

Make our
**TABLESAW
MITER JIG**
Page 34

WOOD

THE WORLD'S LEADING WOODWORKING MAGAZINE

JANUARY 1994 • ISSUE NO. 67
Please display until January 10

SHOP-TESTED
**HOW TO CUT
PERFECT MITERS**
Page 28

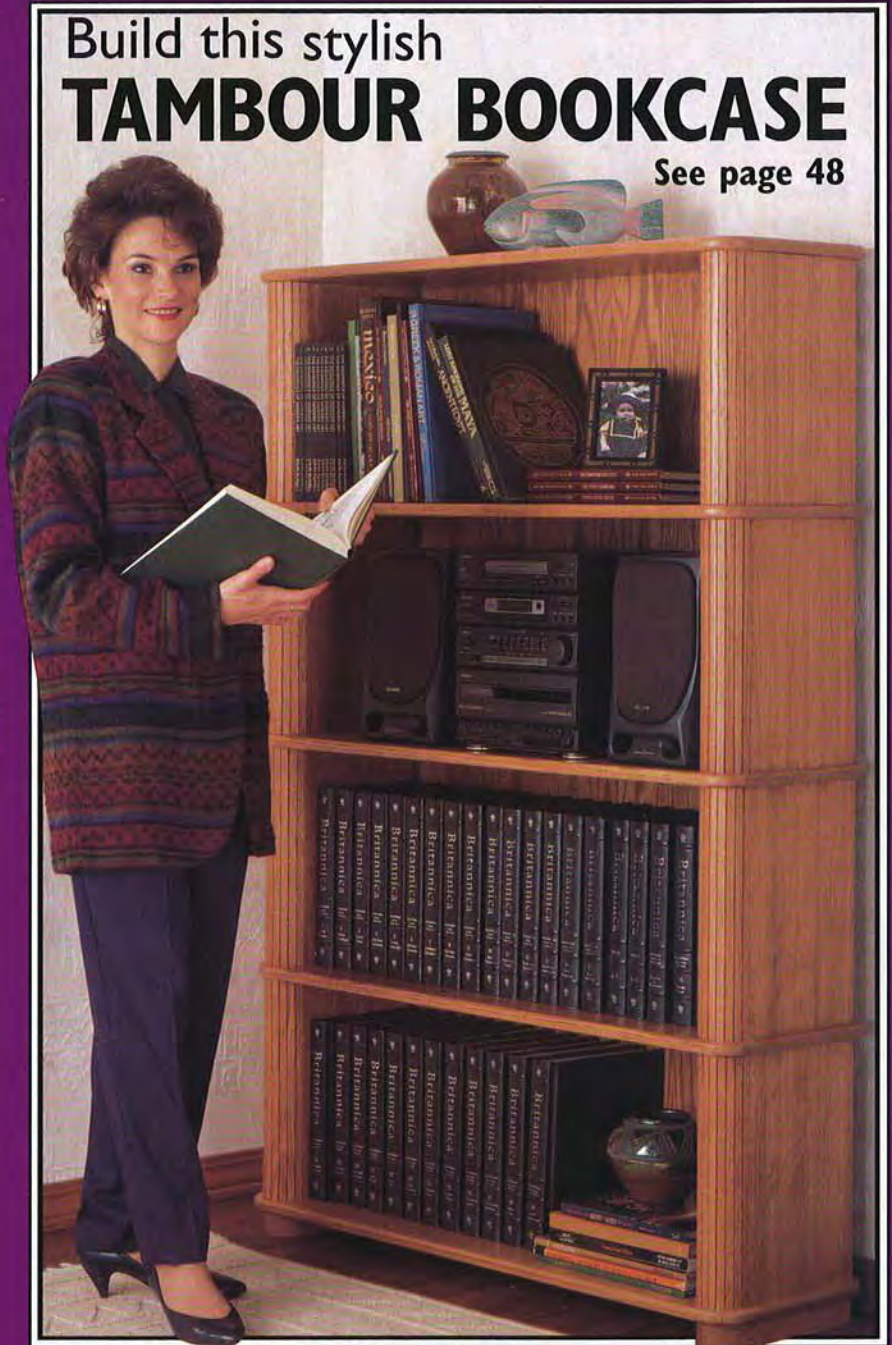
**WHAT'S WHAT IN
PAINTBRUSHES**

**INSTANT GLUES
TO THE RESCUE**
Page 62

PLEASIN' PROJECTS
Picture frames
Fan/lamp pulls
Carved turtle
Display box
Heron clock

Build this stylish **TAMBOUR BOOKCASE**

See page 48





FRIENDLY PHONE OPERATORS

A CLOSER LOOK AT GRIZZLY IMPORTS

Selling the best machines in the import industry doesn't happen overnight; it happens by carefully selecting reliable manufacturers and responding to customer demand for top quality machines. In fact, if it doesn't meet Grizzly standards, we won't sell it.

Grizzly simply offers the best value in the industry. You get more machine for your money. Beyond that, you get more company for your money. Fast, courteous service, top quality machinery, and a company that's behind you all the way. Today and tomorrow.

Take a look at Grizzly. You'll see why nobody else even comes close.



IMPORTS, INC.

"Importers of Fine Machinery"



KNOWLEDGEABLE SERVICE TECHNICIANS



ORDERS SHIPPED THE SAME DAY



HUGE SURFACE GRINDING SERVICE

 <p>12" PLANER</p> <p>SPECIAL OFFER!</p> <p>MODEL G1017 REG. \$395.00 ONLY \$395.00 WITH FREE EXTRA BLADE SET!</p> <ul style="list-style-type: none"> • 2 HP, 110V motor • Dual-knife cutterhead • Capacity: 12" wide x 5-1/2" thick stock • Optional dust hood available • Shipping weight: approx. 84 lbs. • Complete with instruction manual 	 <p>6" X 47" JOINTER HEAVY-DUTY</p> <p>MODEL G1182 REG. \$395.00 SALE PRICE ONLY \$355.00</p> <ul style="list-style-type: none"> • 1 HP 110/220V motor • Cabinet-type stand • Longest (47") bed of all jointers in its class • Heavy-duty center-mounted fence • Shipping weight: approx. 250 lbs. • Complete with detailed instruction manual 	 <p>1-1/2 H.P. SHAPER</p> <p>MODEL G1035 REG. \$535.00 SALE PRICE ONLY \$495.00</p> <ul style="list-style-type: none"> • 2 interchangeable spindles (1/2" & 3/4") • Table size 20" x 18" • Dual speed, reversing motor • Precision-ground, cast iron table • Optional solid cast iron extension wing available • Shipping weight: approx. 300 lbs. • Complete with instruction manual
<p>20" PLANER</p> <p>MODEL G1033 REG. \$1295.00 SALE PRICE ONLY \$1195.00</p>  <ul style="list-style-type: none"> • Precision ground cast iron bed • Cabinet-type stand • Heavy-duty infeed and outfeed rollers • Heavy-duty return rollers on planer head • Capacity: 20" wide x 6" tall • Shipping weight: approx. 800 lbs. • Complete with detailed instruction manual 	<p>8" SUPER HEAVY-DUTY JOINTER</p> <p>MODEL G1018 REG. \$695.00 SALE PRICE ONLY \$650.00</p>  <ul style="list-style-type: none"> • 1-1/2 HP, 220V single phase motor • 3-knife cutterhead • Magnetic switch for safety and overload protection • 65" x 8" precision ground, cast iron bed • Heavy-duty, center-mounted fence • Shipping weight: approx. 460 lbs. • Complete with detailed instruction manual 	<p>3 H.P. SHAPER</p> <p>MODEL G1026 REG. \$850.00 SALE PRICE ONLY \$795.00</p>  <ul style="list-style-type: none"> • Heavy-duty all-steel miter gauge with full-length bar • Cast iron wing • Solid, polished cast-iron table top • Table with standard wing attachment measures 28-7/8" x 28" • Large steel handwheels for easy adjustment • Shipping weight: approx. 400 lbs. • Complete with instruction manual
<p>10" TILTING ARBOR SUPER HEAVY-DUTY TABLE SAW</p> <p>MODEL G1023 REG. \$895.00 SALE PRICE ONLY \$850.00</p>  <ul style="list-style-type: none"> • 3 HP Motor, 220V • T-slotted table • Ground, polished solid cast iron table and wings • Table size with extension wings is 36.06" x 27.08" • Steel miter gauge • Shipping weight: approx. 450 lbs. • Excellent instruction manual included 	<p>24" DRUM SANDER</p> <p>MODEL G1066 REG. \$1195.00 SALE PRICE ONLY \$1095.00</p>  <ul style="list-style-type: none"> • Single phase, 220V, 5 HP motor • Separate 1/4 HP belt feed motor • Dual belt-driven sanding drums • Heavy-duty magnetic switch • Built-in dust collection port • Shipping weight: approx. 500 lbs. • Complete with instruction manual 	<p>2 H.P. DUST COLLECTOR</p> <p>MODEL G1029 REG. \$295.00 SALE PRICE \$275.00 WITH FREE 4" X 10' HOSE</p>  <ul style="list-style-type: none"> • Single phase, 220V, 2 HP motor • Handles two machines with ease • Suction capacity: 1182 cfm • Shipping weight: approx. 124 lbs. • Complete with instruction manual



1-800-541-5537

P.O. BOX 2069, BELLINGHAM, WA 98227
Customer Service (206) 647-0801 FAX (800) 225-0021



ALL MACHINES ABOVE ARE F.O.B. BELLINGHAM, WA OR WILLIAMSPORT, PA

1-800-523-4777

2406 REACH ROAD, WILLIAMSPORT, PA 17701
Customer Service (717) 326-4827 FAX (800) 438-5901

THE EDITOR'S ANGLE

GEORGE & PAULINE REID



▲ George and Pauline Reid at home reliving their woodworking memories through the pages of their scrapbooks.

CELEBRATING A LIFETIME OF WOODWORKING EXCELLENCE

▼ George's framed, carved sampler depicting key design elements of various classic furniture styles—a present for his grandson.



Last fall, when I was making plans to do some project scouting at the Artistry in Wood show in Dayton, Ohio, my host, Max Marshall, insisted that I take the time to meet George Reid. And I'm glad I did! No one better embodies the woodworking professional in every sense of the word than my new friend.

For the past 50 or so years, this mild-mannered craftsman has earned a comfortable living doing custom woodworking for Dayton-area residents. If someone wants a Colonial-style secretary in three parts or a Queen Anne-style American dressing table or any other piece of period furniture for their house, they know that George can build it. He's also got quite a reputation locally for being able to determine the authenticity of period pieces.

While I was visiting with George, his wife Pauline asked if I would like to see some of the scrapbooks the pair has kept over the years. The books contain scores of press clippings about the people George has done work for. I could sense the immense pride the Reids feel when they flipped the

pages and talked about how so and so was now president of a local bank or that George had done work for three generations of a prominent family. For George, building furniture pieces has been more than a job; you might call it a lifelong passion.

Though George has kept plenty busy with his business over the years, he's also managed to build an entire house full of furniture for Pauline as well as pieces for his daughter and granddaughters. And as a special present to a grandson who does architectural work in New York City, George fashioned a wonderful framed sampler shown *above* depicting the key design elements of classic furniture styles.

Thanks, George, for taking the time to share your experiences with me. And Pauline, your graham cracker cookies were terrific! I can still taste 'em. 🍪

Photographs: Martin Biel

Larry Clayton

BED POSTS IN STOCK

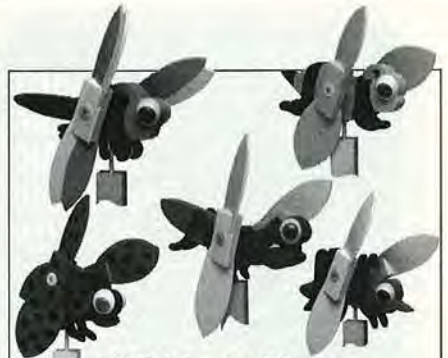
NO MINIMUM
VARIOUS
WOODS



PENCIL CANNON BALL RICE
FREE COLOR CATALOGUE



Adams Wood Products, Inc.
974 FOREST DRIVE - DEPT. M-25
MORRISTOWN, TENNESSEE 37814
TELEPHONE 615-587-2942 FAX 615-586-2188



Insect Whirlygig Plans

These bigger-than-life insects average 12 in. long. The wings spin smoothly on nylon bushings. You get FULL SIZE patterns for all five insects shown - Praying Mantis, Dragonfly, Bee, Ladybug and Mosquito.

#W890 Insect Whirlygig Plans.....\$7.99/SET

Insect Whirlygig Hardware Parts

Order one hardware package for each insect project you build. You get 2 plastic eyes, thin plywood for wings and legs, plus bushings and shafts. Project plan, remaining wood and paint are not included.

#3355 Insect Whirlygig Hdw. Parts.....\$4.99/PKG

HOW TO ORDER: List quantity, part number, item, price & total of order. Include \$3.50 shipping & handling per order. MN residents add 6.5% sales tax. Mail check or money order. Credit card customers call

TOLL FREE 1-800-441-9870.

MEISEL HARDWARE SPECIALTIES
P.O. BOX 70 W1 MOUND, MN 55364

END WOOD ABUSE!

Replace "Old-Fashioned Pin Torture"



with the
**"Wood-Friendly"
Wagner L606
Moisture Meter**

- Deep Penetrating, Pin-Free
- Convenient Pocket Size
- The First Moisture Meter of Its Kind Under \$200

L4.5" x
W2.75" x H1.5"



WAGNER
ELECTRONIC PRODUCTS

326 Pine Grove Rd.
Rogue River, OR 97537
(503) 582-0541
Fax (503) 582-4138

1-800-944-7078

© 1993 WAGNER ELECTRONIC PRODUCTS, INC.

VIDEO CATALOG OF HISTORIC SHIP MODEL KITS



Discover the world's oldest and most rewarding hobby... model ship building! Watch our 25-minute VHS video and learn the secrets of building museum quality wooden ship models. You'll see the finest selection of authentic ship models- superb replicas you build yourself- close up and in incredible detail. Even if you've never built a model before, you can create a magnificent keepsake to be treasured for many generations. Send \$5.00 for your video today! (Refundable with your first order.) **Free with your video!** 92 page color catalog of ship model kits and accessories.

MODEL EXPO, INC. Dept. WD14

P.O. Box 1000, Mt. Pocono Industrial Park,
Tobyhanna, PA 18466-1000

Enclosed is \$5.00, to be refunded with my first order.

Name: _____

Address: _____

City: _____ State: _____ Zip: _____

Item No. SST900C
© Model Expo, Inc. 1993

Better Homes and Gardens®

WOOD®

THE WORLD'S LEADING WOODWORKING MAGAZINE

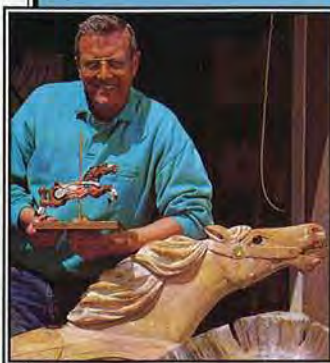
JANUARY 1994

ISSUE NO. 67

WOOD PROFILE

Yellow poplar:
The do-everything wood that's priced right.....21

Sometimes called tuliptree, this versatile wood becomes construction lumber, moldings, plywood cores, furniture, and even caskets.



CRAFTSMAN CLOSEUP

Merry-go round menagerie23

Say hello to Kansas carver Jerry Reinhardt, a historian of carousels in America and an expert carver of 11"-high horse replicas which he regularly sells for \$400 apiece.

SHOP - TESTED TECHNIQUES

On-the-money miters.....28

Discover the most effective ways to cut clean, super-accurate miters. Then, learn what types of joints work best and how to glue and clamp them for maximum durability.

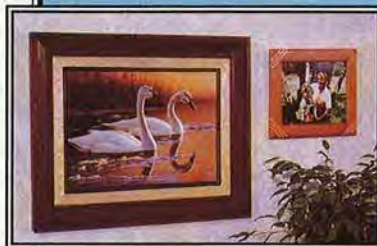
Angle-master miter jig.....34

Build a tablesaw accessory that beats all others. Our model adjusts quickly and easily, letting you make precision cuts every time.

NOW YOU CAN BUILD IT

**Show-stopping
picture frames.....40**

Put your newfound knowledge on miters to work making the traditional or contemporary designs featured here. While you're at it, try our new miter jig.



TURNING

Pulls with pizzazz44

Give your ceiling fans, lamps, blinds, and curtains a fresh look by replacing their inexpensive plastic pulls with ones of beautiful turned wood.



This issue's cover wood grain : Yellow poplar

Norwegian folk craft in wood 46
See pleasing examples of the rich, proud woodworking tradition of Norway gathered up by our roving Scandinavian scout, Harley Refsal.

Terrific tambour bookcase 48
Add flair and storage to a ho-hum wall in your home with this modular masterpiece. Instructions provide a bill of materials and cutting diagram for a two- or four-unit project.



Brush basics 54
What's the difference between a china- and nylon/polyester-bristle brush? How do you use a brush? And, what's the best way to clean and maintain one? Find the answers inside.

CARVING
Snappy the turtle 58
This good-natured reptile may be slow in the flesh, but in wood he's quick to shape and detail.



WHAT WOODWORKERS NEED TO KNOW ABOUT...
Cyanoacrylate adhesives 62
Stick wooden parts together in a jiffy with the speedy bonding products spotlighted here. Talk about problem solvers!

CRAFT SHOP
What a show-off! 64
Store something precious in this elegant see-through display project.



Wetlands silhouette 66
Scrollsaw this very special blue-heron clock.

Don't let wood irritate you 68
Keep your distance from toxic sawdust with these safety tips.

SHORT-SUBJECT FEATURES

Editor's Angle1	Products That Perform.....71
Talking Back.....6	Bookcase (continued)74
Tips From Your Shop.....10	Ask WOOD76
Great Ideas For Your Shop..16	Toy Contest.....82
Wood Traditions.....18	Finishing Touches88

**PERFORMAX
PRO-MAX III DRUM SANDER**

\$1595
Mfg's
Sugg.
Retail
Price



Made
in the
U.S.A.

Sand pieces
as wide as 44",
as short as 2 1/4"
and as thick as 4".
Clean-up glued panels.
Surface rough-sawn lumber.
Dimension highly-figured stock.
Finish sand the thinnest veneers.

A PRO-MAX III Will Exceed Your
Expectations. See a demonstration at
the dealer nearest you. Call for brochures
on our complete line of drum sanders.

