-piece Rail & Stile

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WL-1500	Roman Ogee	\$89.
WL-1501	Roundover	\$89.
WL-1502	Cove & Bead	\$89.
WL-1503	Dbl Roundover	\$89.



Panel Raisers (Shaper Cutter)

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WL-1600	Ogee	\$59.
WL-1601	15° Facecut	\$59.
WL-1602	18° Traditional	\$59.
WL-1603	Convex (Cove)	\$59.
WL-1604	12° Facecut with Quarter Round	\$59.
WL-1605	Wave	\$59.

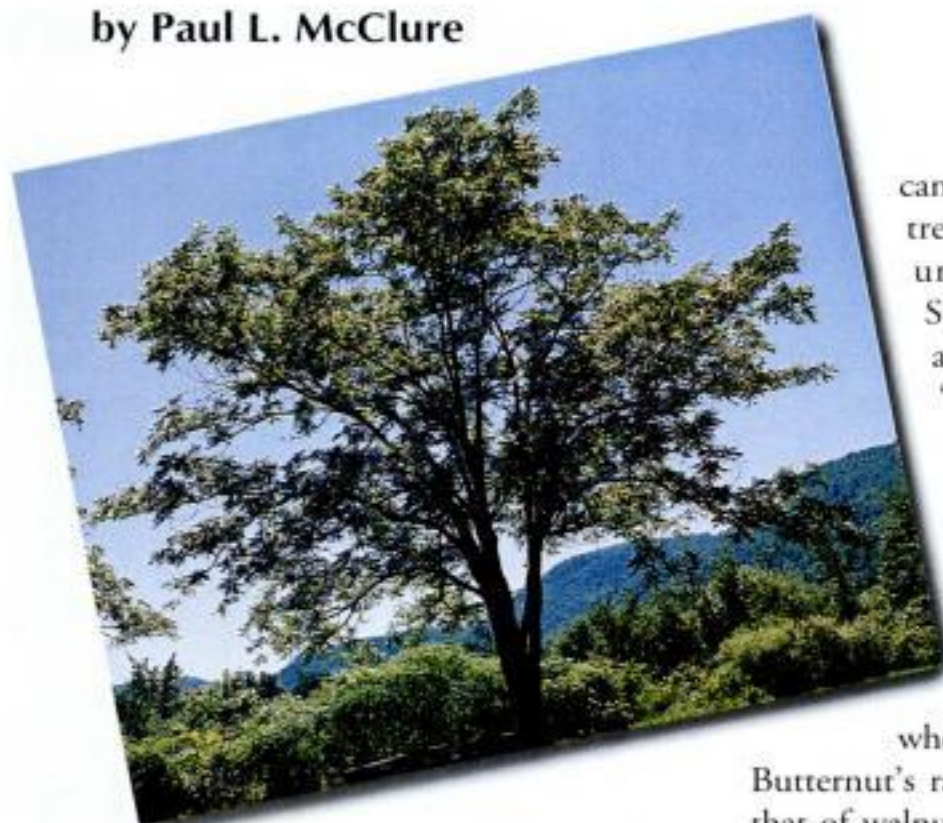
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Butternut

by Paul L. McClure



Butternut is a tree that offers a variety of delights in addition to its wood. The sweet, oily nuts it produces have been savored for centuries. And most people don't know it, but tapping a butternut tree will yield a syrup almost identical to maple syrup.

Butternut has been tapped for other valuable products over the years as well: In early America, the Cherokee Indians made a laxative from the bark. Early settlers colored their homespun clothing with yellow dyes made from the bark and husks. And Civil War soldiers made black dye from butternut roots.

A healthy butternut tree grows to a height of 70 ft. and a diameter of 24 in. But the health of butternut trees nationally is in trouble due to "butternut

canker," a fungus that kills the trees by attacking the cambium layer. The Endangered Species Act lists butternut as a "sensitive" species. (See "Offcuts," pg. 32.)

Appearance

Seasoned butternut heartwood is a light tan that turns light brown when you apply a finish. The color is relatively stable when exposed to air or sunlight.

Butternut's rather coarse grain resembles that of walnut. In fact, it is often stained to mimic that cousin. The wood has very little figure and no odor or taste. The creamy white sapwood is generally cut away in use.

Workability

Butternut works fairly well with both hand tools and power tools, but cutters and blades need to be extremely sharp. Otherwise, the fuzzy grain may tear out or the wood may burn. For clean cuts when turning butternut, use a shear-cutting, rather than scraping, technique. To prevent router burn, take multiple shallow passes. If you're a carver, you'll love butternut for its friendliness and ability to hold small details.

The lumber dries slowly with minimal checking and is moderately stable once seasoned. It glues exceptionally well, and



readily accepts all finishes and stains. On the downside, butternut is relatively soft, low in strength, and it doesn't hold fasteners very securely. It's also not a very good wood for bending.

Uses

Although butternut is not used extensively in furniture and cabinetry, it's often the wood of choice when matching existing furniture and fixtures made of European walnut. Because of its low strength, however, I don't recommend it as a material for chairs, stools, beds, or other items that take a beating. You'll mainly find it used for carved or shaped items such as mantels, altars, boxes, or molding. Butternut is for interior use only. Outside, it is susceptible to decay and furniture beetle attack. ▲

BUTTERNUT

SPECIES AND COMMON NAMES:

Juglans cinerea—Butternut, white walnut, oil nut

GROWING RANGE:

New Brunswick, Canada south to Georgia, and west to Minnesota and Arkansas

SPECIFIC GRAVITY: .45

DENSITY: 28 lb. per cu. ft.

WOOD MOVEMENT:

Tangential (flatsawn): small (less than $\frac{3}{16}$ in. per ft.)

Radial (quartersawn): very small (less than $\frac{3}{32}$ in. per ft.)

DURABILITY:

Susceptible to decay and insect attack

SUSTAINABILITY:

Vulnerable due to canker blight (see main text)

AVAILABILITY:

Hardwood lumber dealers, mills, and some large home centers

SIZE:

Thicknesses: $\frac{4}{4}$ through $\frac{12}{4}$. Widths: 6 to 9 in. Lengths: 8 to 10 ft.

COST:

Lumber: \$3.75 to \$8 per bd. ft., depending on thickness
Veneer: \$.75 to \$1.50 per sq. ft., depending on quality

¹Indicates wood movement across the grain from 6% to 12% moisture content.

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Prefinishing

Finish now, assemble later

by Michael Dresdner



Although it seems foolish to put your shoes on before your socks, there are times when finishing furniture before you build it makes sense.

"Prefinishing" can make finishing better and easier. It means that you partially or completely finish the parts or sub-assemblies of a project before you glue them together. The only part of prefinishing that requires deftness is keeping the finish off areas to be glued.

Benefits of Prefinishing

Finishing unassembled parts can be vastly easier—and give you better results—than finishing an assembled project. For one thing, you can lay the parts out flat on a horizontal surface. An assembled project will have vertical surfaces, where it's more difficult to prevent runs and sags.

Also, an assembled piece will have inside corners—such as the intersection of a bookcase side, shelf, and back—which are difficult to coat, sand, and rub out. Intersecting surfaces are especially troublesome when applying a spray finish

because the spray tends to rebound, causing overspray problems. Prefinishing allows you to treat every surface, inside and out, like an easy-to-access tabletop.

No more glue problems. One of the nicest "perks" of prefinishing is that glue squeeze-out problems virtually disappear. Since the wood is already colored and sealed, any glue squeeze-out will either wipe off cleanly while it is wet, or will pop off when dry.

What Can You Prefinish?

Actually, it's easier to describe what kinds of projects can not be prefinished. If a project or subassembly has joints that are going to be rounded, shaped, or otherwise altered after glue-up, it's not a prefinishing candidate. Exposed joinery like through mortises or dovetails may rule out prefinishing, because they have to be planed or sanded flush after gluing.

Otherwise, most case goods and furniture made from solid wood, veneered MDF, or plywood panels are naturals for prefinishing. Pieces with areas that are

difficult to reach, but still require finish—like the cubbyholes of a roll-top desk or the dividers in a jewelry box—are excellent candidates for prefinishing.

You can prefinish some parts of a project and not others. The best example is the panel in frame-and-panel construction. (See page 66.) If the panel is solid wood and it's not prefinished, it may shrink after assembly and reveal unfinished areas near the frame. Similarly, you might want to stain and seal the top of a framed coffee table before gluing up the frame and legs. After assembly you can contour, sand, and stain the legs the same color as the panel (or a contrasting color), seal them, and finish off with a coat or two of topcoat over the entire piece.

