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WOODWORKER'S JOURNAL

August 2001
Volume 25
Number 4

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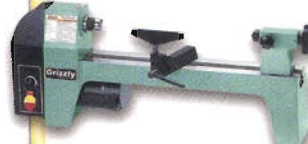
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- HEAVY-DUTY 1 $\frac{1}{2}$ H.P., 110/220V MOTOR
- TWO SPINDLE SPEEDS: 7,000 AND 10,000 R.P.M.
- SPINDLE OPENINGS: 1 $\frac{1}{4}$ ", 3 $\frac{1}{8}$ ", AND 5"
- PRECISION-GROUND CAST IRON TABLE
- TABLE SIZE: 20 $\frac{1}{4}$ " x 18"
- FLOOR-TO-TABLE HEIGHT: 33 $\frac{1}{2}$ "
- ALL BALL BEARING CONSTRUCTION
- MAX. CUTTER DIAMETER: 5"
- APPROX. SHIPPING WEIGHT: 220 LBS.
- 3" SPINDLE TRAVEL
- HEAVY-DUTY 3 H.P., SINGLE-PHASE, 220V MOTOR WITH REVERSING SWITCH
- TWO SPINDLE SPEEDS: 7,000 AND 10,000 R.P.M.
- SPINDLE OPENINGS: 1 $\frac{1}{4}$ ", 2 $\frac{1}{4}$ ", 4", AND 5 $\frac{1}{2}$ "
- PRECISION-GROUND CAST IRON TABLE
- TABLE SIZE WITH STANDARD WINGS ATTACHED: 30 $\frac{1}{2}$ " x 28 $\frac{1}{4}$ "
- FLOOR-TO-TABLE HEIGHT: 34"
- APPROX. SHIPPING WEIGHT: 353 LBS.



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- TWO SPINDLE SPEEDS: 7,000 AND 10,000 R.P.M.
- SPINDLE OPENINGS: 1 $\frac{1}{4}$ ", 2 $\frac{1}{4}$ ", 4", AND 5 $\frac{1}{2}$ "
- PRECISION-GROUND CAST IRON TABLE
- TABLE SIZE WITH STANDARD WINGS ATTACHED: 30 $\frac{1}{2}$ " x 28 $\frac{1}{4}$ "
- FLOOR-TO-TABLE HEIGHT: 34"
- APPROX. SHIPPING WEIGHT: 353 LBS.



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- MIN. BOARD THICKNESS: ¾"
- MAX. CUTTING WIDTH: 12½"
- MAX. CUTTING HEIGHT: 6"
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- APPROX. SHIPPING WEIGHT: 85 LBS.



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- MAX. CUTTING HEIGHT: 6½"
- MAX. CUTTING DEPTH: ½"
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- ALL BALL BEARING CONSTRUCTION
- APPROX. SHIPPING WEIGHT: 440 LBS.



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MODEL G1033

20" PLANER

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- CUTTERHEAD SPEED: 4833 R.P.M.
- RATE OF FEED: 16 F.P.M. & 20 F.P.M.
- MAX. CUTTING WIDTH: 20"
- MAX. CUTTING HEIGHT: 8½"
- MAX. CUTTING DEPTH: ½"
- NUMBER OF KNIVES: 4 H.S.S.
- ALL BALL BEARING CONSTRUCTION
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- THROAT DEPTH: 12"
- ¾ H.P., 110V MOTOR, 4.5 AMP
- BLADE LENGTH: 62"
- R.P.M.: 14,000
- APPROX. SHIPPING WEIGHT: 38 LBS.



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- STROKE LENGTH: 1½"
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MODEL G9922

OSCILLATING SPINDLE SANDER

- ½ H.P. SINGLE PHASE 4.6 AMP TEFC MOTOR
- GROUND CAST IRON 14½" x 14½" TABLE TILTS TO 45°
- STROKE LENGTH: 1"
- FLOOR-TO-TABLE HEIGHT: 39½"
- BUILT-IN 2" DUST COLLECTION PORT
- 3450 R.P.M. SPINDLE SPEED
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THE BEST ROUT

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The perfect companion to the bed Rick built two issues ago, and more pointers on dry bending lumber.

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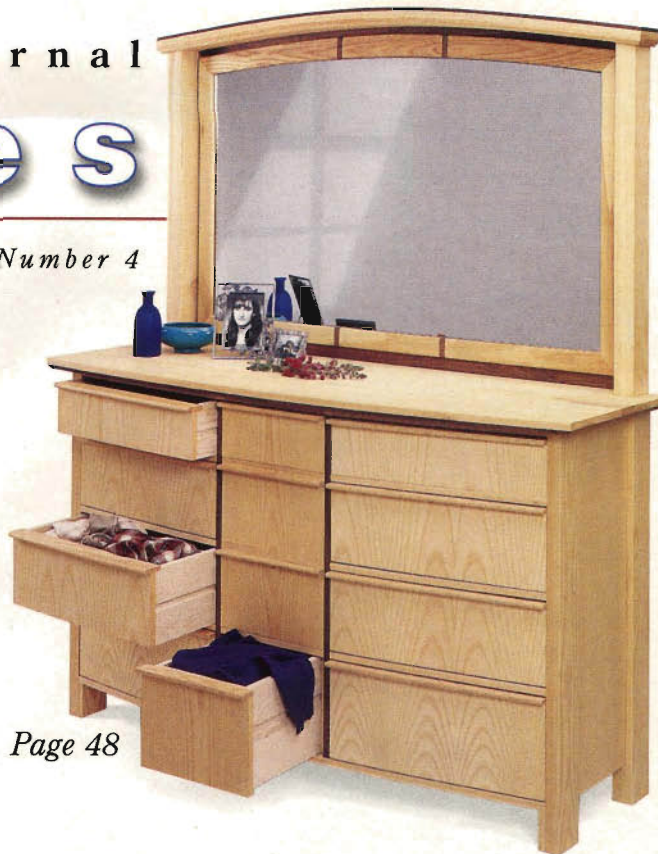
By Simon Watts

L-shaped retainers hold surface-mounted glass to this simple mirror — a great weekend project.

66 Summer Reading List

By Joanna Werch Takes

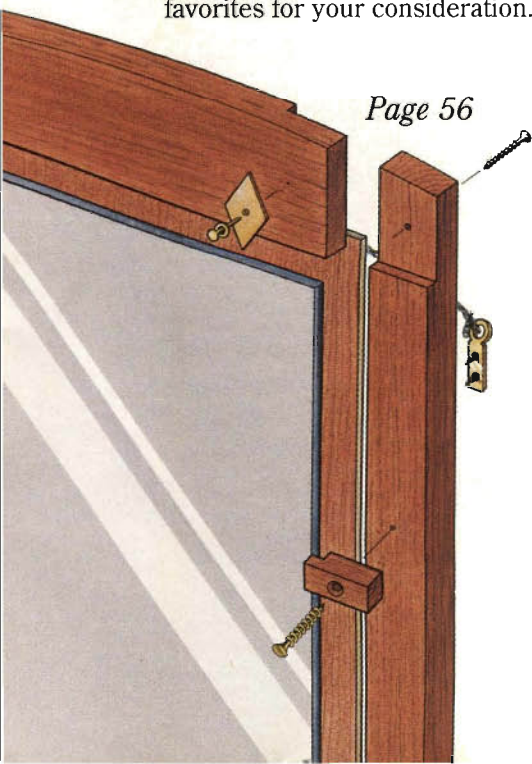
A good book and a hammock: talk about laid-back summer fun. We list old and new favorites for your consideration.



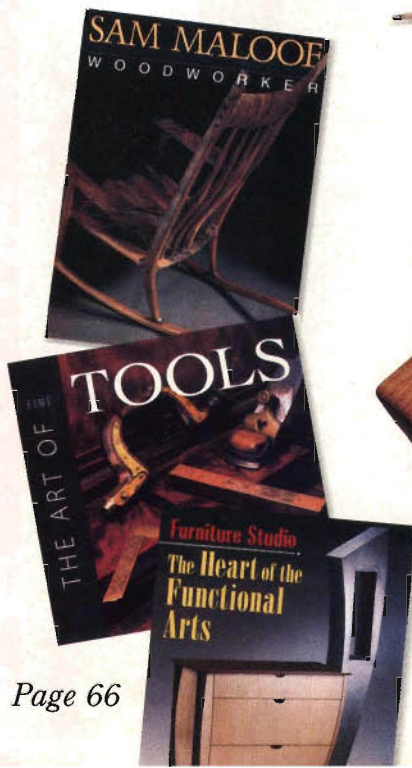
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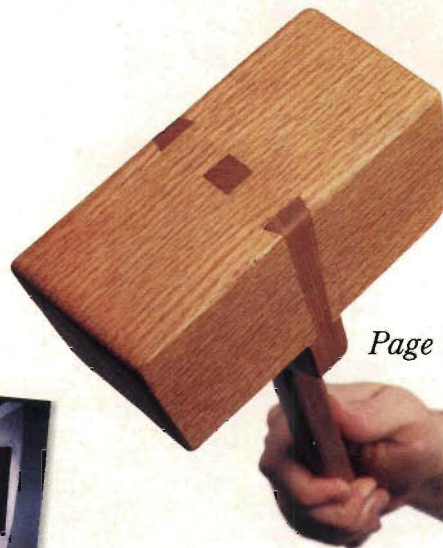
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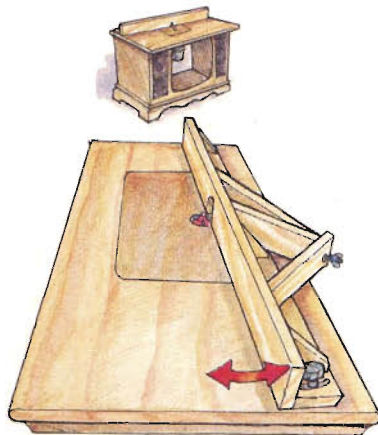
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(Kitchen Sink Not Included)



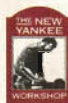
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(Circle No. 65 on PRODUCT INFORMATION form)

No Time for Reading?

I don't get a lot of woodworking done over the summer months.

Never have.

I read, I cut the grass, I till the garden, I coach softball, I paint rooms and occasionally, when pressed into duty, I build a shelf or two in the garage or shed — strictly 2 x 4s.

Did I mention that I read? Last summer, for instance,

I tackled "The Nature and Art of Workmanship" by David Pye (recently re-released by Cambium Press). Was I engaged in my favorite hobby while relaxing in my easy chair with this book? I'm not sure, but my woodworking, (or at least my enjoyment of the craft) sure did benefit from the experience.

So what have you read lately, and what's your favorite woodworking book? We asked those questions to subscribers of our eZine recently (visit the web address below) and were twice surprised by the responses.

First of all, James Krenov's "The Impractical Cabinetmaker" blew the

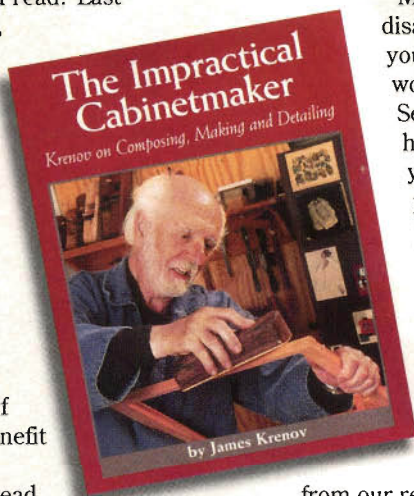
competition away. This 23-year-old classic is still — by far — the top choice of a majority of our eZine readers.

And second, it seems many woodworkers just aren't reading much these days. Responses included "Too busy." "Too much to do." "Only

read when I have to."

Man, this is really disappointing. Get yourself a good woodworking book. Settle down in the hammock and hook yourself up to a blood pressure monitor if you need evidence of the value of such activity. But please, don't buy into the "I'm too busy" routine.

Fact is, you're too busy not to read. Two books



from our regular contributors are great cases in point. This summer, read Ian Kirby's "The Accurate Router" or Michael Dresdner's "The New Wood Finishing Book" and watch your technique in the shop soar (as the time you spend doing the same jobs twice dwindles).

I could go on and on with more great examples, and in fact, that's just what we did. Please check out our special "Summer Reading" section starting on page 66 and help yourself to one of our finalists this summer. We asked many of our woodworking friends and contributors for their opinions and painstakingly narrowed the field down to some really fine reading.

I'd love to hear which books you think we missed, or read your reviews of some of our choices. Send your comments and reviews to "Letters to the Editor."

Larry N. Storken

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Woodworker's Journal (ISSN: 0199-1892), is published in February, April, June, August, October and December by Rockler Press, 4365 Willow Dr., Medina, MN 55340.

Periodical postage paid at Medina, Minnesota and additional mailing offices. Postmaster: Send all address changes to *Woodworker's Journal*, P.O. Box 56585, Boulder, CO 80322-6585. Subscription Rates: One-year, \$19.95 (U.S.); \$25.95 U.S. funds (Canada and other countries). Single copy price, \$4.95 (U.S.); \$6.95 (Canada/other countries). Reproduction without permission prohibited. Publications Mail Agreement Number 0861065. Canadian mail distributor info: Express Messenger International; P.O. Box 25058; London BRC, ON; Canada N6C 6A8. Printed in the USA.

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Watch Your Finger Joints!

No More Greene & Greene?

I really enjoy Mike McGlynn's Greene and Greene articles, especially the lamp ("Arts & Crafts Wall Lamp," *April 2001*). I am, however, confused by Larry Stoiaken's statement in that issue's *On the Level* when he says the lamp "represents our final blending of the old and the new." I hope this doesn't mean we've heard the last of Mike and his Greene and Greene projects.

Like Mike, I have had the opportunity to see the Gamble House in Pasadena and was totally blown away by the woodworking of this treasure that your nation is lucky and privileged to have. (To call it woodworking is an insult; art using wood as a medium would be more accurate.) I guess this is my long-winded way of saying bring on more Greene and Greene, as this is a particularly deep and rich vein well worth mining.

Steve Graham
Penetanguishene, Ontario

Editor's response: Don't worry. Mike's Arts & Crafts projects are sticking around.

You Say Hygro, I Say ...

In your *April 2001* issue (*Letters*, "Ian Kirby Responds"), the following sentence appears: "We know about the hydrosopic nature of wood and we know that there is a differential between tangential and radial shrinkage in the ratio of about 2 to 1."

The correct word in this sentence should have been hygroscopic, which is the nature of materials to absorb and relinquish moisture. A hydroscope is an optical device used to view objects in deep water.

John Economaki
Bridge City Tool Works
Portland, Oregon

Not so Super Easy

I saw 3/4" high letters on the front cover of the *April 2001* issue, proclaiming "Super Easy Sliding Dovetails."

I assumed you came up with a good method to reduce the trial and error inherent in getting a good match between the dovetail and the groove. You didn't. So what is with the super easiness? At least you could have offered the advice to get a thickness planer. That would be an expensive method to help the process, but it would at least have been a method. I am not impressed.

Scot Thomas
Keyport, Washington

Rick's Valuable

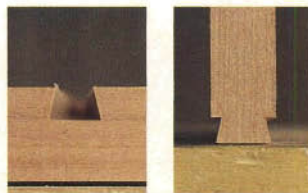
— And So Are His Fingers

I enjoy Rick White's contributions. His pieces are outstanding, and I like his detailed articles.

However, I can't look at his photo on page 43 ("Cherry China Cabinet") of the *April* issue without cringing. I know he's got more time on the jointer than I probably have using all of my tools, but his hand is just way too close to the blades.

To properly joint the board it does need to be tight with the bottom of the jointer fence, particularly difficult with a wide board, but to use the hand instead of a push block is asking for trouble. After all, Rick needs two hands for woodworking, fishing, and to provide us woodworkers with more overall excellent articles.

Mike Sistek
Scott Air Force Base, Illinois



Does anyone out there have an easier way to make sliding dovetail joints?

Mail Call! Contact us by writing to "Letters," *Woodworker's Journal*, 4365 Willow Drive, Medina, Minnesota 55340, by fax at (763) 478-8396 or by e-mail: letters@woodworkersjournal.com.

We ask that all letters, including e-mails, include a mailing address and phone number. We reserve the right to edit for length and clarity.



Even expert woodworkers like Rick White can use safety reminders.

Jointer Corrections

Your *Shop Test* "Six-inch Jointers" article in the April 2001 issue contained several errors and a couple of omissions.

Charles Self stated that the "Ridgid and Grizzly shared the orange plastic covered knobs that are great for grip and just as great for control feel." This is not the case; the Grizzly actually has hard black plastic knobs. Charlie also said that "The only positive stops on the fences are at 90 degrees." In fact, the Ridgid fence has positive stops at 45, 90 and 135 degrees. It is our opinion that any unit having a dual bevel fence which fails to provide positive stops at these three positions will suffer from poor bevel angle accuracy and reduced efficiency when cutting bevels.

As to the dust collection comments, Charles indicated that the dust collection hook-up that these models use is a problem if not used with a vacuum system — that they actually impede chip extraction. Ridgid® was aware of this problem before we began work on our new jointer and purposefully designed a dust

collection chute/vacuum port to relieve this nuisance. The Ridgid jointer, in fact, is the only jointer in the test group that allows quick and easy repositioning of the vacuum port if a vacuum system is not used.



Ridgid JP0610

I also feel it's important that your readers know how easy the Ridgid jointer is to assemble. We've worked hard to reduce the number of screws and bolts required (from 44 down to 18) during assembly. In addition, the main components have been reduced from eight pieces down to five. And finally, the onboard storage for push blocks and an alignment gauge is unique and adds to the overall value and usefulness of the jointer.

Continues on page 12 ...

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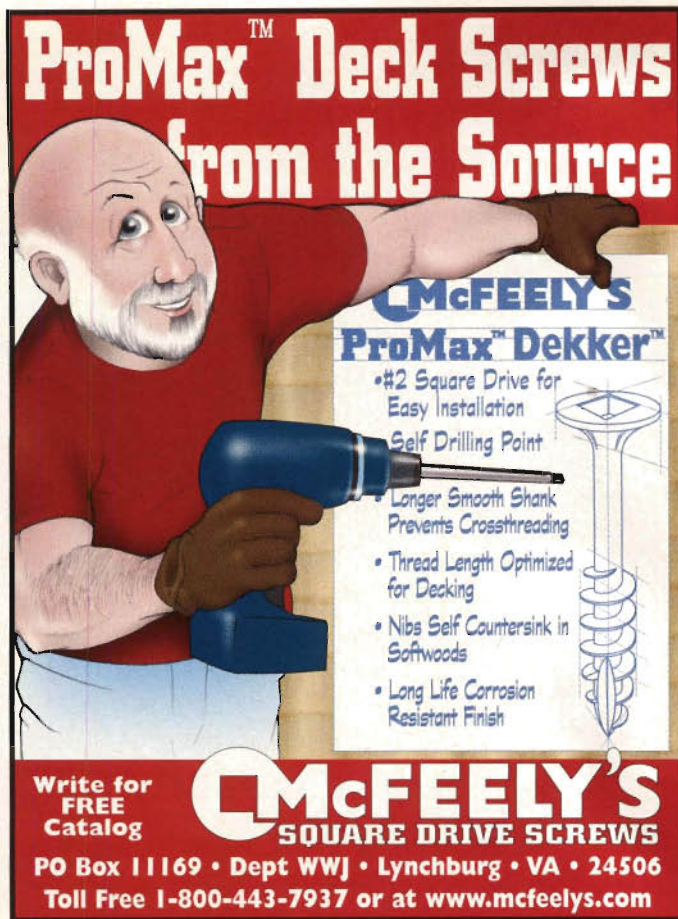
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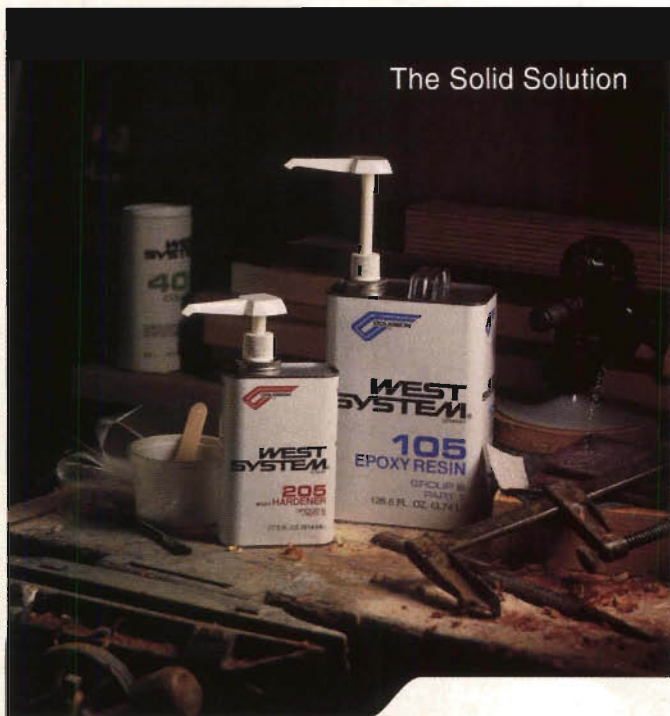
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Dave Hazelwood
Director of Marketing
Emerson Tool Company

Enjoys His Cradles

A friend gave me a copy of your May/June 1985 issue. I want you to know that I recently completed my fifth cradle from that issue, and have enjoyed building each of them more than any project I've undertaken.

Frank Parham
Douglasville, Georgia

Thanks, Wendell!
Your Pick of the Tricks offering is showing up in our readers' shops!

Reader Frank Parham has completed five of the cradles featured in our May/June '85 issue.

Thanks for the Tool Stand

I have enclosed a picture of my tool stand. Please send my thanks to Wendell Smith of Oregon, Wisconsin, who was your "Pick of the Tricks" winner in your June 2000 magazine. I've found mine to be very useful so far. Your magazine has been very inspiring.

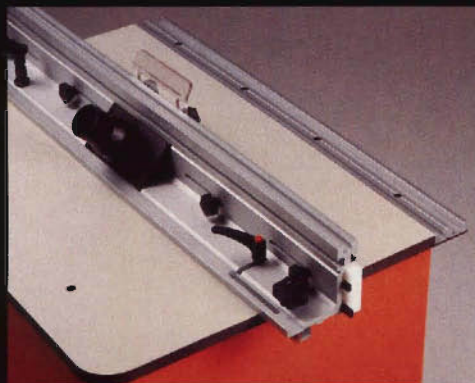
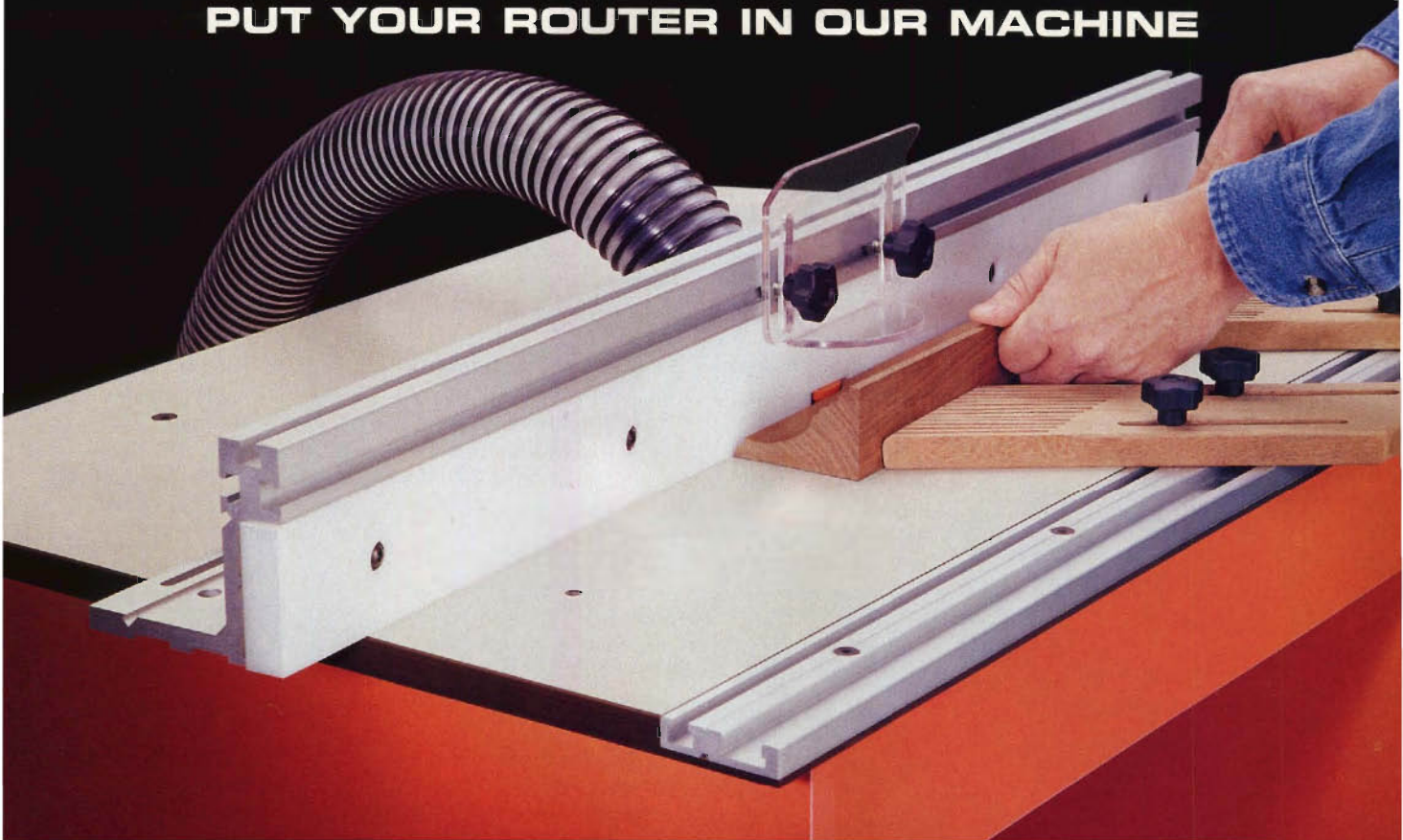
John C. Nunn
Olympia, Washington



Safety First: Learning how to operate power and hand tools is essential for developing safe woodworking practices. For purposes of clarity, necessary guards have been removed from equipment shown in our magazine. We in no way recommend using this equipment without safety guards and urge readers to strictly follow manufacturers' instructions and safety precautions.

DREAM MACHINE

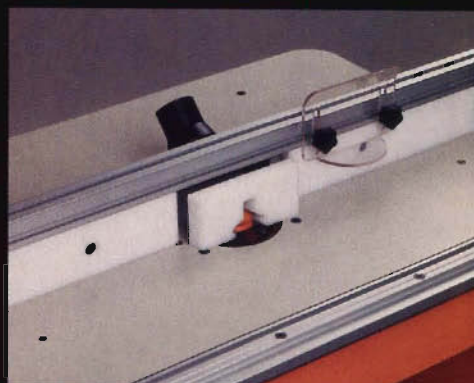
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Q I am planning to make an arc with some 3/4" pine board. If I want to make cuts on one side of the board to allow for bending, how deep should the cuts be and how far apart should they be?

*Cliff Haas
Sun Prairie, Wisconsin*

A The radius of the arc is the critical factor. If you're making a very tight arch, the cuts can be 1/8" wide and spaced all the way

deeper than those you might cut in 1X stock (so you may need to use a dado head).

— Rob Johnstone

Q I've seen a number of articles lately about tool recalls. Where can I find this kind of info?

*Jon Thompson
Chicago, Illinois*

A The Consumer Safety Products Commission web page at www.cpsc.gov is a site you should bookmark.

— WJ Editors

Q I'm a beginning furniture maker, working on a trestle table seven feet long by three feet wide. I am using 8/4 material and can calculate the board feet, but I'm not clear on how to ensure that I get the proper lengths when I order materials.

*Scott Barylski
Putnam, Connecticut*

A After they work out the total board feet for a project, experienced woodworkers usually add about 20 percent for waste. As your project requires specific lengths, you'll need to give the supplier a list of the minimum lengths you can work with, and pay the price accordingly. Keep in mind that you only need to add a couple of inches to the lengths when specifying:

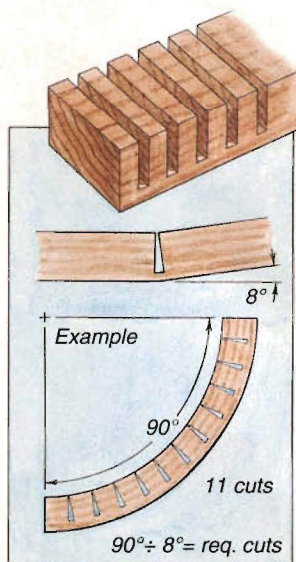
most of that waste factor will be absorbed by ripping stock to width, not length.

— John English

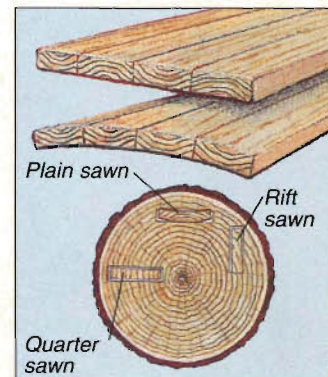
Q My husband has been making removable 3/4" and 5/8" thick tabletops of glued together oak. They warp or dish on the outer edges. What can be done to prevent this?

*Linda Starlin
St. Johns, Michigan*

A While some may disagree with this advice, I still lay up my panels with alternating crowns: look at the end grain and arrange the boards so that the growth rings face up on the first one, down on the next, and so on. Also, several narrow



down to just 1/8" apart. On a gentler arc, they can occur at greater intervals. Another factor is the thickness of the pine boards. If you use 2X material, the kerfs will have to be wider and probably



boards will be more stable than two or three wide ones. How the board is cut from the log is a consideration as well. Quarter sawn and rift

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e-mail address (if you have

one) with your question, so

we can personally respond.

sawn lumber will be more stable than plain sawn stock. If you're finishing these panels, make sure you apply the same amount of finish on all six faces. And check that the stock is fully dry before you use it: dry stock is more stable. One last thought: glue up the panels rough. Don't plane or sand them to final thickness until after the glue has dried. This will yield a more uniform panel.