1-800-334-4910 or (612) 895-9922
or write: PERFORMAX PRODUCTS, WD02
12211 Woodlake Dr., Burnsville, MN 55337

**ANTIQUE
REPRODUCTION
KITS** FURNITURE AND
ACCESSORIES



Be proud of your own
handcraft skills with
these easy-to-assemble
kits in mahogany
and cherry!

**FREE FULL COLOR
CATALOG!**
1-800-BARTLEY
1-800-227-8539

*The
Bartley Collection*
L I M I T E D

29060 Airpark Drive, Easton, MD 21601
Tel. 1-800-787-2800

The new Delta 12" band saw. Proof that you can never have too much of a good thing.



Some tool manufacturers offer you a band saw, a scroll saw, a bench saw, a drill press—and call it a complete line. But at Delta, we realize that any one saw or drill press might not be right for everyone.

Which is why we make seven different drill presses, five scroll saws, four table saws, two bench saws—well, you get the idea. Fact is, you can never have too much of a good thing.

Case in point is our new 12" band saw. It's built to fit nicely between our bench model and our bigger saws. And it's built with the same heft and precision you'll find in our professional tools. Yet it's priced to fit comfortably into your shop.

All in all, we make the broadest line of woodworking tools in the industry. Tools for the master craftsman as well as the weekend do-it-yourselfer. Odds are, we make exactly the tool you're looking for.



Building On Tradition
DELTA
A Pentair Company

Call toll free for the name of the nearest dealer, home center or hardware store carrying Delta tools. Delta International Machinery Corp., 800-438-2486. In Canada, 519-836-2840.



We are proud to nationally fund *The New Yankee Workshop* and *The American Woodshop* on public television.



Better Homes and Gardens®

WOOD®

THE WORLD'S LEADING
WOODWORKING MAGAZINE

January 1994 • Vol. 11, No. 1 • Issue No. 67

Editorial/Art Staff

Editor **LARRY CLAYTON**
Managing Editor **JIM HARROLD**
Art Director **C. L. GATZKE**
Design Editor **JAMES R. DOWNING**
Senior Editor/Features **PETER J. STEPHANO**
Senior Editor/How-To **MARLEN KEMMET**
Assistant Managing Editor/Products **BILL KRIER**
Special-Interest Editor **LARRY JOHNSTON**
General-Interest Editor **TOM JACKSON**
Associate Art Director **PERRY A. McFARLIN**
Graphic Designer **CHERYL A. CIBULA**
Project Builder/Design Editor **JAMES E. BOELLING**
Production/Office Manager **DARLENE REYNOLDS**
Administrative Assistant **MARGARET CLOSER**
Correspondence Writer **DON MOSTROM**
Art Business Office Secretary **NATALIE DeVORE**

Technical Illustrator **KIM DOWNING**. Product Testing **GEORGE GRANSETH, BOB McFARLIN, DAVE HENDERSON**. Carving **HARLEY REFSAL**. Projects **CHUCK HEDLUND**.

Publisher **WILLIAM R. REED**
Marketing/Advertising Director **CHRISTOPHER W. SCHRAFT**
Marketing/Sales Manager **DONNA BREHM**
Sales/Marketing Representative **JON BOOK**
Advertising Representatives **BRENDEAN DELANEY, VICTORIA PELCYGER**
Marketing/Advertising Services Manager **SIGRID ANDERSON**
Promotion Supervisor **RICK PALLISTER**
Marketing/Advertising Services Supervisor **PAT HENDERSHOTT**
Administrative Assistant **KATHY GARLAND**
Senior Product Manager **MARJORIE L. WILLIAMS**
ADVERTISING OFFICE: 1912 Grand Avenue, Des Moines, IA 50309. Phone 515/284-3785

Business Manager **JANET NELSON**
Circulation Manager **ALAN BRUSH**
Production and Technology Director **ROBERT C. FURSTENAU**

Chairman of Executive Committee **E. T. MEREDITH III**
President and Chief Executive Officer **JACK D. REHM**
Magazine Group President **WILLIAM T. KERR**
V.P., Publishing Director **CHRISTOPHER M. LEHMAN**
V.P., Circulation **HAL ORINGER**

Better Homes and Gardens® WOOD® (ISSN-0743-894X) is published nine times a year in January, February, April, June, August, September, October, November, and December by Meredith Corporation, 1716 Locust St., Des Moines, IA 50309-3023. Second-class postage paid at Des Moines, Iowa, and at additional mailing offices. Better Homes and Gardens trademark registered in Canada and Australia. Marca Registrada en México. **ONE-YEAR SUBSCRIPTION PRICES:** U.S. and its possessions \$25; Canada, \$34; other countries, \$43. **POSTMASTER:** Send address changes to **WOOD Magazine**, P.O. Box 55050, Boulder, CO 80322-5050. ©COPYRIGHT MEREDITH CORPORATION 1993. ALL RIGHTS RESERVED. Canadian GST Reg. #R123482887.

WE CARE! SUBSCRIPTION SERVICE: For change of address it is best for you to directly contact your local Postmaster who then will notify us. For any other service on your subscription, please write **WOOD Customer Service**, P.O. Box 55050, Boulder, CO 80322-5050 (enclose a recent label from your magazine for better service). Or you may phone toll-free **800-374-9663**. **EDITORIAL MAILING ADDRESS:** **WOOD Magazine**, 1912 Grand Ave., Des Moines, IA 50309-3379.

PRINTED IN U.S.A.

MPA

This blade package comes with a free T-Shirt.



Our new 40 page color sawblade catalog in every package.



Package includes a Freud T-shirt!

We've put together a great package for you: our top-of-the-line 10" industrial ripping, crosscutting and general purpose blades at a great price. These three blades will handle all of your workshop needs. In addition, you will receive a FREE Freud T-shirt. (Made in the USA, 100% cotton). Plus, you get a free copy of our new sawblade catalog, packed with new products and technical information. This package is a woodworker's dream. It makes a great gift, too!

What about the blades?

Crosscut - The Fabulous LU85M - Recommended by Wood® Magazine. Cuts wood so smooth, you won't even think about sanding the endgrain. And there's a Teflon coating on the blade body to prevent binding. The teeth? Just what you'd expect. They're ground to an aggressive Alternate Top Bevel and then each carbide tooth is polished to a mirror finish.

Ripping - The Precise LM72M - You have to try it. This blade, like all Freud blades, is laser cut for a stiffer plate and whisper-quiet operation. The rigid blade body and razor sharp flat top carbide teeth will give you a cut with glue line accuracy - even on the thickest materials. The blade is precision balanced and features our Anti-kickback Design - the safest in the industry.

General Purpose - The Versatile LU84M - If the job calls for different cuts on a variety of materials, the Freud general purpose blade is the way to get the job done. It'll rip 4/4 oak and crosscut 3/4" plywood, no sweat. This blade is a clever balance between the large gullet and Flat Top tooth needed for ripping, with the ATB tooth for crosscutting. You're sure to appreciate the extra deep gullet for chip removal and our own special Anti-kickback Design that limits the tooth's bite to prevent overfeeding. It's the ideal blade for the radial arm saw because it dramatically reduces the chance of climbing.

freud[®]
Precisely what you need.

Blade package must be purchased from participating dealers between November 1, 1993 and March 31, 1994.

High Point, NC 27264
910-434-3171 • 800-472-7307

Ask your nearest participating dealer for "Freud's New Blade Pack". Once you try these Freud blades, you will accept no substitutes.

Econ-Abrasives

WE MAKE ABRASIVE BELTS ANY SIZE, ANY GRIT!

Standard Abrasive Sheets

CABINET PAPER

	50/pk	100/pk
60D	\$15.00	\$27.00C
80D	14.00	25.00C
100 thru 150C	13.00	23.00C

FINISHING PAPER

80A	\$ 10.00	\$17.00C
100 thru 280A	9.00	15.00C

NO LOAD PAPER(white)

100 thru 400A	\$11.00	\$19.00C
---------------	---------	----------

C = 100 SHEETS

Velcro® Vacuum Discs

8 Hole pattern for Bosch sanders

Dia.	Grit	Price
5"	60	\$.48ea
5"	80	.46
5"	100 thru 320	.45

OTHER PRODUCTS

- *Wide Belts*Rolls*Flap Wheels
- *Pump Sleeves*PSA Discs
- *Router & Wood Bits*Wood Glue

- *MasterCard, VISA, C.O.D. or Check
- *SATISFACTION GUARANTEED!!!
- *CALL FOR FREE CATALOG
- TX & NV add appropriate sales tax
- Continental U. S. shipping add \$5.50

ABRASIVE BELTS

PLEASE SPECIFY GRITS

1X30	\$.73 ea	3X24	\$.84ea
1X42	.73 ea	3X27	.87ea
1X44	.73 ea	4X21 3/4	.96ea
2 1/2X16	.77 ea	4X24	.99ea
3X18	.78 ea	4X36	1.20ea
3X21	.81 ea	6X48	3.14ea
3X23 3/4	.84 ea	2 1/4X80	2.94ea

OTHER SIZES ON REQUEST

HEAVY DUTY SPRING CLAMPS

Clamps come w/PVC tips and grips.



Size	Price
4"	\$1.75 ea
6"	2.25
8"	3.50

JUMBO ROUTER PAD(24" x 36")

It will not allow small blocks of wood to slip out under router or sanding applications.

ROUTER PAD

ONLY \$8.95ea.

JUMBO BELT CLEANING STICK

ONLY \$8.80

Econ-Abrasives

P. O. Box B865021
Plano, TX 75086
(214)377-9779



TOLL-FREE ORDERING LINE (800) 367-4101

TALKING BACK

Print this article

We welcome comments, criticisms, suggestions, and even compliments. Send your correspondence to: Talking Back, Better Homes and Gardens® WOOD® Magazine, 1912 Grand Ave., Des Moines, IA 50309-3379.

Easy grain alignment for plugs

The technique in the "Clean-As-Can-Be Screw Plugs" article from the September 1993 issue can be made easier. As a woodworker with arthritis, I found a method that reduces fumbling around with small pieces and still allows me to line up the grain when using the plugs.

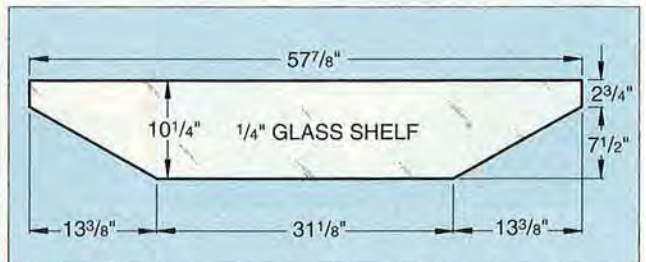
Rather than make a pencil line on the plugs parallel to the grain, I place a strip of tape over the plug cut-outs, in the direction of the grain. I press the tape firmly onto each piece. When the plugs are bandsawn loose, they remain fastened to the tape, and are easier to line up with the hole and to match for grain.

—Randy Johnson, Hartford, Wis.

Resize the glass shelf

While building "A Credenza with Charisma" from the April 1993 issue, I noticed that the measurements for the glass shelf were incorrect. I have included the correct dimensions for the shelf in the drawing below.

—Joseph Perrin, Jr., Clearwater, Fla.



We can't lye about it

I was very interested in your article "Rust Removal Made Easy" in the September 1993 issue. I'm always looking for a better way of cleaning my old tools without damaging the authenticity of the tool. After going to my hardware store to buy a bottle of lye, I was told that it is no longer available on the open market because of the hazardous chemicals it contains. How can I buy some lye?

—Mike Flaim, Cincinnati

We found lye available at a local supermarket, Mike, where it was advertised for septic system and sewer cleaning. We strongly recommend handling this hazardous chemical according to the safety instructions on the container. Never handle lye without hand and eye protection.

HIGHEST QUALITY
ROUTER BITS &
SHAPER CUTTERS

SY®

INDUSTRIAL CARBIDE TOOLING

- Cutters are solid C-2 Carbide
- Ground with upto 600 G diamond wheel
- Largest selection
- Most orders shipped the same day
- Courteous, fast service

CASCADE TOOLS INC.

FOR A FREE CATALOG CALL
24 HRS. A DAY!

1-800-235-0272

FAX: 1-800-392-5077

930-115

Why Honduras mahogany?

In your article "Craftsman-style Wall Lantern" in the August 1993 issue you suggest using Honduras mahogany rather than Philippine mahogany in building the project. Why so?

— Neville K. Connolly, Bethesda, Md.

Thanks for asking, Neville. Other woodworkers have wondered the same thing. We chose Honduras mahogany because it is stable and durable in varying weather conditions. This wood also shows an evenness in workability across boards from different trees.

Philippine mahogany is a term allowed under U.S. law to describe wood from a variety of trees of several similar species, none of which are true mahoganies. These trees are found in the Philippine Islands, Indonesia, and areas of Southeast Asia. Wood taken from this many different trees will show as many differences in workability, stability, and resistance to decay as the types of trees harvested. Generally, the darker red species classed as Philippine mahogany produce the most durable wood. Yet none of these species are as stable or as decay resistant as Honduras mahogany.

About that much

In your "Raised Panels and Frames" article in the August 1993 issue, you do not give the angle to tilt the saw blade for cutting the panels.

— F. G. Coniglio, Buffalo

F.G., the old woodworker's measurement of 'about that much' comes into play in this situation. The exact angle of the saw blade to cut bevels on raised panels will vary according to the width of the reveal (the beveled area of the panel showing on the assembled frame and panel).

To set your saw blade, first mark a line on the edge of your panel from the inside bottom corner of the 1/8" saw kerf outlining the panel face to the 1/4" setback at the panel's outer edge. Set the panel behind the blade with its back face against the saw fence. Sight along the blade and adjust the tilt mechanism until the angle of the blade lines up with the mark on the panel. Test this setup on scrapwood of the same thickness as the panel, and adjust the saw tilt as necessary.

Continued on page 9



LET US GIVE YOU A HAND...

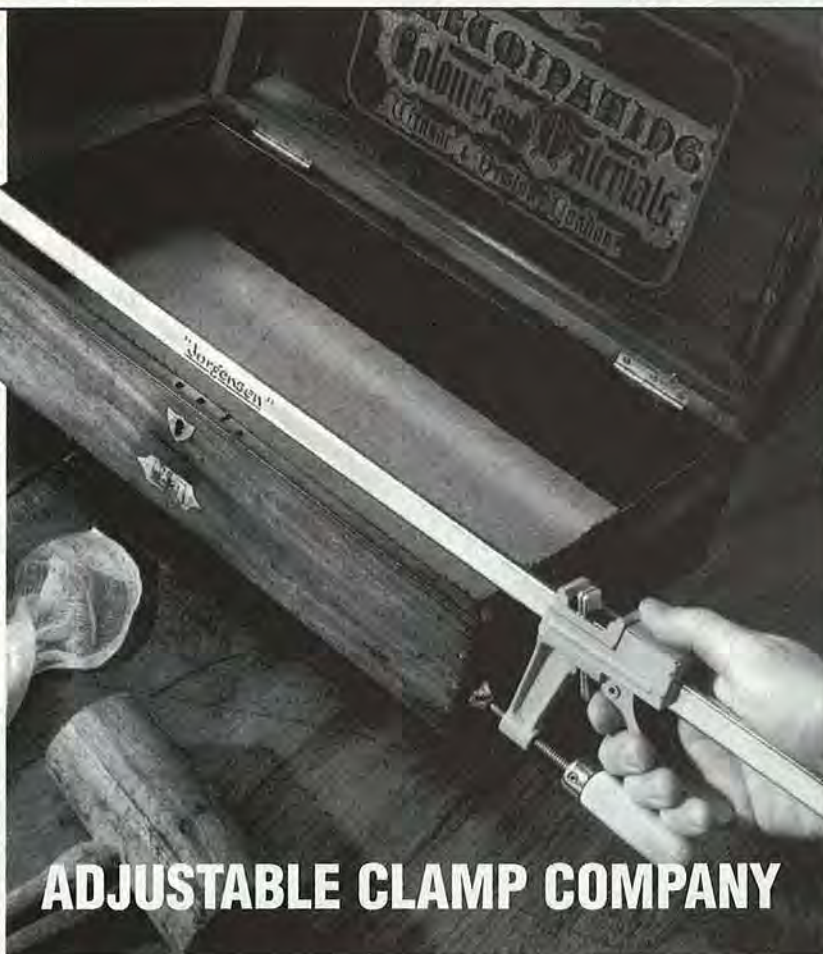
"Jorgensen"

E-Z HOLD™

One-Handed Clamps

With E-Z HOLD clamps, there's a whole handful of advantages: the convenience and speed of one-handed operation, affordable quality, strong and durable steel construction, superior engineering and the dependability of the first name in quality clamps—JORGENSEN! You'll be so pleased with the help E-Z HOLD clamps offer your woodworking projects that you'll want to give us "a hand!"

For our catalog send \$1.00 to:
Adjustable Clamp Co.,
410 N. Ashland Ave.
Chicago IL 60622



ADJUSTABLE CLAMP COMPANY

FREE

**EXTRA
1/4" X 155"
BLADE
(W/ PURCHASE
OF EN3506)**



**20"
INDUS-
TRIAL
BAND
SAW**

***EN3506**

REGULAR PRICE: \$1,490.00

SPECIAL PRICE: \$1,230.00

ENLON™

IMPORT CORPORATION

The Power You Can Trust

ORDERS

1-800-888-9697

Mon.-Sat. 7:00am-5:00pm (Pacific Time)



Prices subject to change without notice.

* F.O.B. City of Industry, CA or Clarksburg, WV

FREE

**EXTRA 100 GRIT BELT
(W/ PURCHASE OF EN3405)**



**6" X 30"
EDGE
SANDER**

***EN3405**

REGULAR PRICE: \$450.00

SPECIAL PRICE: \$ 415.00

FREE

**EXTRA 100 GRIT BELT
(W/ PURCHASE OF EN3406)**



**6" X 30"
FLOOR
STAND
EDGE
SANDER**

***EN3406**

REGULAR PRICE: \$495.00

SPECIAL PRICE: \$ 470.00

FREE

**HEARING PROTECTOR
(W/ PURCHASE OF EN3302)**



***EN3302**

REGULAR PRICE: \$600.00

SPECIAL PRICE: \$490.00

FREE

**HEARING PROTECTOR
(W/ PURCHASE OF EN3303)**



**3 H.P.
HEAVY
DUTY
WOOD
SHAPER**

***EN3303**

REGULAR PRICE: \$865.00

SPECIAL PRICE: \$790.00

FREE

**HEARING PROTECTOR
(W/ PURCHASE OF EN3304)**



**3 H.P.
SLIDING
TABLE
WOOD
SHAPER**

REGULAR PRICE: \$980.00

SPECIAL PRICE: \$ 890.00

**Call for FREE Catalog or Router Bits and Shaper Cutter Catalog.
FREE Enlon Baseball Cap with any purchase over \$50**

SHOWROOM/MAIN OFFICE:

19400 E. SAN JOSE AVE., CITY OF INDUSTRY, CA 91748

CUSTOMER SERVICE:

TEL: (909)468-3688 FAX: (909)468-3689 HOURS: MON-SAT 8:00AM-5:00PM P.T.