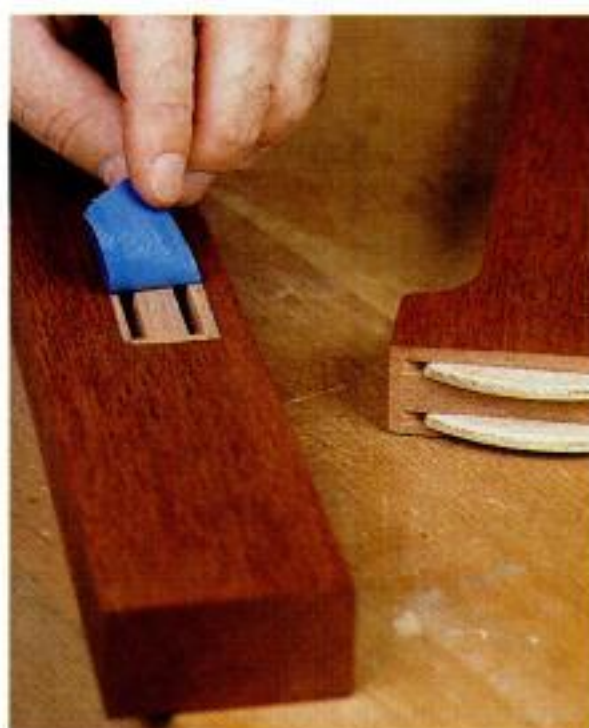
First, Build It Dry

The first step in prefinishing is to "build the piece dry." Cut and trim all the parts, and assemble and clamp them without glue. Make sure all the joints fit just right, then disassemble the unit carefully. Fine-sand all the parts until they are

How to Prefinish



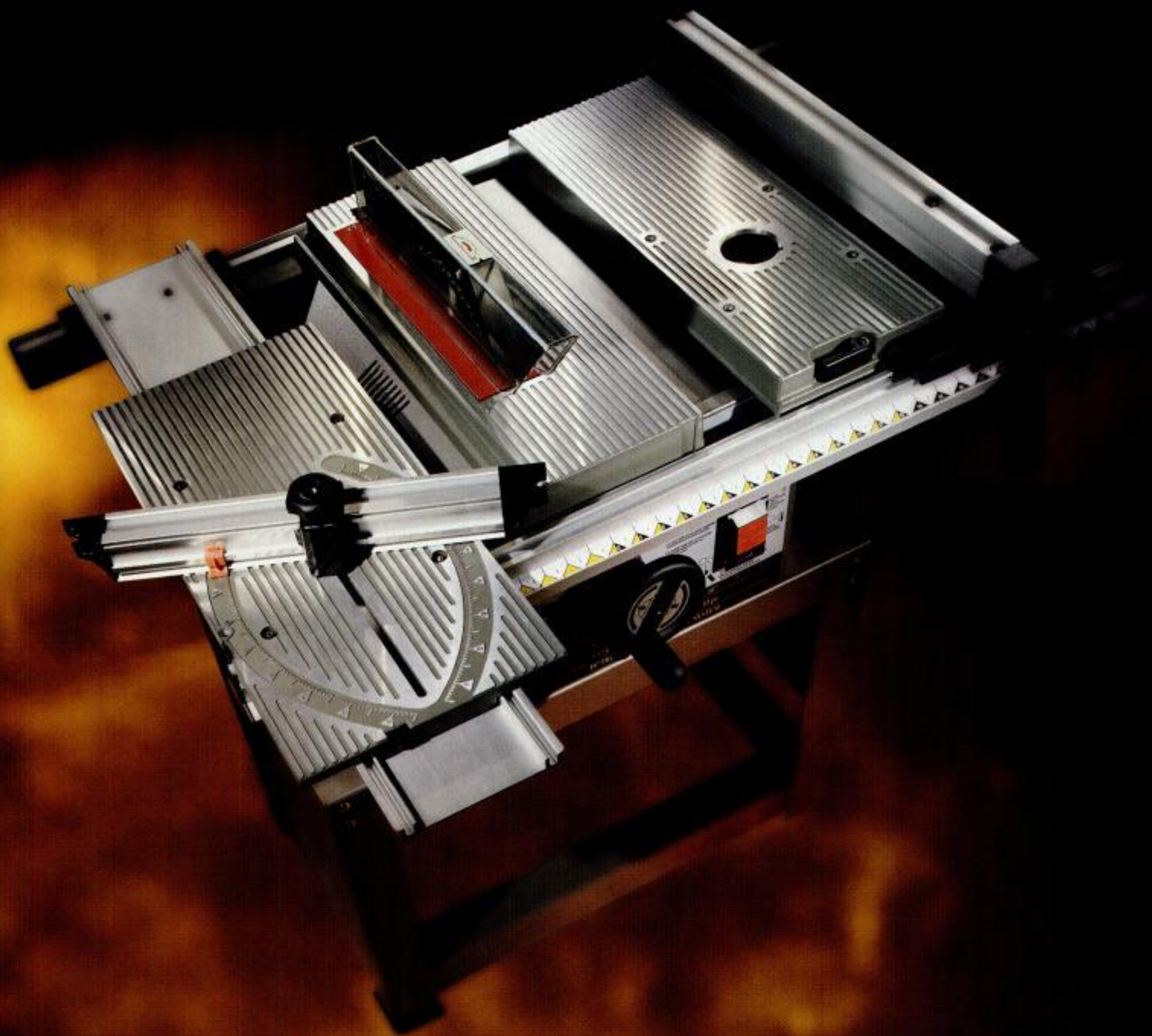
Mark it. Make a light pencil line around the joint while it's dry-fitted. Then mask off the area inside the line. Erase the line before you apply finish.



Peel the tape. When the finish is cured, remove the tape. 3M's Long Mask tape leaves no adhesive residue. Then proceed with assembly.



Clean pickoff. After assembly, a sharpened dowel will pop off dried glue squeeze-out without harming the finished wood.



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ready for finish. If you're using a water-borne stain or finish, raise the grain with a damp cloth, let it dry, and cut back the raised grain with very fine sandpaper.

Since most glues won't adhere to finished wood, you must protect areas that will be part of the glue joint. In some cases, with a hand-applied finish, you can avoid those glue surfaces with your brush or rag. But the best way to protect glue surfaces is to mask them off before staining or finishing. (See photos, page 98.) You'll need a special masking tape.

Special Tape for Glue Surfaces

Garden-variety masking tape, which typically uses rubber-based adhesive, allows finish to creep under it, resulting in a jagged masked edge. And the solvents in some finishes can dissolve the adhesive and undo all your masking efforts. Also, the longer you leave masking tape on, the harder it is to remove. And if you leave it on too long, you get adhesive residue on the raw wood that may interfere with the glue you are about to apply.

Instead of regular masking tape, I use 3M's 2090 Long Mask tape (available in most paint, automotive, and home improvement stores). Long Mask, as its name implies, can be easily removed after a week without leaving any residue on the wood, and it leaves a crisp line when staining or painting. Long Mask is a bright blue color. Several other companies make blue tapes that are plain masking tape. At the risk of sounding like a late-night cable TV ad, I'll warn: "Don't be fooled by imitations."

Finish and Rub Out

Now that you have sanded and taped, you can stain the wood and apply the finish. It makes little difference whether you apply a few coats of Danish oil, or a thick, ten-coat lacquer or varnish finish rubbed out to satin or gloss. If the finish is to be rubbed—and all except wipe-on finishes should be—rub it before assembly, with the tape still on. In any case, I like to add a coat of wax before assembly to make glue removal easier.

Ready to Glue Up

Make sure the finish is completely cured before assembly, since clamps (or clamping pads) can leave marks in still-soft coatings. Then remove the tape.

Apply the glue, assemble, and tighten the clamps. Wipe glue squeeze-out while it's still wet, or let it dry and pop it off the finished surface with a sharpened dowel. (See right photo, page 98.) A dowel is less likely to harm finished wood (or your flesh) than a chisel, if you slip.