— Rick White

Q Does anyone know the best way to finish osage orange so that it holds its yellow?

Ray Alford
Bogata, Texas

A Woods change color from exposure to air, which finishes partly block, and to sunlight, which they generally do not block. All finishes that form a solid film on top of the wood rather than simply



absorbing in will slow down some of the discoloration. Clear finishes made with added UV blockers or absorbers will further slow down the color change. Some exterior varnishes contain these blockers and will say so proudly on the can label. Whatever you do, it is only a holding action, and in the long run, the sun will win.

— Michael Dresdner

Q I am aware of the need for a respirator when finishing and sanding; however, I was advised to use one when cutting and using my router on certain types of wood. Which are the dangerous types when ingested or breathed in the lungs?

Roger Wood
Springfield, Oregon

A First of all, it is a good idea to wear protection when working with all species. Also, just as some people are allergic to tomatoes or chocolate and others aren't, some people can have allergic reactions to certain wood species which don't affect others.

According to OSHA, species associated with

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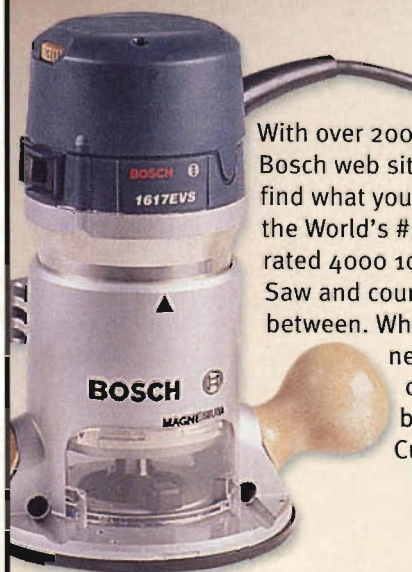
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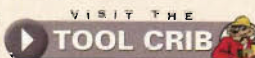
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continues on page 16 ...

THIS ISSUE'S EXPERTS

Rick White is a master woodworker and a contributing editor with *Woodworker's Journal*.

John English is a contributing editor (and former editor) with *Woodworker's Journal*.

Michael Dresdner is a nationally known finishing expert and author of *The New Wood Finishing Book* published by Taunton Press.

Rob Johnstone is the editor of *Woodworker's Journal*.

Joanna Werch Takes is the associate editor of *Woodworker's Journal* and serves on the advisory board of *Womeninwoodworking.com*.

Nordy Rockler, founder and chairman of the board of *Rockler Companies, Inc.* is an editorial advisor to *Woodworker's Journal*.

Mrs. Myron Buehrer owns Boice-Crane Parts, based in Toledo, Ohio.



WINNER! For simply sending in his question on hardwood lumber, Scott Barylski of Putman, Connecticut wins this **Bosch 1014 VSR drill**. Each issue we toss new questions into a hat and draw a winner.

respiratory irritation are: Western red cedar, cedar of Lebanon, oak, mahogany, redwood, mansonia, fir, chestnut, Asian teak and poplar.

An Italian study of occupational medicine found that species which can produce (rare) toxic reactions such as arrhythmia, fever or difficulty in urinating are mansonia, rosewood and Asian teak.

— Joanna Werch Takes

Q I am in the process of restoring a renaissance walnut dresser. How do you get rid of the stale "old," damp, moldy smell?

Second question. As many of us are using recycled old wood, how might we be assured as we bring this wood into our homes that we are not bringing in damaging insects?

Lee Pocock
Salt Lake City, Utah

A First question: Clean your dresser with a solution of diluted bleach, then set the various components outside in the sun for a few days to get rid of the odor. You can find more information about restoring furniture through



the Association of Restorers, www.assoc-restorers.com.

For your critter infestations, heat small wood items (if they don't contain fabric, fur or paint) in an oven at 120 to 140 degrees Fahrenheit for six hours or put them in a deep freeze at 0 degrees Fahrenheit for 72 hours (longer if the wood is thicker than 2 inches.)

Liquid insecticides labeled for control of wood pests are an option: apply them only to infested areas, but make sure those areas are thoroughly soaked. A licensed pest control operator can apply pesticides containing borate, which can penetrate the wood and kill beetles within it.

Find more information about wood pests through the University of California at Davis's Integrated Pest Management site at www.ipm.ucdavis.edu.

— Nordy Rockler

Q I would like to know if Australian Pine is any good to use for woodworking? There is a lot of it here in Florida.

Myron Janisch
Pensacola, Florida

A Australian pine is not a true pine. In countries without much timber, the wood is used mainly for fence posts, oars and rough barns. It's supposed to be durable in saltwater, but susceptible to drywood termites. Its primary use worldwide is as firewood.

— Joanna Werch Takes

Q I picked up a rather old 12" commercial grade planer made by the Boice-Crane power tool company. Although everything appears to be in working order, it is not working so well. I enjoy restoring old machinery, so

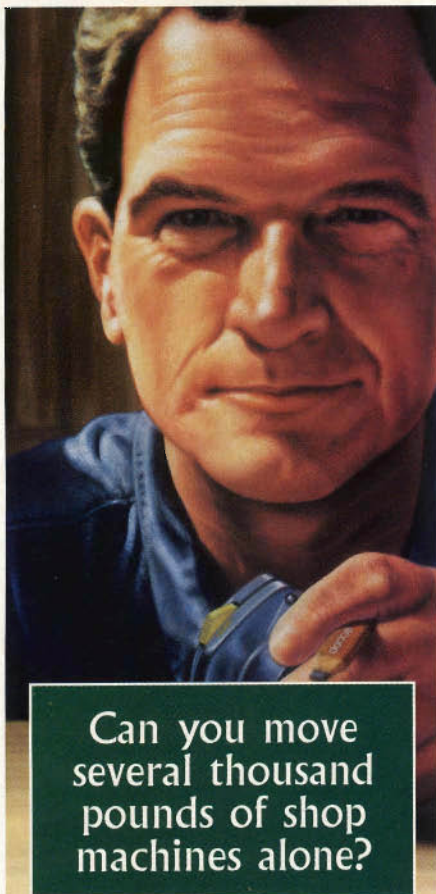


this is a good opportunity for me. My question is, when did Boice-Crane go out of business and does anyone know where to get an operating manual or parts for this tool?

Bill Crews
Barboursville, West Virginia

A Boice-Crane changed their name to Gothenburg Manufacturing Co. in 1969. They're in Gothenburg, Nebraska at 308-537-3628. My company, Boice-Crane Parts, has a limited supply of Boice-Crane parts and manuals still available. You can reach us at 419-531-1113.

— Mrs. Myron Buehrer



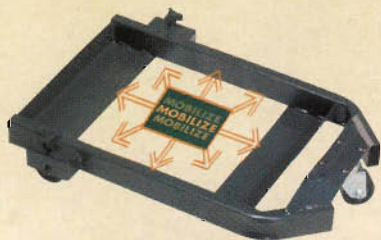
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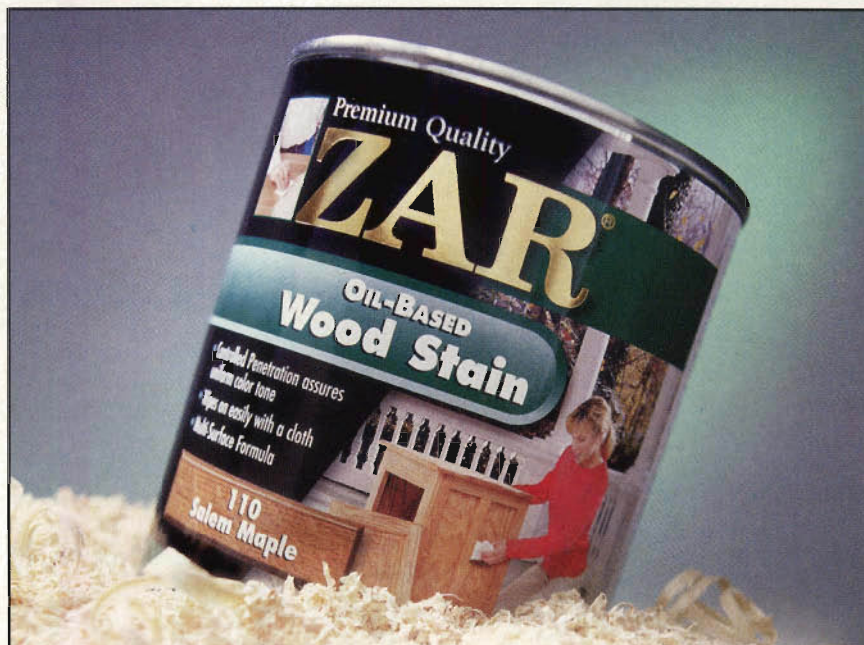
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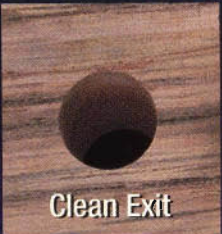
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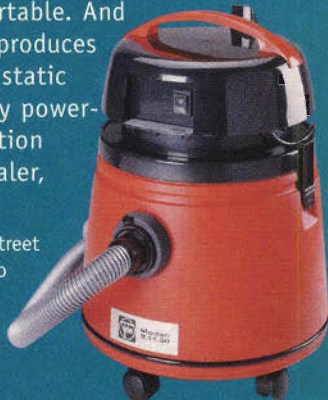
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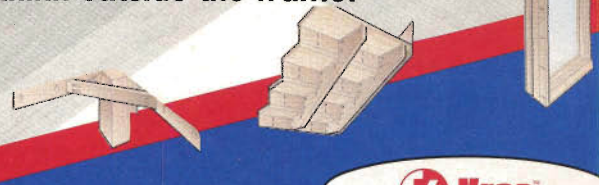
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- RANGE OF SPEEDS: 550 - 3470 R.P.M.
- SWING: 33 1/2" MAXIMUM
- TABLE SIZE: 12 1/4" DIA.
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- DRILL CHUCK: 3/4" • SPINDLE TAPER: MT #2
- RANGE OF SPEEDS: 140 - 3050 R.P.M.
- SWING: 14" • DRILLING CAPACITY: 3/4" STEEL
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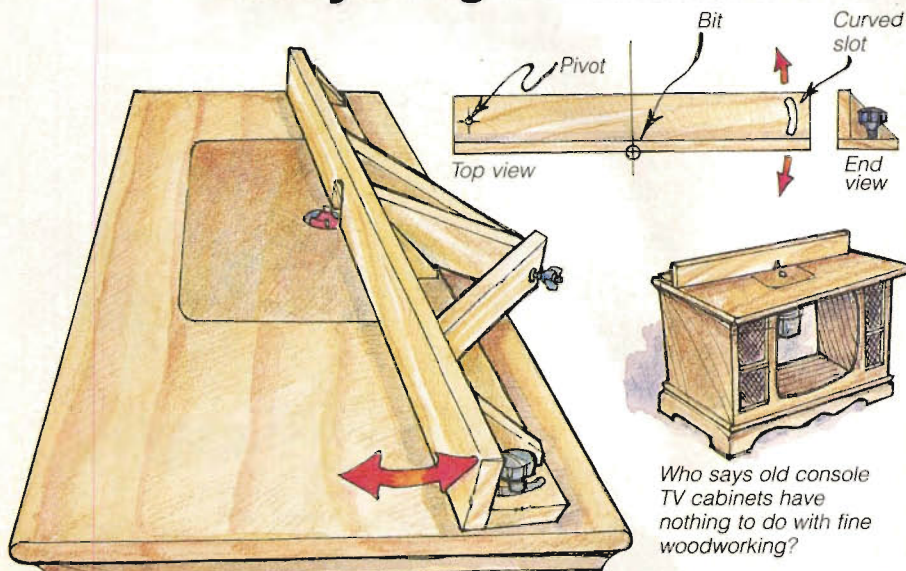
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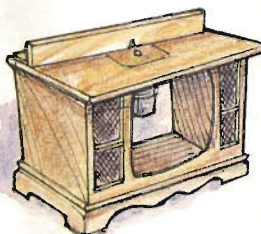


Swiveling Router Table Fence

My router table, (which is actually mounted on top of an old TV console), has a four-foot fence pinned at one end so it can swivel. At the other end is a curved slot and plastic knob so the fence can be locked in any position. The advantage is that you can move the

fence in very small increments — $1/8"$ at the end is only $1/16"$ at the cutter. You can also record a setting with a pencil mark and then easily return the fence exactly to that point.

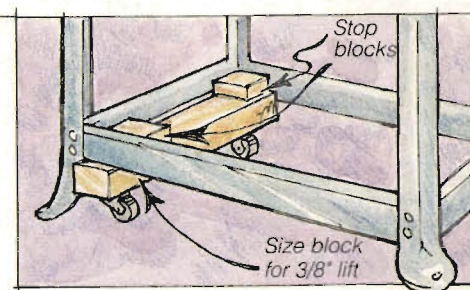
*Hector Castro
Lufkin, Texas*



Who says old console TV cabinets have nothing to do with fine woodworking?

Movable Table Saw

My shop is small, so I often have to reposition my table saw when cutting long stock. To make this easier I mounted two swivel casters on a wooden crosspiece as shown in the sketch. The casters keep the rear legs of the saw table about $3/8"$ off the floor.



By lifting the front I can easily wheel the machine to new positions. Since the front legs have no casters, the saw stays put when in use. There's no need to secure the block — the weight of the saw will keep it in place.

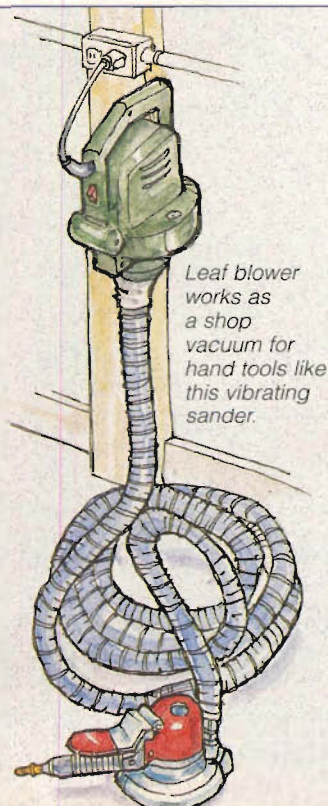
*Mike Burton
Ogden, Utah*

The Best Idea I Ever Had ...

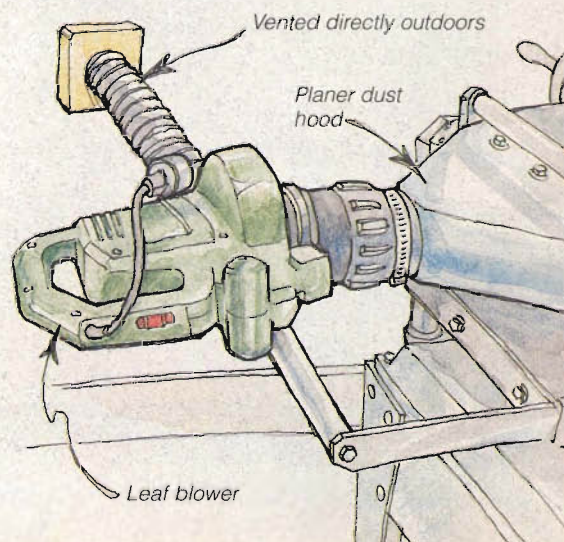
... was to connect each of my woodworking machines to the suction side of an electric leaf-blower. I wired each blower directly into the machine so both are activated by one switch. A \$50 leaf blower has enough power to easily handle the shavings from a 12" planer. Since I live in the country I can vent the dust and shavings directly through the wall to the outside. If you are not so fortunate, run the exhaust into a garbage can with a few holes punched in the lid. I keep one leafblower, with a 20' stretchable vacuum hose, permanently attached to a wall opening. I use this instead of a shop vacuum or to hook up smaller tools, such as routers and sanders.

*Dale Hamilton
Murfreesboro, Tennessee*

**PICK
OF THE
TRICKS**



Leaf blower works as a shop vacuum for hand tools like this vibrating sander.



Leaf blower

Flock Dots

When making small boxes or jewelry chests, I frequently line the interior with flocking material. Before sweeping up the excess flocking I vigorously press one side of a piece of double-sided carpet tape into the surplus flocking until the tape is completely covered. A light brushing with a soft brush leaves me with a felt-like tape. I punch this tape into circles or cut it into furniture protectors for the bottom of boxes. With this technique I know that the color exactly matches the interior of the box.

*Ted Hopkins
Kissimmee, Florida*



Shop-made Drill Bits

The smaller sizes of drill bits don't last long around a busy shop so I've taken to making my own. For a short bit I cut the head off a wire nail or brad and flatten the end slightly with a hammer. For longer bits the heavier gauge of coat hanger wire is ideal. Cut the length you want, flatten the end and then grind it as shown. When it finally succumbs, it's only a moment's work to make another.

*Jim Vasi
Williamsville, New York*



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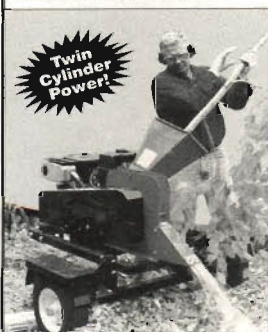
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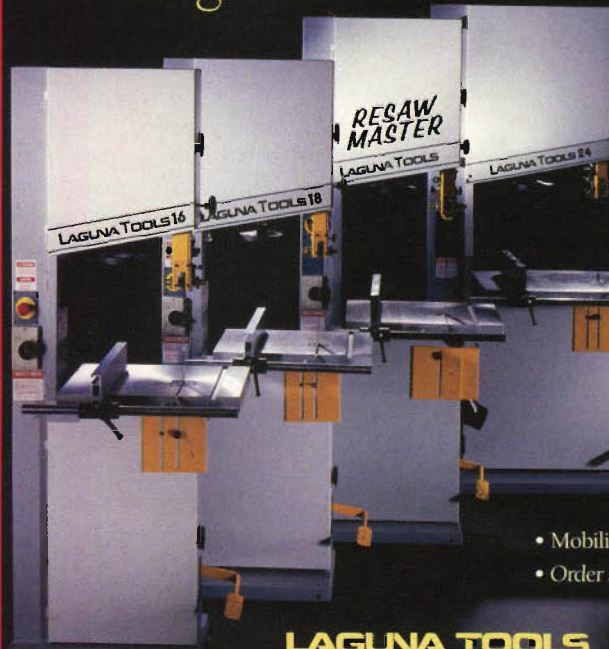
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Handmade Philadelphia Furniture



A china cabinet by Arnold d'Epagnier of Colesville, Maryland, displays various stylistic influences.

attracting almost 250 exhibitors and over 10,000 visitors.

According to Ingram, the show aims to have furniture makers comprise about 60 percent of the exhibitors; the rest are makers of decorative accessories such as sculpture, pottery, glasswork, weavings, and lamps. The furniture styles range from traditional Windsor and Arts & Crafts designs to wildly imaginative and futuristic mixed-media extravaganzas. Notably absent were reproductions of period furniture.

Unlike typical craft shows, catering mainly to wholesale buyers and production craftspeople, the Philadelphia Furniture & Furnishings Show promotes original, "one-off" work, emphasizing the relationship between the craftsman and customer. It encourages prospective buyers to engage the artists in a collaborative design process, to create one-of-a-kind commissions specifically for them.

According to Bonnie Bishoff, a veteran New England furniture maker and a board member of the

Studio Furniture Reigns in Philadelphia

Period Repros Take Back Seat

It is fitting that Philadelphia, with its distinguished history as a furnituremaking center, should host the premier show of "artisan-made" furniture in the United States: the annual Philadelphia Furniture & Furnishings Show.

Founded seven years ago by local woodworkers Josh Markel and Bob Ingram, this juried show has risen to national prominence,

New Hope, Pennsylvania craftsman William Hoehne displayed this upholstered side chair with an obvious Mackintosh heritage.



photos by
Ellis Valentine

Furniture Society, the show's unique emphasis on furnituremaking lends context to the furniture buying decision. Customers can easily see and compare different styles and prices before they buy.

Many exhibitors were busy taking orders during the show, while others said that they get business all year long from contacts made during the show.

For information about next year's show, or to apply for an exhibition space, contact the show office at 215-440-0718, or send an e-mail to pffshow@erols.com. You can visit their web site at www.pffshow.com.

— Ellis Valentine



An Arts & Crafts armoire by Jeffrey Lohr of Schwenksville, Pennsylvania.

Ultramodern sculpted furniture crafted by Victor DiNovi, Santa Barbara, California.



Shop Talk continues on page 24 ...

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David Welter (representing James Krenov), Peter Frid (son of Tage Frid), Wendell Castle, Arthur Carpenter and Sam Maloof (far right) accepted lifetime achievement awards from the Furniture Society.

Furniture Society Awards Top Woodworkers

"Furnies" for Carpenter, Castle, Frid, Krenov and Maloof

The Furniture Society polished off five years of unfinished business at its fifth annual conference in Phoenix this past March, presenting not one but five awards for lifetime achievement in the studio furniture field.

The five award recipients were Arthur (Espenet) Carpenter of Bolinas, California; Wendell Castle of Scottsdale, New York; Tage Frid of Kingstown, Rhode Island; James Krenov of Fort Bragg, California; and Sam Maloof of Alta Loma, California, who also delivered the keynote address. Each of the five was given a trophy that some called "the Furnie." Designed and made by furniture artist Gord Peteran of Toronto, the Furnie resembles a large, brass-sided wooden plane infilled with a beautiful walnut carving. Society President Dennis Fitzgerald said the award presentation would become an

annual event for the organization, which now has more than 1,200 members. The awards presentation took place under a blazing hot sun on an open plaza outside the art museum at the Arizona State University campus. Each recipient was honored in a heartfelt speech delivered by a close friend or colleague. Of the five, three (Castle, Maloof and Carpenter) were able to attend in person; James Krenov was represented by David Welter, his teaching colleague at College of the Redwoods; Tage Frid, widely acknowledged as the "teacher of teachers," was represented by his son, Peter.

More Than Awards

Aside from the awards program, the 350 conference participants enjoyed what has become the Furniture Society's trademark blend of talk about designing and making, all focused on contemporary furniture and furniture makers.

The attending award winners, Maloof, Carpenter and Castle, stayed to the end as participants.

While most conference attendees work as woodworkers and furniture makers, the group also includes teachers, scholars, collectors, journalists, curators, and students. Though most participants are professionals, amateur makers also attend; while most studio furniture is made of wood, the Society pays equal regard to metal, glass, plastic, and upholstery; and while the emphasis is on contemporary furniture, makers of period furniture also participate. This year the attendees included a group of students, teachers, and artisans from a vocational college in Mexico, who displayed their furniture products in a conference exhibition and gave a well-attended slide lecture on their work.

The format of a Furniture Society conference is four or more simultaneous events, on technical, scholarly, and aesthetic tracks. This year the technical track included demonstrations in the extensive ASU shops on techniques for vacuum-veneering of complex forms, marquetry on furniture, power carving, making planes, turning for furniture, paint finishes, bronze casting, blacksmithing, and upholstery. There also were workshops on presentation drawing, photography, and marketing.

The aesthetic track included artist slide shows but centered on the critical discourse panel, another conference mainstay. Moderator Glenn Adamson, recently appointed furniture curator at the Chipstone Foundation, vitalized what at past conferences has been a theoretical slide discussion by moving out of the classroom and into the three campus galleries that were showing studio furniture. Adamson asked



Doug Forsha shows the crowd how he vacuum veneers complex shapes in a demonstration workshop during the annual Furniture Society conference.

photos by John Kelsey

Shop Talk continues on page 26 ...

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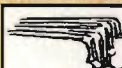
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the panel members — a maker-teacher, a journalist, and a gallery director — to ground their opinions by discussing actual pieces of furniture, in most cases with the furniture maker in the audience.

Donald Fortescue, who teaches furniture at California College of Arts and Crafts, got the discussion off to a great start by declaring that the question of whether this piece was any good or any better than that one would not be answered. "In fact, although that looks like a question, it's really not one and it really doesn't have an answer," Fortescue declared. With that out of the way, the participants considered a walnut rocking chair and maple music stand by Sam Maloof, a pod-like cabinet with mirror and a carved and painted headboard by Wendy Maruyama, and a pair of *trompe l'oeil* veneered cabinets by John Cedarquist. These three influential makers and teachers represent studio furniture at the highest level, but they take three very different approaches. The ensuing discussion was insightful, questioning, passionate, and provocative, and it continued into the wee hours.

Slide Wars

The conference spotlight was not confined to the work of furniture masters, for the next day the panel reconvened in the members' gallery, a three-day showplace open to any conference attendee. Members may also introduce themselves and their work in Slide Wars, another show-and-tell event that has become a conference mainstay. In Slide Wars, each participant projects and briefly explains five slides of his or her work. There's heckling, but it is always in good spirit, and in Phoenix so many wanted to participate that Slide Wars



Furniture critic Jonathan Binzen (top) and curator Judy Coady (bottom) offered insights on a chair made by Berthold Schwaiger.

expanded into two late evenings instead of the customary one, playing to a large and packed lecture theater.

In his keynote speech, Maloof presented his furniture and his beautiful home, a national landmark that recently had to be moved to make way for a freeway. In an emotional beginning, Maloof said this was his first speaking appearance since his wife, Alfreda, died in September 1999, and that he owed 99 percent of everything in his long career to her. "If you have a good wife, you can accomplish anything," Maloof declared. The Furniture Society members seem to be finding success in the next best thing — professional fellowship that matures into solid friendships.

The next Furniture Society conference will be held June 6 - 8, 2002 in Madison, Wisconsin. For more information, call 804-973-1488, or go to www.furnituresociety.org.

— John Kelsey 

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Marking Tools for Exacting Joints

By Ian Kirby

Author Ian Kirby has taken us through his process of squaring up stock. Now he shows us how to use marking tools to lay out precision joinery.

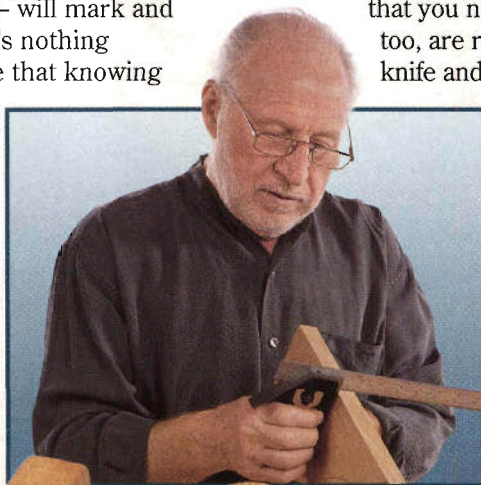
The tools and methods described here are used when marking out solid wood to be cut by hand. I know that many woodworkers — beginners and old hands alike — will mark and cut wood by other methods. There's nothing wrong with that. However, I believe that knowing the hows and whys of hand work provides a solid foundation for quick and precise machine work.

Broadly speaking, solid wood joints come in three types: butt joints, mortise and tenon joints and dovetail joints. Don't be intimidated by what at first may seem to be an overwhelming range of possibilities. Closer inspection reveals that butt joints are simple and straightforward. The remaining two, despite many design variations, follow

a common marking out theme. Once that theme is understood, the presumed complexity of marking joints fades away. Further proof of underlying simplicity is that you need only five marking tools and they, too, are relatively simple: a pencil, a marking knife and three gauges — marking, cutting and mortise. You also need two measuring tools — try square and sliding bevel — to guide your pencil and marking knife.

First I'll introduce the tools and explain how to use them. Then I'll show them on the job, marking out the typical parts of a mortise and tenon joint and a through dovetail joint.

Marks are divided into two categories: surface lines made by pencil and incised lines made by knife or gauge.



From left to right, a cutting gauge, mortise gauge, marking gauge (above), marking knife and pencil (below) are the tools author and master craftsman Ian Kirby uses to mark out precise joinery.

Pencil

The most universal marking tool is the pencil. The pencil makes two specific types of lines: orientation marks and cutting guidelines. Face side and face edge marks are orientation marks, which I discussed in a previous article (see *Marking Up for Success: Preparing the Stock*, February 2001). Use a sharp B pencil to mark cutting guidelines on dovetail joints. On a dark wood such as walnut a white pencil makes a more visible line.

Marking Knife

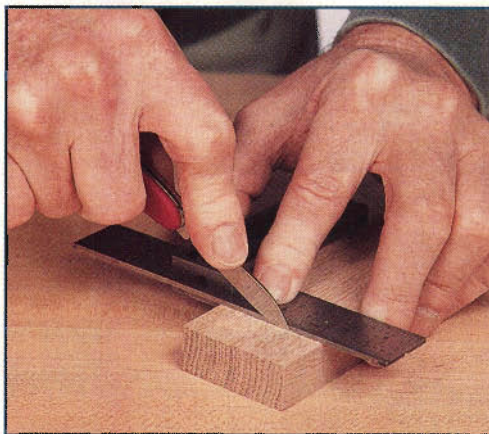
Too often regarded as a low-status tool, the marking knife is essential for the exacting job of marking the shoulder lines of tenons and marking the dovetail pins from the tails.

Because the marking knife cuts the outside fibers that form the visible part of the shoulder line, it determines the final fit and appearance of the joint. What's more, it does so at the marking out stage, not the joint cutting stage — a heavy responsibility for a mere knife!

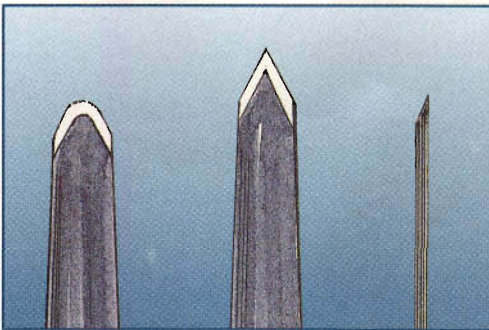
The blade of a marking knife should be thin in section and sharpened to a slim V. In side elevation the end of the knife should be rounded rather than pointed. A pointed knife is liable to produce a ragged cut because of the pressure concentrated at the point. A rounded edge, with pressure distributed over a curved edge, will produce a smooth cut. I use a Swiss Army knife. It suits my hand, pocket and wallet perfectly.