SHOWROOM/SHIPPING WAREHOUSE:

12 ARMORY ROAD, CLARKSBURG, WV 26301

HOURS: MON-FRI 8:00AM- 5:00PM E.S.T.

CONGRATULATIONS

WOODWORKERS, PROFESSIONAL BUILDERS AND REMODELERS.

WE HAVE GOT THE BEST DEAL FOR

YOUR WOODWORKING MACHINERY AND SUPPLY NEEDS.

ALL OUR NEW MACHINERY FROM THIS AD ARE

DIRECTLY FROM THE MANUFACTURER EXCLUSIVELY FOR ENLON.

IMMEDIATE DELIVERY IS AVAILABLE FOR ALL NEW MACHINERY.

ENJOY THESE SPECIAL PRICES AND PROMOTIONS WHILE THEY LAST.

OFFER ENDS FEBRUARY 15TH, 1994.

WE ALSO SUPPLY PARTS & SERVICES FOR SAME MACHINERY

SOLD UNDER OTHER BRAND NAMES.

THANKS FOR YOUR SUPPORT.

FREE FEATHERBOARD OR PUSH STICK
(W/ PURCHASE OF EN3202)



*EN3202

**10" TILTING
ARBOR
TABLE SAW**

REGULAR PRICE: \$970.00

SPECIAL PRICE:

\$ 850.00

FREE EXTRA BLADE SET
(W/ PURCHASE OF EN3101)



*EN3101

**6"
JOINTER**

REGULAR PRICE: \$395.00

SPECIAL PRICE:

\$ 350.00

FREE EXTRA BLADE SET
(W/ PURCHASE OF EN3102)



*EN3102

**8"
HEAVY
DUTY
JOINTER**

REGULAR PRICE: \$700.00

SPECIAL PRICE:

\$ 645.00

FREE EXTRA BLADE SET
(W/ PURCHASE OF EN3103)



*EN3103

**12"
SUPER
HEAVY
DUTY
JOINTER**

REGULAR PRICE: \$1,995.00

SPECIAL PRICE:

\$ 1,795.00

TALKING BACK



Continued from page 7

Trouble in River City

Raccoons have always had a reputation for being mischievous, and the Raccoon River which runs behind our building here in soggy Des Moines is no exception. During our summer of floods, the high water actually entered our buildings and wiped out much of our supply of back issues. If you have a complete set of WOOD magazines, it's value just skyrocketed. For those of you in need of a back issue, we still have a limited supply, but it will likely go fast. To order call 800/572-9350. If not sure which issue you want, buy our new WOOD CUMULATIVE INDEX.

Safety warnings on rust remover

The article "Rust Removal Made Easy" in the September 1993 issue should have provided information on the possible hazards of the process. Mr. Price's recommendation of using the rust remover outdoors is well founded. These fumes not only smell bad, they also contain hydrogen and oxygen, an explosive mixture.

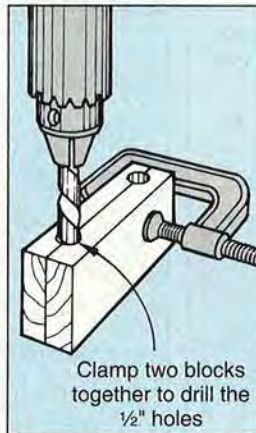
Mr. Price is also correct in suggesting that you turn off the charger before removing the leads. This eliminates the possibility of an electrical spark setting off the fumes. Additionally, I would suggest not smoking in the area, and to never perform this rust removal with a lid on the container. An accumulation of these fumes could cause an explosion of sufficient force to cause injury from both impact and the caustic solution.

— Rick Collins Sr., Dearborn Heights, Mich.

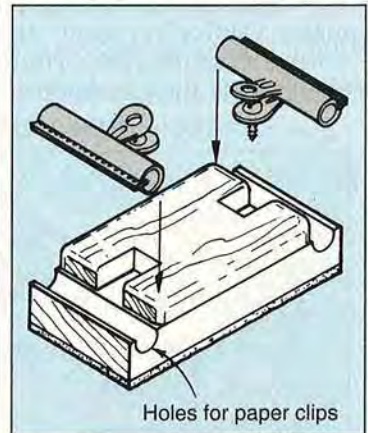
Groovy sanding block

The "Paper Clips Grip Sandpaper on Block" tip from Rene Stebenne in the June 1993 issue is an excellent idea. After purchasing the clips and installing them as you suggested, I decided to try drilling a groove across the block for the clip body to rest in. It worked out beautifully, holding the sandpaper more firmly. 🐼

— Bob Theimos, Whittier, Calif.



Clamp two blocks together to drill the 1/2" holes



Holes for paper clips

EARN CASH, PRIZES FOR YOUR TOP SHOP TIP

Do you have a great shop tip (or two) you'd like to share with other WOOD® magazine readers? For each published submission, you will receive at least \$40 from WOOD magazine. (You could get as much as \$200 if we devote a page or more of space elsewhere in the magazine to your idea.) You also may earn a woodworking tool if yours is chosen as the Top Shop Tip for the issue.

We try not to use shop tips that have appeared in other magazines, so please send yours to only one. *We do not return shop tips.* Mail your tip(s), address, and day-time phone number to:

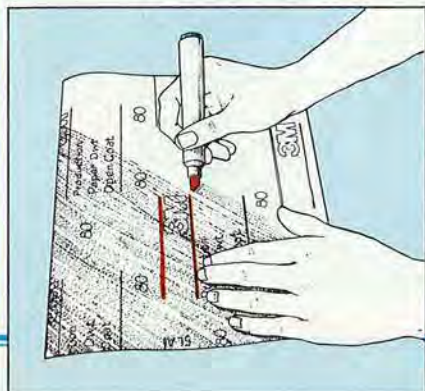
Top Shop Tip
WOOD Magazine
1912 Grand Ave.
Des Moines, IA 50309-3379

Colors denote grit on cut-up sandpaper

When you cut a sheet of sandpaper into smaller pieces, you can bet several won't have the grit number on the back. That makes it tough to pick the one you need.

TIP: Before you cut the sheet, scribble a crosshatch pattern on the back with a colored marker. Each cut piece then will have colored lines on the back. Use a different color for each grit, and make a color-key chart to keep with the sandpaper. Then, you can identify the grit readily.

—Daniel Angert, Orlando, Fla.

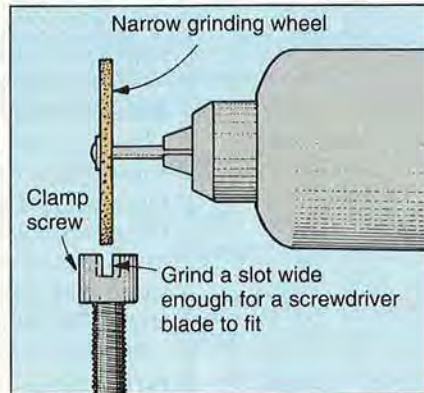


Slot lends new life to scrollsaw screws

Lots of scrollsaws employ allen-head screws to clamp the blade holders onto the blade ends. Repeated loosening and tightening wears out the hex-shaped recess in the clamp-screw head, making it impossible to tighten the blade clamp sufficiently with an allen wrench.

TIP: Cut a slot in the clamp-screw head. A hacksaw with two blades or hand-held rotary tool with a narrow grinding wheel will do the job in short order. When you're done, you'll have a blade clamp you can tighten and loosen with an ordinary screwdriver.

—Robert T. Hernandez, Krebs, Okla.



For his tip, Robert receives a Dremel model 3952 variable-speed Moto-Tool super kit, shown left.

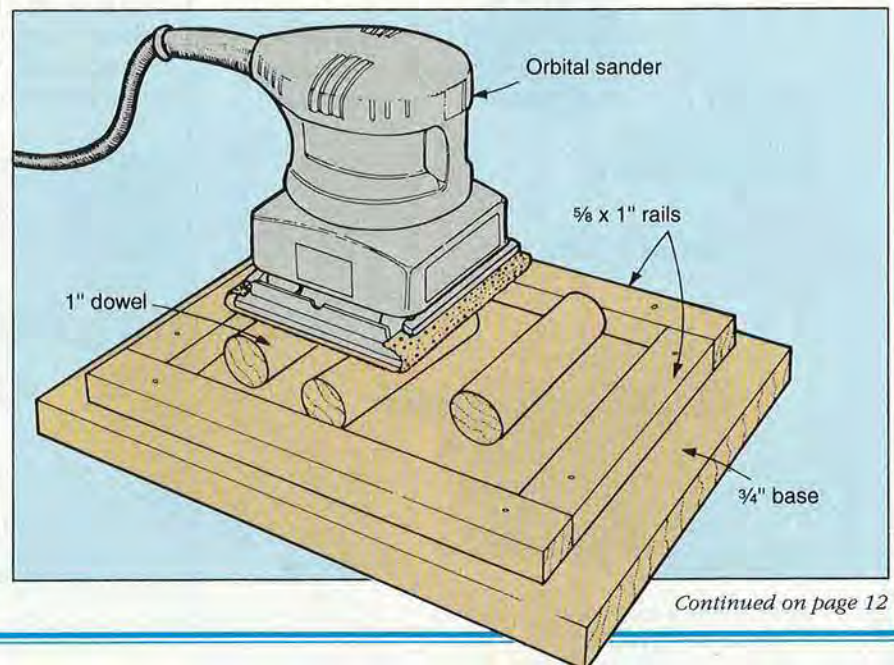
Corral those dowels when sanding time rolls around

You've cut some short dowels for toy parts. Now you need to sand them, a chore that's slow-going.

TIP: From scrapwood a little more than half the thickness of your dowels ($\frac{5}{8}$ – $\frac{3}{4}$ " thick if you're sanding 1" dowels, for example), cut two 1"-wide strips about 12" long and two a little longer than your dowels. Arrange the strips in

a rectangle on a base of plywood or other suitable material, and tack them down. Now, round up your dowels and corral a few at a time inside the fence. Turn on your orbital finishing sander and roll it back and forth on the dowels. The fence strips will keep the dowels from getting away as you sand them quickly and effectively.

—Frederick Koster, Yorktown Heights, N.Y.



Continued on page 12

HOW TO FIND YOUR WAY THROUGH THE WOODS.

In woodworking, every project is an adventure. You explore the wood, studying its grain, searching for something hidden within.

Your goal is to emerge, weeks later, with a proud souvenir. A planter. A Shaker chair. Or perhaps a rustic chest of drawers.

Ironically, the ease of any woodland journey depends largely on a decision you make *before* embarking. Your choice of tools.

To this end, a move in the right direction is Skil Woodshop Tools.™

Skil Woodshop Tools are a full line of woodworking tools designed to make any project a pleasure.

Every step



of the way. Confidently enter the thickest woods with the new HD 3640 10" benchtop band saw. Its powerful induction motor makes small work of resawing stock up to 7 inches wide. And afterward, navigate intricate curves on the large, tilting table that adjusts from -6° to 50°.

Whatever your plans call for next, the HD 1875 plunge router is sure to be part of them. Its 2½ hp motor can carve signs, cut joints and trim decorative edges with power to spare.



For accurate, repetitive drilling, the new HD 3580 13" benchtop drill press is exactly what you need. Its exclusive fence can be set a precise distance from the drill bit, to ensure consistency from first hole to last. This unique fence also offers plenty of room to clamp



down your workpiece for added support.

When it's time for assembly, try the innovative HD 1605 plate joiner.

Simply cut matching slots, pop in a wooden biscuit, glue and you have yourself a quick, durable joint.



Once it's all together, give your project a

once over with the HD 7575 palm grip sander. The 7575 performs an exacting ¼" orbit 13,000 times a minute for a fast finish.

Next time you explore the woods, bring along the perfect traveling companions—Skil Woodshop Tools. You'll find those shown here and other Woodshop tools in stores everywhere. Just look for this label.

It's a sure sign you're on the road to woodworking success.



SKIL®

TIPS FROM YOUR SHOP (AND OURS)

Continued from page 10

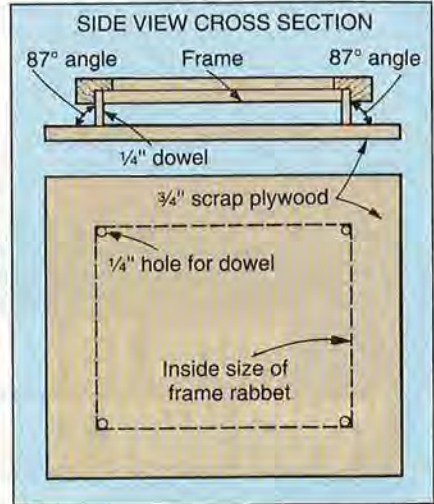
Fixture holds frames for easy finishing

When it comes time for finishing a picture frame, you often end up pushing it all over the benchtop. Most are just too light to stay put while you brush on finish, especially on the edges.

TIP: Build this fixture from a piece of plywood and four dowels, and you'll fear frame finishing no more. On the 3/4" plywood base, draw a rectangle the same size as the inside of the rabbeted

opening in the frame (5x7" for a frame that holds a 5x7" photo, for example). Drill a 1/4" hole inside the pencil line at each corner, angling it outward about 3°. Insert a 4" length of 1/4" dowel into each hole. For finishing a frame, press it onto the dowels—the tension created by forcing the dowels toward vertical will hold the frame firmly. You'll be able to reach the edges easily, too.

—Gene Washer, Shelburne Falls, Mass.



Paper mask prevents fogged-up glasses

You know you should wear a particle mask when you're making sawdust in your shop, but the rigid masks cause your glasses to fog up. Do you have to choose between breathing and seeing?

TIP: Disposable paper masks, the kind doctors and nurses wear,



work just fine with glasses. They're flat, and look somewhat like a pleated facial tissue. A thin strip of soft metal in the top edge conforms to the bridge of your nose; the elastic bands fit behind your ears to hold the mask to your face. Medical and sickroom-supply dealers sell the masks.

—Judy Coffey, Elk Grove, Calif.

Continued on page 15

SAVE BIG ON CLOSEOUTS & STOCK REDUCTIONS

- PANASONIC**
 EY571B 9.6V Cordless Drill \$119
 EY571BC with case 135
 EY970B 9.6v battery 39
- AIRY NAILERS**
 241SK 18 G Brad nailer Kit 119
 350K 16G Brad Nailer Kit 199
 626SK 1/4" Crown Stapler Kit 129

- MAKITA**
 BO4510 Square Pad Sander 49
 BO4530 Round Pad Sander 59
 BO5000 Rand. Orbit Sander 66
 LS 1030 10" Miter Saw 185
 9.6 V Battery 24.50
 7.2 V Battery 23.00
 9.6 V Flashlight 39.00
 3/8" Keyless Chuck 15.00

- AEG**
 EH102 4" Plane \$79
 E21320 Cord'less Screwdriver Kit 69
 STSE380 Jig Saw 69
 VS280 1/2 sheet sander 49

- BIESEMEYER**
 T50 50" Commercial Fence \$294
 HS52 50" Home Shop 235
 HS40 40" Home Shop 222
 TABLE SAW INSERTS 9.95

- SKIL**
 2735-08 12V Cordless 2 ball 129
 77-72 7 1/4" Wormdrive Saw 142
 7 1/4" Blades Box of 25 \$49.95

- DEWALT**
 DW682K Biscuit Joiner \$225
 DW100 3/8" 0-2500 Drill 67
 DW254 0-2500 Screwgun 87
 DW357 7 1/4" Circular Saw 109
 DW625 Plunge Router 275
 DW953K2 Cordless Drill w/2 batt 168

- FRIGIDAIR**
 Clamp 'n Tool Bench Clamp
 50C \$ 29.50 BB50 \$ 45.95
 38C 26.50 BB38 37.95
 24C 22.50 BB18 31.95

if you can plug it in...we've got it!