After the glue is dry and all squeeze-out is removed, another thin coat of wax will clean up any marks left from clamping and handling. ▲



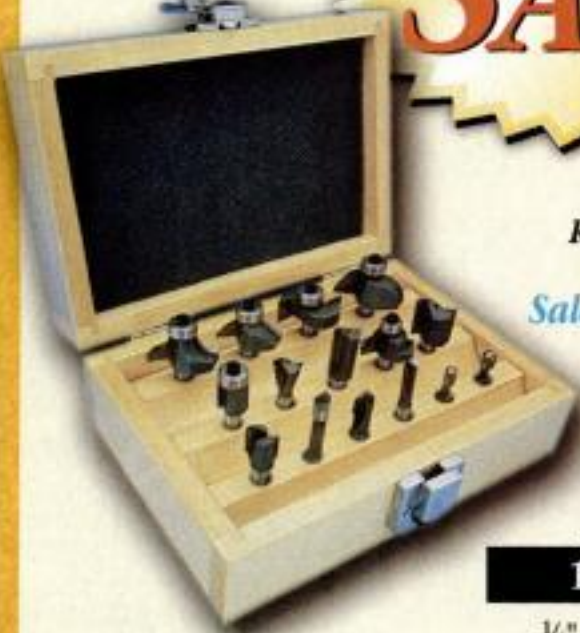
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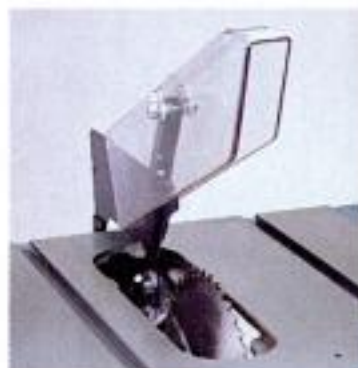
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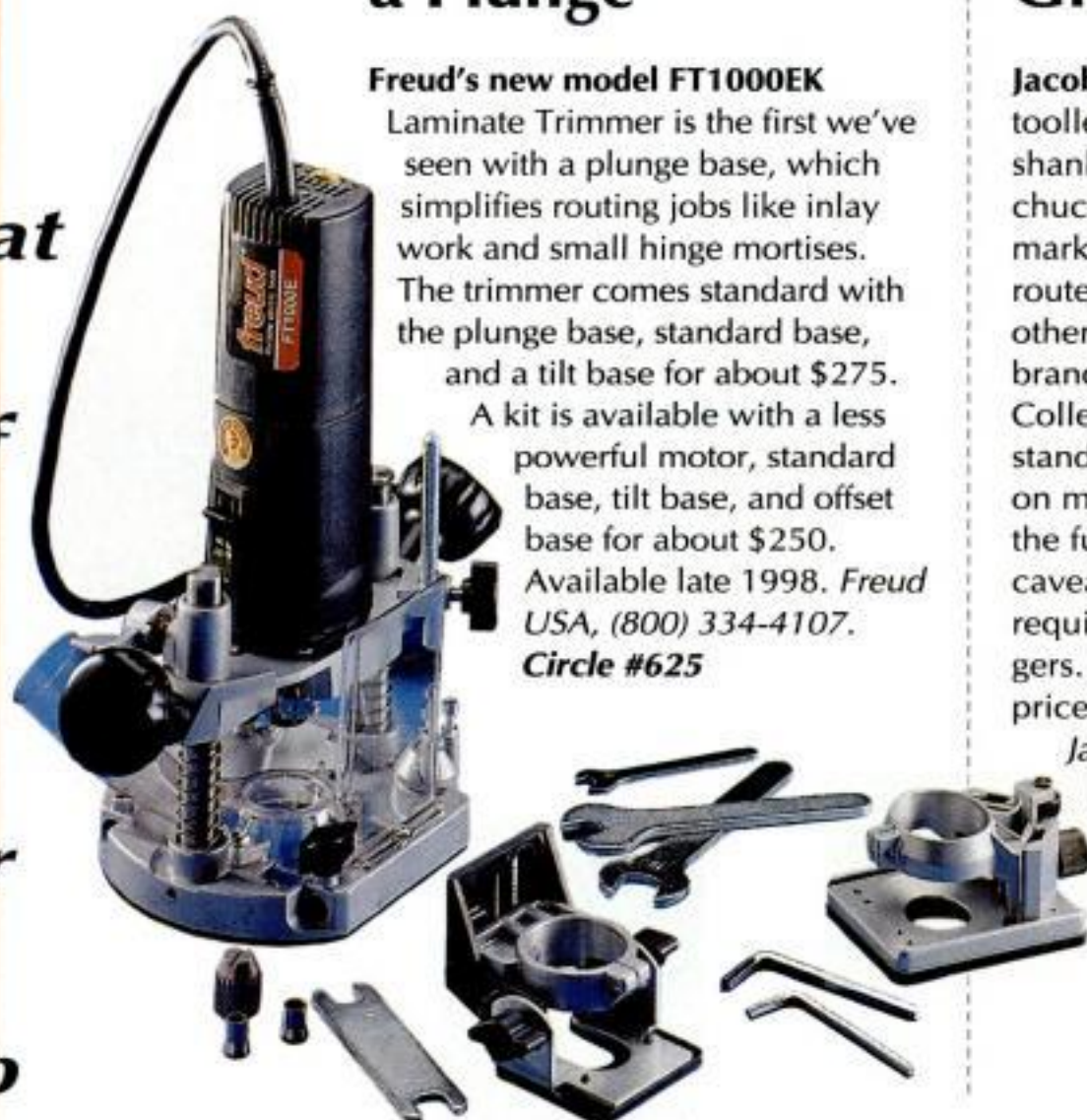
New Concept In Router Tables

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Freud's new model **FT1000EK Laminate Trimmer** is the first we've seen with a plunge base, which simplifies routing jobs like inlay work and small hinge mortises. The trimmer comes standard with the plunge base, standard base, and a tilt base for about \$275.

A kit is available with a less powerful motor, standard base, tilt base, and offset base for about \$250. Available late 1998. *Freud USA*, (800) 334-4107. **Circle #625**



Toolless Router Chuck Grows Bigger

Jacobs has come out with a new version of its toolless router chuck that will accept 1/2-in.-shank router bits. Dubbed the **Power Collet**, the chuck will be available in late 1998 as an after-market accessory to fit Porter-Cable routers, and later in 1999 for other popular router brands. The Power Collet will come as standard equipment on many routers in the future. One caveat: The chuck requires strong fingers. Suggested list price is \$39.99. *The Jacobs Chuck*

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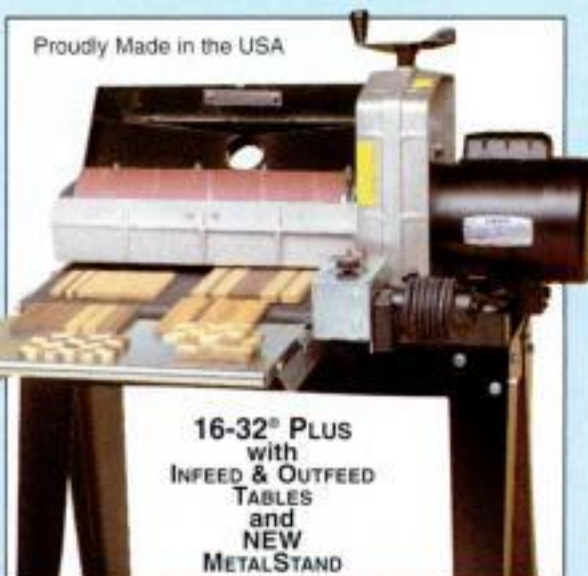
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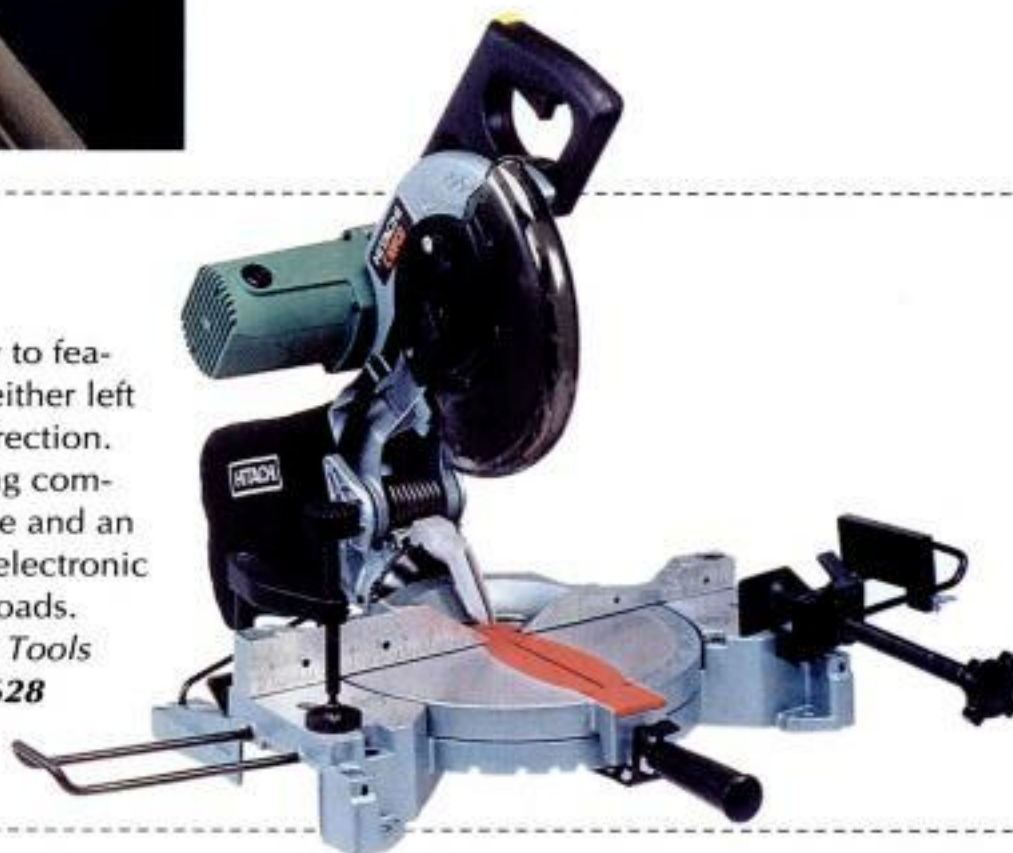