Gauges

Gauges are simple tools that exist in all of the world's woodworking traditions. Their wide use underscores the fact that they perform an essential function that no other tool can: they cut a fine line parallel to a board's straight edge or squared end — quickly and accurately. Such a line precisely divides the waste



A rounded knife produces a smooth cut because pressure is distributed over a curved edge rather than concentrated at the point.



The cutting gauge knife is sharpened to a point by the manufacturer (center). It works better if you reshape it to a semicircular profile (left). Sharpen the knife with a flat face and a bevel on one side, like a chisel.

from the work, which is one of several critical steps on the path to clean, accurate joints.

A gauge line, however, can only be as accurate as the face — edge, side or end — that guides the fence. *You cannot make accurate joints with inaccurately prepared stock.*

All gauges have three major parts: fence, stock and knife or spur. A spur is designed to mark with the grain; a knife is designed to cut across the grain. Tying to make one gauge do work best done by the other results in poorly made lines and badly made joints.

Marking Gauge

The marking gauge has a steel spur sharpened like the point of a pencil. The spur incises a line by parting the fibers of the wood. It's a perfect shape for working with the grain but totally unsuitable for working across the grain because it tears the fibers.

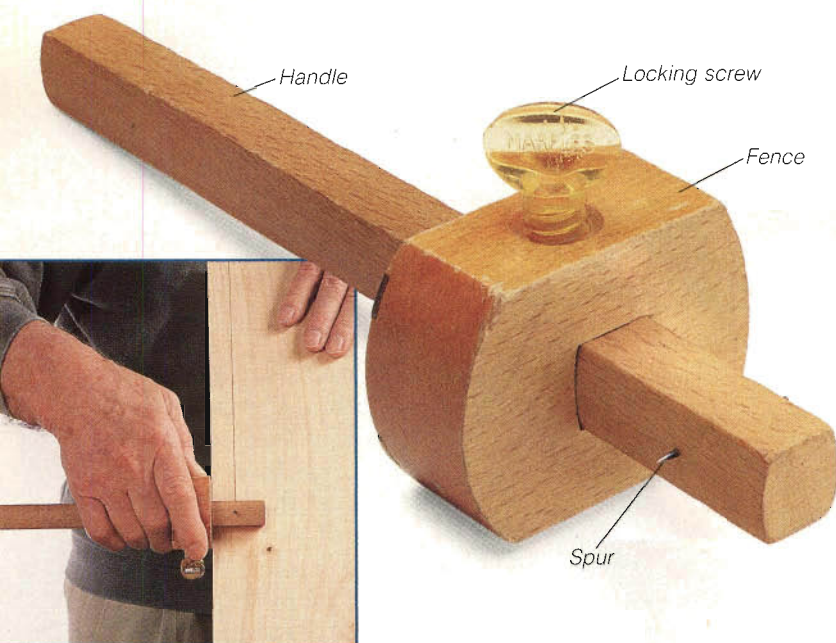
The spur is made of steel that's too hard to sharpen or reshape with a file, so you have to use a small sharpening stone.

A new marking gauge usually comes ready to use, but a used one bears inspection. Make sure the spur fits tightly and that it hasn't been replaced with a nail, which is too soft to hold a sharp point. If the spur is loose, drill a new pilot hole and tap the spur in with a hammer.

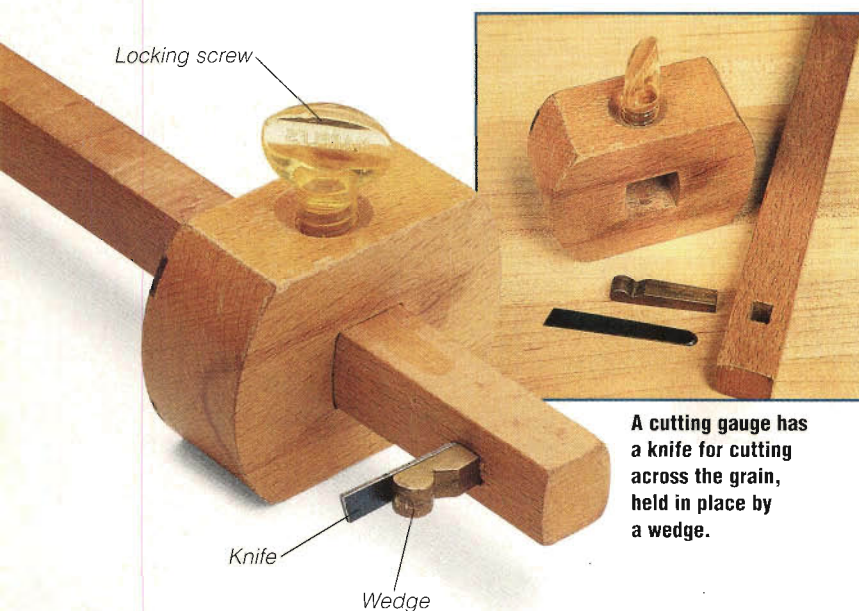
The spur should stick out 3/16" from the stock. To adjust the spur, clamp the blunt end of the spur in a machinist's vise and tap the gauge up or down.

Cutting Gauge

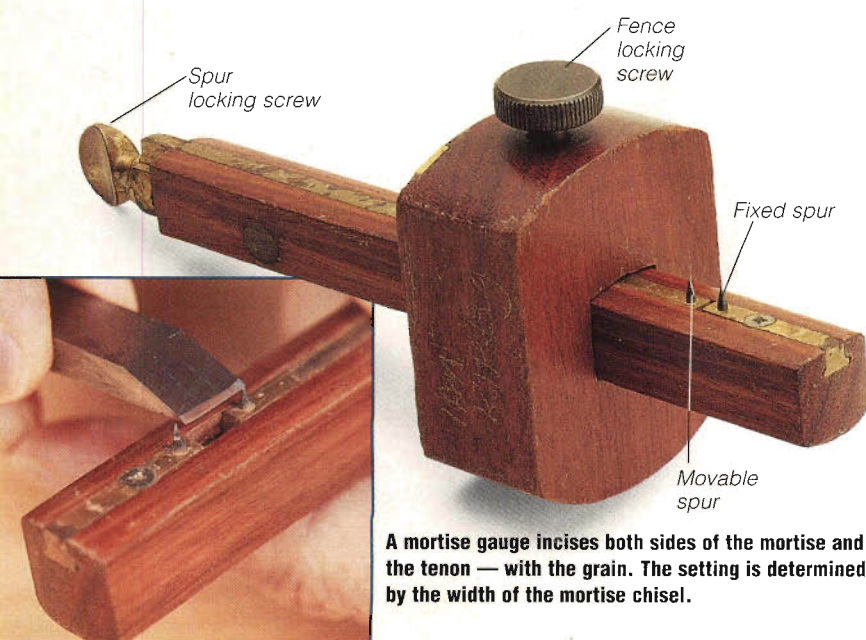
The cutting gauge has a small steel knife, which is held in its mortise by a wedge of cast brass. The knife incises a line by cutting across the fibers of the wood. Don't use the cutting gauge to cut with the grain. The mark is difficult to see and difficult to



A marking gauge cuts with the grain. Note the basic gauge grip — thumb behind the fence, index finger over the fence, three fingers grip the stock.



A cutting gauge has a knife for cutting across the grain, held in place by a wedge.



A mortise gauge incises both sides of the mortise and the tenon — with the grain. The setting is determined by the width of the mortise chisel.

keep straight because it tends to wander with the grain.

The knife usually comes from the manufacturer with a sharp point, but it works better rounded. (See the drawing on page 29.) Grind and sharpen it like any other cutting edge. There's a flat side and a bevel side — just like a chisel. The bevel always faces the waste side of the line. Remove the wedge to change the orientation of the knife. Tighten the wedge when you replace it by tapping with a hammer.

The knife must be parallel to the face of the fence. If necessary, re-align the square hole with a narrow chisel so that knife and wedge seat snugly and accurately. If the wedge is a rough casting, file it smooth for a better fit. If the wedge gets lost, make a new one out of hardwood.

Mortise Gauge

The mortise gauge has a fixed top spur and a moving bottom spur.

If the moving mechanism is binding, disassemble the gauge and clean the parts. That usually solves the problem.

When you disassemble the mortise gauge, look out for a little metal disc that sits under the stock's locking screw. It keeps the screw from damaging the brass strip. If you lose the disc, you must replace it.

Some mortise gauges have a third spur on the back side of the stock. The idea is that by using this spur like a regular marking gauge, you get two tools for the price of one. The economy is false because regular marking just wears out the fence of the expensive mortise gauge sooner than necessary. What's worse, you will likely one day puncture your thumb on one of the spurs. My solution is to grind off the third spur.

Brass Doesn't Always Shine

Expensive gauges feature brass strips let into the face of the fence. The strips are intended to extend the life of the tool by retarding wear on the fence. In fact, you may introduce error because the strips stand proud

The gauge lines will not connect if the end of the workpiece falls between the brass strips when gauging across the thickness but contacts the strips when gauging across the width.

of the fence surface when the wood shrinks or due to sanding during manufacture. The error equals the distance they stand proud.

The performance of a cutting gauge is more likely to be compromised by this error than a marking gauge. For example, when setting a measurement using a rule, you determine the knife position by measuring from between the strips, yet the actual position of the marked line is determined by the strips that contact the workpiece.

A similar problem occurs when gauging around squared-off stock, such as the tail piece of a dovetail. When gauging across the thickness of the piece, the strips are often further apart than the thickness of the wood and the end grain falls between the strips. When gauging across the width of the piece, the strips ride on the end grain. The knife line is therefore further from the end of the piece on the edges than it is on the faces. When making through dovetails, this slight difference will

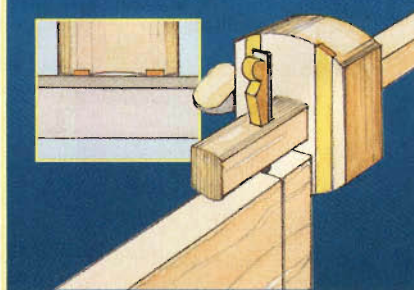
cause a gap in the shoulder lines on the tail piece. Check the strips with a straightedge. If they are not flush with the surface of the fence, reverse the fence on the stock and use the opposite face.

Using the Gauges

Despite the nuances of each gauge, all require the same grip and operate much the same way. The following instructions assume you are right-handed.

Practice the basic gauge movements first without the added complication of making a mark. Set the fence of the marking gauge $3/4$ " from the spur. Hold one end of the practice workpiece in your left hand,

trapping the ends between your chest and a bench stop or vise. Press the gauge against the face side and rotate it forward, like a throttle on a motorcycle, raising the spur above the workpiece. Press the fence against the face edge and push the gauge down the workpiece. Apply pressure inward at 90° to the edge of the workpiece and forward down its length parallel to the



Understanding shoulder lines

Mortise and Tenon Shoulder Lines

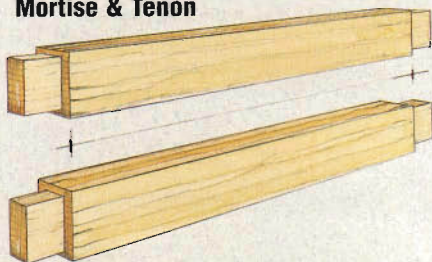
Imagine you are making a square four-legged, four-rail table. On the cutting list, the rail length includes the material for the tenons. On the working drawing, the distance between shoulders (BS) is clearly stated. Mark the first shoulder by measuring the length of the tenon from the end of the rail, then squaring round using try square and marking knife. Next, measure off the distance between shoulders and square round the second shoulder line the same way. This first rail is the measuring stick used to measure and mark out all subsequent rails of the same length. Accuracy of the BS

dimension determines the accuracy of the piece. Neither the end of the rails nor the length of the tenons are factors.

Dovetail Shoulder Lines

When you make a dovetailed box or drawer, the important dimension is the overall length of the parts, not the BS dimension. You prepare opposite sides to the same length and square the ends. Then you mark the dovetail shoulder lines with a cutting gauge riding on the end grain of the sides. Accuracy is determined by the ends of each piece and the length of the sides.

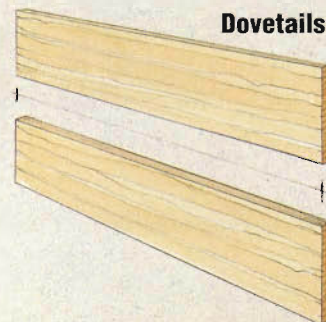
Mortise & Tenon



In mortise and tenon joinery, the distance between shoulder lines determines the squareness of the work, the accuracy of the rails and ultimately the dimension of the piece of furniture.

In dovetail joinery, squareness, accuracy, and dimension are determined by the ends of each piece and the length of the sides.

Dovetails

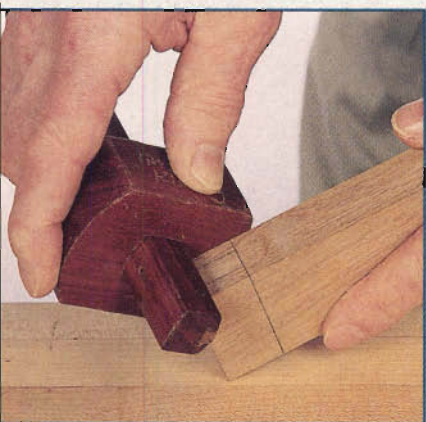


Marking out a typical mortise and tenon joint

Mortise and tenon joints are used to connect parts which undergo stress — chair legs and rails, table legs and aprons, bed parts and doors are some examples. The aim is to design the joint to be as strong as possible. A rule of thumb is to equalize the size of the tenon with the cheeks of the mortise. I refer to this as balancing the tissue.



Knife the tenon's first shoulder. Use the face side and face edge to continue squaring round. For the second cut, rotate workpiece 90°. Mark the second set of shoulders from the first set.



Set the mortise gauge with the chisel you'll to chop the mortise (top right), then mark the tenon edges and end with your mortise gauge (above). Turn to the marking gauge (bottom right) to mark the tenon sides and end.



edge. Once the movements become fluid, rotate the gauge backward until the spur touches the workpiece.

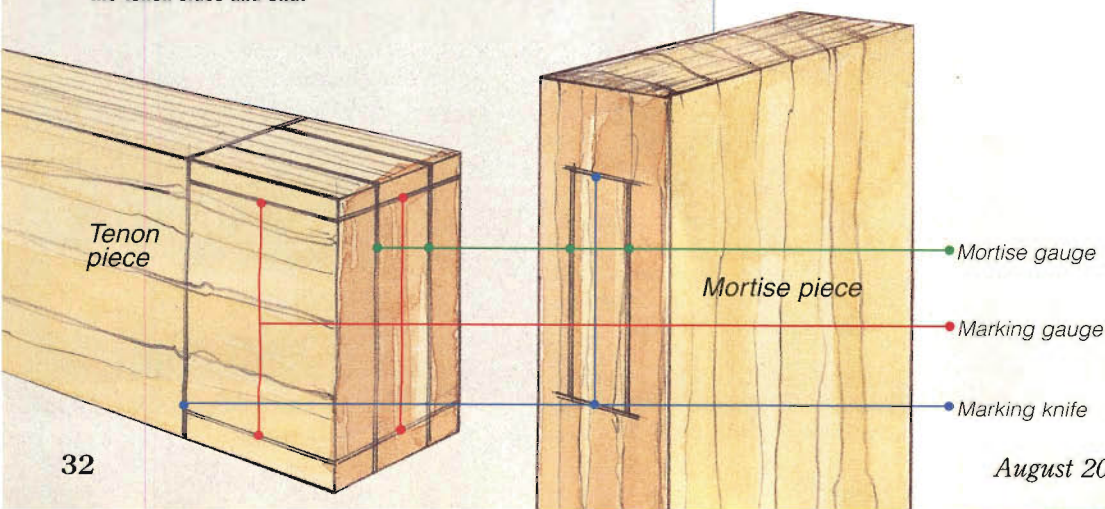
Initially, especially if the wood is hard, make several passes, strengthening the mark by increasing the rotation with each pass. Once proficient, you will make a crisp mark in a single pass.

Once you get the hang of it, avoid clamping the stock you are marking to a bench or table, in order to save time and fuss. It's possible to do this even when you must mark the workpiece's full length. Tilt short workpieces slightly on edge so the gauge rides on the high side and clears the bench at the end of the cut. Long boards hung over the edge of a table or your bench are usually heavy enough so that clamping is unnecessary.

When marking out joints, you often need to stop the gauge line at a given point. Before marking the line, position the gauge so that you can drive the spur deeply into the workpiece about 1/8" from the stop point. When you mark the line, the spur will drop into the hole and stop the travel of the gauge.

Mortise and Tenon Joint

With these simple steps in mind, now you're ready to start marking up joints on an actual project. You mark the shoulder lines of a tenon with marking knife and try square. First measure the length of the tenon from the end of the rail. Register the stock of the try square against the face edge and lay the blade on the face side. Hold the try square in place by pressing down with the index finger and squeezing it between your thumb on the stock and three fingers on the far edge of the workpiece. Hold the knife vertical to the try square blade and incise the line.



The rail and stile pieces of a mortise and tenon joint showing the lines made by each of the marking tools.

Marking out a typical through dovetail joint

Before making the second cut, rotate the workpiece 90°. It doesn't matter whether you mark the face edge next or the opposite edge. It *does* matter that you reference the stock of the try square against the face side. Insert the knife in the nick of the first line and slide the try square to it. Using the knife to position the try square is much easier and more accurate than guessing the try square position by eye and then moving the knife to the square.

To mark the shoulder at the other end of the rail, you must know the between shoulders (BS) dimension. See the sidebar *Understanding Shoulder Lines* on page 31.

To cut the joint, chop the mortise with chisel and mallet. Cut the tenon with a back saw. Clean up the tenon shoulders with a chisel guided by the marking knife line.

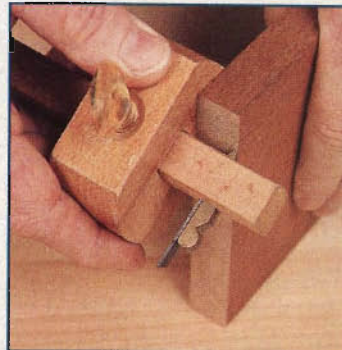
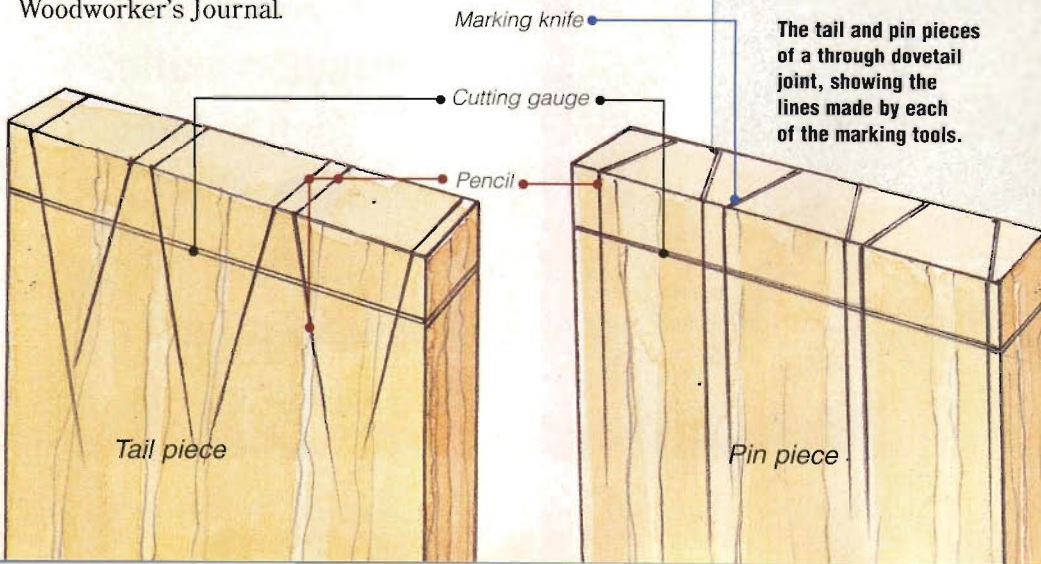
Dovetail Joint

A dovetail joint has two parts, a tail piece and a pin piece. The tail piece is made first and the pin piece is marked from it.

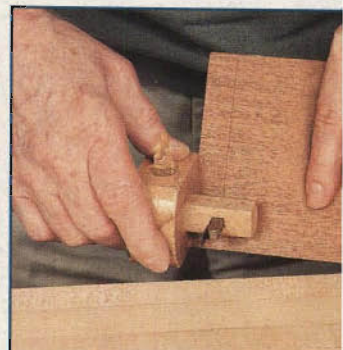
Knife the shoulder lines on both pieces with a cutting gauge. Set the cutting gauge to just less than 1/32" of the thickness of the stock. Knife around the pieces with the cutting gauge fence riding on the end grain.

To cut the joint, cut the sides of the tails and pins with a dovetail saw. Cut out the waste with a coping saw. Finish by cleaning up the shoulders with a chisel guided by the cutting gauge line.

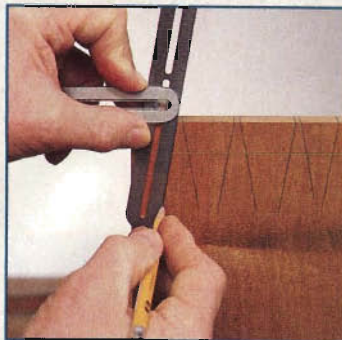
Ian Kirby is a master of the British Arts & Crafts tradition as well as a designer, wood scientist and master woodworker. Look for his continuing articles in upcoming issues of Woodworker's Journal.



Set the cutting gauge 1/32" less than the thickness of the pin piece.



Knife all the shoulder lines with the cutting gauge.



Lay out the tails by squaring across the top with pencil. Mark the slope with pencil and sliding bevel. Extend the pencil guidelines well below the shoulder lines to help guide the dovetail saw.



Mark the pins from the tails with a marking knife.



Square down cutting guidelines from the pin marks with pencil and try square.

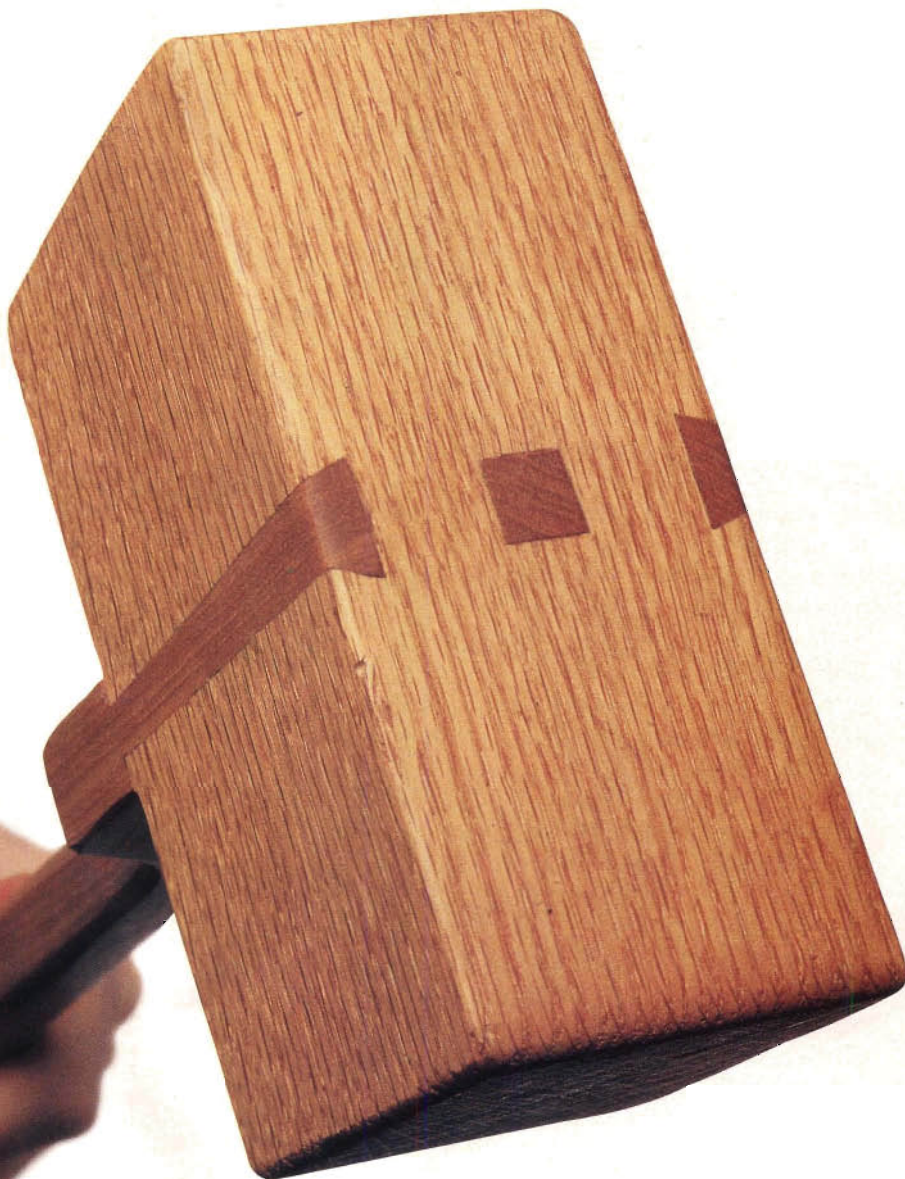
Dovetail Puzzle Mallet

By Stephen Shepherd



There will always be a place in woodworkers' hearts for trick joinery, if only for the sheer delight of stumping their friends with the finished product. But seemingly impossible joints can also be useful and fun to make.

This mallet is a classic example of a puzzle joint that is both useful and a great exercise in hand tool joinery. It is mystifying because the dovetails appear to taper in two conflicting directions that would make it impossible to assemble.



The secret is that the dovetails are "ramped," or double-tapered, as shown in the *Elevation Drawings* on page 37. A small shoulder where the pins meet the handle covers up the fact that the dovetail is deeper at the bottom of the head. The joint is tricky to assemble because the two dovetail pins on the handle have to be bent in order to get them started into the ramped dovetail slots on the sides of the head.



Dovetailed tenons tapering towards the handle make this mallet impossible to assemble ... or do they? To get a handle on the answer, read on.

Even though this intriguing mallet design has been around for centuries, the method for making it had nearly been lost.

Laying Out Trick Dovetails

Though this puzzle mallet design has been around for centuries, the method for making it had nearly been lost. In this article, I'll explain how I make this useful shop tool that doubles as a conversation piece.

Making the Head First

When making a puzzle mallet, I always start with the head and then fit the handle to it. This is roughly the same as cutting the tails of a conventional dovetail joint first and then making the pins to fit.

You can use any type of wood for the head, as long as it is hard enough to stand up to the abuse you plan for it. I've used red oak, rosewood, *lignum vitae*, ebony, maple and walnut.

Cut the head from a single block of wood, with the grain parallel to the direction of swing, as shown in the *Drawings*. Slope the striking faces of the head 5° from top to bottom to provide a natural striking angle.

It is not critical to create a center tenon in the mallet's head, but I prefer it for additional strength, even on mallets with narrow heads. I once made a mallet with a round tenon in the center. This allowed me to drill a hole through the center of the head — much easier than chopping a long, narrow mortise.

Lay out the dovetail slots on the sides and the ends of the head exactly as they will

appear in the completed mallet (see the *Drawings* on page 37 and photos at right). At the handle end, the dovetail is twice as deep as at the top of the mallet head. This creates the secret taper that makes the joint possible. The widest part of the ramped dovetail is the same width at both ends, as you'll see in the *Drawings*.

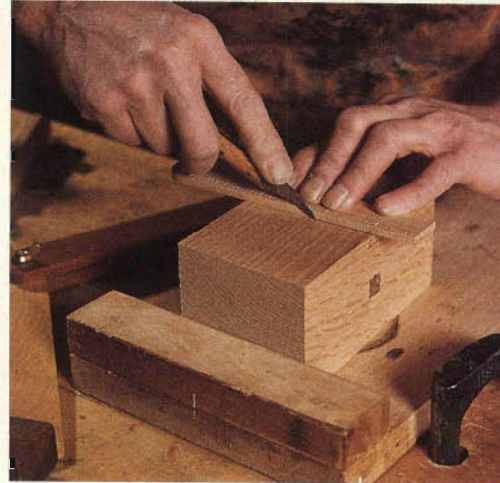
The best and safest way to create the dovetail slots in the head is with a dovetail saw, followed by a sharp chisel to remove the waste material. I saw the angled sides of the dovetail slots first, then I cut a couple more kerfs between them, stopping at my layout lines on the top and bottom ends of the head, as shown in the photo sequence on the page 36. These kerfs provide a depth reference when I'm

removing the waste wood with a chisel. Once the slots are cut, drill or chisel the mortise for the center tenon.

Making the Handle

The wood you pick for the handle must be strong enough to stand up to the abuse a handle on a mallet gets, yet should be flexible enough that the pins may be bent. I have found that ash and hickory both work well and that quartersawn stock is best for both strength and bending qualities.

This mallet
is a classic
example of
a puzzle joint
that is both
useful and a
great exercise
in hand tool
joinery.



Step 1: Gauge the depths of the dovetails on the top and bottom of the head, then mark the width of the tails on the centerline.



Step 2: The dovetails are half as deep at the top of the mallet head as they are at the bottom (where the handle enters).



Step 3: Connect the marks with a good straightedge and a sharp scribe.

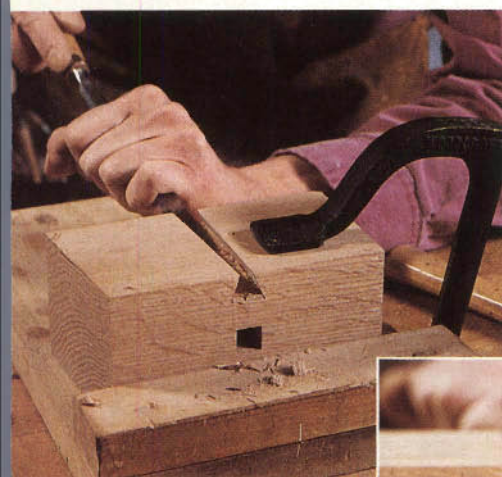
Cutting the Ramped Dovetail Slots



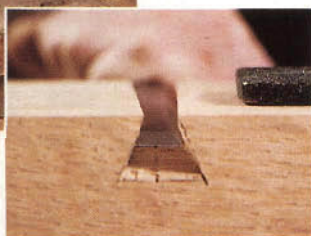
Step 1: Saw the sides of the dovetail slots with a backsaw. Slice kerfs in the slot's middle to help you gauge the depth when paring.