- Milwaukee**
 0234-1 1/2" Magnum \$119
 0222-1 3/8" Drill \$106
 0224-1 3/8" Magnum 114
 0375-1 3/8" RA Drill 127
 0379-1 1/2" FA Drill 145
 0300-1 RA Magnum 188
 5392-1 3/8" Hammer Drill 114
 6366 7 1/4" Circ.saw Kit 137
 6527 VS Super Sawzall 164
 6528 VS Super Sawzall 164
 6546-1 2 spd. Cord'less Screwdriver 81
 6583-1 HD ScrewShooter 145
 6747-1 Drywall gun 0-2500 103
 6977 Variable Heat Gun 76
 Dual range VS Sawzall \$132

- SMARTLEVEL**
 SL224 2' economy Level \$ 54
 PR24S 2' Pro Level w/case 88
 PR48S 4' Pro Level w/case 105

- STABILA**
 LEVELS - Hand holes. Two vertical-vials. Two milled faces. Yellow coat.
 2464 24" \$ 36
 2469 36" 39
 2467 48" 45
 2501 10" POKET LEVEL 24
 2699 6 ft -3vial 99
 2700 6 ft 6" -3vial 115
- Pocket Hole \$99**
 7pc Forstner Bit Set your choice
 7pc Countersink Set
 7pc Bradpoint Set \$17.95

- HITACHI**
C8FB Compound Miter Saw \$599 while supplies last
 Clamp for C8FB \$ 18.95
 Small Piece Fence 12.95
 80 Tooth Carbide Blade 39.95
 C10FA 10" Miter Saw 299
 315-1 7 1/4" Circular Saw 117
 C12FA 12" Miter Saw 314
 C.165VA Orbital Jigsaw Kit 155
 M12VK 3 1/4hp Ping'Rtr w/case 229
 TR12K Plunge Router/w/case 179
- NAIL GUNS**
 NR83A Framing Gun 374
 NT45A 16 g Finish Nailer 274
 NT65A 16 g Finish Nailer 317
 N3824A 1" Roofing Stapler 329

- SENCO NAIL GUNS**
 not available in all areas
 LS2 Planer 5/8" - 1" \$ 209
 SCN200R Coil Roofing Nailer 399
 SFN1 1" 2" Finish Nailer 269
 SFN2 Big Finish Nailer 369
 SKS 1/4" Crown Stapler 239
 SN60 New/Framing Nailer 399

- SLP 20 Pinner \$244**
 AM78HC2 11/2 HP-1 tank \$ 279
 AM78HC4V 11/2 HP-2 tank 299
- The Kreg Jig \$99**
 for joining faceframes, butt joints and other pocket hole applications

- PORTER/CABLE**
330 Palm Sander final cost \$49 after \$10 rebate from Porter-Cable
 100 7/8 hp Router \$ 102
 314 4-3/8" Trim Saw 135
 315-1 7 1/4" Circular Saw 117
 345 6" Saw Boss 102
 351 3x21 Belt Sander 144
 352 3x21 Belt Sander w/bag 148
 360 3x24 Belt Sander w/bag 184
 361 3x24 Belt Sander 179
 362 4x24 Belt Sander w/bag 190
 363 4x24 Belt Sander 187
 505 1/2 Sheet Sander 118
 TFD170-2 9" Cord'less Drill 2-batt. 148
 TFD220-2 12v Cord'less Drill 2-batt. 164
 TS260 10" Comp Miter 245
 TS380 15" Miter Saw 369

- RYOBI OSS450 Spindle Sander \$174**
 AG1200V Heat Gun \$ 39
 AP10 10" Planer \$ 379
 AP10 Replacement Blades 24.95
 BE321 3x21 Sander 128
 BT3000 Table Saw 539
 DS1000 New! Detail Sander 49
 JP155 6" Planer 299
 JM100K Biscuit Joiner 209
 QS1000 Quick Stand 49
 R50K Trimmer 2 base Special 99
 R7DK Trimmer 2 base Special 99
 RE600 3hp Plunge Router 209
 RS112 Random Orbit Sander 52
 SC160 Scroll Saw 138
 TFD170-2 9" Cord'less Drill 2-batt. 148
 TFD220-2 12v Cord'less Drill 2-batt. 164
 TS260 10" Comp Miter 245
 TS380 15" Miter Saw 369

- 69690 1 1/2 hp Router w/FREE CASE 145**
- tred**
 5 pc Router Bit Cabinet set \$158
 90-100 15 pc 1/4" Shank Bit Set 159
 91-100 15 pc 1/2" Shank Bit Set 179
 92-100 26 pc 1/4" Shank Bit Set 299
- LUB5M010 10" 80T Finish 58
 LUB4M011 10" 50T Combo 39
 LM72M010 10" 24T Rip 37
 LUB5M015 15" 108T Finish 105

- RYOBI OSS450 Spindle Sander \$174**
 AG1200V Heat Gun \$ 39
 AP10 10" Planer \$ 379
 AP10 Replacement Blades 24.95
 BE321 3x21 Sander 128
 BT3000 Table Saw 539
 DS1000 New! Detail Sander 49
 JP155 6" Planer 299
 JM100K Biscuit Joiner 209
 QS1000 Quick Stand 49
 R50K Trimmer 2 base Special 99
 R7DK Trimmer 2 base Special 99
 RE600 3hp Plunge Router 209
 RS112 Random Orbit Sander 52
 SC160 Scroll Saw 138
 TFD170-2 9" Cord'less Drill 2-batt. 148
 TFD220-2 12v Cord'less Drill 2-batt. 164
 TS260 10" Comp Miter 245
 TS380 15" Miter Saw 369

- DS1000 SANDPAPER**
 40,60,80,100,150 Grit, Assorted 10 pieces...\$3.25
- HOOK & LOOP SANDPAPER**
 PORTER/CABLE 5" discs 10 count
 BOSCH 5" discs 10 count
 MAKITA 5" discs 10 count
- All GRITS 10pc \$4.95**

- STIKON SANDPAPER**
 10 yards GOLD C weight discs
 Get 4 1/2" roll pieces 6" round 5" round
 60 N/A 100 pc 19.95 15.95
 80 10.95 100 pc 18.95 13.95
 100 9.85 100 pc 17.95 12.95
 120 9.85 100 pc 17.95 12.95
 150 9.85 100 pc 17.95 12.95
 180 9.85 100 pc 17.95 12.95
 220 9.85 100 pc 17.95 12.95
- CONSTRUCTION MASTER III**
 The world's best feet-inch-metric-fraction calculator. Solve ratters, hips, valleys, stairs
\$ 69

- BOSCH**
 1194VSR 1/2" Hammer Drill \$144
 1121VSR SDS Roto Hammer 197
 1604 1 3/4 hp Router 133
 1609K 3-base Trimmer Kit 173
 1942 Heat Gun 74
 3283DVS 5" R.O. Sander 95
 3050VSRK With 2 batteries 133
- 1581VS \$144**
VS Orbital Jigsaw

- BLACK & DECKER**
 1166 3/8" 0-2500 Holgun \$63
 1167 3/8" Drill w/Keyless Chuck 68
 1703 10" Miter Saw 105
 2038 0-4000 rpm Drywall gun 99
 2670 1/2" Impact 139
 2664K Cyclone 9.6v Cordless 139
 2665K Cyclone 12v Cordless 159
 2720 1.5 hp Router 1/4" collet 129
 2721 1.5 hp Router 1/2" collet 139
 2750 Mini Grinder 82

- 3338 Plunge Router \$239**
- DELTA**
37-070 \$249
6" Table Top Jointer
 11-950 8" bench Drill Press \$144
 14-650 Hollow Mortise Chisler 299
 22-540 12" planer 399
 28-180 10" band saw 164
 31-050 1" belt sander 78
 31-080 1" Belt 5" Disc Sander 93
 32-100 Plate Joiner 264
 33-060 Sidekick F&T Saw 368
 36-040 8" Compound Miter 155
 36-090 Sidekick 10" Miter Saw 218
 38-220 10" Compound Miter 234
 40-115 15" Scroll Saw 179
 40-560 16" Scroll Saw 179
 40-640 20" Scroll Saw 324

USE VISA, MC, DISCOVER
FREE SHIPPING on orders from this add over \$50. Within continental 48 states, HI and AK extra. Sales limited to stock on hand.

ABBEY TOOLS

1-800-225-6321

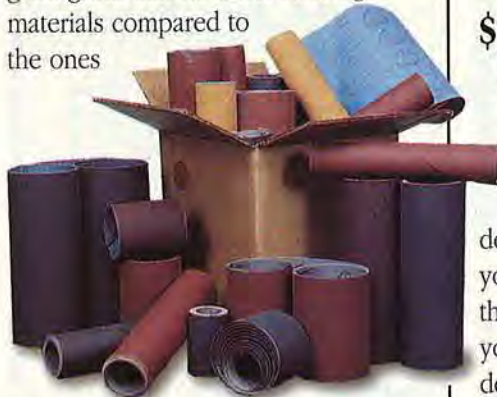
1132 N. MAGNOLIA, ANAHEIM CA. 92801
 OPEN 8-5:30 WEEKDAYS 9-2 SATURDAY
 Calif. residents add 7.75% state sales tax
SERVING YOU FOR OVER 15 YEARS
 Prices subject to change without notice

HOW DOES A MAJOR MANUFACTURER OF ABRASIVES EFFECT THE WOODWORKING HOBBYIST?

Or How Does A Simple Idea Grow Into A Catalog?

Klingspor's Sanding Catalogue came about in early 1989. Having manufactured the highest quality abrasives since 1893, Klingspor Abrasives found a way to offer the woodworking hobbyist the same products the largest furniture manufacturers in the world use—truly industrial grade materials.

A simple "Bargain Box" got the whole idea in motion. Twenty pounds of sanding materials left over from our automated manufacturing systems were packed into a box and sold at the unbelievable price of only **\$29.00** (plus **\$3.50** shipping and handling)! Some of the more daring woodworkers out there, not knowing what they were getting into, gave this deal a try. In no time, the word was getting out that no other sanding materials compared to the ones



\$29 BARGAIN BOX

Choose any combination of coarse, medium or fine grit.

offered in the Bargain Box. One thing lead to another and a small catalog was born. Most of you have probably seen, heard of or even ordered from

Klingspor's Sanding Catalogue over the years and the good news is the Bargain Box is still available. You simply cannot get a better deal anywhere—you choose the grits you want in any combination of C=coarse, M=medium or F=fine.



\$29 BOX OF BELTS

Choose from 2 1/2" x 16", 3" x 18", 3" x 21", 3" x 24", 4" x 21" and 4" x 24".

Then to further the story, **Klingspor's Sanding Catalogue** developed another "Bargain" to show you, the woodworker, the quality of the materials offered and to entice you to order and get the value you deserve from your sanding products. What came about next rocked the whole woodworking industry—the "Box of Belts". How could a mail-order company possibly sell 36 sanding belts for only **\$29.00** (plus **\$3.50** shipping and handling)? That's only \$.80 per belt—totally unheard of! The most common portable belt sizes are

offered: 2 1/2" x 16", 3" x 18", 3" x 21", 3" x 24", 4" x 21" and 4" x 24" (the 4" wide belts have 30 per box) and the best part is you choose the grits. Extra coarse, coarse, medium, medium-fine, fine and extra-fine grits make this a no-lose situation. There are six belts in each grit pack (five in the 4" wide belts); you choose six of the packs in any combination and you've got your Box of Belts.

If you haven't tried Klingspor's Sanding products, order one of the bargains and get the value you deserve. Or if you'd rather see the entire catalog, simply mail the postage-paid card below for a free 1 year subscription.

ORDER TODAY!
1-800-228-0000



So, see for yourself; prompt delivery, excellent service and guaranteed **The Most Sanding Power For Your Money!**



Klingspor's Sanding Catalogue
PO Box 3737
Hickory, NC 28603-3737



**WE'VE GOT
A DEAL
FOR YOU...
AND IT'S WORTH
100 BIG ONES!**

**JET is offering rebates
of up to \$100!**

Why buy JET? Because up to 100 big ones can be yours when you buy JET's most popular woodworking tools between September 15, 1993 and February 28, 1994. So, get your mug into your local JET dealer, make your purchase, and pick up a rebate coupon.

Don't wait; me and the boys think this is a great deal you shouldn't refuse.

For the name of the JET dealer nearest you, or for more information, call 1-800-274-6848 between 7 AM and 4 PM Pacific Time.

**JET'S
GOT
IT!**

JET
EQUIPMENT & TOOLS



WBS 14CS
Closed Stand or
WBS 14OS
Open Stand
Bandsaw

\$25 Rebate

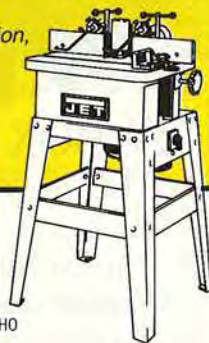
WBS 14MW
3 Speed Bandsaw

\$35 Rebate



JWL 1236
Woodworking Lathe

\$25
Rebate



JWS 18HO
Shaper

\$25
Rebate



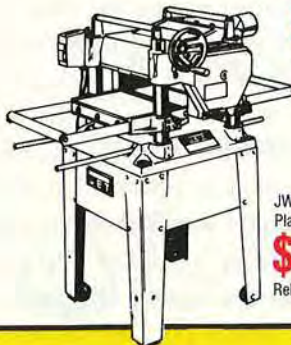
JJ 6CS
Jointer

\$25
Rebate



JTS 10JF
Tablesaw

\$25
Rebate



JWP 15HO
Planer

\$100
Rebate

JDP 17MF
Drill Press

\$25
Rebate



DC 1200
Dust Collector

\$25
Rebate



DC 650
Dust Collector

\$15 Rebate

Find out how good the NEW JET really is!

TIPS FROM YOUR SHOP (AND OURS)

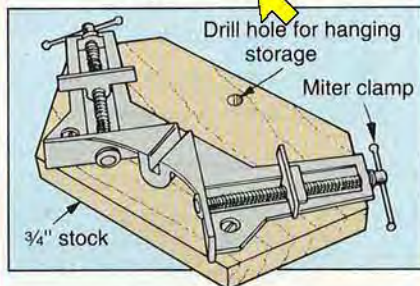
Continued from page 12

Base makes miter clamps handier to store and use

Your vise-type miter clamps take up a lot of drawer space between uses. It would be handier to hang them up, but they don't lend themselves to that.

TIP: Make a 3/4" scrapwood base with a hanging hole for each clamp. Set the clamp on your stock, and trace around it. Leave extra material for the base at the back of the clamp where shown. Bandsaw or scrollsaw along the base outline, and drill a 1" (or other convenient size) hanging hole where shown. Attach the clamp to the base. In addition to providing a handy hanging hole, the base elevates the clamp above the bench, making the handles easier to turn.

—David Hague, Warren, R.I.



MORE TIPS FROM OUR WOODWORKING PROS

- Make your blade and router table guards with 1/4" polycarbonate. This shatterproof material impressed us so much we specified it for our tablesaw miter jig, shown on page 34.

- Duplicate the stop system from the miter jig shown on page 38, and add it to your radial-arm saw fence for a quick-lock stop for cutting multiple pieces to the same length.

- Cut spline kerfs as illustrated on page 43 to add a bit of decoration and strength to your next mitered picture frame or jewelry box. ♣

- TRIPLE BRIGHT RUGGED CHROME HOUSING
- CONTOURED COMFORTABLE DESIGN
- POSITIVE EASY TO USE THUMB LOCK
- EASY TO READ DUAL MARKINGS FOR LOCATING STUDS
- PRO-TECH™ ANTI-CORROSION FINISHED BLADE

ARROW presents...

THE BRUTE

- TEMPERED STEEL BLADE REMAINS RIGID FOR APPROXIMATELY 7 FEET
- TRIPLE REINFORCED NON-SLIP END HOOK
- CALIBRATED FOR TRUE ZERO
- HEAT TREATED HIGH CARBON STEEL RETURN SPRING GIVES LONGER LIFE



RUGGED HEAVY DUTY PROFESSIONAL RULES!

AVAILABLE IN SIZES OF:

12' 16' 25' 30' 50' 100'

AND A MUST SEE 25' NEON GREEN

Available at Kmart and other leading stores everywhere.



ARROW FASTENER COMPANY, INC. 271 MAYHILL STREET, SADDLE BROOK, NEW JERSEY 07662
 IN UNITED KINGDOM: ARROW FASTENER (U.K.) LTD., 14 BARCLAY ROAD, CROYDON CRO 1 JN UNITED KINGDOM
 IN CANADA: JARDEL DISTRIBUTORS, INC., 6505 METROPOLITAN BLVD. EAST, MONTREAL HIP 1X9 QUEBEC

One Stop Wood Shop

Domestic and exotic hardwood plywood and lumber, marine plywood, over 30 species in stock—all under one roof.

Custom cutting services to your exact specifications with little or no waste at competitive prices! We specialize in bundling and shipping.

Call (617) 666-1340 today for catalog and quote.

Boulter Plywood Corp.
 24-WD Broadway, Somerville, MA 02145

Exclusive

CMT's new 8-piece Rabbet-Master Kit

Here's a super price on the most versatile Rabbeting Kit on the market. You'll get an 1-3/8"-diameter Rabbeting Bit, 6 top-quality bearings and an allen key to cut 6 of the most useful rabbets.

800-622 1/4" Shank

List: \$39.90

SALE: \$32.90

800-623 1/2" Shank

List: \$46.90

SALE: \$35.90

- Baked-on Teflon®.
- Antikickback design.
- Micrograin carbide edges.
- Fatigue-Proof® steel shanks and bodies.
- Shear angles that slice, not chop.



Cut 6 depths with one bit, simply by changing bearings!

1/2" 7/16" 3/8" 5/16" 1/4" 1/8"

Shipping and Handling \$4.00

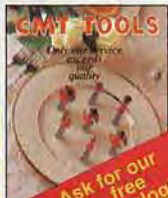
CMT TOOLS
5425 Beaumont Center Blvd.,
Tampa, FL 33634

Call toll-free 24-hours a day:

1-800-531-5559

813-886-1819 FAX: 813-888-6614

Dealer & export inquiries welcome
In Canada call 1-800-387-7005



Ask for our free catalog!

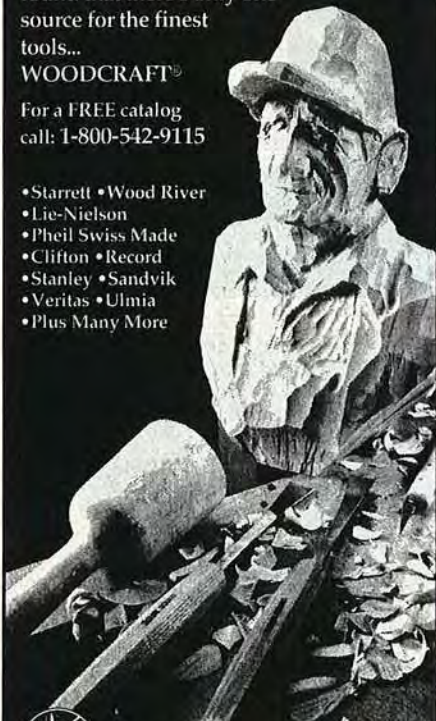
Fine Woodworking Tools...

Since 1928, demanding craftsmen have found that there's only one source for the finest tools...