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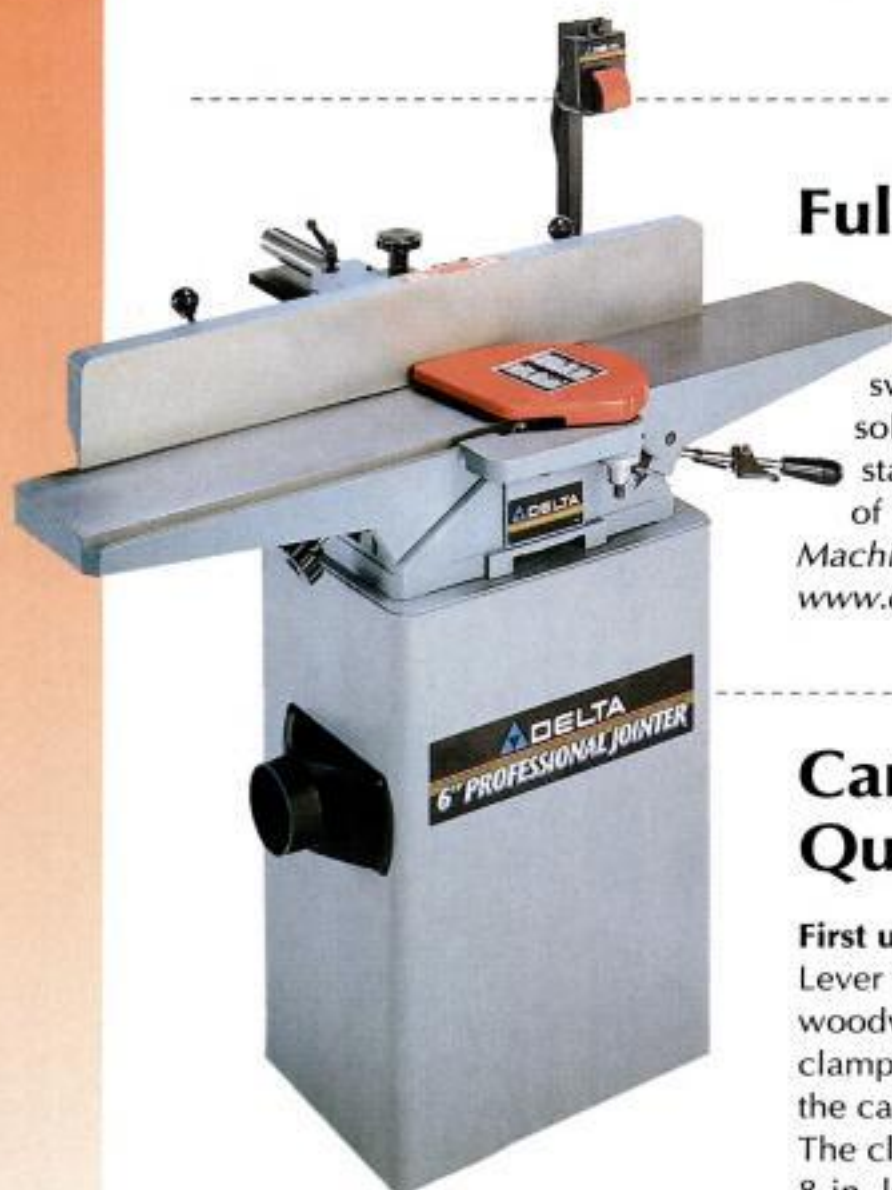