Step 2: Chop out the waste with a chisel, working your way up from the bottom end.



Step 3: Clean up the slots with a sharp paring chisel. Note the gradual slope of the opening, top to bottom.



Lay out the tapered dovetail pins and the center tenon to match the slots in the head. Make the handle slightly wider than the head so the pins will stand proud when assembled. Also, allow about 1/8" of extra length on the pins and 1/2" on the tenon for ease of assembly, as I'll explain later.

Band saw the waste between the pins and the tenon, then cut the bottom shoulders and sloped sides of the pins with a handsaw. I use a backsaw for this purpose. If the wood is straight-grained enough, you can carefully split it away with a chisel. Pare the pins to your layout lines with a sharp chisel.

This is a difficult joint because you can't dry fit the handle to the head to check the fit. You have to carefully check all of the measurements and angles on your pins and tails to make sure they match their corresponding surfaces perfectly.

Once you've cut the pins and tenon, band saw the rest of the handle to its approximate shape, but leave the final smoothing until later.

Assembling the Mallet

In order to assemble the mallet, you will need to bend the pins inward to meet the grooves in the head. The pins are likely to be too stiff

to bend easily, so I soak the pin end of the handle in boiling water to make it more pliable. I use filtered or distilled water to reduce mineral staining.

Cold water will work, but it will take longer and you risk staining the wood if you soak it for a long time.

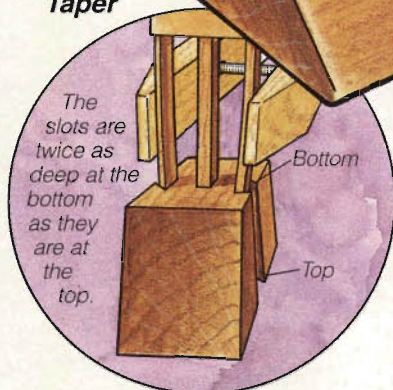
Check the softening process periodically by squeezing the pins together. As soon as they bend easily, you're ready to assemble the mallet. Start by tightening one clamp across the flat of the handle (below the pins) to prevent the wood from splitting as the pins are bent inward. Then, place another clamp near the ends of the pins and tighten it until the pins are close enough together to fit into the dovetail ramps in the head, as shown in the photo at far right.

Line up the center tenon with its mortise and tap the end of the handle with another mallet to force the joint together. Since the center tenon is longer than the pins, it goes into the mortise first and helps align the pins.

Once the pins are partway into the slots, you can remove the end clamp; the sides of the slots will guide the pins the rest of the way. To protect all the work you've done on the handle, leave the other clamp in place until it is completely seated in the head.

I prefer to secure the joints with hot hide glue. It has a suitable working time and is compatible with the moisture saturating the boiled tenon and pins. With the tenon engaged and the hide glue brushed into the openings, firmly drive the handle home with a mallet. Wipe off any excess glue that has been squeezed out, then clamp the handle tightly into the head.

The Secret Taper



Finishing Up

When the wood and the glue have dried, trim the ends of the pins and tenons flush with the head and scrape them smooth. Then you can softly bevel the edges of the head and chamfer or round the handle to final shape.

To fill any slight gaps in the joints, I use an authentic 19th century mixture of linseed oil, whiting and a little dry powdered pigment. This mixture takes a few days to dry, so you might prefer a faster drying mix such as wood flour (fine sawdust) and hide glue.

When the filler is dry, I sand or scrape the joints flush. The scraper imparts a smooth hand finish on the tool that feels wonderful to the touch. As a final finish, I soak the mallet in a 50/50 mixture of turpentine and linseed oil. It's an appropriate finish for wooden tools and easy to reapply as necessary.

Stephen Shepherd is a conservator and furniture maker who lives in Utah. You can visit his web site at www.ilovewood.com.

Shape the Handle

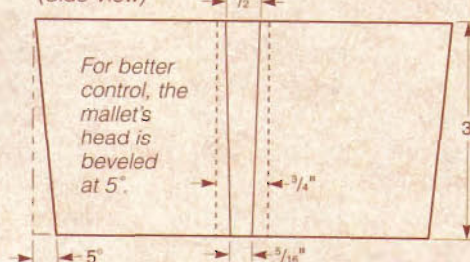
Make the mallet head with its mortise and dovetail slots first. Then form the handle to fit the machining you've done in the head. Shape the 15" long handle to please your sense of proportions.



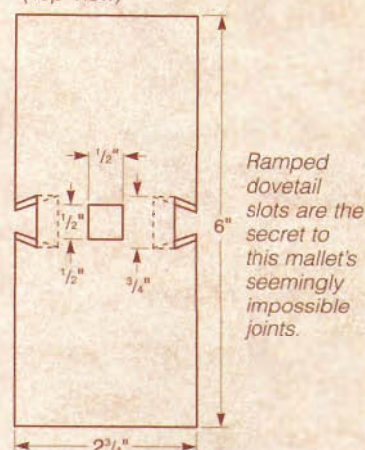
After softening the pins in boiling water, the author clamps the ends until they line up with the oversized dovetail slots. The second clamp keeps the handle from splitting.

Mallet Head

(Side View)

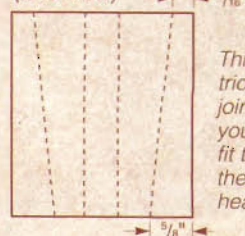


(Top View)



Ramped dovetail slots are the secret to this mallet's seemingly impossible joints.

(End View)



This is a very tricky piece of joinery because you cannot test fit the handle to the mallet head.

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23672 Hardware Kit	\$17.99

TOY BOX PLAN

This easy-to-build toy box uses tongue and grooved stock, available at most lumberyards.

Kit includes toy box lid supports and a piano hinge.

40733 Plan (RVH)	\$4.95
52568 Kit	\$13.99



MODULAR KIDS' BUNK BED SET

Rest assured! This kids' bedroom set will change with their needs. Kit includes bed rail fasteners, safety catches and a pair of ladder hooks.

31859 Plan (RVH)	\$14.99
35538 Hardware Kit	\$29.99
32482 Drawer Slides (sets)*	\$13.49
34355 5 1/4" Drawer Pulls*	\$2.69

*Four required.



JEWELRY BOX

A gem of a jewelry box with keyed dovetail accents, a top compartment and three sliding drawers.

96306 Plan (RVH)	\$8.99
21980 Tie pegs*	\$2.29
62166 Jewelry Box Lid Support	\$11.99
32334 Table Pins	\$9.79
34918 Bumpers	\$1.99

*Two required

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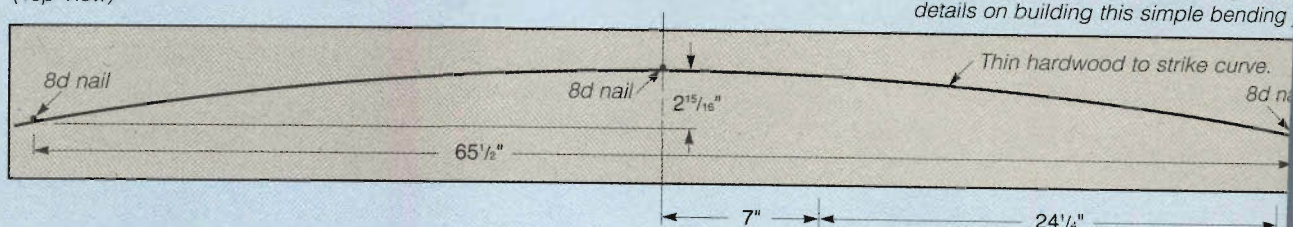
www.woodworkersjournal.com

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Shipping & handling fees applicable.

Curved Arch Bending Jig Layout

(Top View)

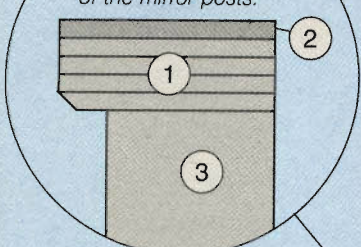


Refer to page 50 of the magazine details on building this simple bending

Arch and Mirror Post Detail

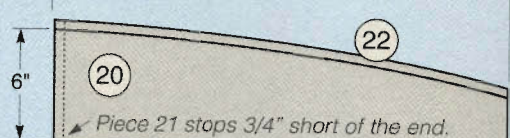
(Section View)

Attach the arch flush to the back edge of the mirror posts.



NOTE: Create a template using a section of the large curved jig (above). Use this template to pattern rout the wing rails to identical curves.

Later, this same template can be used to form the top and bottom of the 10" tall drawer front bending form. Remember, the drawer faces and fronts must match the curve of the wing rails exactly.

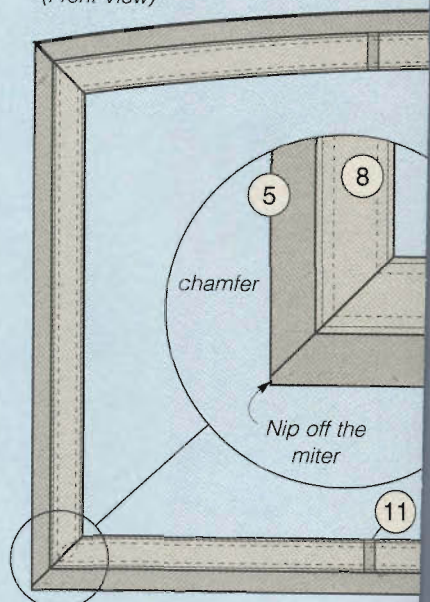


Wing Rail Assembly

(Top View)

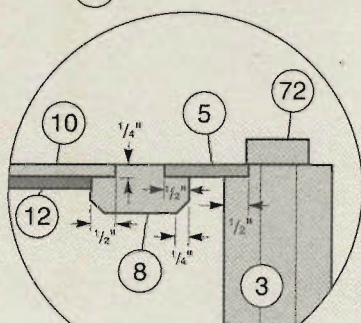
Mirror Frame, Walnut Trim and

(Front View)



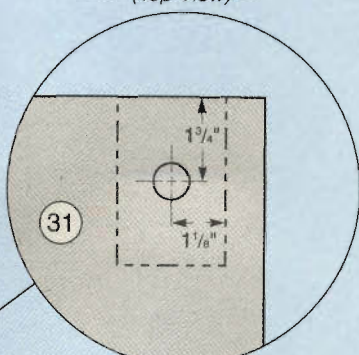
Frame, Post and Brace Assembly

(Section View)



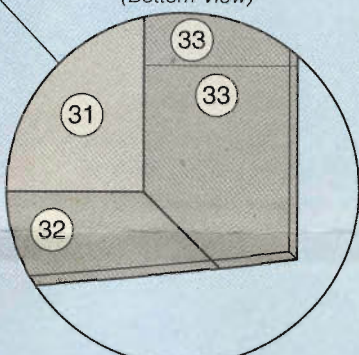
Mirror Post and Dowel Location

(Top View)



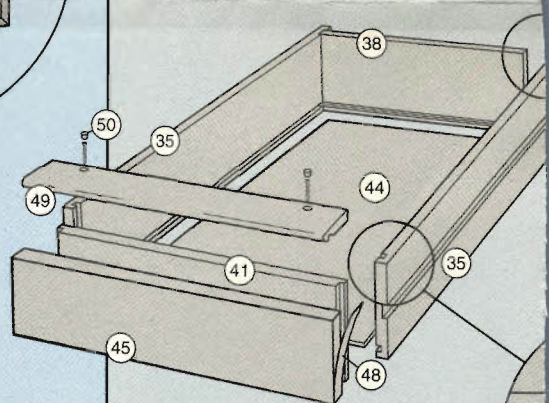
Walnut Top and Side Trim Joinery Detail

(Bottom View)



Drawer Construction Details

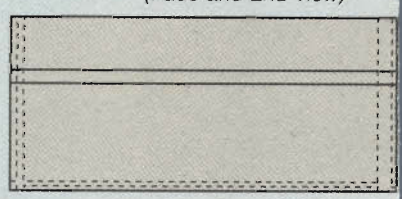
All Dr
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Middle Drawer

Middle Drawer Slide Groove Location Detail

(Face and End View)



Use a roundover bit on the top and bottom edges of the drawer pull. Follow up with a core box bit to make the finger pull. These pulls are attached to the drawers with counterbored screws and the holes are covered with hardwood plugs.

Drawer Pulls Middle Drawer

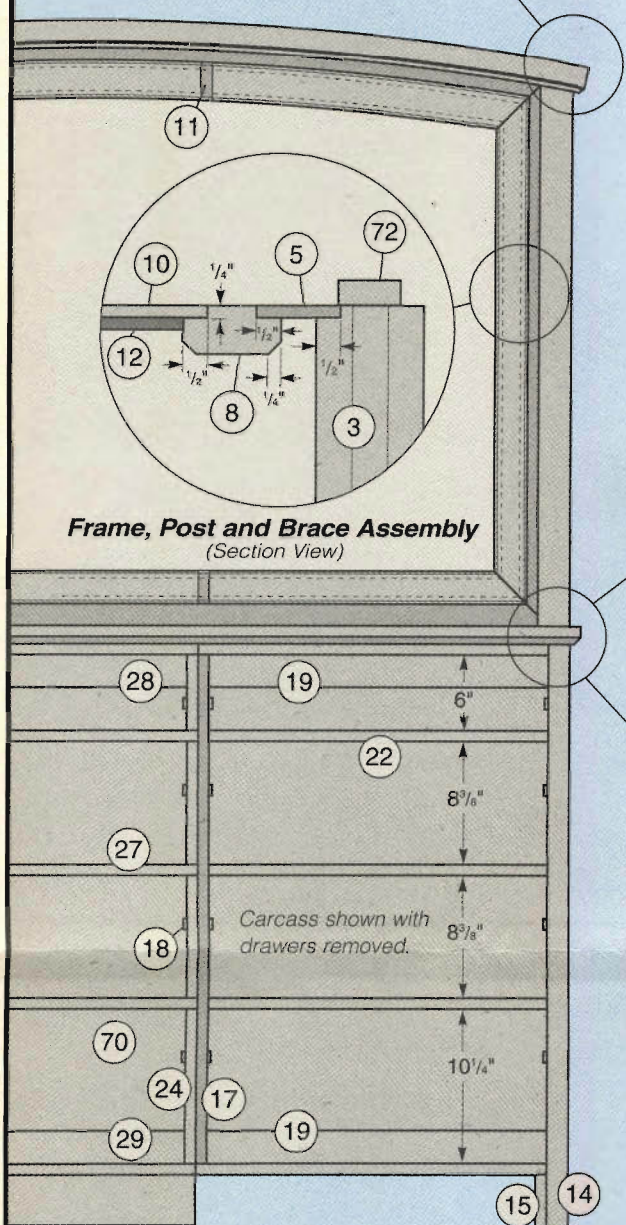
(End View)



Full-Size

Bowfront Bureau

(Front View)



MATERIAL LIST

Mirror

	T x W x L
1 Arch Laminations, Ash (4)	3/8" x 4 1/2" x 67 3/4"
2 Arch Laminations, Walnut (1)	3/8" x 4 1/2" x 67 3/4"
3 Mirror Posts (2)	2 1/4" x 3 1/2" x 37 3/8"
4 Walnut Trim, Top (1)	1/4" x 4 1/4" x 61 5/8"
5 Walnut Trim, Sides (2)	1/4" x 1 3/4" x 37 3/8"
6 Walnut Trim, Bottom (1)	1/4" x 2" x 62"
7 Mirror Frame, Top (1)	3/4" x 3 1/4" x 59 1/2"
8 Mirror Frame, Sides (2)	3/4" x 2 1/4" x 35 1/8"
9 Mirror Frame, Bottom (1)	3/4" x 2 1/4" x 59 1/2"
10 Mirror Back (1)	1/4" x 33 1/16" x 56"
11 Walnut Frame Inserts (4)	1/4" x 3/4" x 2 1/4"
12 Mirror (1)	1/4" (cut to fit)

Carcass

13 Bureau Sides (2)	3/4" x 12 3/8" x 36 3/4"
14 Legs (4)	1 1/2" x 4" x 40 3/4"
15 Legs Blocks (4)	3/4" x 4" x 4"
16 Wing Walls (2)	3/4" x 21 1/2" x 36 3/4"
17 Wing Wall Trim (2) (Walnut)	3/4" x 3/4" x 35 1/4"
18 Drawer Slides (24)	1/2" x 3/4" x 21 1/2"
19 Back Stringers (4)	3/4" x 3" x 25"
20 Wing Rails (4)	3/4" x 6" x 24 1/4"
21 Intermediate Wing Rails (6)	3/4" x 6" x 23 1/2"
22 Rail Trim (1)	1/2" x 3/4" x 250"
23 Middle Stack Sides (2)	3/4" x 20 3/4" x 36 3/4"
24 Middle Stack Side Trim (2)	3/4" x 3/4" x 35 1/4"
25 Middle Stack Rails (2)	3/4" x 3" x 14"

26 Middle Stack Intermediate Rails (3)
27 Ash Rail Trim (1)
28 Middle Upper Stringer (1)
29 Middle Lower Stringer (1)
30 Corner Blocks (6)
31 Bureau Top (1)
32 Walnut Front Bureau Top Trim (1)
33 Walnut Side Bureau Top Trim (2)
34 Trim Spacer (1)

Drawer

35 Top Middle Drawer Sides (2)
36 Intermediate Middle Drawer Sides (4)
37 Bottom Middle Drawer Sides (2)
38 Top Middle Drawer Back (1)
39 Intermediate Middle Drawer Backs (2)
40 Bottom Middle Drawer Back (1)
41 Top Middle Drawer Front (1)
42 Intermediate Middle Drawer Fronts (2)
43 Bottom Middle Drawer Front (1)
44 Middle Drawer Bottoms (4)
45 Top Middle Drawer Face (1)
46 Intermediate Middle Drawer Faces (2)
47 Bottom Middle Drawer Face (1)
48 Middle Drawer Face Tape (1)
49 Middle Drawer Pull Molding (1)
50 Screw Plugs (48)



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31942 Bookcase Plan*	\$12.99
31953 Single Bookcase/Light Kit	\$24.99
31965 Murphy Bed Box/Light Kit	\$59.99
89616 Vertical mount hardware, Twin	\$229.00
89624 Vertical mount hardware, Full	\$229.00
89632 Vertical mount hardware, Queen	\$229.00

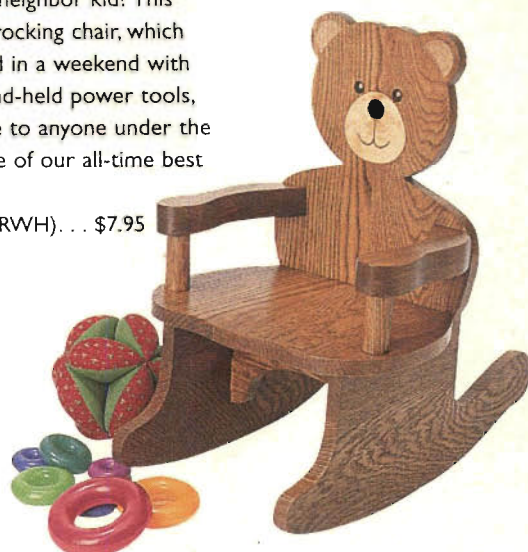
*The bed plan is included (FREE) with the last three items.



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JEWELRY BOX

Surprise someone with this gem of a box. Kit includes solid brass stop hinges, brass lock, key and a set of tray lift supports.

97289 Plan (TW 35)	\$4.95
50807 Hardware Kit	\$49.99

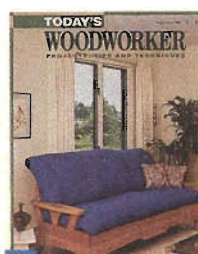
Today's Woodworker Bestsellers: Merged with Woodworker's Journal in 1998, many of the Today's Woodworker back issues are still available! Go to www.woodworkersjournal.com for more examples of the unique designs from this classic magazine!



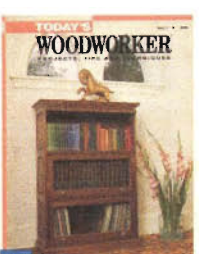
21 Adirondack chair, scroll saw project, deck set, sofa table. 79673\$4.95



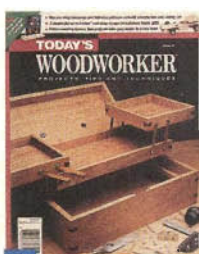
25 Flammable storage cabinet, workbench, toy car, country settle. 88965\$4.95



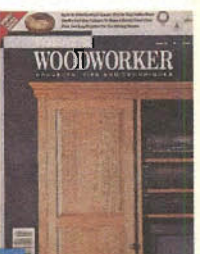
4 Futon sofa bed, KD fittings, blanket chest, antiquing techniques. 38448\$4.95



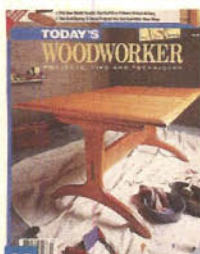
11 Barrister Bookcase featured in this issue is available as a RWH plan. 52208\$9.99



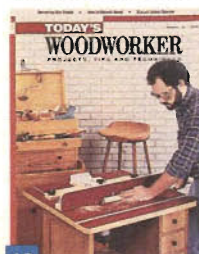
42 Hobby box, card player's coasters, salmon cutting board, race car. 59048\$4.95



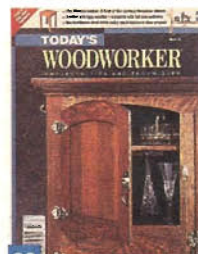
24 Serving tray, dining chair, entertainment center, tree ornaments. 79707\$4.95



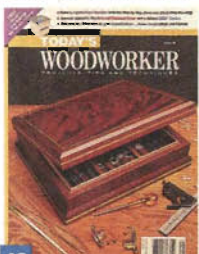
23 Trestle table, drill bit cabinet, three weekend gift projects. 79699\$4.95



13 Router table, bar stool, tips on buying a new biscuit jointer. 68700\$4.95



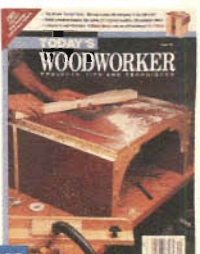
33 Old Time Icebox featured in this issue is available as a RWH plan. 33998\$9.99



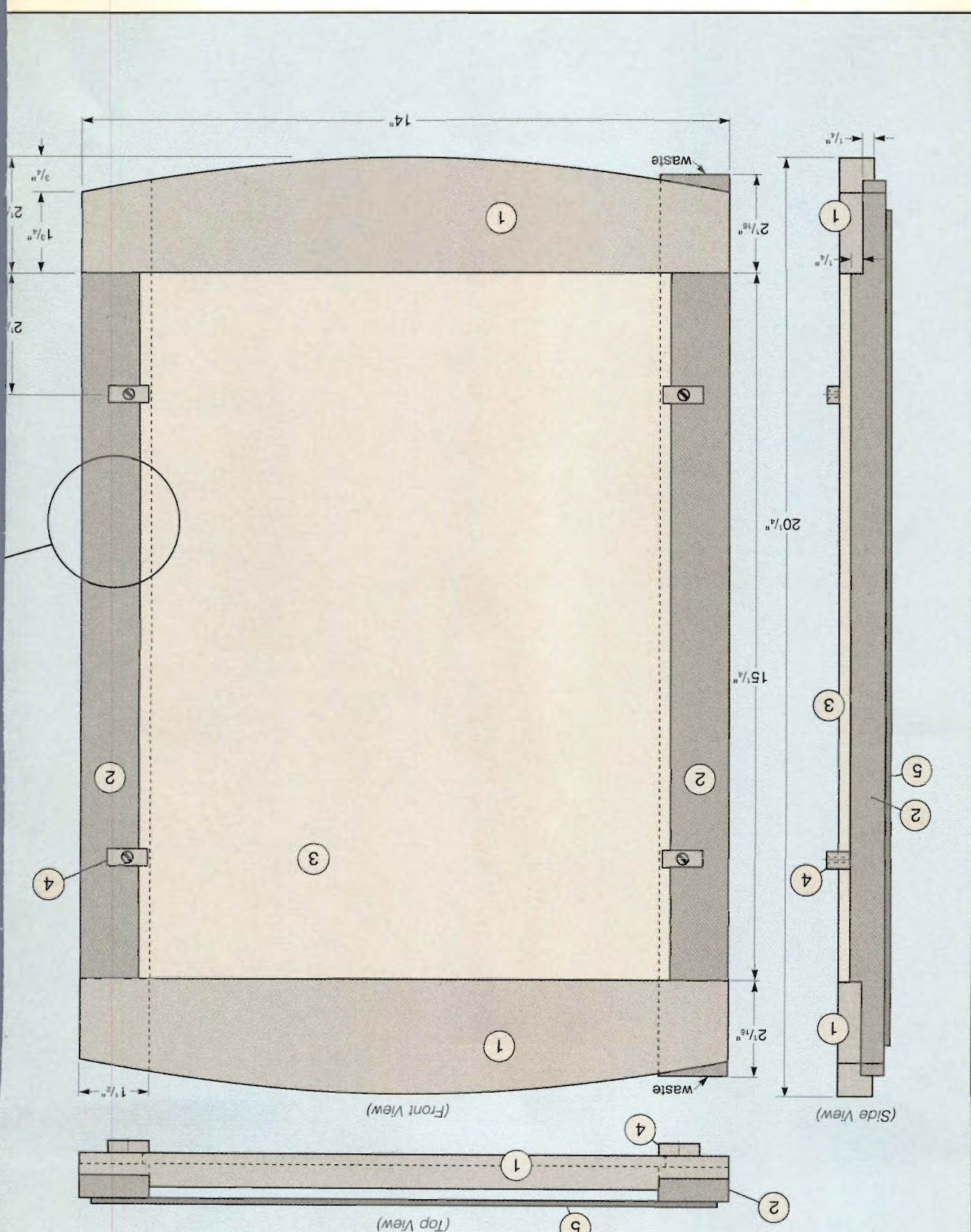
46 Mahogany humidifier, LEGO® center, oriental redwood arbor. 17302\$4.95



10 The classic corner cabinet in this issue is available as a reprint. 36579\$3.95



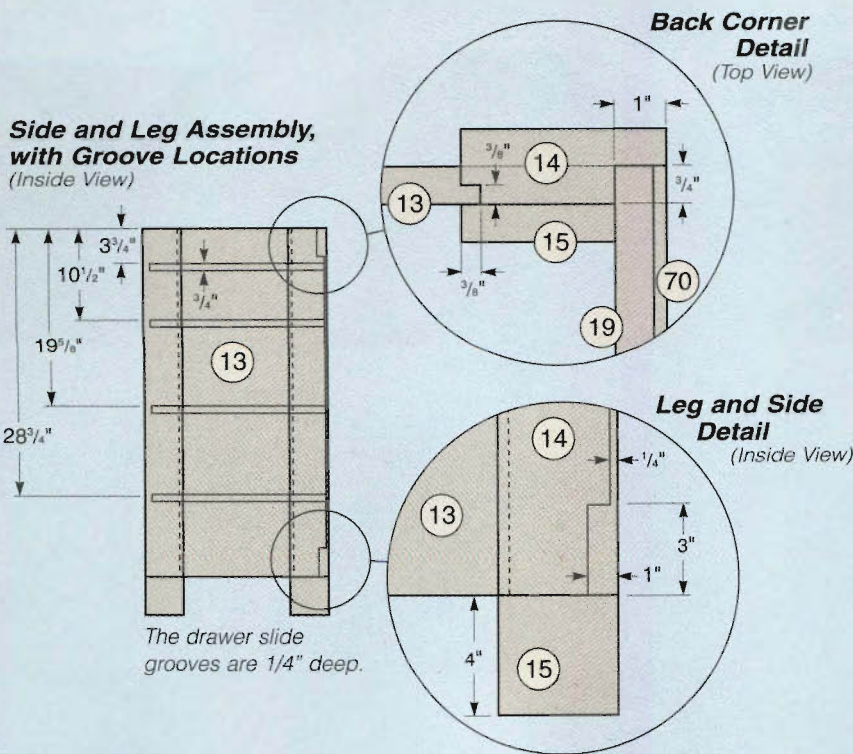
49 Wooden clamp, CD storage cabinet, router table, entryway bench. 21775\$4.95



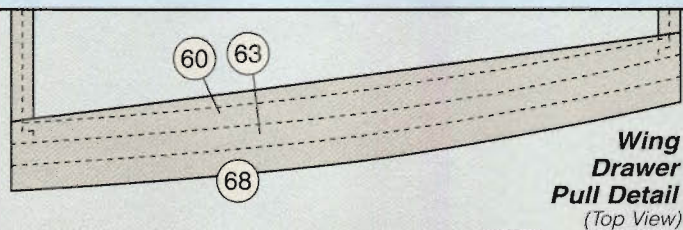
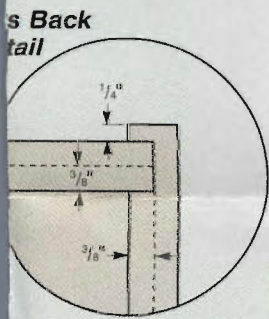
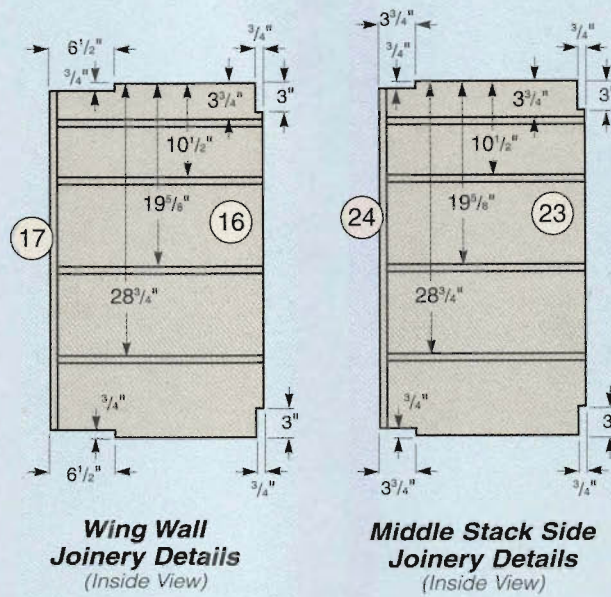
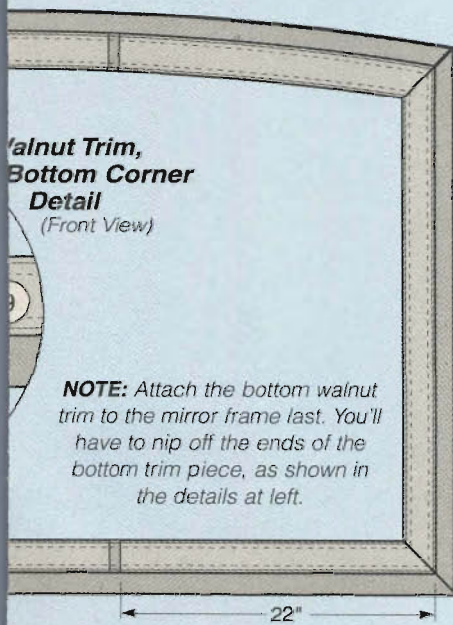
Pinup Shop Drawings

Hall Mirror

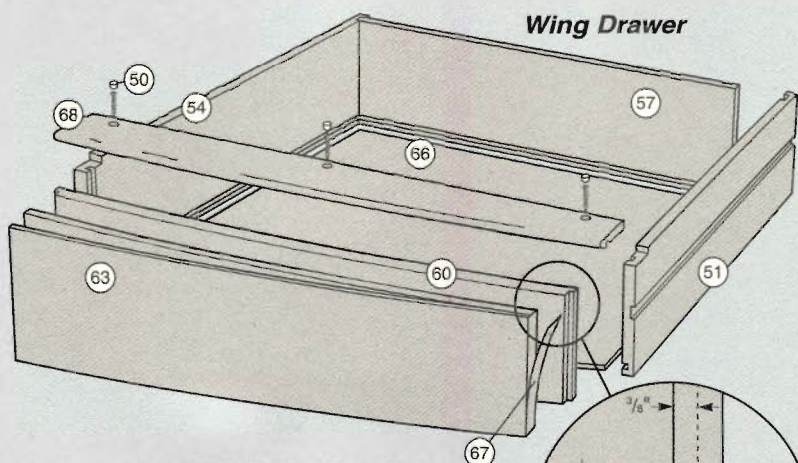
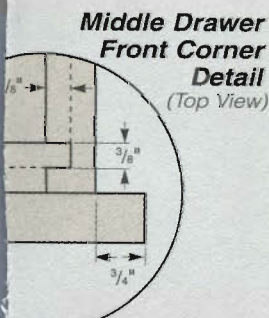
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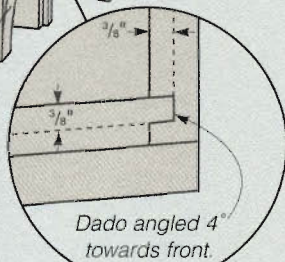
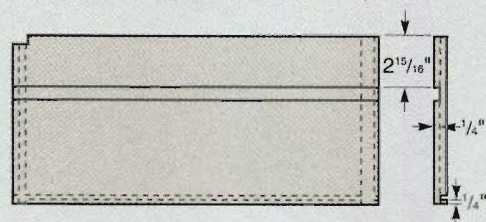
the Inserts



The drawer pulls on the wing drawers are a complicated shape. See the magazine article for tips on machining these curved solid hardwood pieces.