WOODCRAFT®

For a FREE catalog call: 1-800-542-9115

- Starrett • Wood River
- Lie-Nielsen
- Pheil Swiss Made
- Clifton • Record
- Stanley • Sandvik
- Veritas • Ulmia
- Plus Many More



WOODCRAFT®

Woodcraft Supply Dept. 94W1015
PO Box 1686 Parkersburg, WV 26102-1686

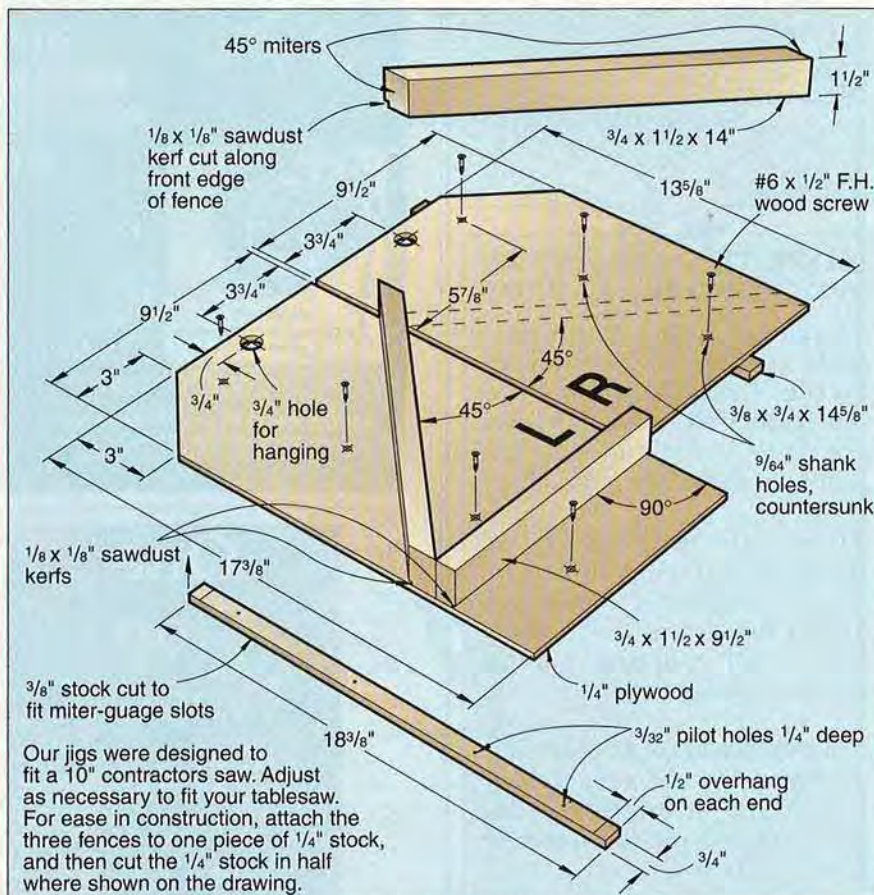
GREAT IDEAS FOR YOUR SHOP

HANDY MITER JIGS



Cutting square and accurate 45° miters just got a whole lot easier with these angled tablesaw miter jigs. The jig marked R on the drawing fits on the right-hand side of the blade as shown *above left*. The jig marked L, shown *above right*, fits into the miter-gauge slot on the left-hand side of the tablesaw blade.

Use either jig for miter-cutting 45° angles. Or, turn the jig marked L end for end, and use the fence to support pieces when crosscutting them at 90° as shown in the photo *above right*. Carefully position and glue the 3/4x1 1/2" guides in place; the angles cut are only as accurate as the positioning of the guides. ♣



Our jigs were designed to fit a 10" contractors saw. Adjust as necessary to fit your tablesaw. For ease in construction, attach the three fences to one piece of 1/4" stock, and then cut the 1/4" stock in half where shown on the drawing.

Design copyrighted by WOOD magazine

RBI Hawk Precision Scroll Saws



Hawk Scroll Saws are perfect to begin or complement any workshop. Cut wood, metal, glass, plastic, fabric and more. It's the most versatile tool you'll own.

**A Few Reasons Why
RBI Hawk Scroll Saws
Are The Best You Can Buy.**

Patented Quick Change Blade Holder — for the fastest and easiest positioning of saw blades there is.



Patented Rear Cam-Over — quick and easy tension setting. An RBI exclusive feature.



Patented Hold Down Foot — for maximum control when making intricate cuts.



Patented Cam-Over Tension and Upper Blade Holder — allows you to change blades in just seconds and make inside cuts quick and easy.



Extra Large Cast Aluminum Table — tilts full 45 left & right unlike other scroll saws which tilt only one way.

Safety Stop & Spring — assures safe operation even when a blade breaks.

Flex Bellows — keeps work area clear for better visibility and safety.

Precision Crafted Steel Base & Legs — for smooth, vibration free operation.

If Only Leonardo Da Vinci Had An RBI Hawk Scroll Saw.



Artwork created by intarsia artist David Irwin

The Good News Is That You Can.

Leonardo would have envied the superior craftsmanship that goes into every RBI Hawk Precision Scroll Saw. Now you'll create the woodworking projects you've always dreamed of building.

Imagine creating beautiful crafts and toys, tole painting cutouts as well as intricate, detailed fretwork and inlays for chairs, cabinets, tables, and much more. With an RBI Hawk, you'll create projects that will be treasured...year after year.

What size saw is best for you?

We make three sizes of variable speed scroll saws — a 16", 20" and 26" model. Our customer representatives will be glad to assist you in choosing the saw that's just right for the artist in you.

RBI, the renaissance in scroll saw technology.

RBI Hawks are designed and manufactured in the United States for the professional shop and the demanding hobbyist. After all, you're the first one to know that the projects you create are only as good as the tools you use.

RBI has everything you need right at your fingertips.

We also have the very best selection of accessories including blades, instructional and pattern books, and much, much more.



With RBI Hawk Scroll Saws you'll make toys, crafts, gifts, furniture and more.

**Call 1-800-487-2623 To Order
or To Get Your FREE Catalog.**

Our Guarantee To You

**30-Day Money Back Guarantee
3-Year Warranty
(1 Year on Motor)**

rbiindustries
The American Tool Manufacturer

1801 Vine St. • PO Box 369
Harrisonville, MO 64701

Build a **SHOP OF YOUR OWN**
for prices you could only
dream about

LIMITED OFFER



EASY DO-IT-YOURSELF CONSTRUCTION
PACKAGES INCLUDE STEEL, FRAMES,
SHEETING AND HARDWARE

30X36
Value \$7,751
NOW \$3,975

36x48
Value \$12,145
NOW \$6,220

40x60
Value \$17,250
NOW \$8,846

46x72
Value \$25,143
NOW \$12,894

Other Sizes Available



1-800-843-8275
FAX 612-544-1835

Made in America

WM



WOOD TRADITIONS IN OTHER
LANDS

JAPAN

A YEN FOR SLOW GROWTH

Roughly the size of California, Japan enjoys forest reserves on 68 percent of its land, yet the country imports 70 percent of its wood supply. Why? Because to the Japanese, beauty still ranks as the most important aspect of wood. And in Japan, wood beautiful enough to use in time-honored fashion can't be hurried to maturity.

Even with today's emphasis on technology and concrete-and-steel construction, the tradition-minded Japanese who can afford a wood home insists on *sugi*, a cedar, and *binoki*, a cypress, for interior millwork and trim. To create

the poles of polished, figured *sugi* that define the *tokonoma* (place of honor) in a Japanese household, foresters wrap 20-year old trees in colored plastic or with bamboo poles and elastic cords. This eventually imprints *shibo*, a crinkle figure, in the wood grain and makes the wood more desirable at harvest. Such a post, when dimensioned to 4x4x13', may be worth as much as \$7,000!

To satisfy less wealthy buyers, *sugi* is sliced into thin veneer, and then applied to imported Douglas fir or pine timbers. The Japanese prefer even a veneer of their favored wood over a solid timber of any imported species. To replace the native *hinoki*, once represented by vast forests felled during the Second World War, the country imports a similar cypress



After two or three years of bondage, these Japanese cedar trees will display evidence of the favored crinkle figure called *shibo*.

species from Taiwan and Southeast Asia.

Other species have their historic place, too. There's *keyaki*, a hardwood that looks like elm, for cabinets and house construction. *Tsugu*, a yellowish spruce, dominates home frameworks. For roof beams, carpenters look to *akamatsu*, a red pine. *Kashi*, an oak, becomes cabinets and household implements. Purely decorative elements, such as trim, can be made of *momiji*, a maple. *Kiri*, called royal paulownia in the U.S. where it has become naturalized, has always been made into boxes for storing precious contents. That's because it swells airtight in the island nation's dampness. And finally, there's *kuwa*, a mulberry that's hard, durable, and perfect for handles and door pulls.

Illustration: Jim Stevenson

FREE SHIPPING

DECK THE HALLS

Love & Joy
Lg. 27" h x 94" w
Sm. 9" h x 29" w

Deck The Halls
Lg. 28" h x 46" w
Sm. 9-1/2" h x 15-1/2" w

LOVE & JOY

Get Both Above Small Patterns For Just \$9.95
Both Above Large Patterns For Just \$14.95

Holiday Helpers

Sm. - 6" to 7" tall - \$9.95 Lg. - 15" to 22" tall - \$14.95

With these Happy Helpers you could spread a lot of Holiday Cheer! Small size is great for mantle or wall and the large for yard or front porch. Plans are full scale. Easy to follow instructions include materials list. Order today at 800-765-0176.

Please send: Deck the Halls and Love & Joy Lg. Sm. Holiday Helpers Lg. Sm.

Name _____
Address _____
City _____ State _____ Zip _____

Enclosed is my check or money order for \$_____ made out to
TIMELESS DESIGNS Add \$2.95 for shipping & handling **Free!**

Please bill my: MASTERCARD VISA Exp. Date _____

Card # _____ Signature _____

MAIL TO: TIMELESS DESIGNS
P.O. Box 676 · Whitewater, WI 53190
SATISFACTION GUARANTEED

What it takes to cut it as a Consumers Digest Best Buy.

You don't get named a *Consumers Digest* Best Buy without working at it. You have to be an *outstanding* value. That's the Dremel 1671 Scroll Saw.

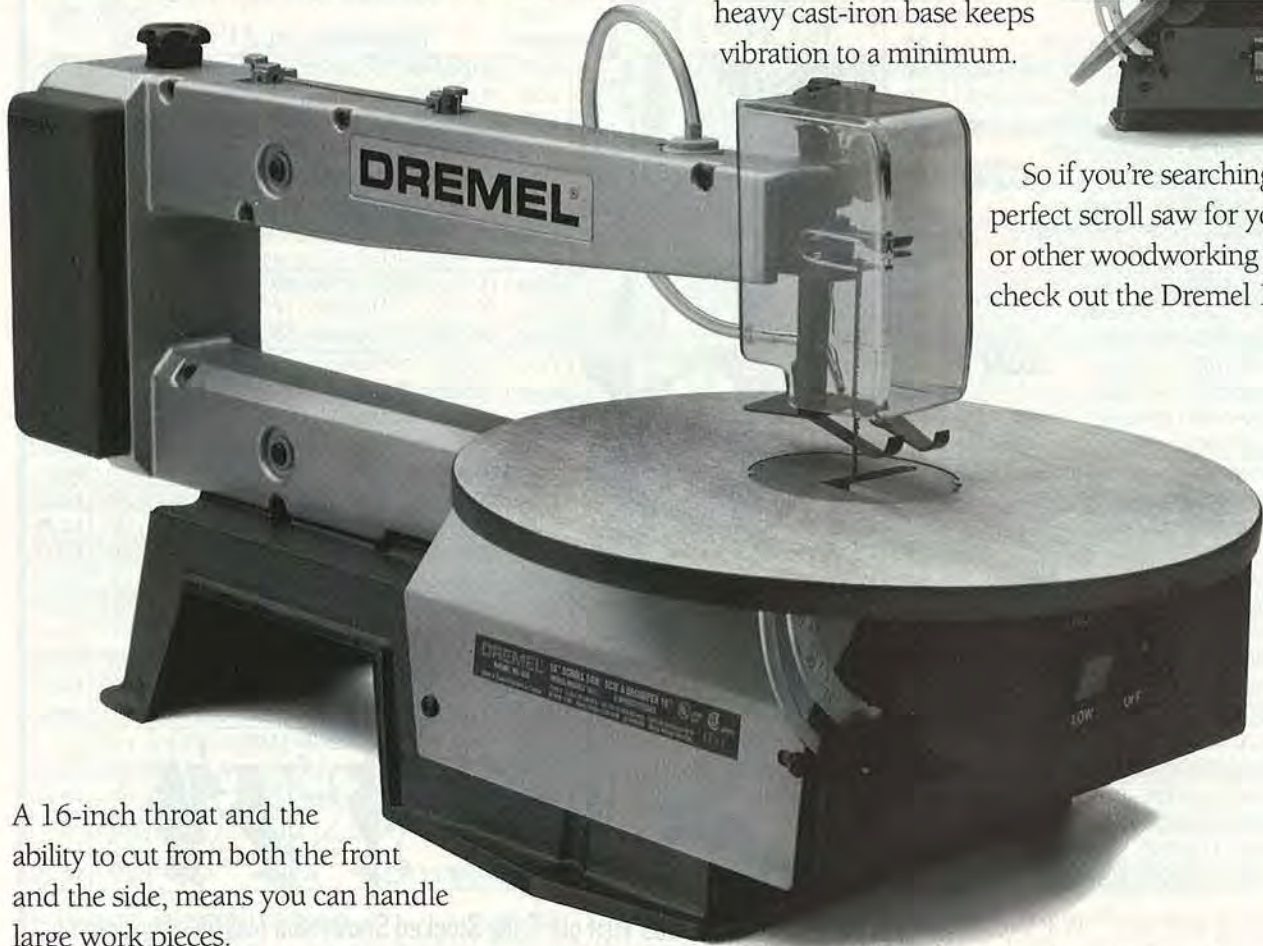
The Dremel 1671 has a lot of features that make it a pleasure to use. It has two cutting speeds and a powerful motor that lets you buzz through wood up to two inches thick, as well as sheet metals and plastics.

The sturdy, 12-inch cast aluminum table is adjustable from 0° to 45° for accurate bevel cuts up to 1-inch thick.

Of course, not all the features of the Dremel 1671 Scroll Saw are as obvious. A special mechanism quickly stops cutting action if the blade breaks. And the heavy cast-iron base keeps vibration to a minimum.



So if you're searching for the perfect scroll saw for your craft or other woodworking projects, check out the Dremel 1671.



A 16-inch throat and the ability to cut from both the front and the side, means you can handle large work pieces.

The saw accepts both plain- and pin-end blades, for the greatest possible cutting versatility. The see-through blade guard pivots out of the way for easy blade changing.

And a convenient sawdust blower keeps your cutting line clear for accurate cuts.



And see why *Consumers Digest* placed it a cut above the rest.

For a free copy of the *Dremel Scroll Saw Blade Application Guide* write to: Dremel, Dept. S-W, P.O. Box 1468, Racine, WI 53406-1468.

DREMEL®



MLCS

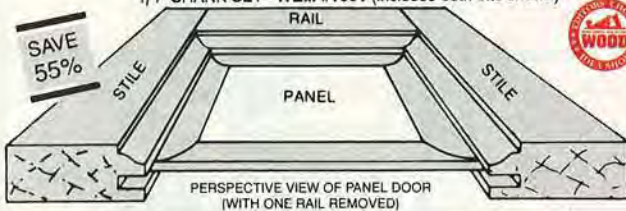
MAKE BEAUTIFUL RAISED PANEL DOORS WITH YOUR . . . 1/4" or 1/2" ROUTER . . . 1/2" or 3/4" SHAPER

Professional production quality bit makes it quick and easy to produce matching rails and stiles — the panel raising bit with ball bearing guide makes the raised panel perfect every time.

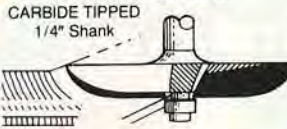
SALE PRICE **\$69.95** Regular value over \$150.00!
FOR COMPLETE SET
1/4" SHANK SET - ITEM #1301 (includes both bits shown)

SET ALSO AVAILABLE IN 1/2" SHANK - \$79.95 - ITEM #1302

Shaper Cutters set: Item #1303
SAVE! only \$99.95
Set: Rail & Stile & Raised Panel Cutters



RAISED PANEL BIT
SUPPLIED WITH BALL BEARING
2" Large Diameter
CARBIDE TIPPED
1/4" Shank



REVERSIBLE COMBINATION RAIL and STILE BIT
(For making matching rails and stiles in raised panel doors, etc.) Works with stock from 11/16" to 7/8" thick



CARBIDE TIPPED ROUTER BITS • PROFESSIONAL PRODUCTION QUALITY GUARANTEED WHEN ORDERING ANY THREE OR MORE DEDUCT \$1.00 EACH. • FREE SHIPPING IN CONTINENTAL U.S.