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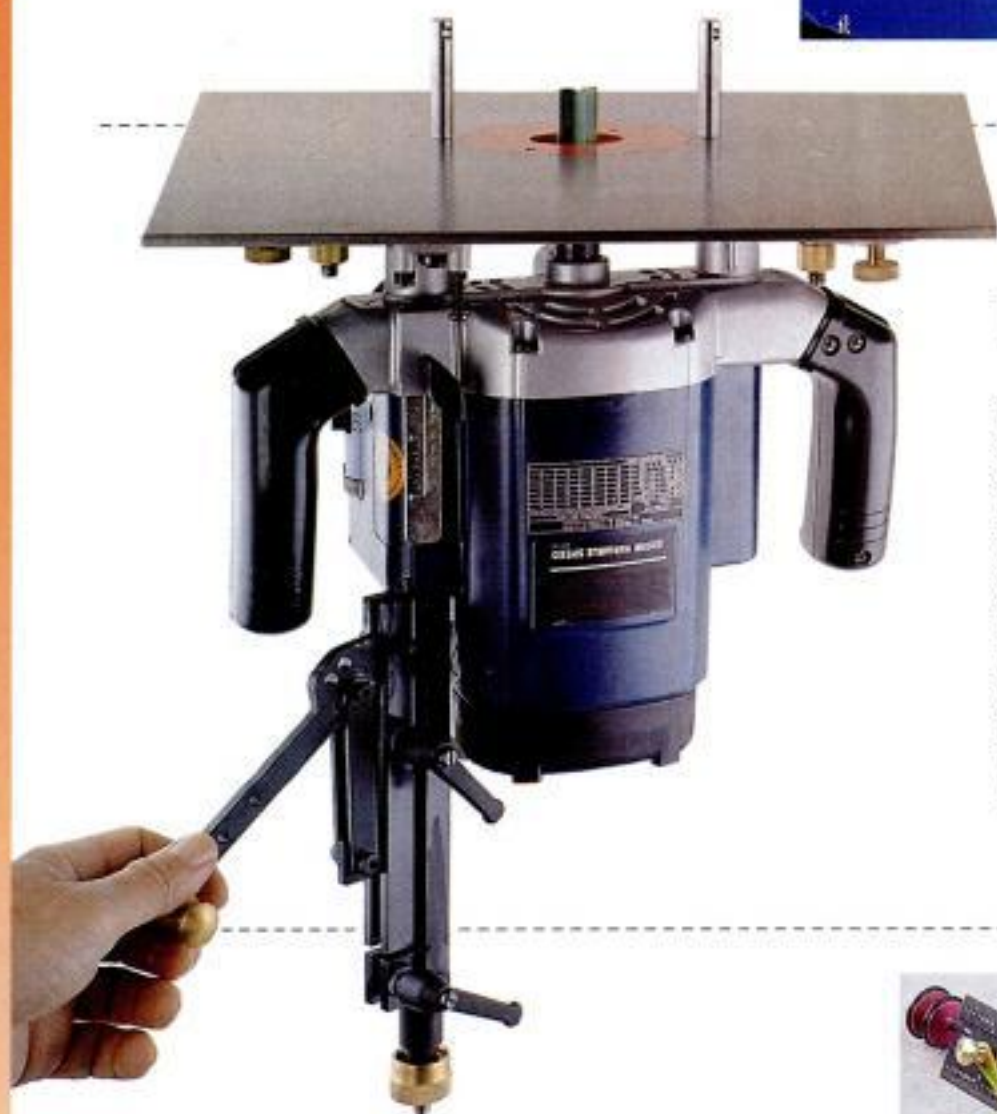
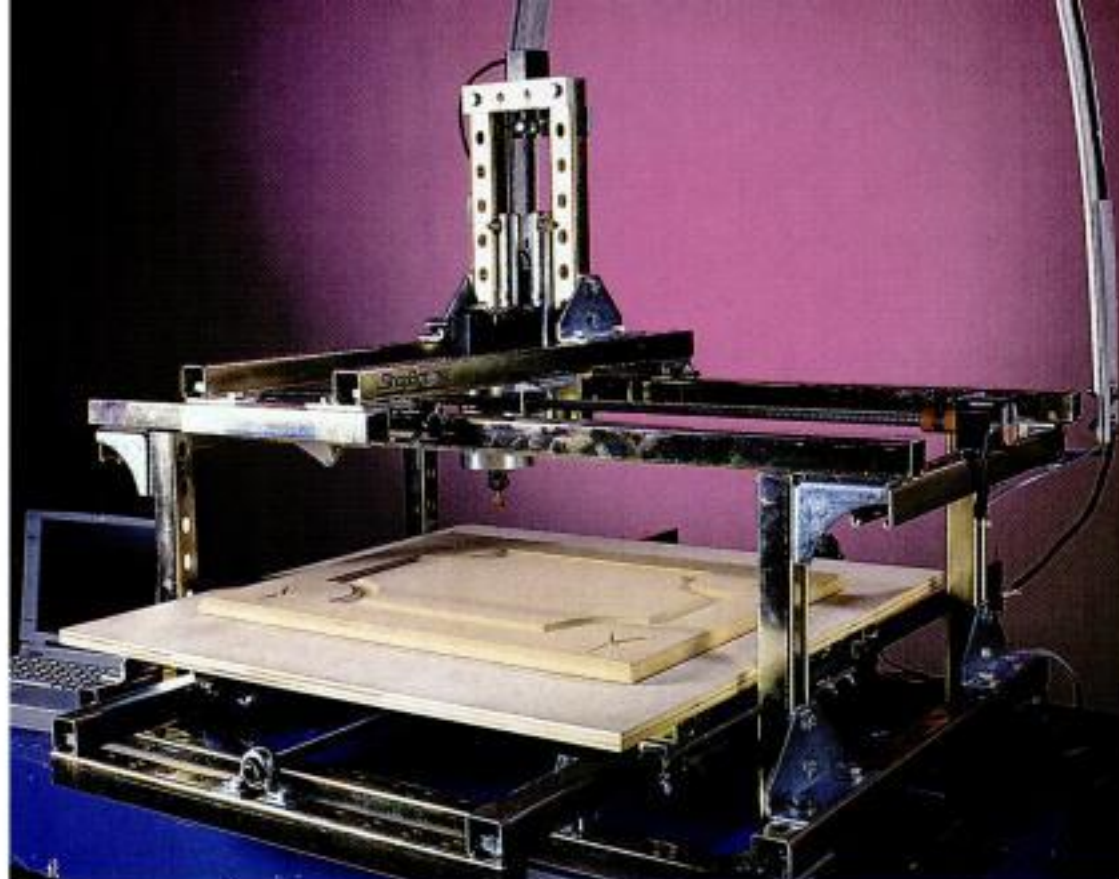
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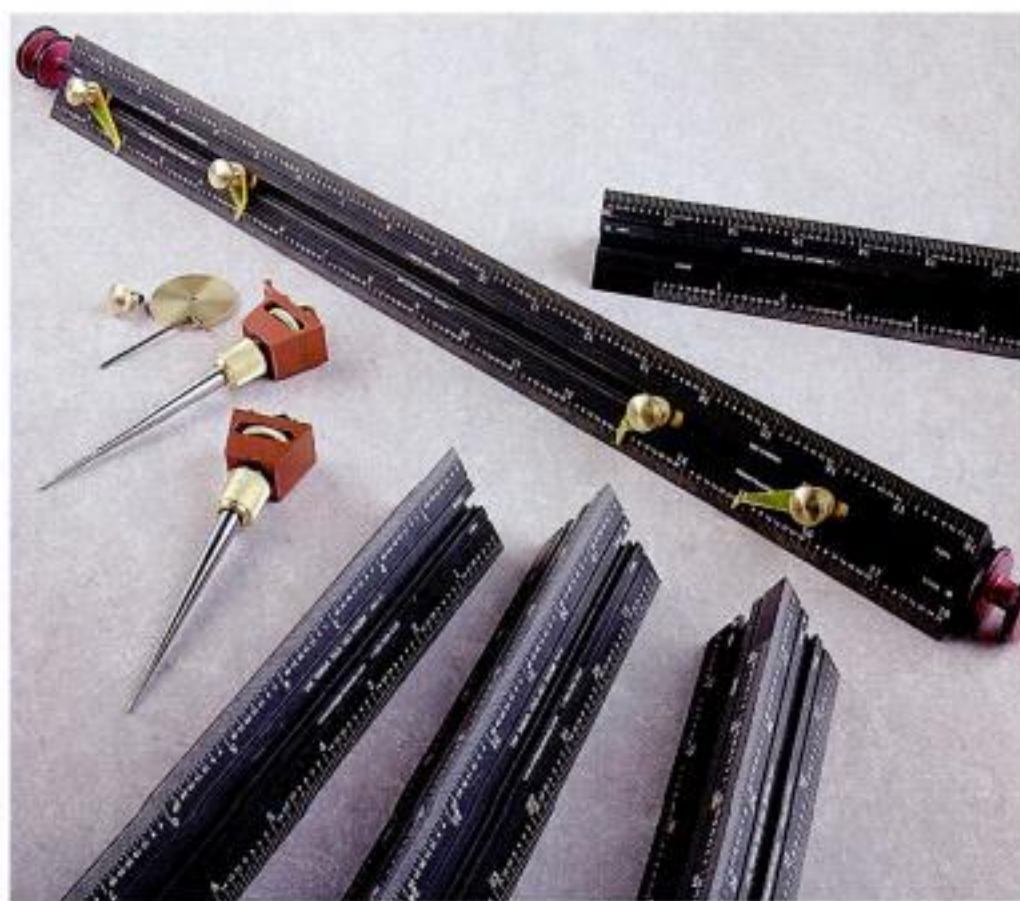


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Tired of fumbling to set the bit height on your router table? Try the Veritas Router Bit Jack. This clever bit-setting aid attaches to the threaded adjustment rod on your plunge router to let you make adjustments faster than you thought possible. The jacking lever moves the bit rapidly for coarse adjustment, and the fine-adjustment knob steps the bit height in 0.002-in. increments. Three models are available to fit almost all plunge routers. Price: \$55. *Lee Valley and Veritas, (800) 871-8158, www.leevalley.com. Circle #637*

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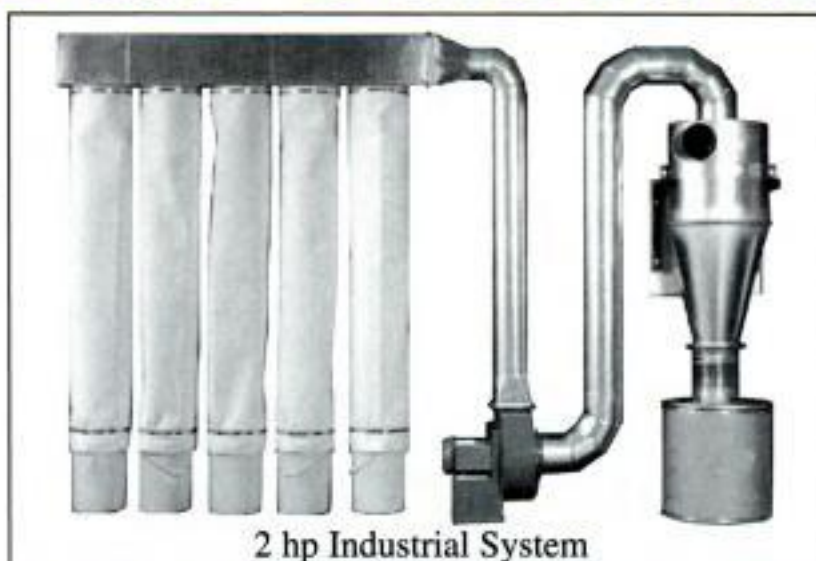
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Cordless Power!

Eighteen-volt cordless tools have been trickling into the marketplace for the past few years, but get ready for a flood. By the spring of 1999, almost every major power tool brand will offer 18V drills, setting a new standard for power. Other new cordless tools include three 18V circular saws and two jigsaws: one 18V from DeWalt and one 14.4V from Makita.

Also, more cordless tools will offer the option of using nickel-metal hydride (NiMH) batteries, which promise a longer run time and less weight than standard nickel-cadmium (NiCad) batteries. NiMH batteries are available now from Makita and Bosch; Hitachi and DeWalt will offer NiMH in the spring of 1999.

Here's a peek at the new high-power players in the cordless market. (At press time, prices on some models aren't determined. Prices will vary because many models are sold as kits, including different combinations of batteries, chargers, and accessories.)