Wing Drawer Slide Groove Location Detail (Face and End View)



The drawer pulls on the middle drawers are mounted on top of the drawer box assembly. The drawer pulls on the wing drawers sit flush in notches on the top of the wing drawer boxes.

T x W x L

3/4" x 3" x 12 1/2"
3/4" x 3/4" x 75"
3/4" x 3" x 14"
3/4" x 6 1/2" x 14"
3/4" x 4" x 4"
3/4" x 25" x 70"
1/2" x 5" x 70"
1/2" x 22" x 5"
1/2" x 2" x 60"

3/4" x 5 3/8" x 21 1/4"
3/4" x 8" x 21 1/4"
3/4" x 9 5/8" x 21 1/4"
3/4" x 5 3/8" x 11 5/8"
3/4" x 8" x 11 5/8"
3/4" x 9 5/8" x 11 5/8"
3/4" x 5 3/8" x 11 5/8"
3/4" x 8" x 11 5/8"
3/4" x 9 5/8" x 11 5/8"
3/4" x 11 5/8" x 20 1/2"
3/4" x 13 15/16" x 5 1/4"
3/4" x 13 15/16" x 8"
3/4" x 13 15/16" x 9 5/8"
1/16" x 3/4" x 70"
1/2" x 1 1/2" x 75"
3/8" Diameter

51 Top Wing Drawers, Short Sides (2)
52 Intermediate Wing Drawers, Short Sides (4)
53 Bottom Wing Drawers, Short Sides (2)
54 Top Wing Drawers, Long Sides (2)
55 Intermediate Wing Drawers, Long Sides (4)
56 Bottom Wing Drawers, Long Sides (2)
57 Top Wing Drawers, Backs (2)
58 Intermediate Wing Drawers, Backs (4)
59 Bottom Wing Drawers, Backs (2)
60 Top Wing Drawers, Fronts (2)
61 Intermediate Wing Drawers, Fronts (4)
62 Bottom Wing Drawers, Fronts (2)
63 Top Wing Drawer, Faces (2)
64 Intermediate Wing Drawer Faces (4)
65 Bottom Wing Drawer Faces (2)
66 Wing Drawer Bottoms (8)
67 Wing Drawer Face Tape (1)
68 Wing Drawer Pulls, Molding (1)

Odds & Ends

69 Drawer Stops (24)
70 Bureau Back (1)
71 Adjustable Support (1)
72 Mirror Braces (2)
73 Dowels (2)

T x W x L

3/4" x 5 1/4" x 18 1/4"
3/4" x 8" x 18 1/4"
3/4" x 9 5/8" x 18 1/4"
3/4" x 5 1/4" x 21"
3/4" x 8" x 21"
3/4" x 9 5/8" x 21"
3/4" x 5 1/4" x 22 5/8"
3/4" x 8" x 22 5/8"
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3/4" x 5 1/4" x 22 3/4"
3/4" x 8" x 22 3/4"
3/4" x 9 5/8" x 22 3/4"
3/4" x 23 5/8" x 5 1/4"
3/4" x 23 5/8" x 8"
3/4" x 23 5/8" x 9 5/8"
1/4" x 22 5/8" x 19 1/4"
1/16" x 3/4" x 140"
1/2" x 2 1/2" x 195"

1/2" x 1/2" x 2 1/2"
1/4" x 36 3/4" x 64"
3/4" Diameter.
1/2" x 1 1/4" x 60"
3/4" Diameter x 5"



FUTON COUCH AND BED

Choose from 3 arm styles. The roller hardware is inexpensive, durable and easy-to-use. Some routing required to install roller hardware. Plan includes full-size pattern for a jig to make the job easy. Together, the two kits include all necessary parts.

37761 Plan (RWVH)	\$12.99
38437 Futon Roller Kit	\$12.99
80154 Futon Fastener Kit	\$10.99



MISSION GLIDER CHAIR AND OTTOMAN PLAN

This chair and ottoman feature a bold, sturdy and practical look characteristic of the Mission style. The chair measures 41" H x 25 1/2" W x 33" D. Hardware kit includes floor guides, dowels, eight pivot hinges and chair webbing with metal ends.

52088 Plan (RWVH)	\$14.99
12171 Hardware Kit	\$79.99
51243 Pivot Hinge	\$6.99



AUTHENTIC JELLY CUPBOARD

Optional tin panels add a touch of history to this classic reproduction. The hardware kit includes a lock, the keyhole escutcheon, elbow catch and three pairs of hinges.

97271 Plan (TW 34)	\$4.95
36707 Hardware Kit	\$25.95
21709 10"x14" Tin*	\$3.99

*Six required.



ARTS & CRAFTS HUTCH

A Rick White Classic! The hardware kit features four drawer pulls and two door pulls made by the Stickley Company, contributing to this hutch's strong Arts & Crafts style. The kit also includes three pairs of door hinges, two sets of Accuride® slides, four ball catches and support pins for the shelves.

52244 Plan (RWVH)	\$12.99
46938 Hardware Kit	\$179.99



ENTERTAINMENT CENTER III

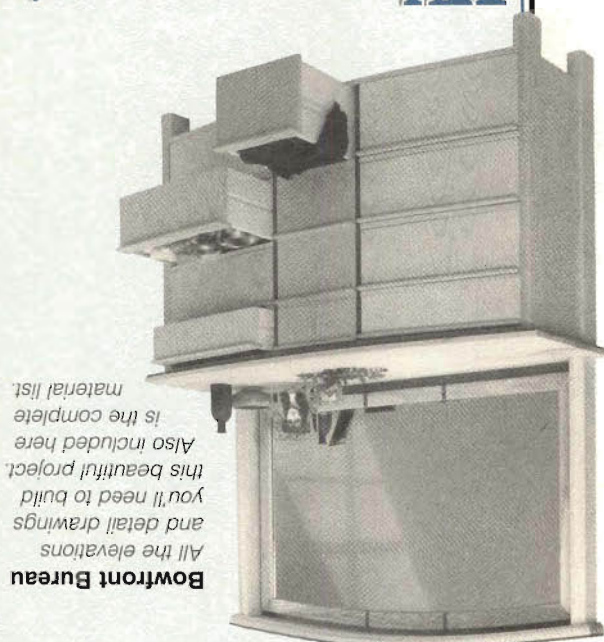
This classic brings new meaning to the phrase "a place for everything and everything in its place." Two hardware kits are available, one with the slides and hinges and the other with the handles, knobs and supports.

52232 Plan (RWVH)	\$9.99
39009 Hardware Kit I	\$199.99
Accuride® drawer and flipper door slides and hinges	
39017 Hardware Kit II	\$79.99
Screws, plugs, handles, knobs and shelf supports	

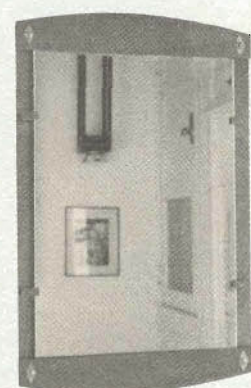


WOODWORKER'S JOURNAL

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Bowfront Bureau
All the elevations
and detail drawings
you'll need to build
this beautiful project
is the complete
material list.



A Hall Mirror
for Beginners
Simon Watts' hall
mirror is simple to
build but includes
some nice features,
all of which are
detailed at left.

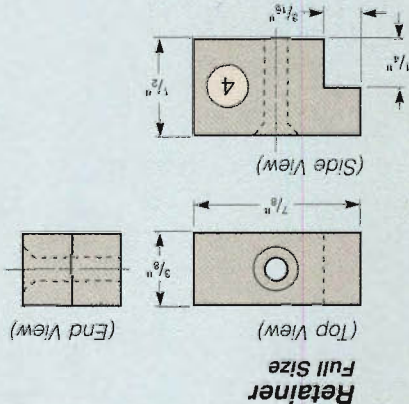
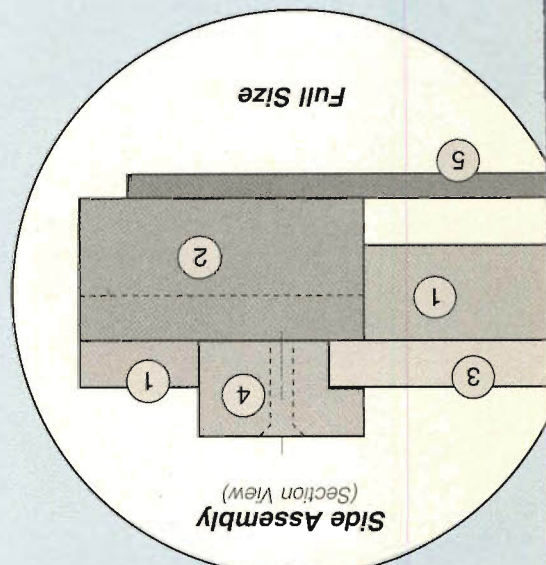
- Open staples carefully, remove pattern and fold staples back in place.
- Use graphite paper (available at art supply stores) or cut and trace full-size patterns onto your stock.
- Cut out the elevation drawings and pin them to your shop wall.

Full-Size Patterns



MATERIAL LIST

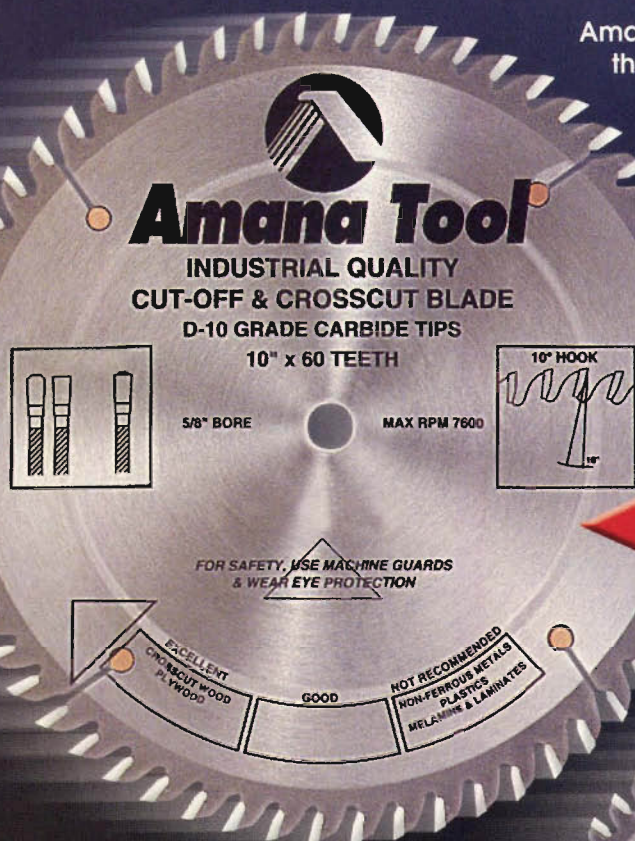
1 Rails (2)	3/4" x 2 1/2" x 14"
2 Stiles (2)	3/4" x 1 1/2" x 19 3/8"
3 Mirror (1)	1/4" Cut to fit
4 Retainers (4)	1/2" x 3/8" x 7/8"
5 Back (1)	1/8" x 13 1/2" x 18"
6 Strap Hangers (2)	Steel
7 Decorative Accents (4)	Optional



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5/8" Bore
10" x 60 Teeth
Sale Price
\$45⁹⁵

CROSSCUT BLADES

#610600(ATB)

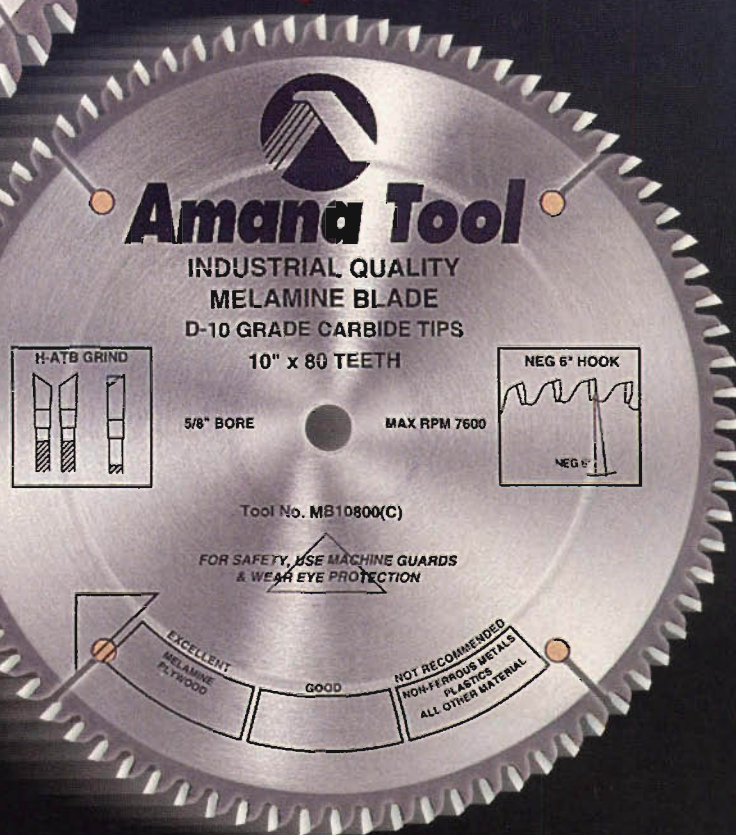
Reg. Price \$93.45

#610601(TCG)

Reg. Price \$102.45

MELAMINE BLADE
#MB10800
(heavy-duty .102 plate)
Reg. Price \$145.70

5/8" Bore
10" x 80 Teeth
MELAMINE
Sale Price
\$79⁹⁵



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A Bowfront Bureau



Bending wood can be a challenge, but don't let the graceful curves of this bureau put you off. By using a combination of easy-to-build bending jigs and bendable plywood, the author takes you through the tricky parts.

By Rick White

Early last winter, my wife Susie and I built the bed of our dreams (Volume 25, Issue 1). The design featured tons of storage, a perfectly tilted headboard and soft arches. We loved it, and the editors tell me it was also very popular with you, our readers. In this issue, I'm tackling the matching bureau.

As you can see, we stayed with the arch theme in the bureau's design. A single template lets you lay out the long, lazy arches for the top of the mirror, the leading edge of the tabletop, and the bowed drawer fronts. We stayed with the bed's color scheme too, white ash accented by dark walnut trim.

Building a Bending Form

This project begins with the top of the mirror frame, because the curve established here is used to create all the other curves in the dresser. The arched top is made up of several thin laminations which are face glued together and clamped to a bowed form to dry. The first step in the form's construction is to lay it out with pencil lines on 3/4" plywood.

Drive an 8d finish nail into the plywood at each end of the curve, 65 1/2" apart, as shown in the photo on the next page. Connect the nails with a pencil line and draw a second, intersecting line halfway along it, at 90°. Drive a third nail exactly 2 15/16" up this line. Bend a strip of thin hardwood (or plywood) so it touches all three nails — you might need help here — and draw a curved line along the bottom edge. Extend the line a few inches past each nail.

Clamp a second piece of 3/4" plywood below the first, then jigsaw both pieces at the same time, staying just outside of your layout line. Leave the clamps in place and belt sand precisely to

the line. Keep the sander moving, so you don't create any flat spots.

Predrill for screws, then glue and screw several 3" spacers between the two sheets of plywood, as shown in the illustration at the top of the next page. Use a square to make sure the bowed edges line up perfectly as you drive the screws home.

Laminating the Arch

The mirror arch is made up of five 3/8" thick boards. Four of these (pieces 1) are ash, while the top one (piece 2) is walnut. For a complete *Bill of Materials* and important construction details, refer to the *Pinup Shop Drawings* on the center pull-out.

It's a good idea to spread a single layer of wax paper along the form before you start gluing. This will prevent the laminated arch from sticking to the form. You should also make sure you have enough clamps on hand before you start gluing. You'll need about 20: one every six or eight inches, both top and bottom.

Leave the laminations about 3" longer and 1/4" wider than their finished size, then spread the glue with a brush or roller to get even and complete coverage. Work quickly or the glue will begin to set. Make sure the laminations' edges all line up as closely as possible, then start applying clamps from the center out. If you

see a small gap, move the clamps closer together.

Let the glued assembly dry for at least 24 hours before removing any clamps. While it's drying, you can make the mirror posts.

A Set for the Bedroom

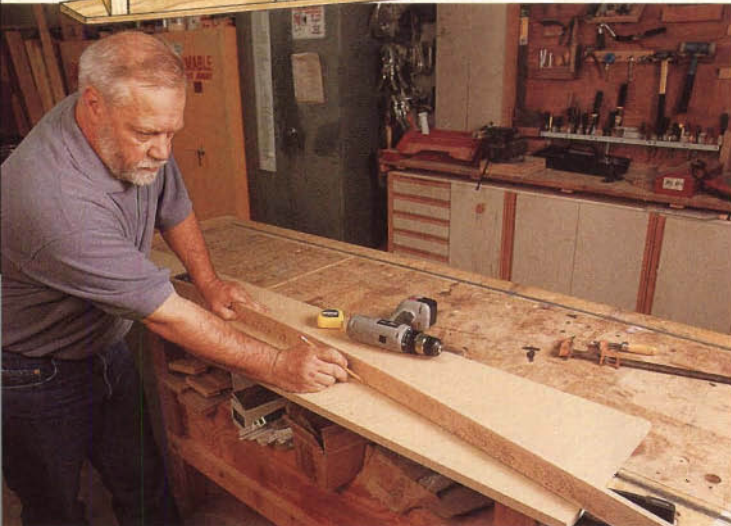
Matching the style, material and construction methods, the bed below (*Woodworker's Journal*, February 2001) and bureau were designed to be complimentary pieces of furniture.



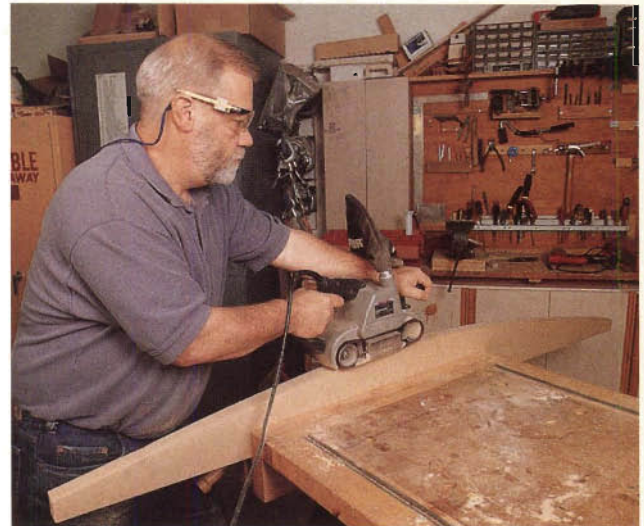
A simple bending jig



The jig to create the gently curved mirror arch is made from plywood and spacers. As you laminate the arch, the jig will be subjected to a lot of stress, so be sure to use plenty of glue and screws when you make it.



To begin making the bending jig, strike the gentle curve of the mirror arch onto a piece of plywood. This curve must be fair and true.



After using a band saw or hand-held jig saw to rough cut the curve, carefully sand right to the line with your belt sander.

Making the Mirror Posts

Like the arch, the large posts (pieces 3) that frame the mirror are also laminated. This makes them more stable than a single large piece of stock that might be subject to twisting or splitting over the years. It's also easier to find 3/4" clear stock than 2 3/4" thick boards.

Leave the laminations about 1/8" wider and an inch longer than their final sizes, then laminate three boards together to make each post. After the glue dries, remove your clamps and dress one laminated face of each post on the jointer. Then place the jointed face against the table saw fence and rip each post to a hair over its final dimension. Make one final pass per post on the jointer, to clean up the ripped face, then square off the bottom of each post on the miter saw.

Transfer the radius of the arch to the top of each post, and band saw it to shape. Keep in mind that you'll need a right and a left post. Then sand the cuts smooth.



While the arched mirror top may seem to present a machining challenge, the author simply took the curved piece in stride.

Milling the Arch

Before assembling the arch to its posts, you need to clean up its edges, trim it to length and chamfer the bottom edge. After removing the clamps, begin by running the arch across the jointer to clean one side, then rip it 1/16" oversize on the table saw before jointing the other side. Trim it to length so that the bottom edge is 67 3/8" long.

The chamfering is done with a 45° bearing-guided router bit. To reduce tearout, chamfer the ends first, then the front — along the bottom edge only. Then switch to

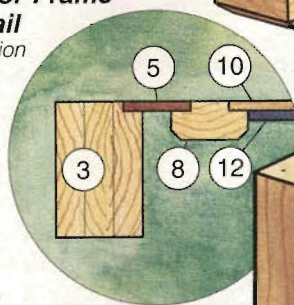
a rabbeting bit to plow the stopped rabbet along the bottom edge of the back. Stay with this bit to rabbet the inside back edge of each post, keeping in mind that you'll need a left and right post.

Make sure the back edges are absolutely flush as you assemble the arch to the posts with counterbored 3" screws, driving them into predrilled pilot holes.

The final arch lamination, the walnut cap (piece 2),



**Mirror Frame
Detail**
(Section
View)



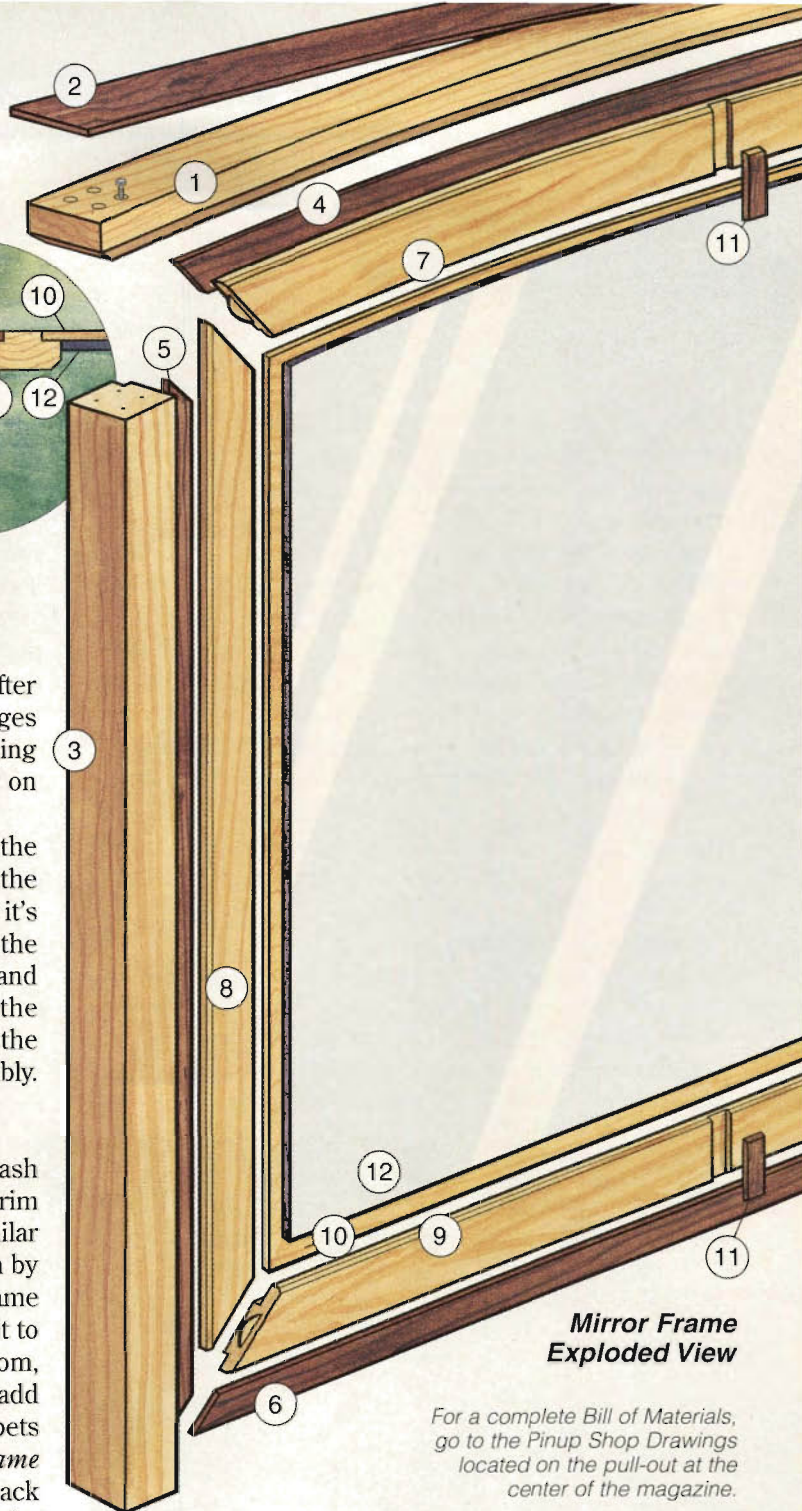
can be applied now. Glue and clamp it in place. After the glue dries, remove the clamps and trim the edges flush with the ash. A bearing-guided flush trimming bit works well on the sides, but use a belt sander on the ends to prevent splitting.

Use the bending form to lay out the curves on the arched walnut trim piece (piece 4) that backs up the mirror frame. Miter the ends of this piece while it's still rectangular, then cut it to size and shape on the band saw. Cut the straight trim for the sides and bottom (pieces 5 and 6) to size and miter the remaining corners to fit. Test fit the pieces into the rabbets you just made in the post and arch subassembly.

Making the Mirror Frame

The arched mirror will be surrounded by an ash frame. This frame is glued in front of the walnut trim that you just made. Making the frame is very similar to the process used to make the walnut trim. Begin by striking the curve for the arched top of the frame (piece 7), then miter its ends before band sawing it to shape. Cut the remaining parts (the sides and bottom, pieces 8 and 9) to size, miter their corners and add biscuit mortises for added stability. Form the rabbets on the back edges of the frame (see the *Mirror Frame Detail* above) to accept the trim and mirror back (piece 10). Now is also the time to chamfer the forward edges of the frame. Sand all four parts, dry fit them to the mirror assembly to check their fit, then assemble them with glue and biscuits. Before you go any further, clamp a straightedge in place to guide your router while you mill four dadoes for the walnut inlays (pieces 11) in the frame. Glue the inserts in place and sand them flush after the glue has cured.

Install the back with glue and clamps. When this subassembly is dry, glue and clamp the mirror frame in place, centering it on the walnut trim. At this point, you're ready to order your mirror glass (piece 12), so the glazier can be working on it while you get busy building the dresser carcass.