ITEM NUMBER	DESCRIPTION (ALL 2 FLUTE)	SHANK SIZE	PRICE		ITEM NUMBER	DESCRIPTION (ALL 2 FLUTE)	SHANK SIZE	PRICE
#1306	CLASSICAL - 3/16" Radius — 5/8" Cutting Length	1/4"	\$22.50		#1337	FLUSH TRIM - 3/8" Diameter — 1" Cutting Length	1/4"	\$ 7.50
#1307	CLASSICAL - 1/4" Radius — 3/4" Cutting Length	1/4"	\$25.00		#1338	FLUSH TRIM - 1/2" Diameter — 1" Cutting Length	1/4"	\$ 8.00
#1308	CLASSICAL - 3/16" Radius — 5/8" Cutting Length	1/2"	\$22.50		#1339	FLUSH TRIM - 1/2" Diameter — 1-3/16" Cut.Length	1/2"	\$ 8.00
#1309	45° CHAMFER - 3/8" Cutting Length	1/4"	\$13.00		#1340	PATTERN / FLUSH TRIM - 1/2" Diameter	1/4"	\$15.00
#1310	45° CHAMFER - 5/8" Cutting Length NEW!	1/4"	\$15.00		#1341	PATTERN / FLUSH TRIM - 3/4" Diameter NEW!	1/4"	\$17.00
#1311	45° CHAMFER - 5/8" Cutting Length	1/2"	\$17.00		#1342	PATTERN / FLUSH TRIM - 3/4" Diameter	1/2"	\$19.00
#1312	THUMBNAIL - 1- 3/16" Large Diameter	1/4"	\$18.50		#1343	KEYHOLE CUTTER - 3/8" (bit not shown)	1/4"	\$ 8.50
#1313	THUMBNAIL - 2-1/2" Large Diameter	1/2"	\$35.00		#1344	KEYHOLE CUTTER - 1/2" shown	1/4"	\$ 9.00
#1314	ROUND OVER - 1/8" Radius	1/4"	\$11.00		#1345	DOVETAIL (HSS) - 1/4" Diameter — 7-1/2"	1/4"	\$ 6.50
#1315	ROUND OVER - 3/16" Radius	1/4"	\$11.00		#1346	DOVETAIL - 1/2" Diameter — 14° NEW!	1/4"	\$ 6.00
#1316	ROUND OVER - 5/16" Radius	1/4"	\$14.00		#1347	DOVETAIL - 1/2" Diameter — 14°	1/2"	\$ 6.50
#1317	ROUND OVER - 1/4" Radius NEW!	1/2"	\$12.00		#1348	BEADING - 1/4" Radius	1/4"	\$13.00
#1318	ROUND OVER - 3/8" Radius	1/2"	\$15.50		#1349	BEADING - 3/8" Radius	1/4"	\$15.50
#1319	ROUND OVER - 1/2" Radius	1/2"	\$17.00		#1350	BEADING - 1/2" Radius	1/4"	\$17.00
#1320	ROUND OVER - 3/4" Radius	1/2"	\$21.00		#1351	LOCKMITRE - 7/8" Cutting Length NEW!	1/4"	\$32.00
#1321	MULTIFORM MOULDING - 15/16" Carbide Height	1/4"	\$40.00		#1352	LOCKMITRE - 1-1/8" Cutting Length	1/2"	\$45.00
#1322	MULTIFORM MOULDING - 2" Carbide Height	1/2"	\$40.00		#1353	OGEE RAISED PANEL - 2" Large Diameter	1/4"	\$28.00
#1323	SLOT CUTTER - 3/8" Deep	1/4"	\$14.00		#1354	OGEE RAISED PANEL - 2-3/4" Large Diameter	1/2"	\$32.95
#1324	RABBETING - 1/4" Deep	1/4"	\$15.00		#1355	EDGE BEADING - 3/16" Diameter of Circle	1/4"	\$15.00
#1325	RABBETING - 3/8" Deep NEW!	1/4"	\$13.00		#1356	EDGE BEADING - 5/16" Diameter of Circle	1/4"	\$15.50
#1326	RABBETING - 3/8" Deep	1/2"	\$13.00	#1357	SPIRAL UPCUT - 1/8" Diameter (solid carbide)	1/4"	\$ 9.00	
#1327	CORE BOX - 3/8" Large Diameter	1/4"	\$11.00	#1358	SPIRAL UPCUT - 1/4" Diameter (solid carbide)	1/4"	\$12.00	
#1328	CORE BOX - 1/2" Large Diameter	1/4"	\$13.00	#1359	SPIRAL UPCUT - 1/4" Diameter (solid carbide)	1/2"	\$12.00	
#1329	CORE BOX - 3/4" Large Diameter	1/4"	\$15.00	#1360	SPIRAL UPCUT - 3/8" Diameter (solid carbide)	1/2"	\$24.00	
#1330	BULL NOSE - 1/2" Diameter of Circle	1/4"	\$16.00	#1361	SPIRAL UPCUT - 1/2" Diameter (solid carbide)	1/2"	\$29.00	
#1331	BULL NOSE - 3/4" Diameter of Circle	1/4"	\$21.00	MOULDING PLANES				
#1332	BULL NOSE - 3/4" Diameter of Circle	1/2"	\$21.00	#1362	1" C.L.	1/4"	\$24.95	
#1333	TONGUE & GROOVE - Straight	1/4"	\$29.00	#1363	1-5/8" C.L.	1/2"	\$29.95	
#1334	TONGUE & GROOVE - Straight	1/2"	\$29.00	#1364	1-5/8" C.L.	1/2"	\$31.95	
#1335	TONGUE & GROOVE - Wedge	1/4"	\$29.00	#1365	1" C.L.	1/4"	\$31.95	
#1336	TONGUE & GROOVE - Wedge	1/2"	\$29.00	#1366	1-11/16" C.L.	1/2"	\$31.95	

* (proper adapter will be supplied)

FREE — NEW 40 PAGE CATALOG • While in the Philadelphia Area Visit our Fully Stocked Showroom (call for easy directions)

CONTROL THE SPEED OF YOUR ROUTER

ROUT AT THE SPEED THAT GIVES THE BEST RESULTS WITH THE WOOD AND BIT YOU ARE USING!



FEATURES:

- Works With All Routers 3/4 HP or less - 120V 15 Amp.
- Full Horsepower and Torque at All Speeds.
- Gives Your Router a Feature Only Available on Routers Costing Hundreds of Dollars!

~~139.95~~
SALE \$29.95
Order Item #1304
Free Shipping in Continental U.S.



FORSTNER BITS For Perfect Holes

Forstner bits are designed to drill flat bottom or through holes cleanly in end grain, thin stock, veneers and regular stock. Comes with its own attractive wood box and includes the following sizes: 1/4", 3/8", 1/2", 5/8", 3/4", 7/8", 1", 1 1/8", 1 1/4", 1 3/8", 1 1/2", 1 5/8", 1 3/4", 1 7/8", 2", 2 1/8".

Regularly \$99.95

Special Sale \$79.95
16 Piece Set Order Set #1305
Free Shipping in Continental U.S.



©1993

To order by Master Charge, Visa, or Discover
Call Toll Free, 7 Day - 24 Hour Order Service

1-800-533-9298

or send check to: **MLCS Ltd.**
P.O. Box 4053 DX, Rydal, PA 19046

YELLOW POPLAR

The do-everything wood that's priced right

Ask a forester familiar with eastern hardwoods about yellow poplar, and he'll talk about tuliptree. And when a New England architect specifies whitewood, he most likely means yellow poplar. Talk to a lumberman about yellow poplar, though, and you'll both speak the same language because this tree represents the most valuable commercial species of the eastern forests.

Even before the first settlers arrived, New York's Onondaga Indians were very familiar with "the white tree." From its easily worked pale wood, they made canoes and utensils. When colonists arrived, the newcomers learned to craft what they soon called yellow poplar into everything from berry baskets and boxes to trim and furniture.

Today, the wood remains just as versatile. No other species can match yellow poplar's variety of uses. It becomes construction lumber, moldings, plywood cores, drawer sides, matches, piano and organ actions, containers, paper, woodenware, furniture parts, and even caskets.

Wood identification

Yellow poplar (*Liriodendron tulipifera*) shares the family tree with magnolia. But because of its relatively soft wood, a trait that resembles the true poplars like eastern cottonwood and the aspens, it long ago gained association with these trees.

Growing to its greatest size in the southern Appalachian Mountains, yellow poplar reaches heights of 150' and diameters greater than



8'. Frequently, these forest trees will be clear of branches for the first 80' to 100'!

In its range, yellow poplar prefers to grow singly among pines and other hardwoods, rather than in pure stands. But you'll have little trouble recognizing this tree. The sometimes 2"-thick, gray-brown bark of mature trees has deep furrows between its ridges. Summer brings yellow poplar's greenish-yellow, tuliplike blooms among the tree's glossy, saddle-shaped leaves. In winter, yellow poplar's inedible, conical fruit remains on its branches.

At about 28 pounds per cubic foot dry, the wood of yellow poplar weighs two-thirds as much as black walnut. It's also about half as strong and hard. However,



Natural range

the medium-textured wood is straight-grained.

Although the yellow poplar sapwood has a creamy tone, its heartwood ranges in color from tan to gold, often with streaks of blue, gray, and purple. These highlights make up for the wood's otherwise plain grain.

Uses in woodworking

With strength sufficient for most projects, good stiffness, stability, and wear resistance, it can become furniture, trim, toys, and cabinets. For bowls and treenware, it carries no odor or taste. Unless you're going to paint your project, though, limit yellow poplar's use to indoors.

Availability

Abundant throughout its eastern range, yellow poplar becomes less available farther west. Where you find it, expect widths up to 20", thicknesses to 3" or more, lengths to 16', and a cost of about \$2 per board foot, even when surfaced. Only lumber is sold.

Continued

PERFORMANCE PROFILE

yellow poplar

(*Liriodendron tulipifera*)

Yellow poplar sapwood

Yellow poplar heartwood

Some woodworkers prefer the often striking colors of yellow poplar's heartwood. (Deep blue or purple streaks indicate mineral stains, a coloration that does not harm the wood.) If you prefer less colorful variation in your stock, specify sapwood or pick through the boards at your supplier for those of uniform tone.

Machining methods

Yellow poplar means good news if you like to work wood with hand tools (or would like to learn). It's kind to cutting edges, bits, and abrasives, so you can have some real fun project-building. But if power tools are your approach, keep the techniques in the box below in mind, and the following tips:

- Although yellow poplar isn't as hard as many other woods, it does have a tendency to burn. Use only sharp cutting edges.
- You also can avoid burning by keeping the stock (or the tool)

moving at a constant rate. To hesitate allows the cutter to heat up enough to burn.

- Drilling hardwoods usually requires a slower rpm than drilling softwoods. With yellow poplar's tendency to burn, however, you'll want to speed up the process. And in thick wood, or with large-diameter bits, raise the bit occasionally to clear chips from the hole.

- Yellow poplar is a good wood on which to practice your hand-planing skills. With a finely honed cutter, it planes nearly as smooth as glass. Sanding produces equally fine results.

- In joining, the wood holds nails and screws quite well, and it takes all types of glues.

- Staining poses about the only finishing problem you'll have with yellow poplar. As its name implies, the wood does have a yellow (and sometimes green) cast. And the possible color variations in heartwood make results unpre-

dictable unless you first test the stain on scrapwood of the same tone. Clear finishes may require a toner to balance the differing colors of the wood surfaces.

- Yellow poplar rates as about the most paintable wood around, especially with enamels. Water-based paints and clear finishes tend to raise a slight fuzz. A primer, followed by light sanding before the finish coat, will still produce a great look.

Carving comments

The straight, even-grained wood of medium density won't threaten even beginning carvers. In fact, it's only a little harder than basswood, and holds details well. Note the finishing comments above though.

Turning tricks

Whether you scrape or shear, yellow poplar shouldn't cause you any problems on the lathe. It's great for functional bowls. ♣

SHOP-TESTED TECHNIQUES THAT ALWAYS WORK

Any exceptions and special tips pertaining to this issue's featured wood species appear under headings elsewhere on this page.

- For stability in use, always work wood with a maximum moisture content of 8 percent.
- Feed straight-grained wood into planer knives at a 90 degree angle. To avoid tearing, feed wood with figured or twisted grain at a slight angle (about 15 degrees), and take shallow cuts of about 1/32".
- For clean cuts, rip using a rip-

profile blade with 24-32 teeth. Smooth cross-cutting requires at least a 40-tooth blade.

- Avoid using twist drills. They tend to wander and cause break-out. Always use a backing board under the workpiece to reduce wood tearout.
- Drill pilot holes for screws.
- Rout with sharp, preferably carbide-tipped, bits and take shallow passes each time to avoid burning the wood.
- Carving hardwoods generally means shallow gouge bevels—15°-20°—and shallow cuts..

YELLOW POPLAR AT A GLANCE

Cost	\$ \$ \$ \$ \$
Weight	🐘 🐘 🐘 🐘 🐘
Hardness	T T T T T
Stability	▲ ▲ ▲ ▲ ▲
Durability	🕒 🕒 🕒 🕒 🕒
Strength	🦵 🦵 🦵 🦵 🦵
Toxicity	☠️ ☠️ ☠️ ☠️ ☠️
Workability	🪚 🪚
Look-alike:	Birch

Compiled with woodworkers Jim Boelling, Jim Downing, Chuck Hedlund Illustrations: Steve Schindler

Kansan Jerry Reinhardt and his parade of carved and painted animals bring back fond memories of America's captivating carousels

MERRY GO ROUND

MENAGERIE

"Like most people, I was a little shaver when I first rode a carousel. That was at Chicago's Riverview Park in the late 1940s. The drive to the city with my parents from our hometown in the cornfields took better than two hours in those pre-expressway days. But the experience was worth it. The huge horses were magnificently carved. Their coats of shiny bright paint and gilt flashed in the lights. And the strains that came from the carousel's grand band organ contributed to the fantasy world. As I remember, I had my favorite steed—a spotless white beauty bedecked with flags, stars, and ribbons. For turn after turn, I was Buffalo Bill drawing applause at

Continued



MERRY-GO-ROUND MENAGERIE

a roaring Wild West show. Today, Riverview is history. It closed in the 1960s. But its glorious carousel still goes around at Six Flags Over Georgia amusement park near Atlanta.

One of the 160 or so active wooden carousels in North America preserved intact by amusement parks, cities, or museums, the former Riverview merry-go-round reigns as monarch of yesteryear. Created by the Philadelphia Toboggan Co. (which made roller coaster rides, called toboggans back then) in 1908, the 69-horse, 40-ton machine is carefully maintained to provide memories for an untold number of youngsters, and to revive them in adults. Thanks to the caring members of the National Carousel Association (see *page 27*), who work to faithfully preserve the remaining wooden carousels around the country, there are still many memories to be made."

Peter J. Stephens

Senior Editor

An example of a Daniel Muller horse, circa 1910.



During the 60-year period from the 1870s to the 1930s, 6,000 or so carousels were manufactured in the United States. Today, however, only a few percent of them survive.

Why were they so popular? And what happened to them all? Jerry Reinhardt knows. He carves miniature replicas of historic carousel horses and other animals—as well as restores full-size ones—at his home in Stilwell, Kansas, and the 60-year old has a deep fascination with their story.

"First of all, carousels were real moneymakers. At five cents a ride, a carousel owner could pay off the cost of a machine in the first year," says the lanky Kansan. The excitement in his voice hints that there's a lot more to come.

"Why, on a good summer Sunday, a carousel could take in \$250—that's five thousand riders." Jerry pauses to cut a detail with a V-tool in the basswood animal before him. "And the bigger and prettier the carousel, the more people it drew.

"The trouble was," he continues, "carousels took a beating. The legs, ears, and manes of the wooden horses and other animals got broken off. Then there was the weather—tough on the paint. So, without regular maintenance and

The wild style of this horse identifies it as a C. W. Parker creation, circa 1914



refurbishing, they fell apart. If the cost of fixing one up got too high, the owners tossed it out or burned it! Especially the portable carnival carousels that traveled from town to town—they were built to last only about five years."

An era of standers, prancers, and jumpers

According to Jerry, the heyday of carousels was a romantic time, literally. "Carousels provided the opportunity for a young, courting couple to get close, yet be proper," he says, smiling. "The gentlemen had to help his lady up onto the horse, then perhaps put his arm around her for steadiness. In those times, that was daring!"

When most people think of carousels, they see an image of children riding horses going up and down as well as around. Says Jerry, "Many carousels had horses called standers with maybe three of their feet planted. Then, there were jumpers that went up and down. Horses that stood still but had two front legs raised were called prancers.

"The horses had different head positions, too. Looking up, they're called stargazers. Then, there are tucked heads, and ones that stretched forward as if in wild gallup." (See photos on *preceding page* and *below*.) And it was how this mixture was placed on the carousel that made it an eye-catching attraction.



Gustav Dentzel carved the original of this horse in 1920.

Because carousels were round, placing the animals took planning and a sense of showmanship. What type and size of horse as well as its head and leg position to use at a specific location was dictated by the size of the carousel. That's because each section of the circular carousel was pie-shaped, and the rows of horses had to fit into it. A three- or four-row machine, for example, would have larger horses on the outside row than a two-row machine. On the inside row were the smallest horses.

Then there was showmanship. "American carousels always went around counter-clockwise [in England, the reverse was true], so the right sides of the animals were highly decorated, sometimes with jewels and always with more elaborate carving," Jerry explains. "And most heads turned slightly to the right, with the manes in full view of onlookers.

"In the second and third rows, they usually placed the stargazer horses, because their heads would show," he continues. "The jumpers were in the inner rows, too, often placed so that their action could be seen through the outer horses as the unit turned."

A carousel buff like Jerry also knows that there's a beginning to a carousel, even though it's a round machine. "The ticket taker had to know where to start and where to leave off," Jerry says, glancing at the nearly completed horse on the workbench. "So

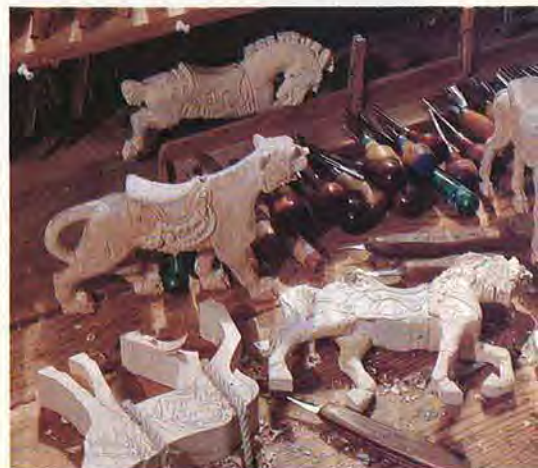
every carousel had a lead horse on the outside row that was the fanciest on the machine. On the opposite side of the carousel was a horse almost it's equal, just for visual balance."

Yesteryear's master carvers live on in miniature

Jerry hung up his naval aviator's wings 19 years ago after 23 years of service. In the Navy, he'd always carved for relaxation no matter what country he found himself in. Back then, though, he had a fondness for simple caricatures in a folk-art style.

In retirement back home in Kansas, Jerry became a building contractor, but never gave up carving and even joined the Kansas City woodcarving club. It was only about 15 years ago, though, that he got into carving carousel horses.

"I was looking for something that I could carve and sell at the Bonner Spring's Renaissance Fair, because everything there has to be from that period," recalls Jerry. "Looking through the encyclopedia, I discovered that carousels came from medieval times. Rough-carved wooden horses



Because carousels often had other animals besides horses, Jerry carves lions, tigers, and even ostriches in miniature.

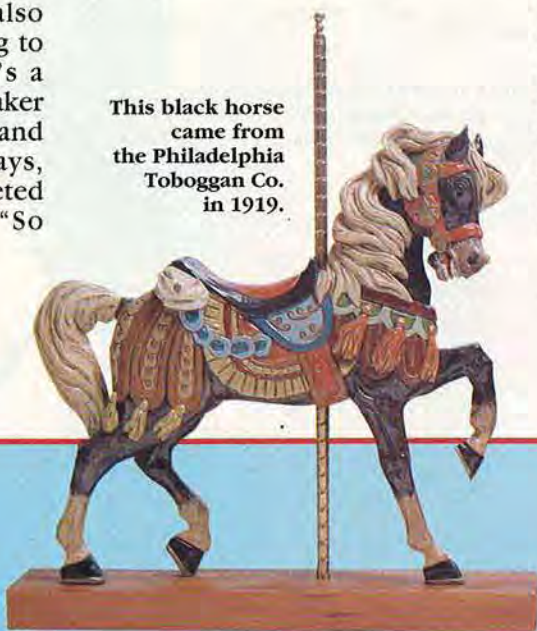
were placed on a merry-go-round affair to enable young knights to train for combat! So, I carved a few little horses and stuck them on poles, and they sold!"