NEW 18V CIRCULAR SAWS



Hitachi C6DC



Ryobi



Makita 5620DWA

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www.ryobi.com
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S-B Power Tool (Skil, Bosch)
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NEW CORDLESS JIGSAWS

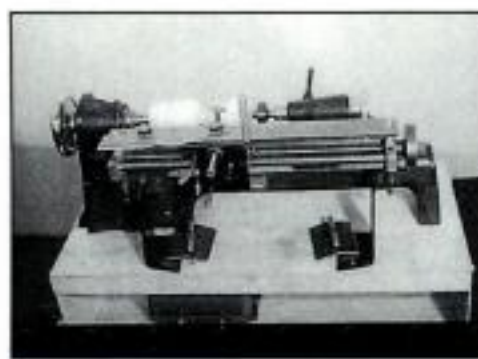


DeWalt DW933K (18V)



Makita 4332DWA (14.4V)

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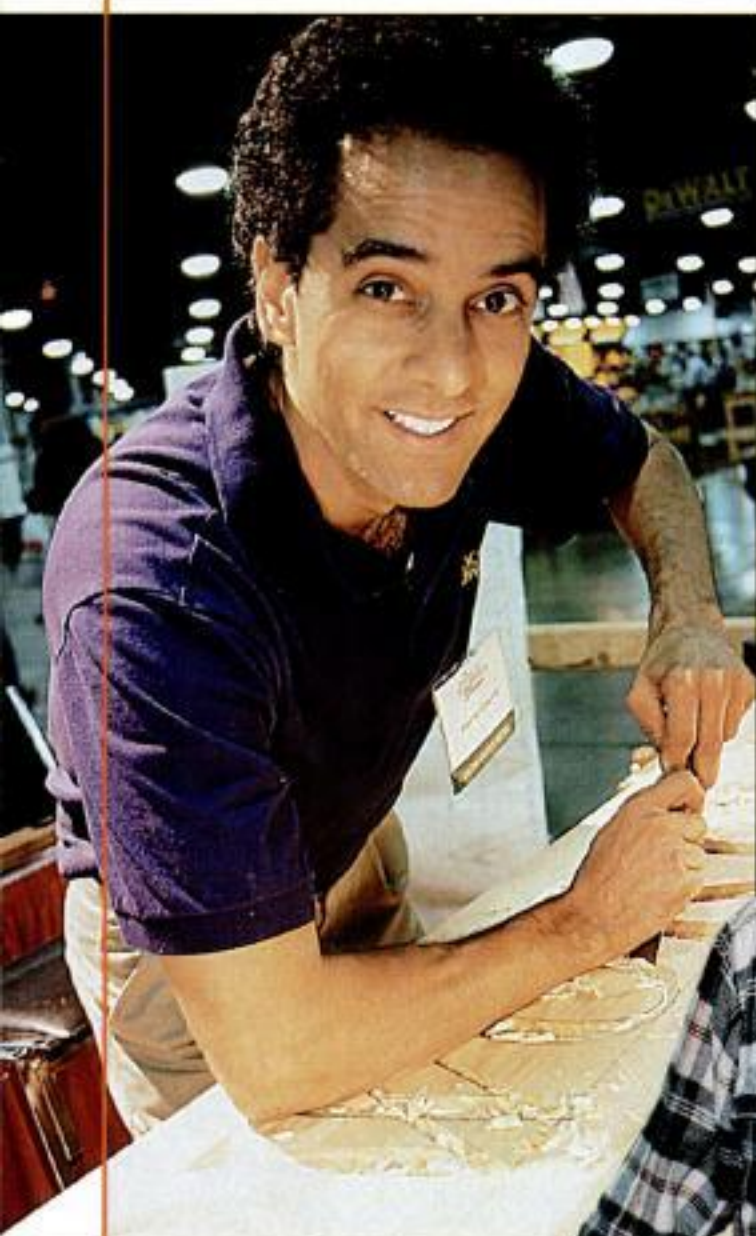
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Saturday 8:30-10:30 am

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Select the right router and accessories for your needs • Use a router safely and effectively • Profile edges and make moldings • Cut basic woodworking joints like dados, rabbets, and simple mortises and tenons • Make time-saving router jigs • Use a trammel to cut arcs and circles • Rout with pattern bits

Who should attend: Beginning to intermediate woodworkers.

About the presenter: Bill Hylton is a long-time woodworker and woodworking writer. He is the author of *Woodworking with the Router and Router Magic*, as well as the recently published *Rodale's Illustrated Cabinetmaking*.

ADVANCED ROUTER WORK

Friday 4:00-6:00 pm
Saturday 1:00-3:00 pm

BILL HYLTON

In this seminar, you'll learn how to:

Make complex moldings • Choose and equip a router table • Joint and surface difficult woods with the router • Cut advanced router joints—cope-and-stick, lock-miters, and finger joints • Make professional-quality router jigs and fixtures • Perform template-guided router operations

Who should attend: Intermediate woodworkers.

MAKE THE MOST OF YOUR TABLESAW

Friday 1:00-3:00 pm
Saturday 8:30-10:30 am

IAN KIRBY

In this seminar, you'll learn how to:

Rip, crosscut and shape solid wood • Cut manufactured sheet goods • Select the right blade for the job • Use blade guards, splitters and push sticks • Make jigs for shaping and joint-making • Operate your saw safely and properly

Who should attend: All woodworkers.

About the presenter: Trained in England as a furniture maker, designer and wood technologist, Ian Kirby has taught and written extensively on woodworking in the United States and England for over 30 years. He is a frequent contributor to *AMERICAN WOODWORKER* magazine.

DESIGN AND BUILD A WORKBENCH

Friday 4:00-6:00 pm
Saturday 4:00-6:00 pm

FRANK KLAUSZ

In this seminar, you'll learn how to:

Understand what makes a good bench • Design the bench that's best for you • Choose the right materials and construction methods • Select and install vises and work-holding features

Who should attend: All woodworkers.

About the presenter: Frank Klausz is a professional cabinetmaker who learned his craft in his native Hungary. He lectures and gives seminars throughout the U.S. and Canada and is a contributing editor to *AMERICAN WOODWORKER* magazine.

FINISHING SECRETS

Friday 1:00-3:00 pm
Saturday 8:30-10:30 am

MICHAEL DRESDNER

In this seminar, you'll learn how to:

Select the best finish for the job • Understand wood stains and use them correctly • Apply finishes for the best results • Get a professional-looking finish on your project—from surface preparation to final polish

Who should attend: All woodworkers.

About the presenter: Michael Dresdner is a contributing to *AMERICAN WOODWORKER* magazine and the host of our finishing "chat room," Sunday nights on the America Online computer service. Michael writes our "Just Finishing" column and is the author of *The Woodfinishing Book* (Taunton Press, 1993).

WOODWORKING FUNDAMENTALS

Friday 8:30-10:30 am
Saturday 1:00-3:00 pm

FRANK KLAUSZ

In this seminar, you'll learn how to:

Select and understand tools, machines and materials • Choose projects and joinery you can handle • Allow for wood movement • Use glue and clamps effectively • Apply great-looking finishes

Who should attend: Beginner to intermediate woodworkers.

DESIGN AND BUILD GREAT FURNITURE

Friday 4:00-6:00 pm
Saturday 1:00-3:00 pm

IAN KIRBY

In this seminar, you'll learn how to:

Develop problem-solving strategies • Recognize the elements of good design—form, function, and economics • Design joints and details • Make the best use of materials—solid wood and sheet goods

Who should attend: All woodworkers.

JIGS AND FIXTURES

Friday 8:30-10:30 am
Saturday 4:00-6:00 pm

SANDOR NAGYSZALANCZY

In this seminar, you'll learn how to:

Design and build jigs and fixtures for many woodworking operations • Understand jig-making principles • Incorporate safety features and dust collection • Choose appropriate hardware and materials

Who should attend: All woodworkers.

About the presenter: Sandor Nagyszalanczy is a furniture designer and the author of four books, with 18 years of woodworking experience and six years as an editor of *Fine Woodworking* magazine. He is currently a contributing editor to *AMERICAN WOODWORKER* magazine.

SCROLLSAW SAVVY

Friday 1:00-3:00 pm
Saturday 4:00-6:00 pm

STEVE VORNDRA

In this seminar, you'll learn how to:

Select the right machine and blades • Master proper cutting techniques • Make right-angle cuts • Craft puzzles, shadowboxes and 3-D animals • Cut parts for marquetry and intarsia

Who should attend: All scroll saw enthusiasts.

About the presenter: Steve Vorndran is a veteran scroll saw instructor who has lectured extensively across the country. He is the author of several articles on scroll sawing techniques.

AMERICAN WOODWORKER Dodge Truck Giveaway Official Rules

No Purchase Necessary

1. To enter, obtain, complete and deposit an official entry form at The American Woodworker Show™ in Novi, MI, Fort Washington, PA or Ontario, CA; or print your full name, address, and daytime telephone number on a 3" x 5" piece of paper, place in a stamped envelope and mail to: The American Woodworker Dodge Truck Giveaway, 33 East Minor Street, Emmaus, PA 18048; or visit us on the internet at www.americanwoodworkershow.com and follow the instructions there.

2. Limit one entry per person. All entries must be deposited or postmarked by the Sweepstakes ending date of March 19, 1999. Mailed entries must be received no later than March 19, 1999. Mechanically reproduced, damaged, lost, late, postage due, misdirected, incomplete, or illegible entries are not eligible. All entrants agree to be bound by the official rules and the decisions of the judges.