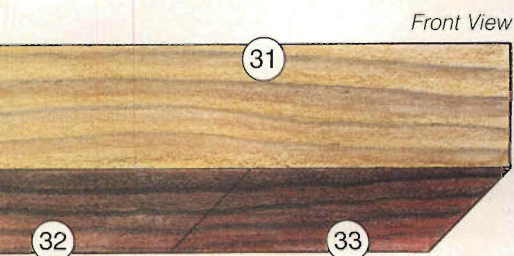
**Mirror Frame
Exploded View**

For a complete Bill of Materials, go to the Pinup Shop Drawings located on the pull-out at the center of the magazine.

Building Three Drawer Stacks

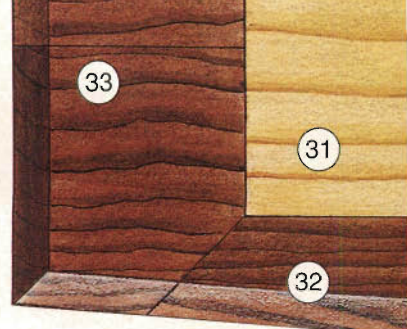
There are 12 drawers in the bureau — three stacks with four drawers each — and the logical way to build such a large piece is to break it into these three separate subassemblies. As the two wing units are mirror images of each other, you can build both at the same time.

Begin by cutting the bureau sides (pieces 13) to size. These are 3/4" ash veneered plywood, as their outer faces will be visible. Plow the rabbet in each long edge and set the sides aside. Next, cut the legs and leg blocks (pieces 14 and 15) from solid ash lumber. With your portable router, mill grooves to receive the bureau sides



Chamfered Shadow Lines

An elegant shadow line along the front of the bureau is emphasized by adding walnut accents. To create the same look along the sides, the author glued up short lengths of walnut and applied them with the end grain exposed. This way, the accent wood can move in concert with the top during seasonal humidity changes.



and create a rabbet down the rear legs' back edge to receive the bureau's back later. Glue and clamp them together, but be sure to make a right and left panel as you do.

Cut the wing walls (pieces 16) to size next, notching all four corners as shown on the *Pinup Shop Drawing*. These walls will be hidden, so a less expensive grade of plywood will do nicely. Trim the front edge of each wall with solid walnut stock (piece 17). Chuck a 3/4 straight bit into your router and plow stopped dados into the inside faces of the walls and sides to hold the drawer slides (pieces 18). This is a good time to form the small rabbets on the back legs to accept the back stringers (pieces 19). Glue and clamp the drawer slides into all four panels next. These should be cut from hardwood.

The Curved Rails are Next

Each of the wings features drawer fronts that pick up the curve of the mirror. You can use that bending form as a template to lay out the curves on the wing rails and intermediate wing rails (pieces 20 and 21). I used a jig and a pattern routing bit (see the photo below) to be

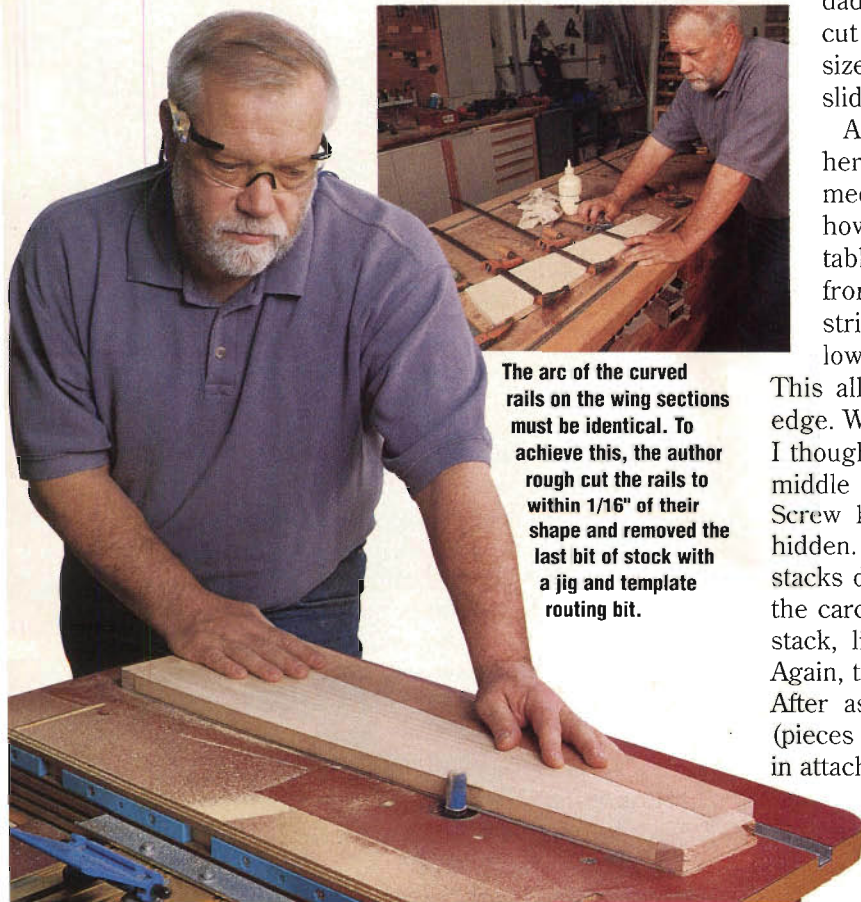
sure that the front edges of each of these curved rails were identical. Apply solid ash trim (piece 22) to the front of each rail, using glue and clamps to secure it. This is a very gentle curve, so the ash will have no problem bending around it, but I do recommend leaving the clamps on overnight.

The curved rails are secured to the bureau sides with pocket hole joints on the ends which butt into the front legs. I did use glue on each joint as well. Assemble the wings upside down on a flat work surface and make sure each subassembly is square and plumb as you work. A few clamps will help keep them so while the glue dries.

Building the Third Stack

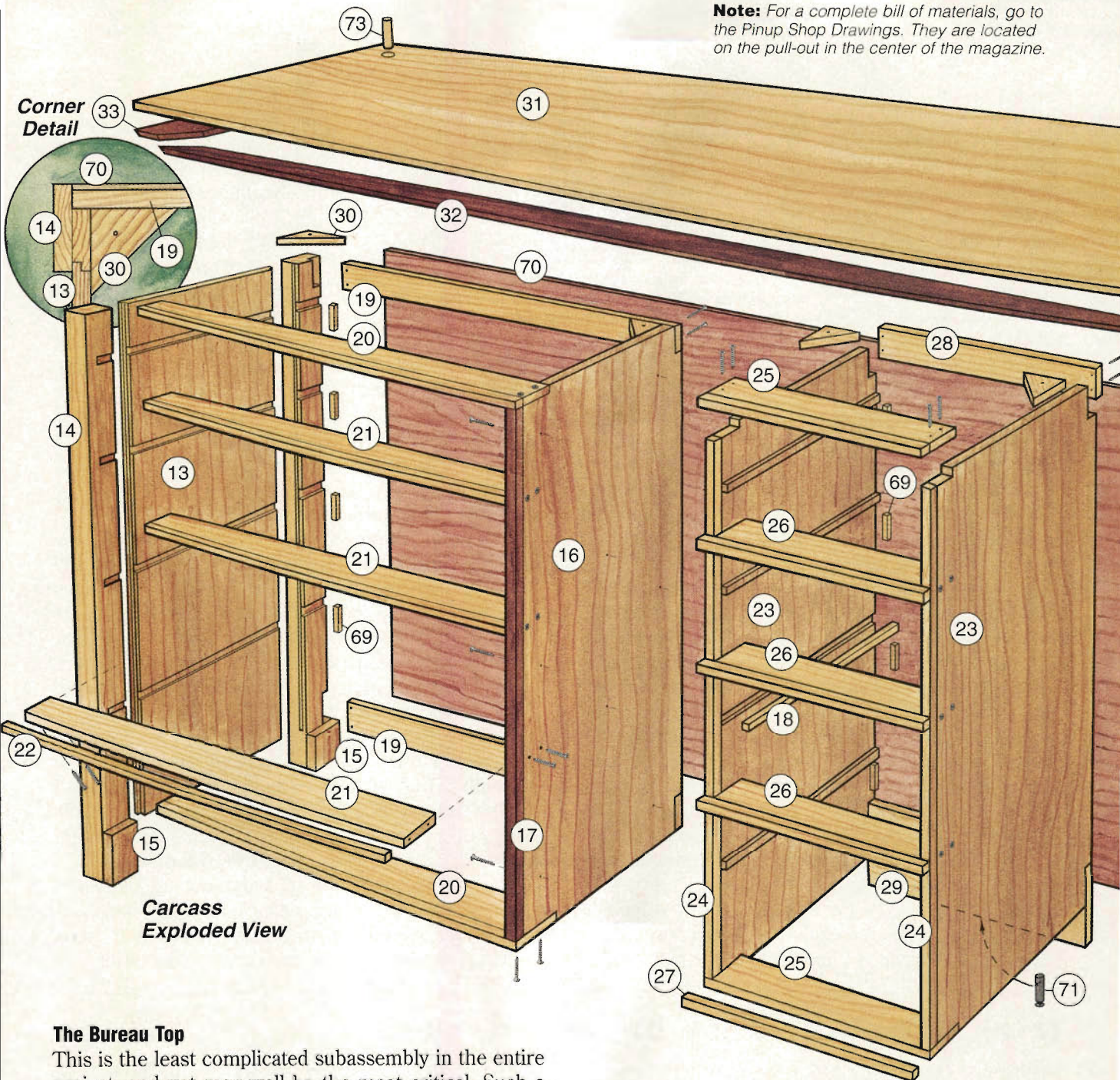
The middle of the three drawer stacks is more economical to build: its sides (pieces 23) are totally hidden, so there's no need to use ash veneered plywood here. Cut the sides to size, then lay out the notches at all four corners of each. Cut these with the jig saw, keeping in mind that you need a left and right panel that are mirror images of each other. Plow the dados for the drawer slide stock (piece 18), then cut the ash trim for the front edges (piece 24) to size. Next, glue and clamp the trim and drawer slides in place.

As in the outer stacks, the top and bottom rails here (pieces 25) are a tad longer than the intermediate ones (pieces 26). They're not curved, however, so you can cut all five rails to size on the table saw. Apply solid ash trim (piece 27) to the front edge of each. Cut the rear upper and lower stringers (pieces 28 and 29) to size. Note that the lower stringer is much wider than the upper. This allows you to place an adjustable leg into its edge. While this center support may not be an issue, I thought, better safe than sorry. Glue and screw the middle stack together, as you did with the wings. Screw locations are not critical as they will all be hidden. After the glue dries, sand all three drawer stacks down through the grits to 220. Now assemble the carcass. Glue and screw the wings to the middle stack, lining them up properly from front to back. Again, this is best done upside down on a flat surface. After assembly, glue and screw the corner blocks (pieces 30) in place. They should be predrilled to help in attaching the top.



The arc of the curved rails on the wing sections must be identical. To achieve this, the author rough cut the rails to within 1/16" of their shape and removed the last bit of stock with a jig and template routing bit.

Note: For a complete bill of materials, go to the Pinup Shop Drawings. They are located on the pull-out in the center of the magazine.



The Bureau Top

This is the least complicated subassembly in the entire project, and yet may well be the most critical. Such a large expanse of ash is bound to attract admiring — and critical — glances. Begin making the top (piece 31) by selecting your very best ash boards: any width from 3" to 6" is acceptable. After jointing them, alternate their grain (one crown up, the next down) as you edge glue the boards to make a panel. If you don't have access to a wide belt sander, a local cabinet shop will sand the panel for a small fee after the glue dries. Trim the top to size, but keep it as a rectangle for now. Next, glue and clamp the walnut accents (pieces 32 and 33) in place, mitering the corners. Note the unusual orientation of piece 33 on each end. This keeps expansion and

contraction issues to a minimum. Cut and fit the back spacer (piece 34) and glue it in place. After the glue has cured, use the original bending form as a template to lay out the curve on the front edge of the dresser top. Band saw close to the curved edge, and clean it up with your belt sander.

Switch to a chamfering bit to create the relief along the bottom edge of the top: the walnut lends an elegant effect to the dresser top when it's trimmed back in this manner. Work across the grain first, and then along it.

The Drawers

Eight of these drawers have curved fronts, while the four drawers in the middle stack are pretty standard fare. Let's begin with the center ones. All of these grooves, rabbets and dados can be milled on the table saw with a dado head set to the correct width. See the *Pinup* for their complete *Elevations*.

All four middle drawers are constructed in exactly the same manner: only their heights differ. Cut the sides (pieces 35 through 37) to size, then plow a groove on the outside of each for the drawer slide. Follow up with a groove along the inside for the drawer bottom, and two dados across the inside for the drawer back and front.

The backs (pieces 38, 39 and 40) require a 1/4" groove for the drawer bottoms. Plow this same groove in the drawer fronts (pieces 41, 42 and 43), then rabbet each end of each drawer front. Cut the drawer bottoms (pieces 44) to size, then assemble the drawers with glue and clamps. Don't glue the bottoms in their grooves: they should be free to move a little, to accommodate changes in humidity. After the glue dries, remove your clamps and slide each drawer into its opening to make sure it's a good fit, before you make and mount the drawer faces (pieces 45, 46 and 47). The grain on the faces runs vertically, so cross cut a single piece of ash plywood to yield all four faces. This will give you continuous grain from top to bottom. Glue solid ash tape (piece 48) to the vertical edges of each drawer face and let this dry while you make the drawer pulls.



The finger pulls on the curved drawer handles are plowed on the router table with a core box bit. The author uses a rounded "point fence" to get an extra measure of control as he moves the curved piece across the router table.

The Pulls

All four drawer pulls (pieces 49) can be cut from a single length of molding. Rip 60" of 1/2" solid ash to a width of 1 3/4", then use a bullnose bit to round over the front edges. Next, chuck a 5/16" radius core box bit in your router and

plow the finger groove in the bottom of the molding. Sand to 220 grit and cross cut the molding to make the four pulls. Install them with glue and counterbored screws. Plug the borings with ash plugs (pieces 50) made on your drill press with a plug cutter.

Bowfront Drawers with Bendable Plywood

The bowed drawers are constructed in exactly the same manner as the middle drawers, except that the fronts and faces are bowed. Note that eight of the sides (pieces 51, 52 and 53) are shorter than the other eight (pieces 54, 55 and 56). You should also keep in mind that you're making two stacks of drawers that are mirror images of each other, so mark pieces as you go.

Cut all eight drawer backs (pieces 57, 58 and 59) to size. Then use your original bending form to lay out the curve for the drawer fronts and faces (pieces 60 through 65). You'll need to build a new bending form for the drawers, as they're taller than the original arch. Make this form large enough to handle the bottom drawer (10 3/4" high) and it can be used for all eight.

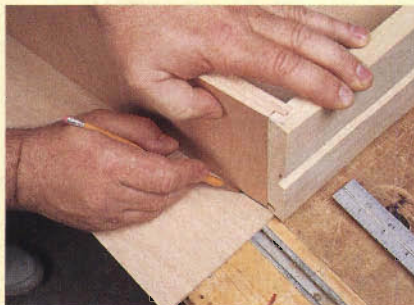
Make up each drawer front with three laminations of 1/4" bending ply, glued and clamped in place. It's a good idea to work with slightly oversized stock here, and trim it to final dimensions after the glue dries. See

Tricks for building curved drawers

Featuring curved fronts and sides of differing lengths, these drawers are not your typical cabinet fare.



After creating the drawer sides, Rick used an angled dado head (see *Pinup Drawings*) to form the dados for the fronts. Remember that you have to make right and left versions.



Fit the bottom to the curved fronts by tracing their curve and trimming to match. The curved fronts are glued up on pre-made jigs. You'll find Details and Elevations on the pull-out.



After a quick belt sanding to extend the gentle curve of the drawer front through the corner joints, Rick turned to the table saw to form the notches that accept the curved drawer pulls.

the steps in the photos below and on the *Pinup* to accommodate the curved drawer construction.

Mill the dados for the backs and the grooves for the drawer bottoms (pieces 66) with the dado head reset to 90°, then cut the bottoms to size and shape on the table saw and band saw. Assemble the drawers, making sure they're square. Test fit each in its cavity after the glue dries.

Use two laminations of bending ply and one of ash veneered plywood to make the curved drawer faces. Trim the edges with hardwood tape (piece 67), and you're ready to make the pulls (pieces 68). These are created in exactly the same fashion as the ones you made earlier for the middle drawers, except that they are curved. Band saw them to shape, bullnose the front edges, plow the finger groove with a core box bit and secure them with glue and plugged screws.

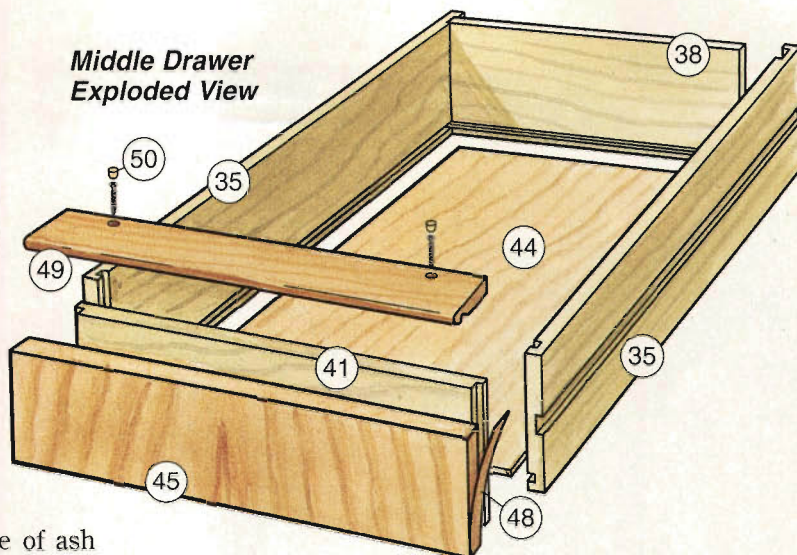
The Drawer Stops and Back

This is one piece of furniture where lining up the drawers is easy. You'll want each drawer front to line up perfectly with the face frame of the dresser, and all you have to do to achieve this is to pop them into their openings, line them up, and then go around back and put a pencil mark on the slide at the back of each drawer. Then you can glue and screw stops (pieces 69) in place to limit each drawer's travel.

With the stops in place, cut the bureau back (piece 70) to size, then secure it in place with brads every 6" or so around the edge and up along the back edges of the middle stack sides. Now install the adjustable middle support (piece 71), a slick little piece of hardware.

Slide the drawers into their various cavities and use

**Middle Drawer
Exploded View**



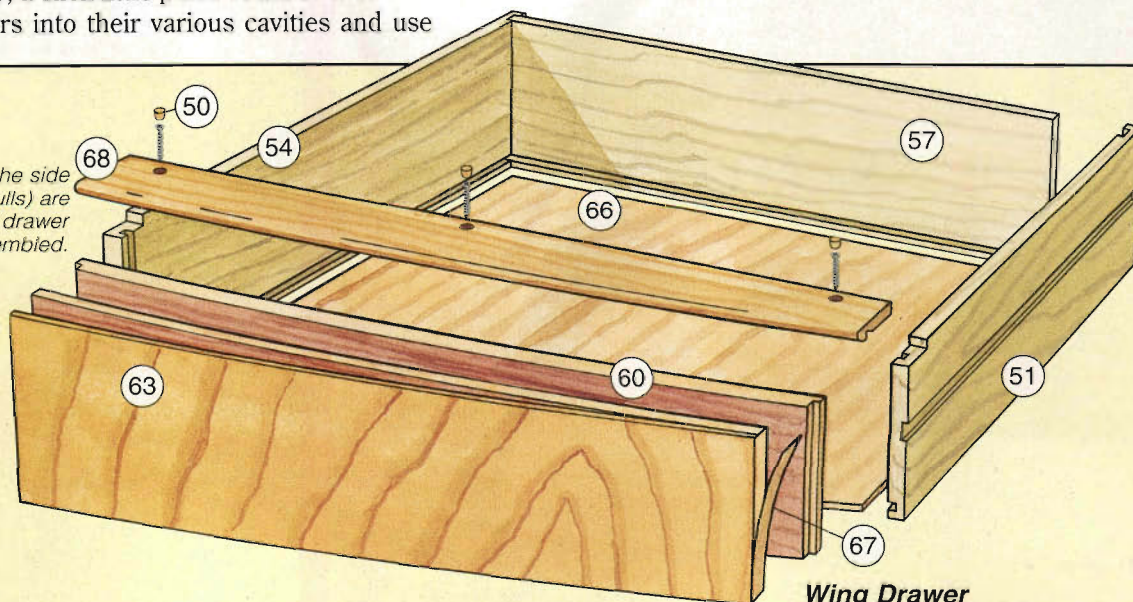
two-sided tape to line up the drawer faces in their openings. When you're satisfied with their fit, mark the locations with a pencil, remove the tape and secure the faces with countersunk screws driven through the inside of the drawer fronts.

Final Thoughts

Sand the entire dresser, including the mirror frame, to 220 grit, then apply several coats of oil finish according to the manufacturer's instructions. After the finish dries, move the dresser to its new home before you mount the mirror. This can be done with two braces (pieces 72), coupled with 3/4" dowels (pieces 73). The braces are screwed into the mirror and the base and the dowels locate and secure the mirror posts on the top. Use glazier's mastic to secure the mirror to the mirror back. Now all that's left is to justify to your wife why you need the majority of the drawers — a battle that I personally lost before it ever really began ...

The notches on the side pieces (for the pulls) are not cut until the drawer boxes are assembled.

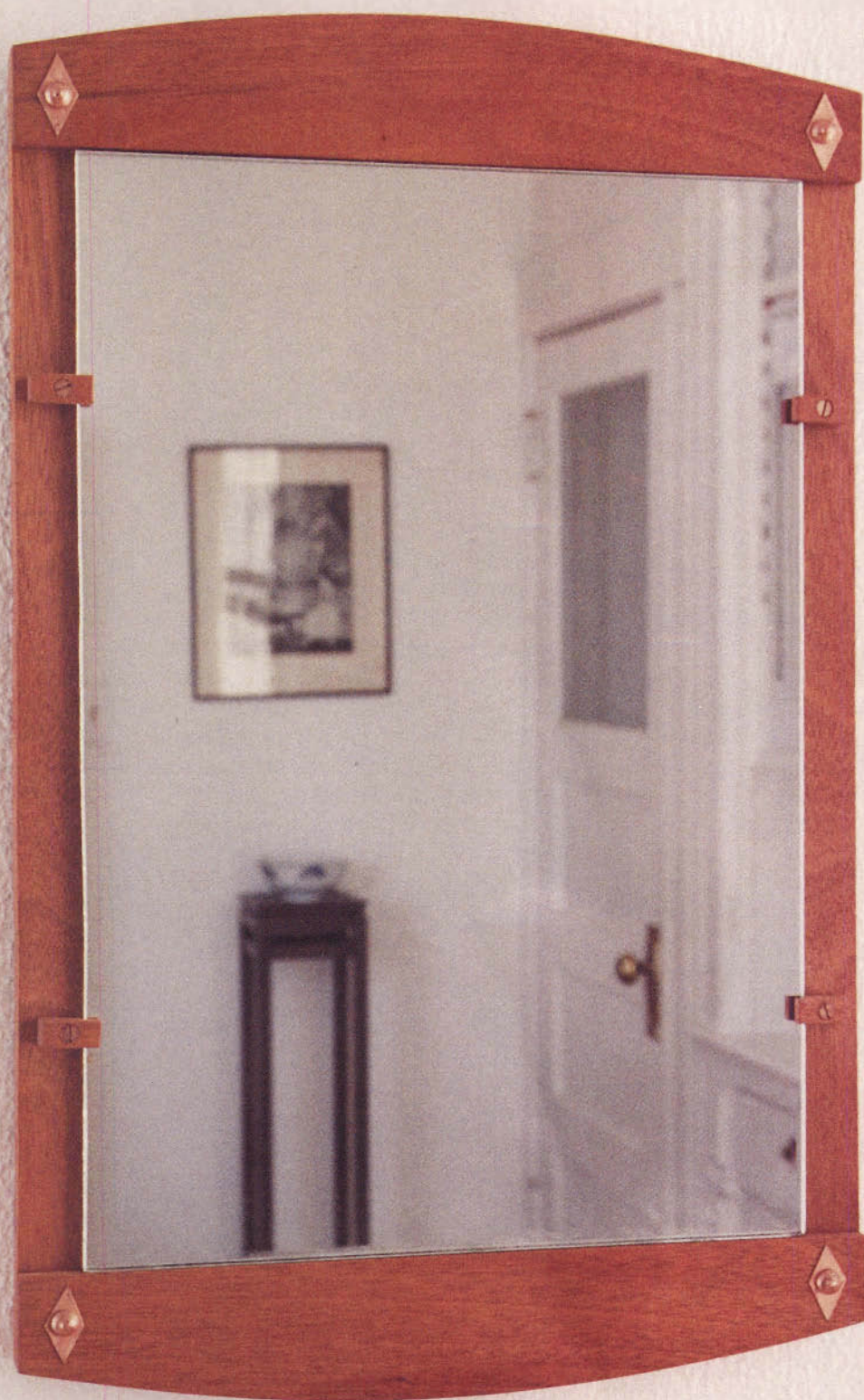
Bendable plywood is key to the construction of these curved drawers.



**Wing Drawer
Exploded View**

A Hall Mirror for Beginners

By Simon Watts



"MIRROR, MIRROR ON THE WALL ..."

This mirror differs from the usual run because the glass is actually mounted on the surface of the frame instead of being set in a groove or rabbet. This means you don't have to miter the corners of the frame at 45° — often a sore trial for the novice woodworker.



The author used lap-jointed corners secured with copper nails and set off by decorative copper diamonds, materials he had at hand.

Instead, the glass is held in place by small, L-shaped wooden retainers fastened to the sides with brass screws. As a result, this is a great project for beginners ... it looks good and can be completed in a weekend with simple hand tools.

This beautiful hall mirror proves that "simple" doesn't have to mean "without style."

Choosing the Shape and Size

The first step in this project is to decide where it's going to end up. Measure your space and then decide on the overall size of your mirror. A square frame is one possibility, but if you go for a rectangular frame, I suggest making the width about two thirds of the length.

I also strongly suggest using 1/4" plate glass, not the thinner variety, because it's dead flat and thus a more faithful reflector. Have the glass cut to size and all four edges polished smooth. To prevent moisture from being absorbed and marring the reflective surface, be sure to carefully seal all four edges with clear nail polish or lacquer.

The frame shown here is made of 3/4" mahogany salvaged from an old boat. I prefer the darker woods like walnut — because they define the glass better.

Cut the four lap joints on the stiles and rails (pieces 1 and 2) as shown in the drawings (see the *Pinup Shop Drawings* at the center of the magazine), making a 1/4" offset to match the thickness of the glass (piece 3). I'm in the habit of cutting small joints like this by hand, since I have no power tools in my San Francisco apartment, but if you have access to a shop, these lap joints are readily cut on a table saw.

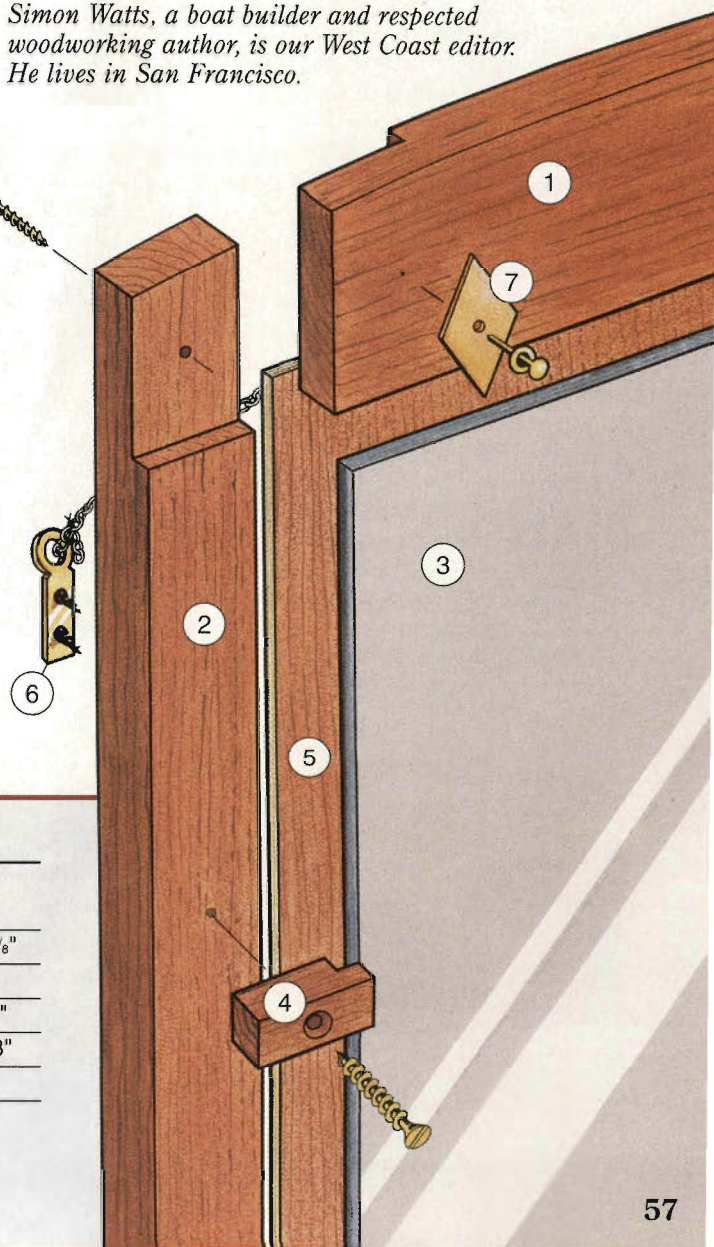
Fastening the Corners

I fastened the four corners with rivets — copper nails peened over saucer-shaped copper washers — and cut the decorative diamonds out of a copper sheet: materials that, as a boat builder, I had handy. If you lack these nautical supplies, you can either come up with a different motif or simply glue the lap joints with Titebond® or the equivalent and countersink a small screw from the back. Shape the gentle curve of the rails after you've joined the frame. Next, form the retainers (pieces 4) out of the same wood as the frame, using a fine-cutting hand saw.