Demand for Jerry's carousel horses grew from there, and his interest in them matched the pace. Now, he prides himself on their faithful detail. The fact that he gave up the contracting business 12 years ago and has always had at least a six-month backlog of orders shows that buyers appreciate his work.

Although his horses (he also does carousel menagerie animals, as shown above, but all sell for about \$400) stand only 11" high, they're as masterful as the full-sized originals. And like the aircraft types he once could recognize just by silhouette, he knows the origin of a

Continued

This black horse came from the Philadelphia Toboggan Co. in 1919.



This prancer is a Spillman from about 1910



This tan horse copies a Stein & Goldstein lead horse of 1917



MERRY-GO-ROUND MENAGERIE

carousel horse by its shape and style of carving.

For instance, Gustav Dentzel, a turn-of-the-century master carver for the Philadelphia Toboggan Company, made realistic horses with elegant harnesses and trappings. Charles I.D. LOOFF carved elaborate, jewel-bedecked animals for the then-infant Coney Island in New York, and his flamboyant work came to be called the Coney Island style.

As the large, permanent carousels found in the cities grew in number, the demand rose for traveling ones that could visit rural areas. So, in the late 1800s, a smaller type of carousel horse was developed for portable merry-go-rounds. These country fair-style horses were produced first by the

Armitage/Herschell Company of Tonawanda, New York. Then, not far behind, came the "Carry-Us-All" carousels of the C.W. Parker Company of Abilene, Kansas. At first,

Parker copied the horses of Armitage/Herschell, but then developed his own style in 1906. By 1914 the Kansas company had a newer style with wild manes, flaring nostrils, and a stretched look. Naturally, there's more to the carousel carvers' hall of fame than can be mentioned here.

Basswood beauties from merry-go-rounds of history

In the old days, carousel carvers made their animals from wood that was locally plentiful. Some carved them in yellow poplar, some in pine, some in basswood. Even willow and cottonwood were used. Often, several woods ended up in the same horse because the bodies weren't one-piece, and many were hollow. Jerry, though, carves his solid, and he prefers basswood, air-dried.

"In fact," Jerry points out, "one carver seldom did an entire horse. Instead, several carvers worked on different parts according to their skill level. The head was left to the best carver. That's where the term *head man* came from."

Jerry's small-scale horses (they're

about 1½" to 12") originate from photographs that he takes on location. Or, if the horse is a commission, he'll work from photos that the buyer furnishes. From the photos, Jerry scales out a pattern on paper, then traces it onto a basswood blank, which he saws to shape at the bandsaw. Next comes more sawing, but with a coping saw, as he removes the wood between the legs. From there on, the carving remains on Jerry's workbench until he cuts in the final details with a V-tool or carving knife.

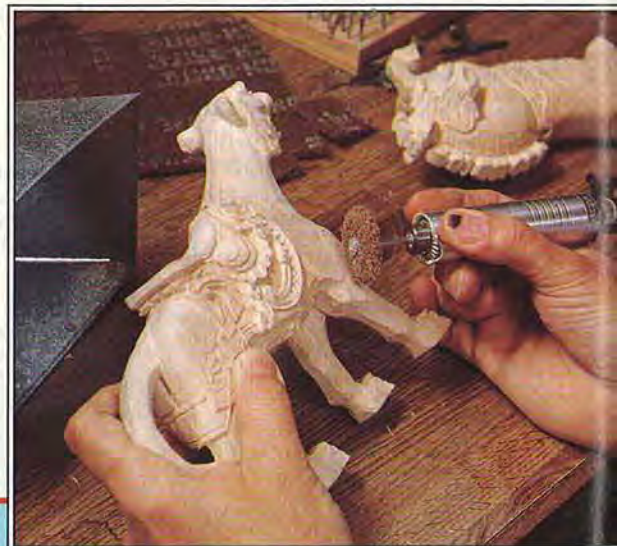
"Now, in a good week, I do three carvings," Jerry comments, turning the nearly finished horse. "And Marilyn, my wife, does all the painting. But I remember when it took me three weeks."

From removing wood with a saw instead of carving it, to the elimination of handsanding (see photos left and below), Jerry has learned efficiency. And one of his lessons came from naval duty in the Phillipine Islands.

"I was up in the mountains of Luzon watching native carvers work a whole log," Jerry recalls,

Each carousel animal receives a final sanding with the 180-grit abrasive of a fine-fingered flap sander mounted in Jerry's electric drill.

Jerry does some of his sanding with a 1" square of Scotchbrite abrasive chucked into a Foredom power carver.



his voice reflecting the vividness of the memory. "They were Igorots—ex-headhunters—and they carved with tools made from car leaf-springs. Well, they didn't use clamps, but instead, they had ropes wrapped around the log with a treadle board attached to them. When they needed to work on a different part of the log, they hopped off the board, turned the log, then got back on the board. Years later that I figured out that with ropes and a treadle board, you could hold odd-shaped workpieces." (See photo, *right*.)

The color and glitter of a carousel out of a bottle

Several years ago, Jerry asked Marilyn if she would mind painting some solid areas on a couple of horses. Now, she's in charge.

After referring to photos, Marilyn gives the carousel horses their authentic coats in artist's acrylics. First, though, Jerry sprays on a seal coat of flat white lacquer. "There's nothing like a base coat to indicate where a little more sanding, cleaning, or even filling needs to be done," he notes.

Then, after Marilyn's paint job, each horse receives spray coats of Deft, making it glisten as if it were ready for the carousel's first ride. Oh, those were the days. 🌿

Interested in carousel carving?

To find out more about Jerry's carousel carvings, drop him a line (please include a self-addressed, stamped business-sized envelope) at:

**Carousel Woodcarvings,
18770 Metcalf,
Stilwell, KS 66085.**

In her basement painting room, Marilyn adds historically accurate colors to Jerry's carved animals with acrylic paint. Note her reference photos.



Rope "clamps" secured to and tightened by a treadle board beneath the bench allow Jerry to steady irregular shapes as he carves.

Painted ponies prance on

The National Carousel Association was founded in 1973 in Sandwich, Massachusetts to "promote the conservation, appreciation, knowledge, and enjoyment of the art of the classic wooden carousel, and especially the preservation of complete wooden carousels." Today, it

numbers over 1,000 members, and has helped preserve and restore old carousels around the nation. For information, write: **National Carousel Association, Terry I. Blake, Exec. Sec., P. O. Box 4333, Evansville, IN 47724-0333.**

Written by Peter J. Stephano Photographs: Bob Hawks



ON-THE-MONEY

HERE'S HOW TO CUT 'EM AND CLAMP 'EM

First, a few definitions

Simply put, we refer to any two workpieces as being mitered if they join at an angle and have angled mating surfaces. Although most woodworkers think of a miter joint as two workpieces meeting at a 90° angle, that's not always the case, as with a pentagon, hexagon, or other shape with more than four sides. In this article we'll deal with simple miters that require *either* a bevel or miter cut, but not both as found in a compound miter.

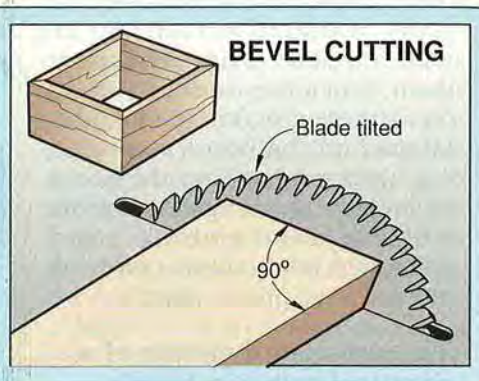
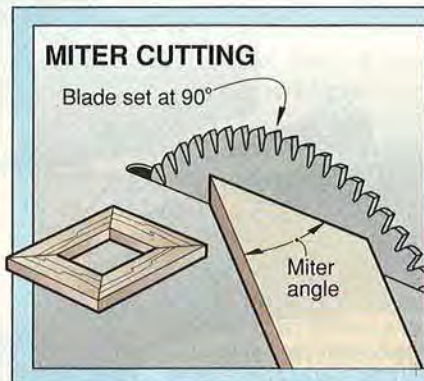
You go about cutting these angles by either *miter-cutting* or *bevel-cutting* the workpieces. As shown *above*, to make a miter-cut you angle your workpiece and set the saw blade 90° to the saw table. To bevel-cut a workpiece, you tilt the blade to achieve the necessary cutting angle. You'll miter-cut workpieces for projects such as picture frames and clock face frames. With bevel-cut workpieces, you construct projects such as planters, columns, staved bowls, kaleidoscopes, and other turned objects.

How to determine the miter angle

Depending on your project, you'll determine the cutting angles by either *plan-as-you-go* or *preplanning* them. Here's a look at how and when you use each method:

The plan-as-you-go method works when attaching moldings to surfaces such as the perimeter of a tabletop, or the walls of a room. These surfaces often have corners with inexact angles, so you plan and cut each piece separately.

For each corner, you need to measure and determine the *joint angle* as shown in the 3-step drawing *right*. Then, divide the joint angle in half to determine the *miter angle*.



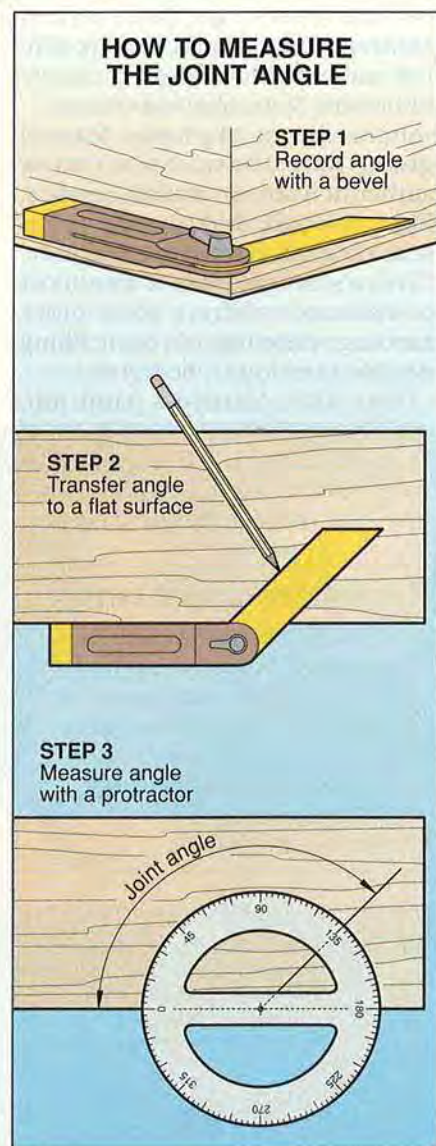
To attach the moldings, first cut each molding about 1" longer than its finished length toe to toe. Then, miter one end of a workpiece and put it into position. Miter the end of a mating workpiece and check the miters for fit. If they don't fit precisely, you can either reset your cut angle slightly and recut them or sand away the excess material from the mating workpiece on a disk sander as shown *below*.



When removing excess material with a disk sander, mark the joint so you don't remove too much.

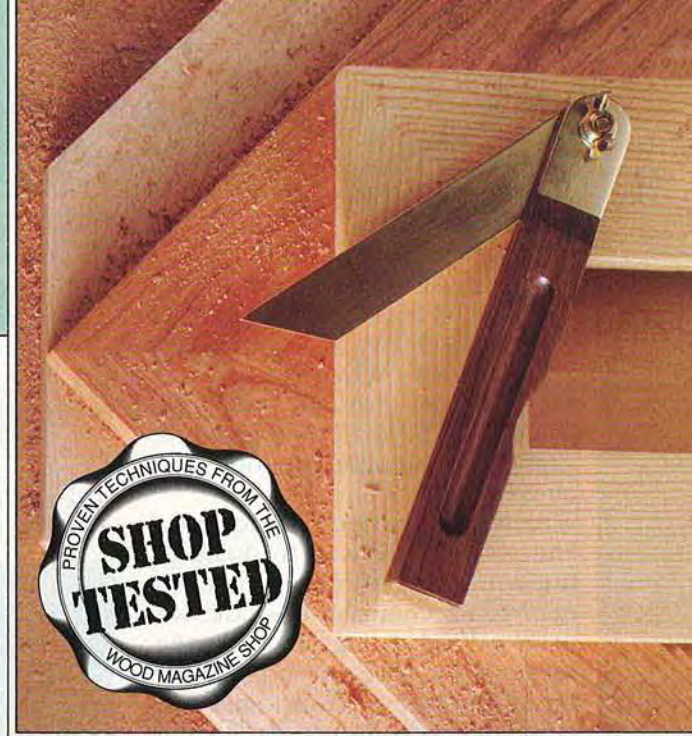
Mark the *beel* on the unmitered end of the workpiece as shown in the photo on the *next page*, and make a miter cut at this point. Repeat this process around the perimeter of your project.

The preplanning method works when you're building a multisided project, such as a picture frame, that doesn't have to fit around another framework. In these situations, you plan all of the miter cuts before cutting them, using









MITERS

LIKE A PRO



AT-A-GLANCE LOOK AT MITER ANGLES FOR MULTISIDED PROJECTS

 4 Sides 45° Miter	 5 Sides 36° Miter	 6 Sides 30° Miter
 8 Sides 22.5° Miter	 10 Sides 18° Miter	 12 Sides 15° Miter

the formula: $\text{miter angle} = 360^\circ \div \text{number of sides} \div 2$. For example, in building a square frame, the miter angle would be $360^\circ \div 4 \div 2 = 45^\circ$. We did this calculation for six common shapes; you'll find their miter angles in the chart above.

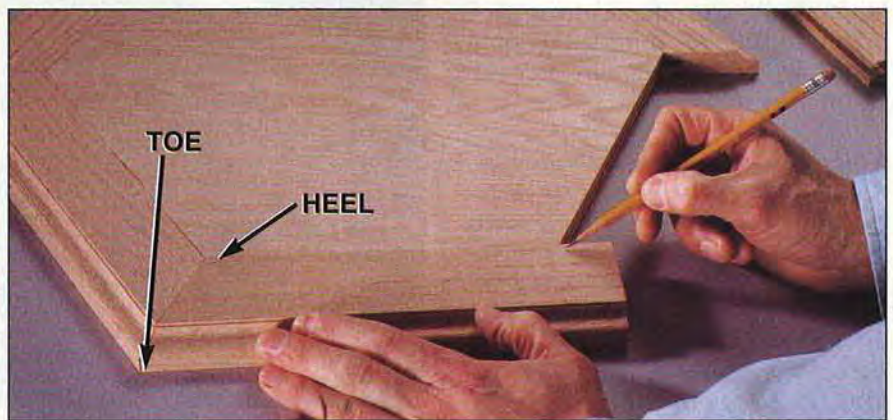
Make a cutting diagram for miter-perfect results

Your mitered workpieces will look best if the grain pattern appears to run continuously from one joined piece to the next. So with the plan-as-you-go method, attach the moldings in the same order that you cut them.

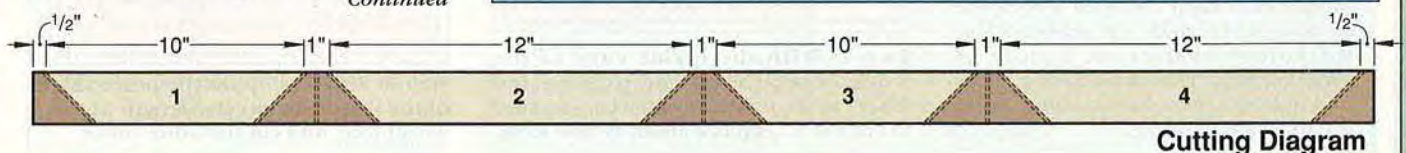
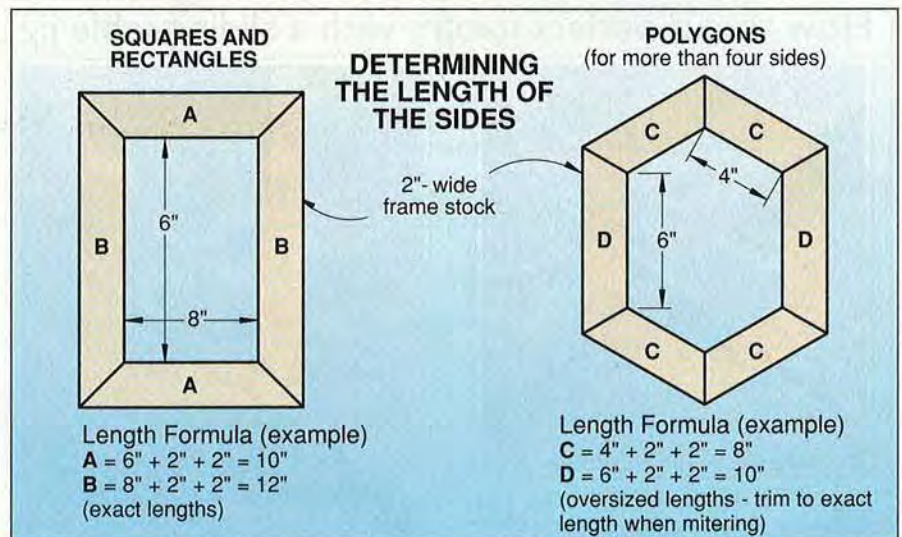
With the preplanning method, you first calculate the length of each side as shown right. Keep in mind the width of the frame's rabbet, and calculate the inside dimensions of the frame so that your picture fits snugly into the rabbeted opening.

Now, you can make a cutting diagram like the one below. With this diagram completed, transfer the cutoff marks to your workpiece, and number the workpieces so you can reassemble them in the correct order later.

Continued



Mark the heel of each workpiece to accurately guide your miter cut.



Cutting Diagram

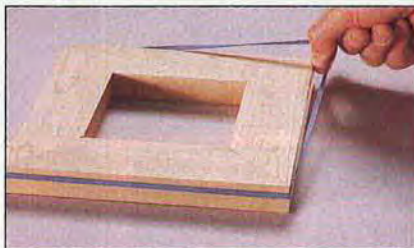
ON-THE-MONEY MITERS

The keys to quality miter cuts

You can use several tools to cut miters: a tablesaw, radial-arm saw, power miter saw, or a miter box and handsaw. Whatever tools or method you choose, your saw blade must be sharp and properly aligned for straight, smooth, and chip-free cuts.