3. Winner selected by random drawing from eligible entries on or about March 31, 1999. Odds of winning depend on the number of entries. Winner will be notified by phone and/or mail. Winner will be required to sign and return an Affidavit of Eligibility and Release within 14 days of receipt of notification. Noncompliance or return of any prize notification as undeliverable, will result in the disqualification of the entry and selection of an alternate winner. The winner must consent to the use of his or her name and/or likeness for promotional purposes without additional compensation, except where prohibited by law.

4. Grand Prize: One 1999 Dodge Dakota Sport truck with an estimated MSRP value based on 1998 pricing of \$21,150 (including destination) or less, to be delivered to the authorized Dodge dealer nearest the winner's residence in the United States. (If the winner is from Massachusetts, New York or California, add \$102 to the MSRP for a state-mandated emissions package.) No transfer or substitution of prize is permitted except by sponsor due to prize unavailability. All taxes, insurance, licensing and other associated fees are the responsibility of the winner.

5. Sweepstakes open to legal residents of the 50 United States, only, who, as of March 31, 1999, are 18 years or older. Winners must reside in the United States at time of prize delivery. Employees (and members of their immediate families) of Rodale Press, Inc., the Chrysler Corporation, their subsidiaries and dealers are not eligible. The winner agrees to hold harmless the Chrysler Corporation and Rodale Press, Inc., and each of their respective affiliates, officers, directors, employees, representatives, agents, successors and assigns from any and all loss, liability, damage, cost and expense arising out of the Giveaway. Void where prohibited, and subject to all federal, state and local laws.

6. For the prize winner's name, available after April 30, 1999, send a self-addressed, stamped envelope to: The American Woodworker Show™, Show Management Division, 33 East Minor Street, Emmaus, PA, 18048. Requests received after May 15, 1999, will not be honored.

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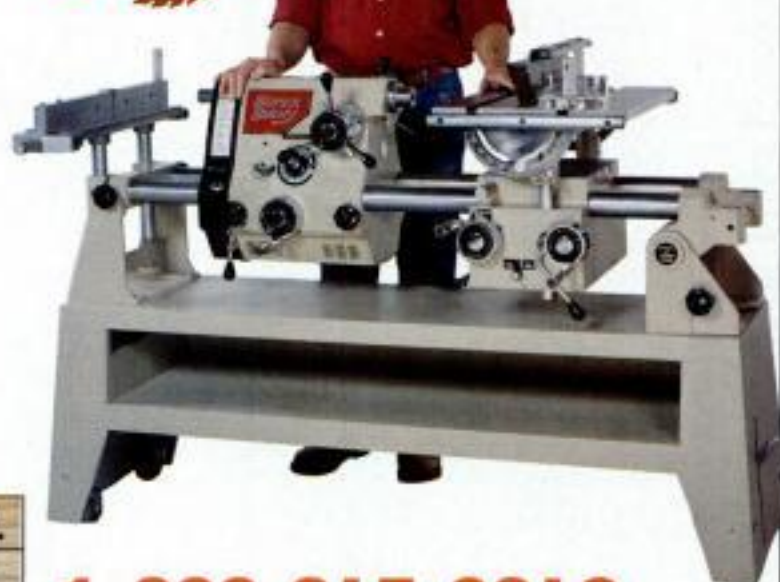
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CIRCLE NO. 74 ON PRODUCT INFORMATION FORM

Excellence Award Finalists

We were left with a boxful of outstanding finalists' work after picking the winning entries in our **seventh annual Excellence in Craftsmanship® competition**. (See page 78.) Here's a look at some of the best work by amateur, student, and professional woodworkers from all over the country.



◀ **Three-legged table**
by John Clark, San Francisco, CA. Professional. Mahogany, African sapele veneer, and English sycamore for the inlay and the tips of the legs.
W: 24 in. Dia: 24 in. H: 27 in.

PHOTOS BY MICHAEL BRUK



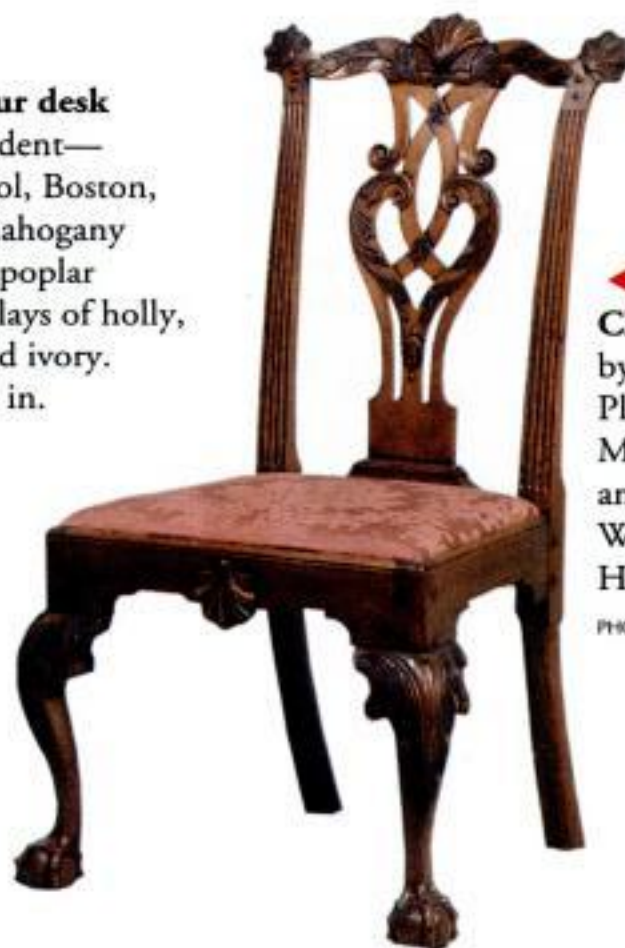
▲ **Stand-up desk and stool**
by John W. Williams, Clintonville, WV. Professional. Bird's-eye maple and walnut.
W: 36 in. D: 32 in. H: 51 in.

PHOTO BY JIM OSBORN



◀ **Seymour-style tambour desk**
by Robert A. Richard. Student—
North Benner Street School, Boston,
MA. Mahogany, crotch-mahogany
veneer, satinwood veneer, poplar
(secondary wood), with inlays of holly,
ebonized pear, and recycled ivory.
W: 40 in. D: 20 in. H: 41 in.

PHOTOS BY LANCE PATTERSON



◀ **Philadelphia Chippendale side chair**
by Daniel Reahard,
Plymouth, MI. Amateur.
Mahogany, yellow poplar,
and upholstery.
W: 16³/₄ in. D: 21⁷/₈ in.
H: 41¹/₄ in.

PHOTO BY EUGENE MALYMEIK

▼ **"Hide and Seek" curio box**
by Ashley Jameson Eriksmoen.
Student—College of the
Redwoods, Ft. Bragg, CA.
Pear, camphor, and maple.
W: 16¹/₂ in. D: 11¹/₂ in. H: 5¹/₂ in.

PHOTO BY SETH JANOFKY



▲ **Federal inlaid Pembroke table**
by J. Albert Hudson, Knoxville, TN. Amateur.
Curly cherry, cherry veneer, hard maple with
inlays of ebony, holly, and hedgeapple.
W: 36 in. (with leaves open) D: 28 in. H: 26 in.

PHOTO BY HARLEY FERGUSON

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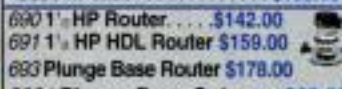


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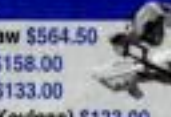
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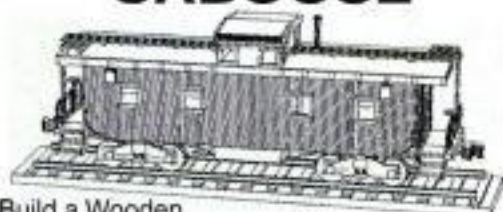
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330	Speed bloc Sander	64
333	RO Sander 5" H&L	64
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335	NEW! 6" RO Sander	83
352VS	3X21 Sander VS	163
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556	Biscuit Joiner	131
557	NEW! Biscuit Joiner	199
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6931	Plunge Base	79
697	Router Table & motor	229
697	Router Table only	109
7334	4" RO Sander	277
7518	5 speed 3hp Router	249
7519	3 hp Router	217
7537	2 hp D-Handle Rtr	248
7538	3 hp Plunge Router	244
7810	Vacuum	129
9345	Sawboss w/ case	94
9444	Profile Sander	111
9444VS	VS Profile Sander	184
97310	Trimmer Kit	147
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FR350	Framing Nailer	289
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139

179

222

109

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DW733

73

163

149

67

187

147

147

144

217

98

199

339

144

228

179

198

339

659

539

449

445

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6496-6

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Slide Miter

\$559

6497

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5682

6020-20

6025-20

Back-Saver Panel Cart

Deliver plywood to your saw with one-handed ease

by Keith Brandman

In an effort to save my back, I built this roll-around cart for my shop. With it, I can easily lift plywood and other sheet goods onto my tablesaw by myself. I simply load up to two sheets onto the cart, roll the cart to the saw, lift the tilting top, and slide my sheet of plywood directly onto the saw. A brace drops down to support the top in its horizontal position. The total cost was about \$60 and one afternoon's work.