It's not strictly necessary to put a back (piece 5) on this frame, but it makes for a more finished job and protects the back of the reflecting surface from being accidentally scratched. I used 1/8" plywood and countersunk 1/2" long, #6 brass screws so they wouldn't mar the wall. For a clear finish I turned to marine varnish — it's tough and formulated to resist moist conditions.

Finally, having come this far, be sure to use quality strap hangers (pieces 6), available at hardware stores, to properly support the weight of the mirror.

Simon Watts, a boat builder and respected woodworking author, is our West Coast editor. He lives in San Francisco.



MATERIAL LIST

	T x W x L
1 Rails (2)	3/4" x 2 1/2" x 14"
2 Stiles (2)	3/4" x 1 1/2" x 19 3/8"
3 Mirror (1)	1/4" Cut to fit
4 Retainers (4)	1/2" x 3/8" x 7/8"
5 Back (1)	1/8" x 13 1/2" x 18"
6 Strap Hangers (2)	Steel
7 Decorative Accents (4)	Optional

Container Basics ... How to Pour and Store

By Michael Dresdner

Sometimes it seems like the biggest problem in finishing is not the finish itself, but the can it came in. Hardened paint or varnish fills the rim of round cans, preventing the lid from fitting properly. Soon air gets in and dries out the finish. You try hammering the lid on, only to watch it cup out of shape — another obstacle to proper fit. Cans with small openings create a different problem. They have no rims, but “glug” when you pour, resulting in a mess and wasted finish. Take heart: here are a few tips on how to pour, store and more about maintaining control of the cans around your shop.

Splash-free, “Glug”-free Pouring

Many paint remover labels tell you to shake the can before you open it. That shaking often results in harsh stripper spurting out when you screw open the lid. To prevent that, lay a cloth over the lid before you remove the cap and you won't find harsh stripper on your skin.

Now, to pour smoothly without the “glug-glug” that creates a mess. Hold the can sideways with the hole angled toward the top and tip it just enough so the liquid pours out of only half the opening. That way, air can get in as the material pours out, and it won't go “glug-glug!”



To prevent harsh chemicals from spurting out (especially after shaking), always lay a cloth over the lid before removing the cap.

Large Cans

Rectangular five-gallon square containers are difficult to control, especially when they are full, because they are heavy as well as awkward. Try this technique.

Position the five-gallon can on your workbench with the pour hole away from you. That way, when you tip the can toward you, the pour hole will be at the top. Leave the cap on, and tip the can onto its side with the front edge propped up on a short board or block. The lid will be at the highest point on the angled can with its spout just above the top of the liquid inside. Now remove the cap and set it aside. Lift the front of the can and remove the support board. Hold your bowl or container below the pour spout

and lower the front of the can until liquid just starts to pour out. Pour slowly, allowing air into the top of the hole as the liquid flows from the bottom half. Next, lift the can to stop the flow, set down the bowl, and screw the cap back on before you return the can to its upright position. Jerking an uncapped can back into vertical position will often result in liquid splashing out the uncapped hole.

Round five-gallon cans are even easier to handle. As before, lay the can over onto a low support board. Remove the cap, place your bowl under the pour spout, and simply roll the can. As you roll it, the spout will move from the top, 12 o'clock position toward 1 o'clock, 2 o'clock, and so on. Roll it only until liquid starts to



To avoid a “glug-glug” mess, position a rectangular can with the pour hole on top. Tip the can just enough so that the liquid only pours out through half of the opening.

Just say no to shoddy can habits. Learn how to avoid the embarrassment of poorly handled cans.





Tilt large round cans on a piece of wood with the opening higher than the liquid. Roll the can on the support until the material flows.

pour. Make sure liquid is taking up only half the opening, so air can flow in the top half. When you have poured enough, roll the can back so the hole is at 12 o'clock. Again, replace the lid before you right the can. If the can is three quarters full or less, you won't need the support board. Simply lay the can on its side with the spout at 12 o'clock.

Round Paint Cans

Those ubiquitous round cans that contain paint, varnish, lacquer and shellac have the most pouring options. They are light enough to lift, and the whole lid comes off. Pouring is easy to do, but not so easy to control. More often than not, the recessed rim fills with finish, making it impossible to securely restore the lid.

Open a full can of latex paint and the problem is immediately apparent; it's too full. With paint up to the rim, there is no way to start pouring without an uncontrollable cascade of paint. That's OK if you are transferring it into a large mouth bucket, but it's a problem if you want to put a small amount of paint into a hand-held tray. Rather than tempt fate, ladle out some of the paint first. Once some of the paint is removed, it will be easier to pour with control.

continues on page 60 ...

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Paint cans are just too full! Ladling the top couple of inches of paint out of your can at first will make pouring more manageable.

Gizmos to the Rescue

Like new toys? There are several clever accessories you can buy that make pouring paint easier and cleaner. They are all designed to solve the problem of paint filling the recess in the rim. Paint in the rim makes it almost impossible to reseal the lid properly, and will cause stored paint to harden in the can. One sort works by snapping into the rim of the can, and the other type slides inside of the paint can opening. They work, and are made of plastic to clean up easily.

If you find yourself ready to work, but have no helpful gizmos at hand, don't despair. Just reach for what Red Green calls "the handyman's secret weapon: duct tape." Use duct tape to seal and bridge the rim before you pour, and remove it to re-seal the lid. Pour toward the front of the can since it's better to let the front of the label get obscured with paint drips, and keep the back label clean. That's where all the important info is, like drying time, cleanup directions, coverage, and so on.



Holes In the Rim

For thin materials, you can bypass the pouring aids and simply punch holes in the rim. Take a sharp slot head screwdriver and set it into the bottom of the rim recess. Strike it with a mallet to create a series of elongated holes all around the rim. But be careful to aim straight down; if the screwdriver is at an angle this process can easily tip over a full can of finish. Now when you're done pouring, you will notice the thin clear finish will run back down through the holes into the container.

Replacing the Lid

There's a right way and a wrong way to replace the lid, too. Hitting the center of the lid (the wrong way) will cause it to distort into a concave shape which will no longer fit securely into the rim. The right way is to lay the lid over the can. If there is any finish in the rim that might squirt out, cover the lid with a cloth. With the heel of your hand, push down on the rim itself, not the center of the lid, "walking" your way around the rim until it is securely seated. If you need to tap it with a hammer or mallet, strike it square on the edge of the rim, going completely around the edge tapping lightly until the lid is seated.

Save that Varnish

Of course, even a tight fitting lid will not prevent oil varnish from skinning over. That's caused by the air space, called "head space," in the can left after some of the finish was removed. Once again, there is a product to the rescue. Called "BLOxygen[®]," it is a can

There are a variety of pouring aids on the market. They all add control when pouring and keep rims clear of paint.



Slotted holes in the rim will allow thin liquid, like oil stain, to flow back through. Punch the holes with a sharp screwdriver.

of compressed oxygen-free gas. Spray it into the can before you close the lid and it will prevent the oil from forming a skin. A cheaper (and messier) approach is to lay a piece of sandwich wrap directly on the surface of the varnish before you close the lid. It will form a barrier that keeps the air and liquid separate.

Disposing of Old Cans

OK, so now you know how to handle cans properly, but what do you do when it's time to get rid of them. If you have old solvents, paint, varnish or other coatings that you don't want, do not throw them in the trash. That's illegal in this country. Call your local recycling center and they will tell you how to find the closest hazardous material drop off site.

If there's only a little bit of paint or varnish left in the can, brush it out onto scrap wood or cardboard. Once it is dry it's landfill safe. When solvent cans are empty, leave the lid off and let any residue evaporate. Once they are dry, clean steel cans from solvent can be recycled. Do the same with empty paint and coating cans. The remnants sticking to the sides and bottom will dry if the lid is left off. Once dry, the can is landfill safe and can go out with the trash.

Michael Dresdner is a nationally known finishing expert, professional woodworker and a contributing editor with the Woodworker's Journal.

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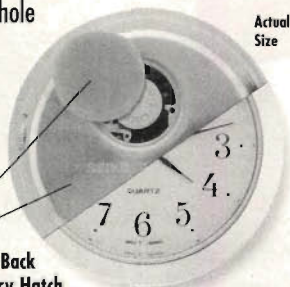
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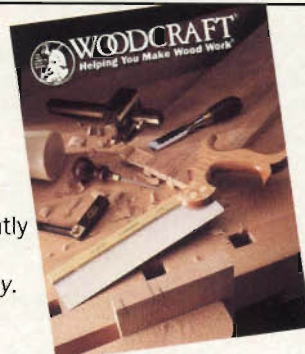
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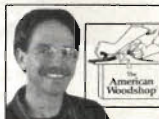
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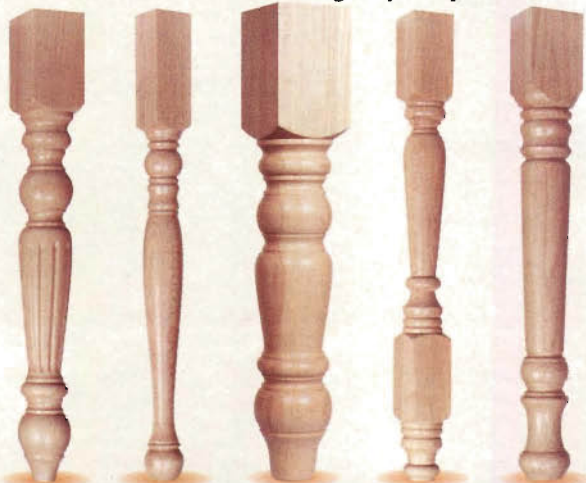
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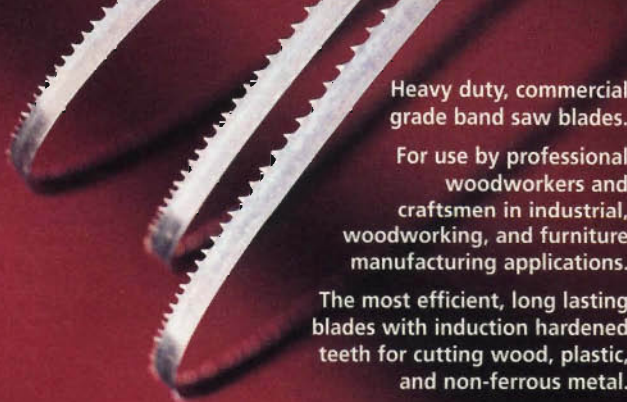
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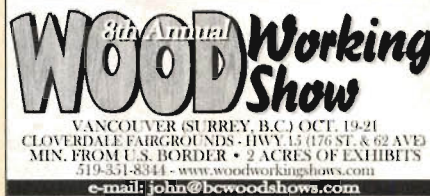
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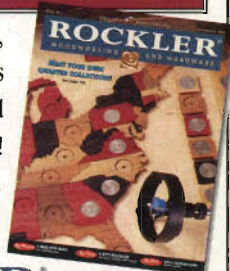
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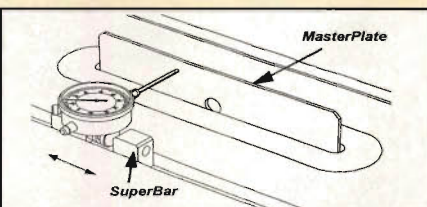
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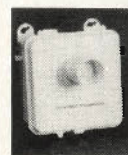
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Woodworking's Top 40

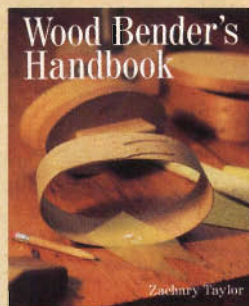
By Joanna Werch Takes

Woodworking is a craft that produces classics: in tools, in furniture – and in books. Over the past 25 years (a rough time frame for the current renaissance), we've noted several with remarkable staying power. Our first annual reading guide rounds up the very best of them. In coming years, we'll narrow our examination to newly published books, and perhaps discover a new classic among them.

WEB SOURCES

Surf the web to one of the following sites for some great summer reading!

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lindenpub.com
lyonspress.com
rockler.com
sterlingpub.com
taunton.com

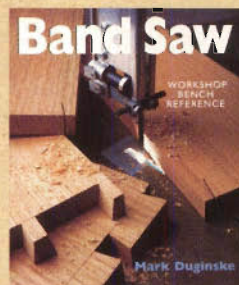


Wood Bender's Handbook

By Zachary Taylor

Sterling Publishing; ISBN-0806997028

Mr. Taylor teaches you cold- and hot-bending techniques like dry lamination, kerf and hot pipe bending. He also helps you choose wood species to bend and figure out which is best for your project.



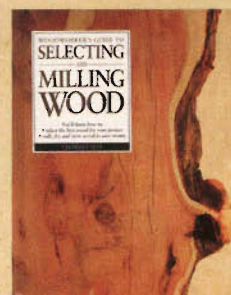
Band Saw Workshop Bench Reference

By Mark Duginske

Sterling Publishing;

ISBN-0806906804

This shop reference book is spiral-bound to lie flat when you consult it. Tabs mark sections on alignment procedures, cutting, safety techniques and almost anything else you need to know about your band saw.

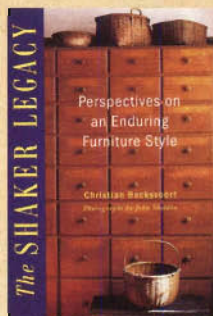


Woodworker's Guide to Selecting & Milling Wood

By Charles Self

Betterway Books; ISBN-155870339X

This book will thoroughly acquaint you with the world of wood. Photos identify popular soft- and hardwoods, and the author offers insights for finding and felling wood, then machining it so it's ready to use.

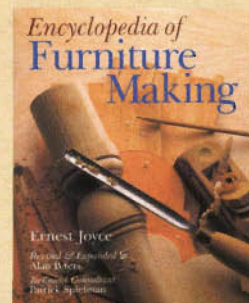


The Shaker Legacy

By Christian Becksvoort

Taunton Press; ISBN-156158357X

Christian Becksvoort brings a woodworker's perspective to the analysis of 140 furniture pieces crafted in the Shaker communities. He discusses distinctive elements of Shaker design, delving into construction details, woods, hardware and finishes.

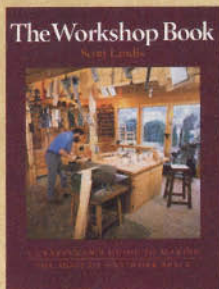


Encyclopedia of Furniture Making

By Ernest Joyce

Sterling Publishing; ISBN-0806971428

The basics of woodworking, plus workshop geometry, draftsmanship, and metal fasteners. There's even a section on church furniture.

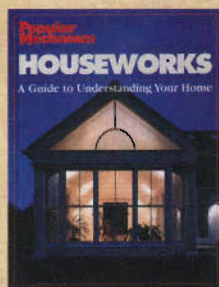


The Workshop Book

By Scott Landis

Taunton Press; ISBN-1561582719

In addition to shop layouts for basements and garages, the author also provides advice on shop storage, insulation, wiring and lighting, as well as dust collection and general safety rules.



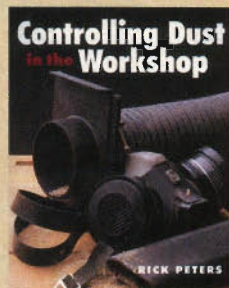
Houseworks: A Guide to Understanding Your Home

By Popular Mechanics

Cowles Creative Publishing;

ISBN-0865737525

A book intended for first-time homeowners and even experienced do-it-yourselfers. You'll learn how each system in your house works — whether it's the framing, trim and doors, or the plumbing and heating.



Controlling Dust in the Workshop

By Rick Peters

Sterling Publishing; ISBN-0806936894

Anything you want to know about dust, from the risks associated with it to troubleshooting various collection devices, is in this book. You'll learn about devices ranging from masks to cyclones, and you'll find out how to select, design, install or make the controller that best fits your needs.

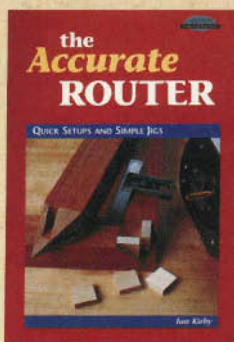


Restoring Antique Tools

By Herbert P. Kean

Astragal Press; ISBN-1879335980

If you would like to get your grandfather's tools in working order again, this is the book for you. Instructions cover cleaning materials like wood, ivory and iron; fixing cast iron chips and cracks; and filling nail holes. The book is divided into sections focusing on several common tool types.

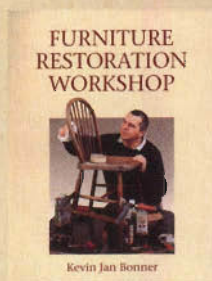


The Accurate Router

By Ian Kirby

Cambium Books; ISBN-0964399970

Ian Kirby, trained in the British Arts and Crafts tradition, takes on one of the most popular power tools. His explanations cover choosing the right router, building jigs as well as routing a variety of popular joints.



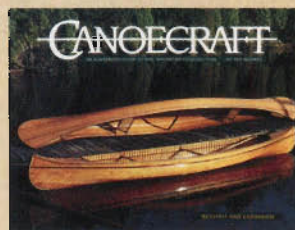
Furniture Restoration Workshop

By Kevin Jan Bonner

Guild of Master Craftsmen

Publications; ISBN-1861080484

Unfortunate pieces of furniture get new life through Bonner's instruction, presented through case histories ranging from a turned bowl which needs a food-safe finish to a dinner table that needs a veneer repair.

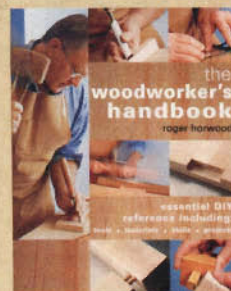


Canoeecraft: An Illustrated Guide to Fine Woodstrip Construction

By Ted Moores

Firefly Books; ISBN-1552093425

Canoeecraft speaks to the not-so-hidden desire of many woodworkers to build a boat. Incorporating new resins and tools, along with classic details on cedarstrip canoes and making your own paddle, this book will give you a gentle push off toward your own canoe project.



The Woodworker's Handbook

By Roger Horwood

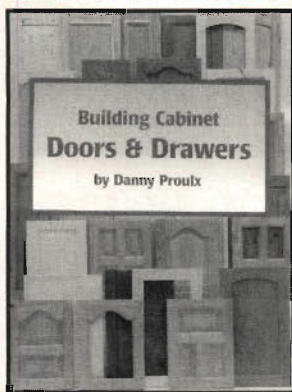
New Holland Publishers;

ISBN-1859740790

Full of comparison charts and illustrations, this book starts with a discussion of felling a tree and concludes with a series of projects covering many of the techniques discussed. A section on ergonomic concerns is also useful for woodworkers creating their own furniture.

Continues on page 68 ...

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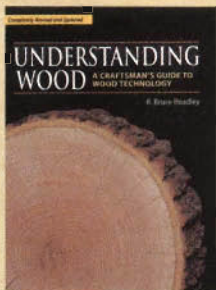
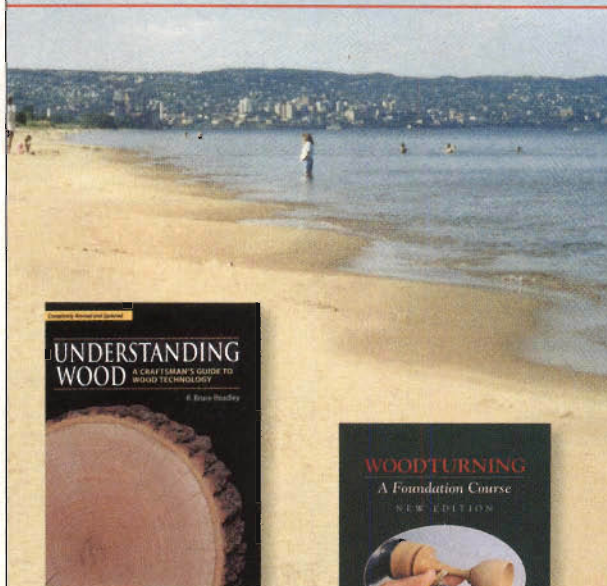
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SUMMER READING

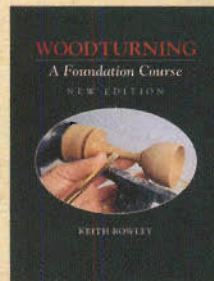


Understanding Wood: A Craftsman's Guide to Wood Technology

By Bruce Hoadley

Taunton Press; ISBN-1561583588

This revised and updated version of the classic wood reference book now includes a section on engineered wood and a discussion of buying wood on the Internet. Color photos and new species enhance the wood identification gallery.



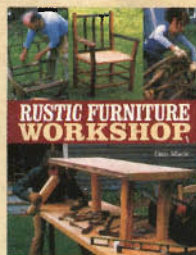
Woodturning: A Foundation Course

By Keith Rowley

Guild of Master Craftsman

Publications; ISBN-1861081146

Starting with a discussion of lumber that leads to an understanding of a tree's structure, this ideal introductory book for a beginning turner — and a handy refresher for others — moves on to the lathe, fundamentals of techniques, safety and more.

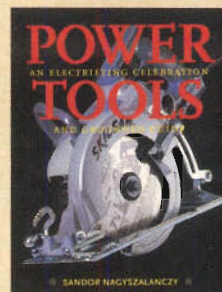


Rustic Furniture Workshop

By Dan Mack

Lark Books; ISBN-1579900860

Dan Mack is one of the preeminent practitioners of rustic furniture making, a technique which uses sticks, twigs and other found wood to create furniture and other pieces. He discusses materials, techniques and tools, while sharing his own recent works and the advanced work of several students from his classes.



Power Tools: An Electrifying Celebration and Grounded Guide

by Sandor Nagyszalanczy

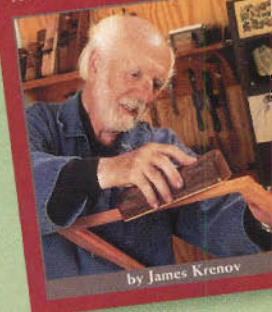
Taunton Press; ISBN-1561584274

Explorations of the engineering behind tool designs, accessories for enhancing usefulness and cutaway drawings that reveal their inner workings. Covering over 200 tools.

A Lifetime of Furniture Making

The Impractical Cabinetmaker

Krenov on Composing, Making and Detailing



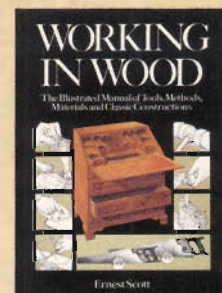
The Impractical Cabinetmaker

By James Krenov

Linden Publishing;

ISBN-0941936511

The master woodworker talks about how his own woodworking came to be and the value of "impractical" woodworking — where craft is more important than business. Among the topics in this classic are logic, composing designs and "wood butchers."



Working in Wood: An Introduction

By Jack Hill and Ernest Scott

Lyons Press; ISBN-1585742198

In this new edition of the old standby, Jack Hill continues to present the valuable information compiled by the late Ernest Scott — from classic furniture like the drawleaf table and the Windsor chair to what your tool kit should contain.

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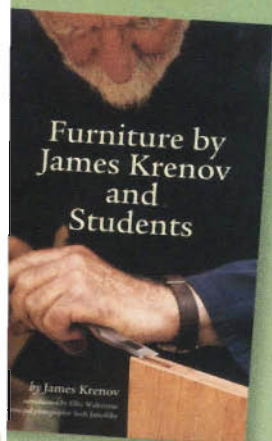
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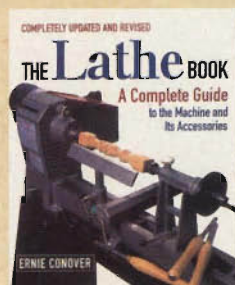
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With Wakened Hands: Furniture by James Krenov and Students

By James Krenov
Cambium Books;
ISBN-1892836068

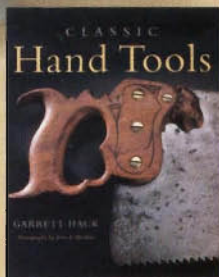
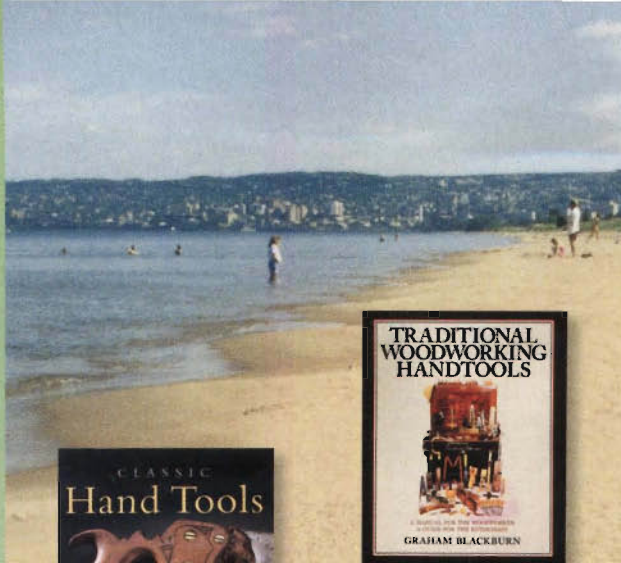
The College of the Redwoods founder shares more of his own furniture philosophies, as well as insights gleaned from woodworkers who have been his students, and photographs of his own and his students' work.



The Lathe Book: A Complete Guide to the Machine and Its Accessories

By Ernie Conover
Taunton Press; ISBN-1561584169

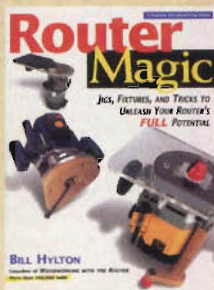
In this new and updated edition of his book, author Ernie Conover, co-designer of the Conover Lathe, teaches how to choose a lathe, how to select tools and accessories, how to maintain and repair the machine and basic techniques.



Classic Hand Tools

By Garrett Hack
Taunton Press; ISBN-1561582735

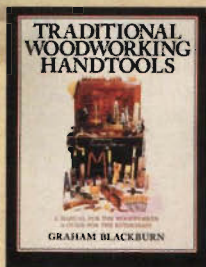
A tribute to the history, function and enduring influence of hand tools. This book covers the purpose of hand tools, how to use them and how to care for them. It's sprinkled with woodworking advice, historical facts on woodworking and tips on buying used hand tools.



Router Magic: Jigs, Fixtures and Tricks to Unleash Your Router's Full Potential

By Bill Hylton
Reader's Digest Books;
ISBN-0762101857

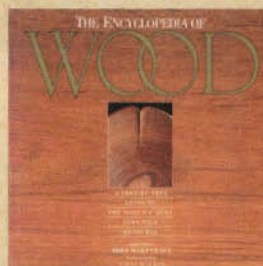
Woodworkers know that the router is one of the most exciting tools in the shop, and this book from an expert lets you in on the secrets that allow you to work magic, whether you're dadoing, boring, or mortising.



Traditional Woodworking Handtools

By Graham Blackburn
Lyons Press; ISBN-1558218742

This book, filled with the author's illustrations, explains the whys and wherefores behind tools like clamps, chisels, scrapers and spokeshaves, while also giving detailed explanations of how to use them. A large section of the book is devoted to the history and varieties of planes.



Encyclopedia of Wood: A Tree-by-Tree Guide to the World's Most Valuable Resource

By William Lincoln
Facts on File; ISBN-0816021597

Over 400 color illustrations covering more than 100 species of wood. Identification tips, growth regions and working characteristics are among the information you'll learn, along with interesting myths associated with different species.

Continues on page 70...

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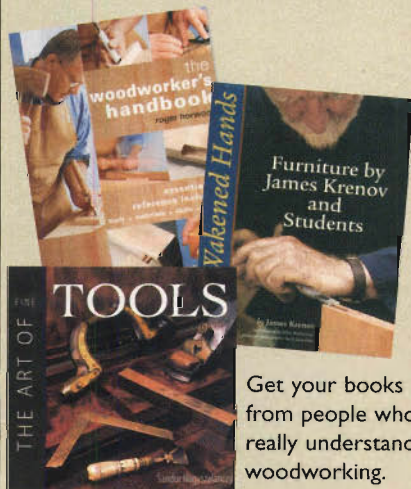
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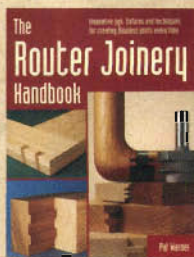
SUMMER READING



The Complete Manual of Woodworking

By Albert Jackson, David Day and Simon Jennings

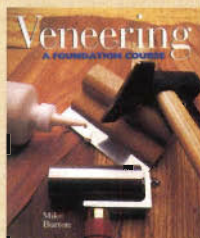
Knopf; ISBN-039456488X
More than 1,800 drawings, diagrams and photos guide you through choosing and using tools; setting up a workshop; and woodworking techniques, ranging from laminating to joining to finishing.



The Router Joinery Handbook

By Pat Warner
Betterway Books;
ISBN-1558704442

Instructions for cutting a variety of joints with a router, as well as a discussion of useful commercial jigs.



Veneering: A Foundation Course

By Mike Burton
Sterling Publishing; ISBN-0806928557
From preparation to finishing, with coverage of substrates, adhesives, veneer saws and flattening with steam, this book walks you through using veneer.

Tage Frid Teaches Woodworking

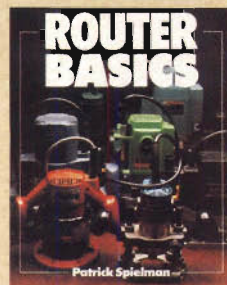
Book 2: Furnituremaking

A master craftsman explains 10 of the finest designs with complete plan drawings and photographs.



Tage Frid Teaches Woodworking: Furniture Making

By Tage Frid
Taunton Press; ISBN-091880440X
Eighteen projects from a master woodworker, with discussions of how he designed them, along with the instructions and working drawings. The photo gallery spans 30 years of Tage's own work.



Router Basics

By Patrick Spielman
Sterling Publishing;
ISBN-080697222X

The early pages of this book include a useful glossary of bit types and a list of safety rules. The remainder follows up with well-photographed instructions on how to make various cuts — straight, arcs, freehand routing — and includes instructions for a practical application for each of them.



One Good Turn: A Natural History of the Screwdriver and the Screw

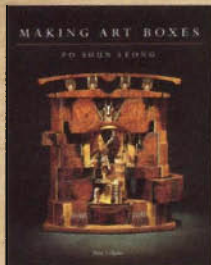
By Witold Rybczynski
Scribner; ISBN-068486729X
This book traces the history of the screwdriver — one of the most recent hand tool inventions — and the screw almost in the style of a mystery novel.

First Annual WoodScribe Award

Sam Maloof, Woodworker

By Sam Maloof
Kodansha; ISBN-0870119109

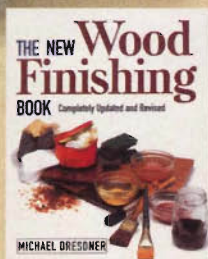
In compiling this reading list, *Woodworker's Journal* looked for input from woodworking experts in-house and out. One book stood out as the best candidate for our first annual WoodScribe Award: Incorporating his personal history as a son of Lebanese immigrants, his



Making Art Boxes

By Po Shun Leong
Sterling Publishing;
ISBN-0806979550

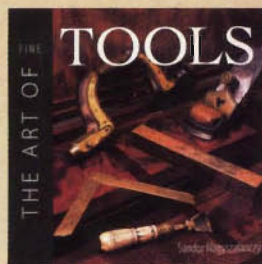
Po Shun Leong's boxes are intricately detailed designs incorporating cogs, wheels and towers. They'll amaze — and inspire — you.



The New Wood Finishing Book

By Michael Dresdner
Taunton Press; ISBN-1561582999

This compilation of wisdom from regular *Woodworker's Journal* contributor Michael Dresdner is the basic primer most of us need when it comes to finishing. Michael knows what a finish is, how it works, and how to apply it so you get the look you want. One of the most useful woodworking based books in print.



The Art of Fine Tools

By Sandor Nagyszalanczy
Taunton Press; ISBN-1561583618

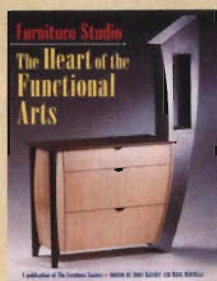
A documentation of the artistry, intricacy and ingenuity found in the world's best hand tools. The author presents the history of each piece — its origin, maker, construction details and uses — while tracing the variety, versatility and evolution of woodworking tools.



Custom Guitars: A Complete Guide to Contemporary Handcrafted Guitars

String Letter Publishing;
ISBN-1890490296

Custom Guitars is a documentation of the current golden age of lutherie — a time of innovation in design and accomplishment in guitar construction.



Furniture Studio: The Heart of the Functional Arts

Edited by John Kelsey
& Rick Mastelli

The Furniture Society;
ISBN-0967100402

An exploration of studio furniture from the organization dedicated to advancing the art of furniture making. The book includes a photo gallery of Society members' work and also talks about changes in furniture making and how literature can be the inspiration for design.

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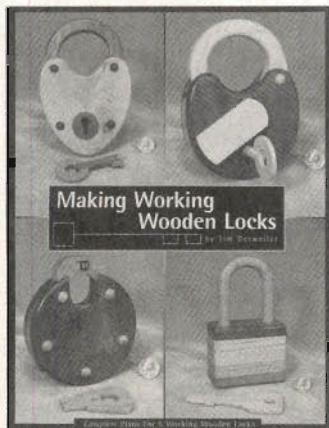
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Grizzly's G7944 Drill Press

By Charles Self

Originally reviewed in our October 1999 issue, the Grizzly G7944 drill press remained in service and under scrutiny. Charles Self, our regular tool tester, put Grizzly's drill press through an extended trial and here recommends the tool as one of the Journal's "Tools that Endure."

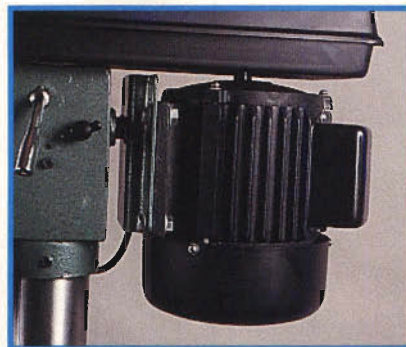
Grizzly calls the G7944 14" drill press a mainstay for a shop, and they're right. I added the tool to my shop almost two years ago, and have found it to be a superb combination of working qualities and ease of use, with surprising accuracy.

The G7944 is a 12-speed, with a low bottom rpm, about which I said in the original test, "the 12-speeds start at a lower-than-low 140 rpm, which is absolutely wonderful for very large Forstner bits and some fly and circle cutters." No debates are possible there. Using a circle cutter is as close to being a pleasure with this drill press as is possible. Two inch and larger Forstner bits work beautifully at the second lowest speed, 260 rpm, and clock face bits can use the low end 140 rpm. For those unfamiliar with the results of using larger Forstner bits at high speeds, the bits are ruined. For those considering circle and fly cutters, slow is also good, because the slower cut is easier on both the bit and the drill press.

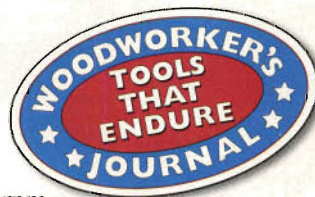
Grizzly's G7944 has a 16mm chuck, which equates to 5/8". The 1720 rpm motor draws nine amperes, and it is TEFC (totally enclosed, fan cooled), another surprise for this type of tool in this price range. Considering the price (\$199.95 plus \$48 shipping) of this Grizzly, the runout is amazingly low at .00375". My original expectation was that runout would be about double what actually showed up. In fact, I've found that moderate use hasn't changed runout a whit.

Soft orange material is used for the handle covers on the G7944, and adds a great deal to ease and comfort in use. The table is the square metalworking style. You might expect a straight column and hand lifting of the table, but a rack and pinion geared lift for the table is used, all the better.

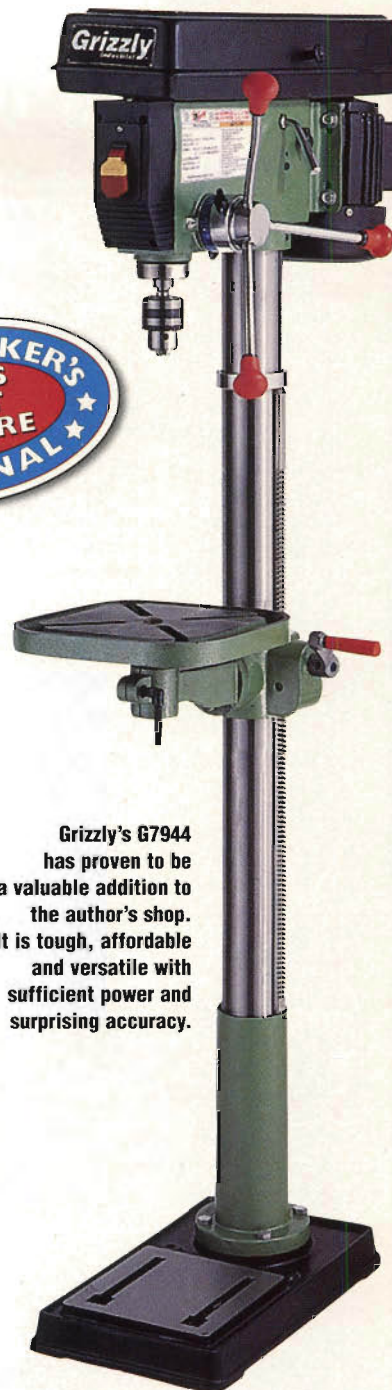
Spindle travel is 3 1/4". If you do a lot of lamp boring, this might be limiting, as might the smallish motor, but otherwise it is ample. Belt changes go quickly, and speeds are easily selected from the chart, another positive.



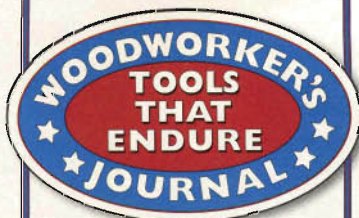
The finned, TEFC, 9 amp motor held up well over the two years the author has run this drill press through its paces.



Grizzly's G7944 has proven to be a valuable addition to the author's shop. It is tough, affordable and versatile with sufficient power and surprising accuracy.



Shipping weight is 172 pounds, and the tool probably stands up at a dozen pounds less. Like all drill presses, the G7944 benefits from being bolted to the floor. The entire unit is stabilized, accuracy is better, and you automatically quit worrying about tip-over, though the base on G7944 is a good size, 18" by 11". Table size is 11 3/8" square, and the table has slots and oil grooves for clamping and for metalworking.



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I've heard that newer versions of this drill press have a slightly better fit and finish, but where smooth and slick are needed, smooth and slick is what you get.

The chuck is very good, smooth acting with a strong grip and easy tightening. Overall height is 64", and the tool is 24" deep. As mentioned, there are a dozen speeds. I don't really know what the maximum drilling capacity is in wood, but I did run some 3" Forstner bits with no problem at all, using 140 rpm at first, and then 260 rpm as a check.

You get 90 degree table tilts in either direction, a very nice feature that even some of the more expensive drill presses don't offer. There's a built-in light, as well, which saves the money one would usually spend to purchase a magnetic after-market model.

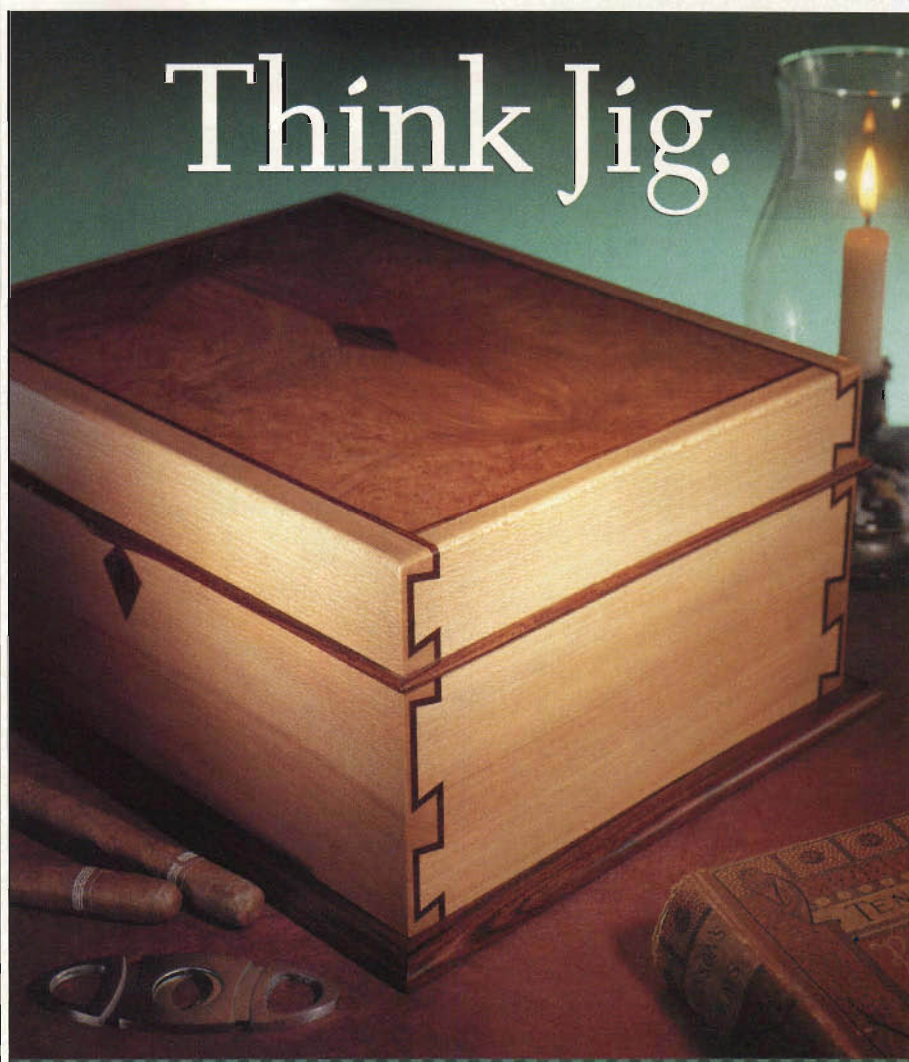
I can't think of a drill press that offers more features for the price, and one that would be more durable. This drill press is a great buy and a wonderful tool. For all of its features, its low price and its durability, *Woodworker's Journal* is proud to select the Grizzly G7944 as a "Tool that Endures."



Charles Self is an award winning author and tool tester for the Woodworker's Journal.

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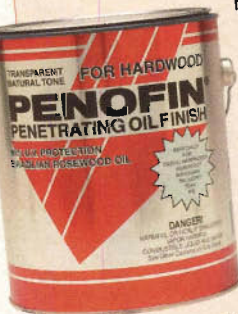
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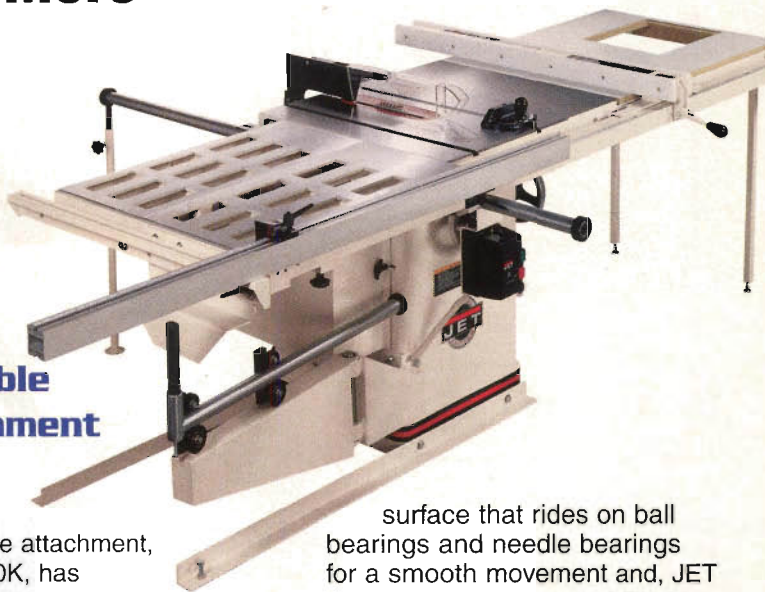
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JET Table Attachment



JET's new sliding table attachment, the 708110K, has a swing arm design that makes it easy to mount to table saws. The attachment fits all JET 10" and 12" Xactasaws™, as well as most other manufacturers' 10" closed cabinet table saws if you remove the left wing and cut the rail set even with the main table. With the attachment on the saw, you have a 6 1/4" x 80" table

surface that rides on ball bearings and needle bearings for a smooth movement and, JET says, offers you the capability to cross cut a 48" wide sheet of lumber by mounting the alignment fence on the backside of the table. The 708110K is adjustable for improving alignment. Weight of the unit is 179 pounds, retail price is \$699.99. For more information, call 800-274-6848 or visit their web site: www.jettools.com.

Increase in Cutting Capacity



With DeWalt's introduction of its DW703, 10" compound miter saws have gained the capacity to accurately cut 5 1/4" crown and base molding — an increase of 1/2" for crown molding and 3/4" for base molding from the current standard. Introduced at the 2001 Builders' Show, the DW703 cuts 50 degree left and right miter angles and has 48 degree bevel capability. It can

cut 4 x 4 material at 90 degrees and 2 x 6 material at a 45 degree bevel. Eleven positive stops are on the miter scale, which is made from a steel-on-steel detent plate and pin. The DW703 has a 15 amp, no load speed 5,000 rpm motor with an electric brake and a 5/8" to 1" arbor.

A machined one-piece arm is included for long-term blade accuracy — a 40-tooth carbide blade comes with the saw — and an ergonomic D-handle provides user comfort. The 33-pound DW703 has a suggested retail price of \$239. For more info, call 800-433-9258 or visit www.dewalt.com.



Save Your Fingers

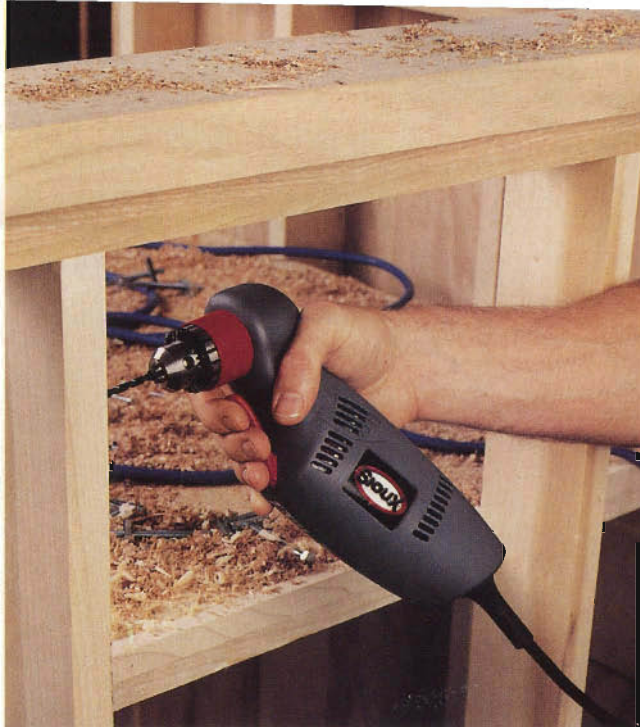
Vaughan and Bushnell's new Blue Max[®] California Framers is a hammer designed to hold the nail for you.



A magnetic nail-holding notch lets you start a nail without putting your thumb in harm's way. The notch can handle nail sizes up to 16D and 20D. The Blue Max comes in both straight and curved handle models and has an oversized striking face. Available in 19 and 23 ounce sizes, the Blue Max retails for about \$45. For more info, call 815-648-2446 or visit www.vaughanmfg.com.

Drill in Tight Places

The Z-handle on the new 8000ES Series drills from Sioux Tools allows these drills to fit in tight spots that conventional pistol grip drills can't reach. The ergonomically engineered drills feature a unique gear train angle which reduces the head length, while the weight of the motor is suspended in perfect balance beneath the grip of the user. The curve of the housing allows the operator to exert a direct line of force precisely to the drill bit, increasing accuracy and reducing physical strain.



The 8000ES Series drills feature a 3.5 amp, 0.4 HP motor and a paddle trigger with variable speed control. The 8000ES series lists for around \$190. For more information, call 800-722-7290 or visit the web site at www.siuoxtools.com.

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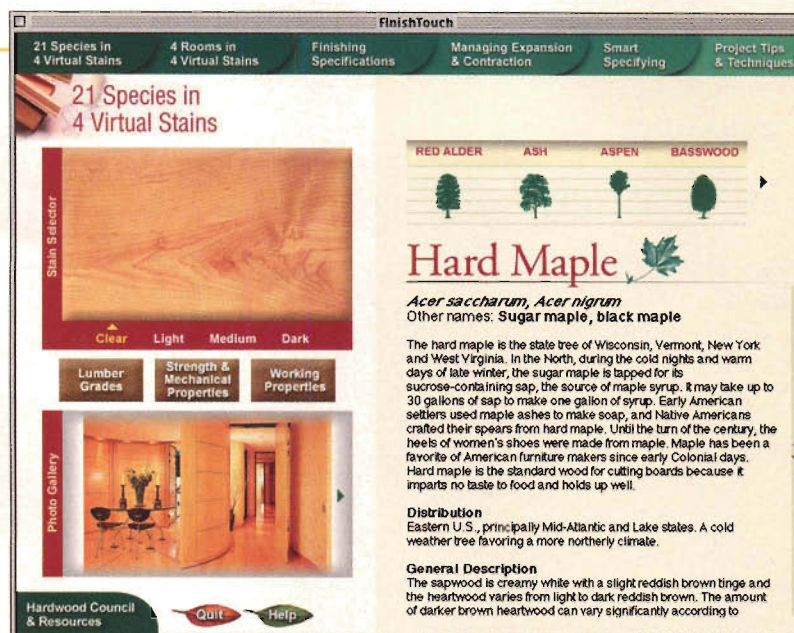
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Software for Hardwoods

Two new CD's can help your computer become a more useful woodworking tool. The *Finishing Touch*, available for free from the Hardwood Council, helps you identify species and experiment with stains. Cove Cutting Software, \$29.99 from Woodhaven, creates profiles and reference prints to help you make the right cove cut.

The Woodhaven program works with Windows 95 through 98. The



user inputs blade diameter and type, and the software creates a profile for any blade tilt angle from zero to 45 degrees and feed angle from zero to 90 degrees.

Several profiles can be combined to create more complex cuts. *For more info, call 800-344-6657 or visit the web site at*

www.woodhaven.com.

The *Finishing Touch* lets users apply stain variations to photos of 21 North American hardwood species, including oak and cherry. The CD also contains

Apply virtual stains to woods like maple on this CD from the Hardwood Council.

physical working properties for each of these species, as well as lumber grade photos for seven major varieties. Wood preparation basics, a glossary of finishing terms, tips on specifying by lumber grade and species abundance are among the other contents on this CD.

For more information, call 412-281-4980 or visit www.hardwoodcouncil.com.



Woodhaven's software can help you make cove cuts in each of these profiles.

Dovetail Training Wheels

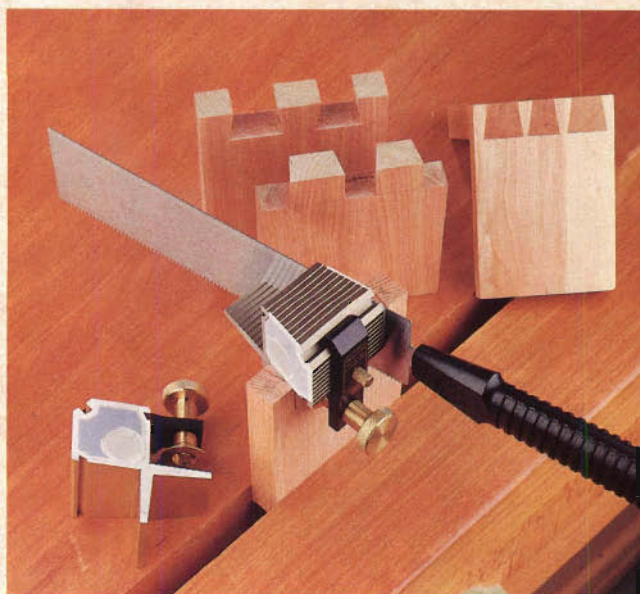
If you haven't developed the skill for handcut dovetails yet, Veritas is ready with some "training wheels": a dovetail guide system which keeps your saw aligned, in both position and angle, as you cut. The secret is a set of 3/4" rare earth magnets embedded in the anodized aluminum guide, and covered with a layer of low friction UHMW plastic.

The guides work with any backless saw that has approximately .005" of set per tooth, including the Veritas dovetail saw designed specifically for them. That saw has a 2" x 8 1/2" blade with 22 teeth per inch.

The guides, which come in ratios of 1:6 and 1:8 for soft- and hardwoods,

cover materials from 1/4" to 1" thick. After they guide your cut, you still have to chop out waste from the tails and pins of the dovetails, but instructions for this are included.

Pricing starts at \$17.95 for the saw alone; and goes up to \$35.95 for the guide and saw as a set. *For more info, call 800-513-7885 or visit www.leevalley.com.*





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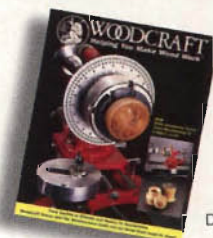


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Craftsman Lights Up Your Line

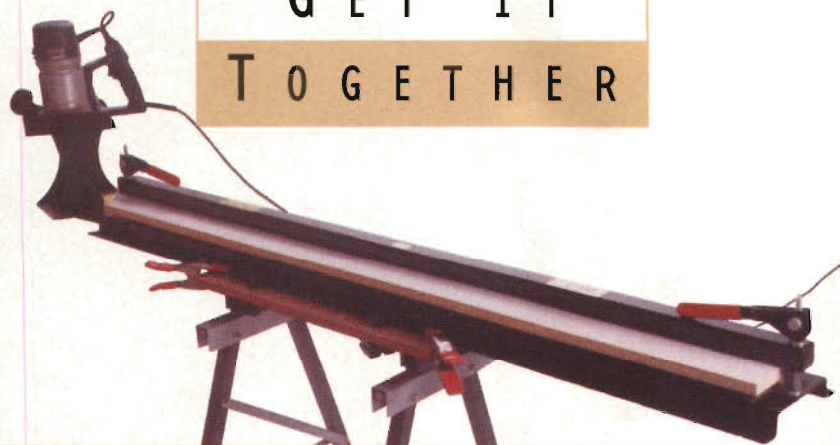
The call was mysterious: "I've got something new to show you and we just don't want to wait for our June show to roll it out," said Mike Mangan, Craftsman's media contact. "Can we stop by and demonstrate this new product?"

I'm always ready for a break from my day-to-day routine, so I said sure, but I must admit that the "hot

new" product message was not working on me. And after Mike and his crew set up the sturdy looking 10" Compound Miter Saw, I was feeling pretty smug in my prejudice. As brand manager Mike McQuinn described the features of the all new 15 amp saw — a nicely designed ergonomically shaped D-handle, a well-rationalized power



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switch and a highly functional sliding fence system with easy-to-read bevel stops at 0, 15, 30 and 45° — my smugness was vindicated. A good saw, but not a big deal.

Then they fired it up.

At the speed of light, a red dotted laser line projected onto the piece of wood clamped on the saw's base. This was pretty cool! As the saw blade moved down, the laser line became a solid red line and then disappeared as the blade sliced through the board.

As soon as the cut was finished, I started looking for the laser, but I couldn't find it. Craftsman has created a very slick little disk shaped, battery powered laser which is mounted adjacent to the saw's blade. The Laser Trac™ disk is activated by centrifugal force when the blade reaches 1,500 rpm. I was impressed as I made a few test cuts. There is simply no guesswork when aligning the saw.

Priced at a very reasonable \$199, the saw should be in your local Sears stores as you read this. Find out more at www.craftsman.com or call 800-349-4358.

— Rob Johnstone, Editor

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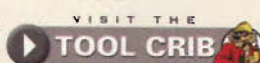


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Mr. Wheelwright Gets it Right

By Joanna Werch Takes



Pinch yourself. You're not dreaming — it's another Stumpers mystery tool.

Before we get to this month's answer, here's a "new" tool to ponder. **Brian E. Bailey** of Killingworth, Connecticut, discovered the contraption at left in his barn 17 years ago. It has been a mystery ever since.

Here's the stats on Brian's tool: weight, 30 pounds; length, 41½"; made of steel. Brian says the hole in the large bend at the handle's end has a 1/2" diameter. "It might have hung by a rope or chain when being used," he notes.

Brian's visitors seem too polite to voice speculations like Paul Bunyan's toenail clippers or a weapon left over from one of those *Animal Farm*-type revolts. Can *Stumpers* readers give him the straight story?

Now for that wheel tool. Since it belonged to my great-great-grandfather, a wheelwright, I was especially pleased to hear from **Dr. H.P. Wheelwright** of Morgan, Utah, who identified it as "a device used to measure the circumference of wagon wheels to determine the length of the metal rim."

Earl M. Yoder of Sugarcreek, Ohio, says the traveler tool is still popular among his Amish people: "Our buggies have wooden wheels with steel rims." **Edward J. Miller** of Aurora, Colorado, continues, "The wooden wheel consists of the center hub, the spokes and the curved pieces of wood to which the outer ends of the spokes attach — called 'felly.'"

Harvey Sand of Langdon, North Dakota's father measured the distance around the felloes with his traveler. "He would start on the zero mark and carefully travel around, counting the turns," Harvey said. He moved the traveler's arrow on the traveler when he came back to his start point, then applied the traveler to the inside of a metal drum and repeated the process. Then he noted the distance between where the traveler had stopped and where the arrow was set, which told him how much to shrink the rim to fit the wheel.

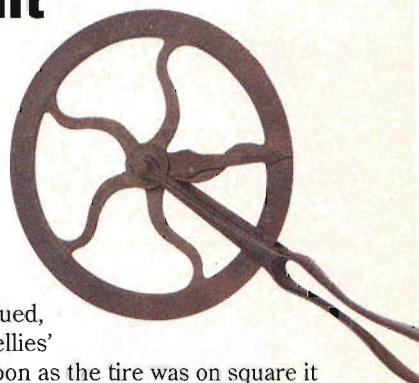
Putting a smaller iron tire over a wooden wheel, notes **Oliver F. Cook** of Knoxville, Tennessee, "was simpler than it sounds." First, the wheelwright placed the wooden tire on supports. Then, he heated the metal tire. "When the tire is heated red-hot, it increases in diameter" explained **Roy Helmer** of Bartlesville, Oklahoma. At that point, the

wheelwright "drops it over the wooden wheel," said **Benjamin A. Clark** of Crumpton, Missouri. "**Allan Witcombe** of Sidney, British Columbia, continued, "it caused the wooden 'fellies'

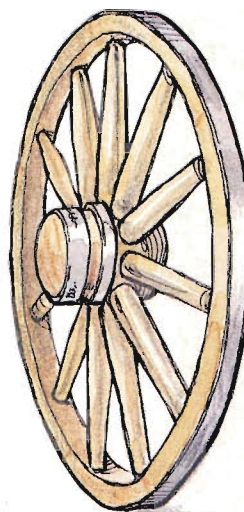
to burst into flame. As soon as the tire was on square it was doused with buckets of water, shrinking it tight onto the rim and also pulling the new felloes up hard to each other."

Putting the tire on, continued Roy Helmer, "is a hot job! You'd not believe the way the wood parts are pulled together as the tire cools and shrinks! They pop, snap and crackle, and the spokes ring when struck with a hammer."

Throughout this process, the traveler "only measures the accuracy," noted **Ron Webster** of Sulphur, Oklahoma. "The wheelwright's talent is what makes the wheel."



The traveler was an important tool in fitting the metal tire to its wooden wagon wheel.



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