I made my cart from 2x4s reinforced with pieces of 1/4-in. plywood. The tilting top is attached to the A-frame structure with two inexpensive butt hinges. The brace is hinged to the edge of the top. It passes through the center of the cart and is held to the crosspiece by a magnet when not in use.

The length of the A-frame legs depends on the height of your tablesaw and your casters. You want the surface of the cart's top to be about an inch higher than your saw's table. The dimensions shown in the drawing will work for a 34 1/2-in.-high saw and 3 1/2-in.-high casters. Adjust the leg lengths as necessary. ▲

Keith Brandman builds furniture and teaches woodworking in Berkeley, CA.

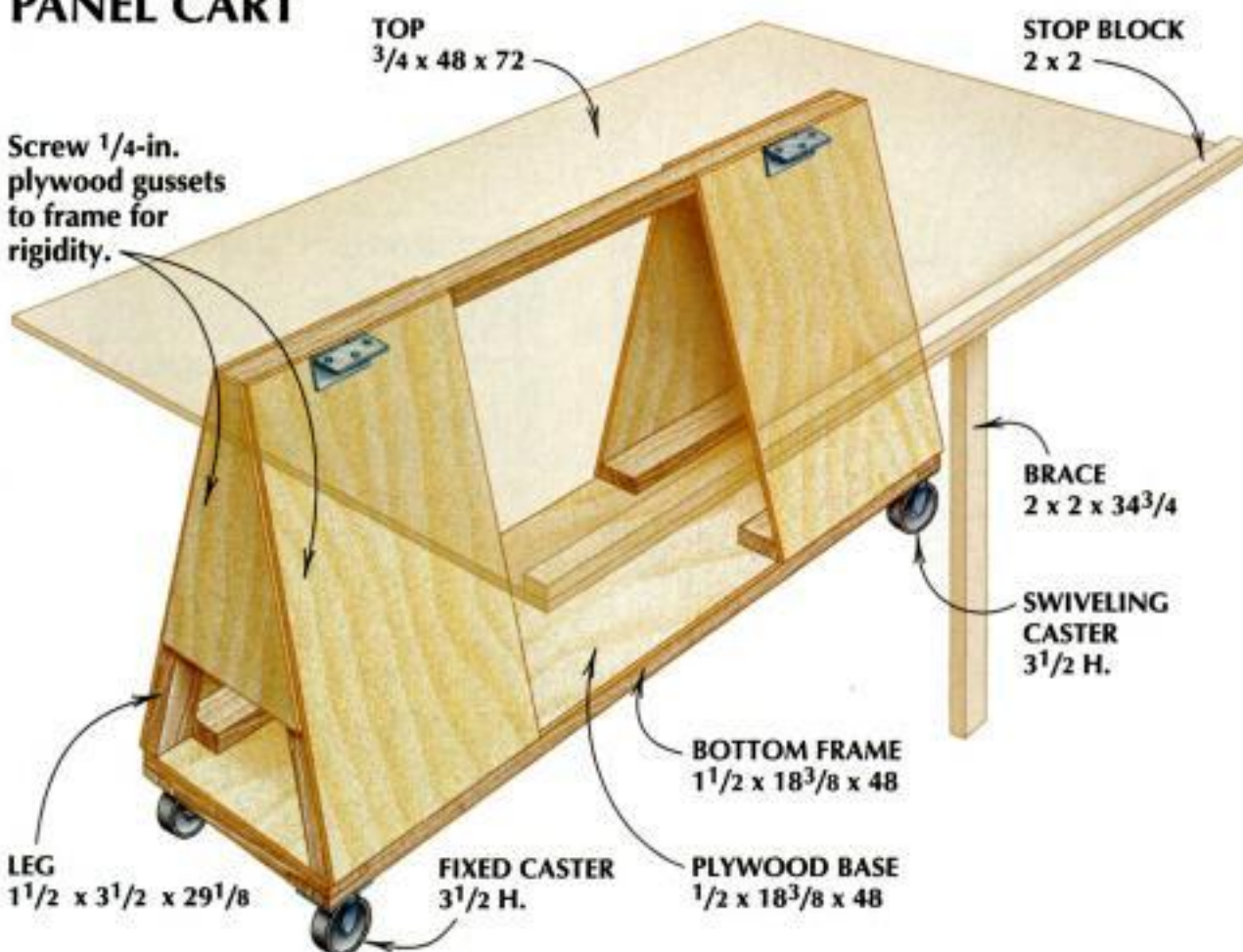
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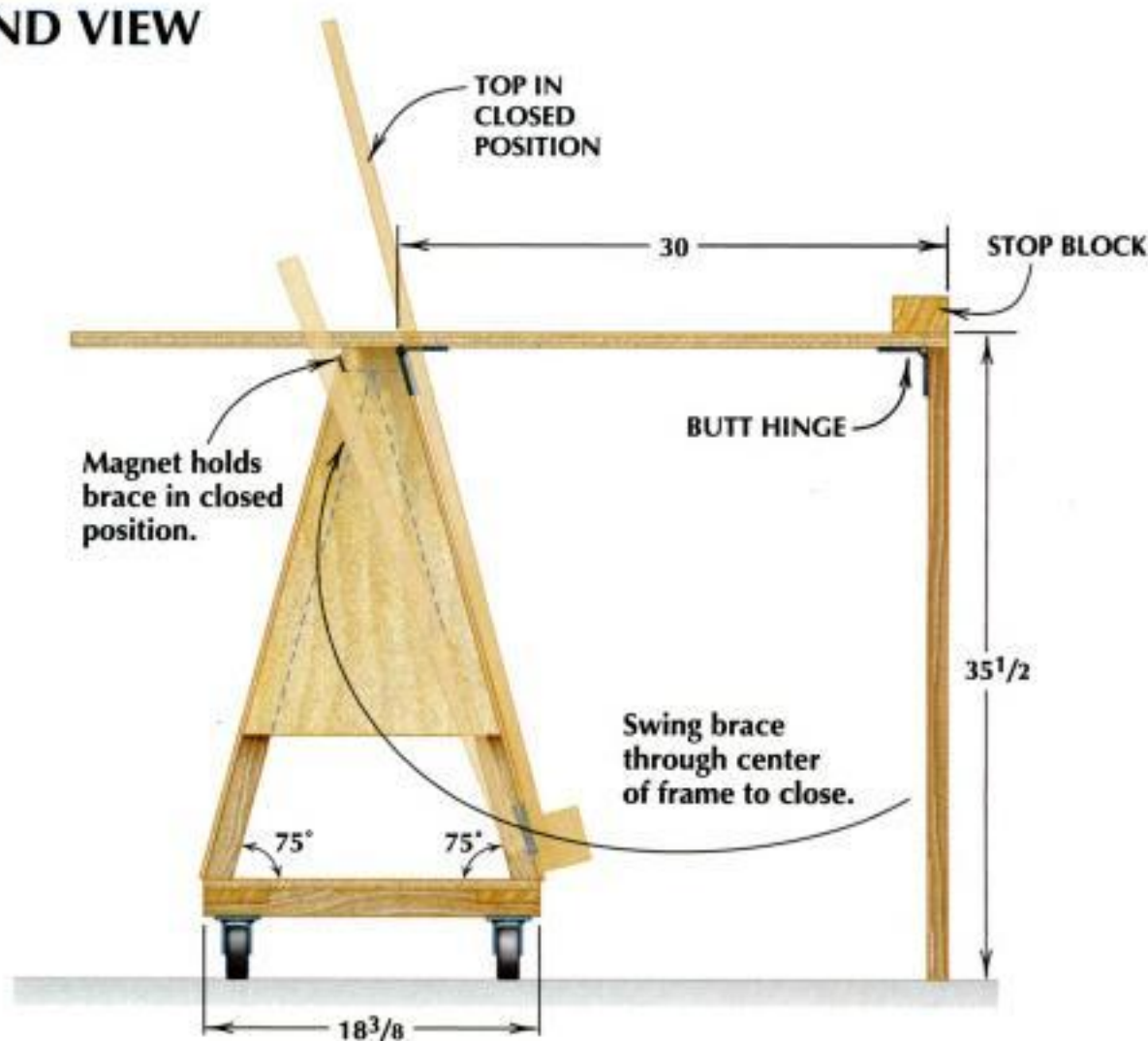
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END VIEW





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