Likewise, you need an accurate and rock-steady way to position the workpiece during the cut. To help you accomplish this task, we designed the sliding-table miter jig on page 34. (See the box below for information on how to use this tablesaw-based jig.) If you would like to build a similar, but simpler, jig for cutting 45° miters only on a tablesaw, try the version presented on page 16.

Note: Before making cuts in your actual workpiece, check the accuracy of your cuts on short lengths of scrap stock. To do this, cut all the sides of your project and hold them together with a rubberband as shown above. Then, make any necessary adjustments in the cutting angle of your saw.

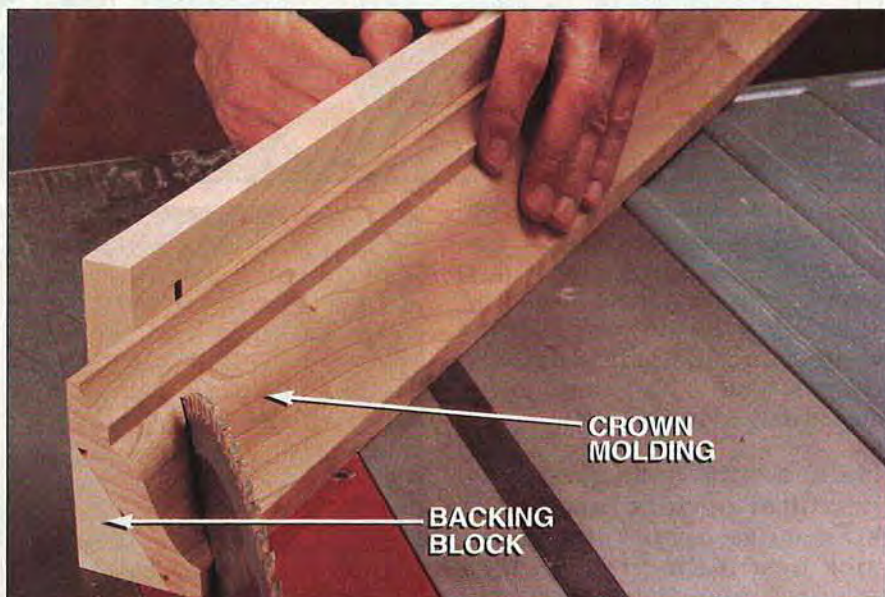


A rubberband holds your test pieces together to help you determine the accuracy of your cuts.

How to miter wide workpieces

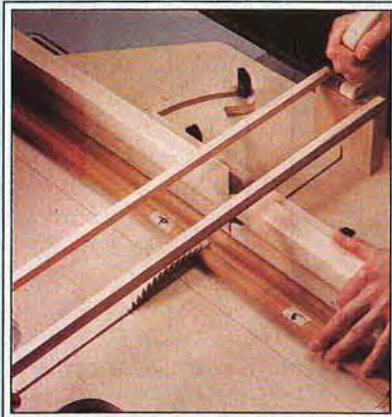
Depending on your tablesaw, you may not be able to use the miter jigs described in this issue on pages 16 and 34 for cutting wide workpieces. Here we'll share two examples of such instances, and how we tackled them.

Since the blades on most 10" tablesaws only project 2 3/8" above



Use a miter gauge and backing block to make simple work of crown-molding cuts.

How to cut perfect miters with a sliding-table jig



Step 1: Set the jig for a 90° cut, and crosscut the workpieces about 1" longer than their finished length toe to toe. Note that we marked the workpiece number on a piece of masking tape. This saves us the effort of sanding a penciled number from the intricate molding.



Step 2: With the inside edge of the workpiece against the jig's angled fence, make the first miter cut. Be sure to cut the workpiece about 1/2" too long.



Step 3: Set the stop on the other side of the jig for the precise length of the workpiece, and cut the other miter.

the top surface of a 3/4"-thick sliding table, we lay workpieces wider than 2 3/8" on their back face and bevel-cut them by tilting the saw blade (see photo *right*). To do this, we built a simple sliding cut-off table for 90° cuts like the one illustrated *right*.

Crown moldings pose another challenge. If you lay them flat on a fence or sliding table, you need to make a compound cut (angled *and* beveled). To simplify this operation, we glue a *backing block* to the molding, enabling us to make a simple miter cut as shown *left*. Because this molding (with backing block) stands more than 2 3/8" high, we used a miter gauge and auxiliary fence to make the cut.

Call in reinforcements for secure joints

Glue alone will not sufficiently bond most end-grain-to-end-grain joints, so you need to reinforce the joint in some way. The drawings *bottom* show you several methods for reinforcing a miter joint. The spline and biscuit reinforcements offer the greatest strength. The dowel and surface spline don't provide quite as much strength, but take little time to complete. (For more information on how to reinforce miters with splines, see the Oak Desk project in the August 1993 issue of *WOOD*.)

It's a good idea to spline the beveled mating surfaces of nearly any box as shown on the *next page*. Depending on the miter angle of the joint, you need to tilt your tablesaw blade so it cuts a slot that's perpendicular to the face of the joint. For example, for a square, four-sided box you adjust the blade to 45° and make the cut with the inside surface of the workpiece on the saw table.

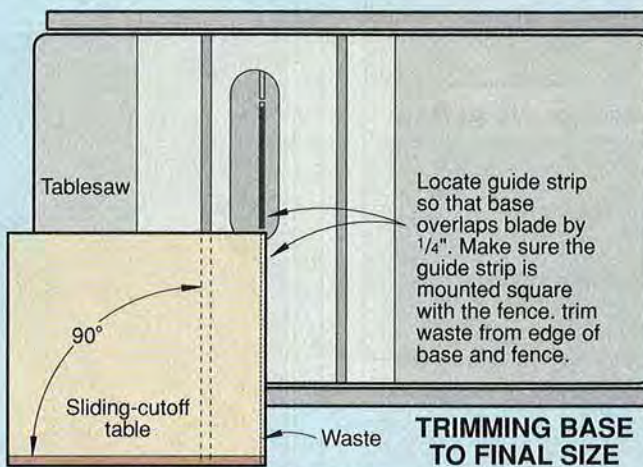
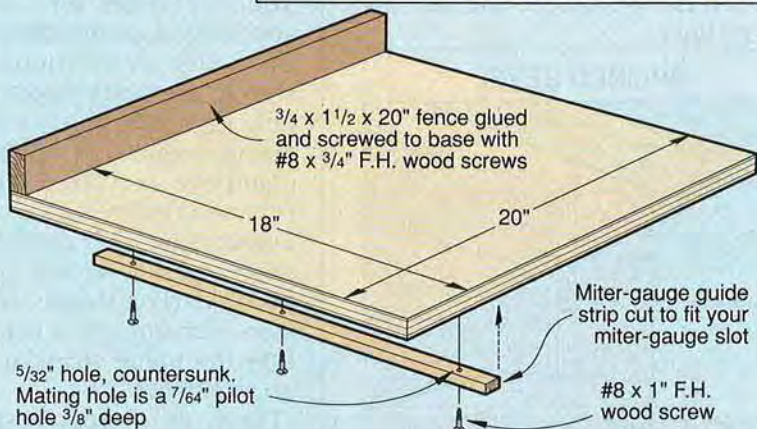
But, with projects with more than four sides you need to take a different approach. With these you set the blade at 90° and posi-

Continued



Sliding cut-off table

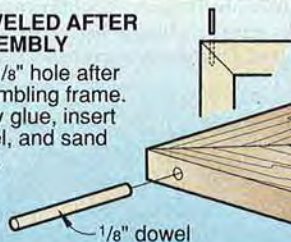
A simple sliding cut-off table helps you bevel-cut wide workpieces.



MITER-REINFORCING OPTIONS

DOWELED AFTER ASSEMBLY

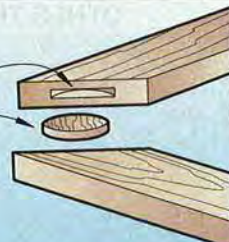
Drill 1/8" hole after assembling frame. Apply glue, insert dowel, and sand flush.



BISCUIT

Cut slot with 1/4" slot-cutting bit. Cut biscuit from 1/4" stock

Alternate method: Use biscuit-joining system

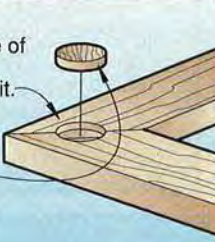


SURFACE SPLINE

Bore hole in backside of frame (typically 1/4" deep) with Forstner bit.

Cut matching spline with plug cutter or bandsaw to shape.

Glue spline into hole and sand flush.



SPLINE

Cut slot with 1/4" slot-cutting bit.

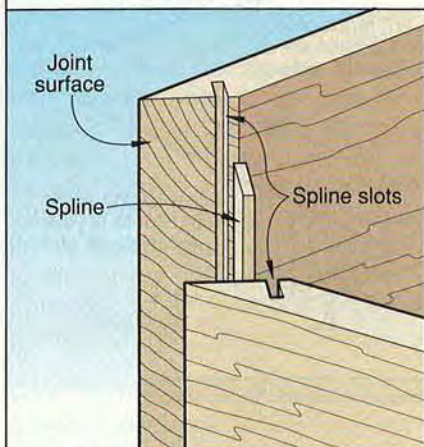
Cut spline from 1/4" stock. Trim excess after glue dries.



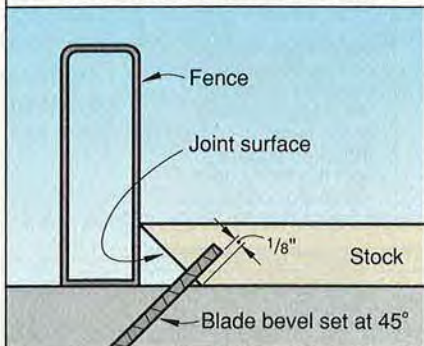
ON-THE-MONEY MITERS

tion the face of the joint on the saw table with the toe of the joint against the rip fence. You shouldn't have a problem steadying workpieces under 3' long. For larger pieces, temporarily tack or clamp a supporting block between the workpiece and the saw table liner.

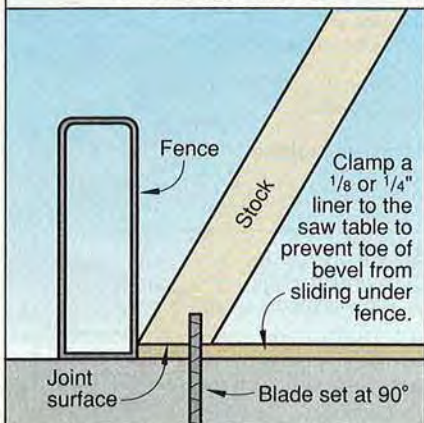
SPLINED BEVEL



CUTTING 45° SPLINE SLOTS



CUTTING SPLINE SLOTS FOR BEVELS OTHER THAN 45°



Try these tricks for clamping mitered workpieces

For as long as woodworkers have mitered workpieces, they have tried to come up with a better way of clamping them together. Today, you can buy an array of specialized clamps for this purpose, but we've found that the simple methods described here help us handle most situations:

- Instant glue. For quick-and-easy clamping, we often use instant (cyanoacrylate) glues to bond miters. First, you need to build a simple gluing jig like the one at *bottom*. (For shapes with more than four sides, you need to position the guide strips at an angle greater than 90°.)

Then, you apply instant-glue accelerator (to speed curing) to

one side of the miter, gap-filling instant glue to the other side of the joint, and hold the workpieces together for 5 to 10 seconds as shown *below left*. Excess instant glue requires considerable effort to sand away, so if possible avoid glue squeezeout. (For more information on instant glue, see the article starting on *page 62*. You can buy instant glue and accelerator at hobby stores nationwide. Or, call Garrett Wade at 800/221-2942 (orders) or 212/807-1155 (information).

- Clamp blocks. Instant glues don't come cheap (about \$10 for two ounces), so here's a method that works with woodworker's glue. First, build a set of corner clamp blocks (see drawing *near right*). Clamp one on the outside

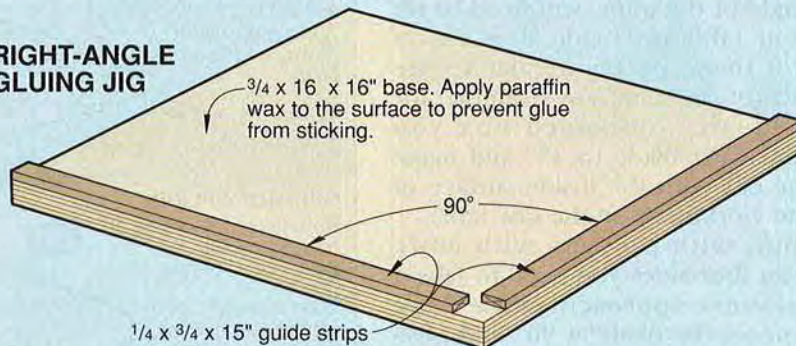


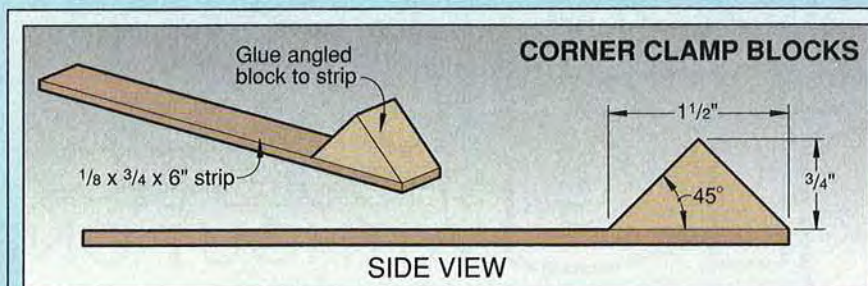
With instant glue, accelerator, and a right-angle gluing jig, you can join mitered frames in seconds.



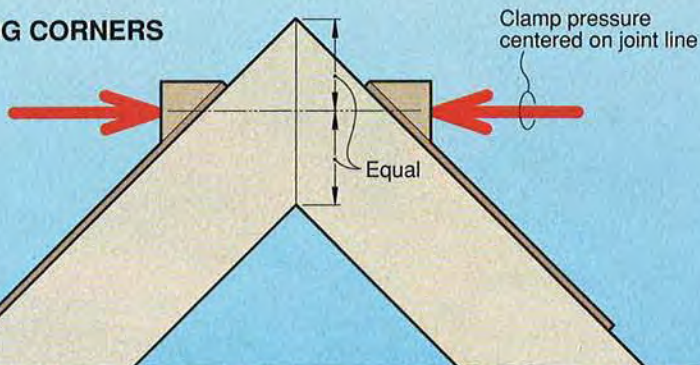
Corner clamp blocks like those illustrated on the next page help your clamps snugly hold miters together.

RIGHT-ANGLE GLUING JIG

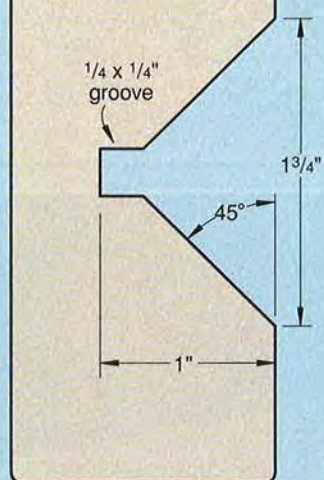




CLAMPING CORNERS



CORNER CLAMP BLOCK FOR BEVELED JOINTS



edge of each corner, apply glue to both sides of the joint, and use another clamp to bring the joint together as shown *left*.

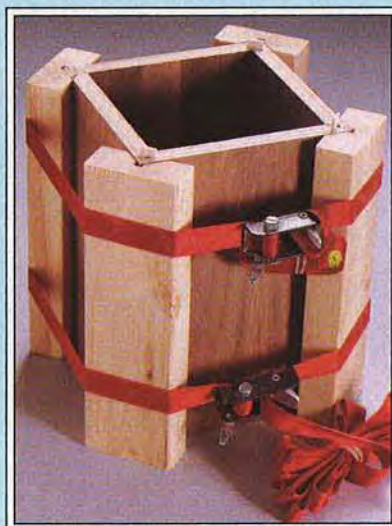
•**Tape.** When pulling together frames with more than four sides, we usually wrap a strip of fiber-reinforced tape (such as duct tape or strapping tape) around the perimeter of the frame. With these tapes you can pull the joints tight without fear of the tape coming loose or breaking.

Start by attaching the tape to the

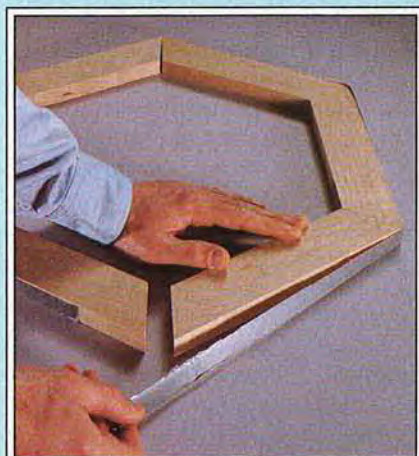
outside edge of one piece. Then, butt the toe of this piece to the toe of an adjoining piece. Attach the tape to the edge of the second piece, and repeat this process until you tape all of the pieces together in a straight line. Now, apply glue to all of the mating surfaces, and pull the frame together as shown *left*.

•**Web clamps.** These handy devices prove themselves indispensable when clamping boxes with beveled edges. To clamp four-sided boxes, first make four clamp blocks from 2x4 stock as long as the joint. Cut grooves into the 2x4 as shown *top right*. Place one clamp block on each corner and secure them with web clamps as shown *middle right*.

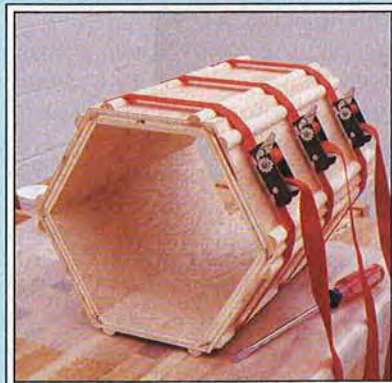
For boxes with more than four sides, use lengths of half-round stock in place of the clamping blocks (we sawed 1" dowel stock). As shown *bottom right*, these "chairs" prevent the web clamps from crushing the delicate corners on plywood stock. 🌲



Use corner clamp blocks and web clamps to fasten four-sided boxes.



You can pull miters tightly together with fiber-reinforced tape.



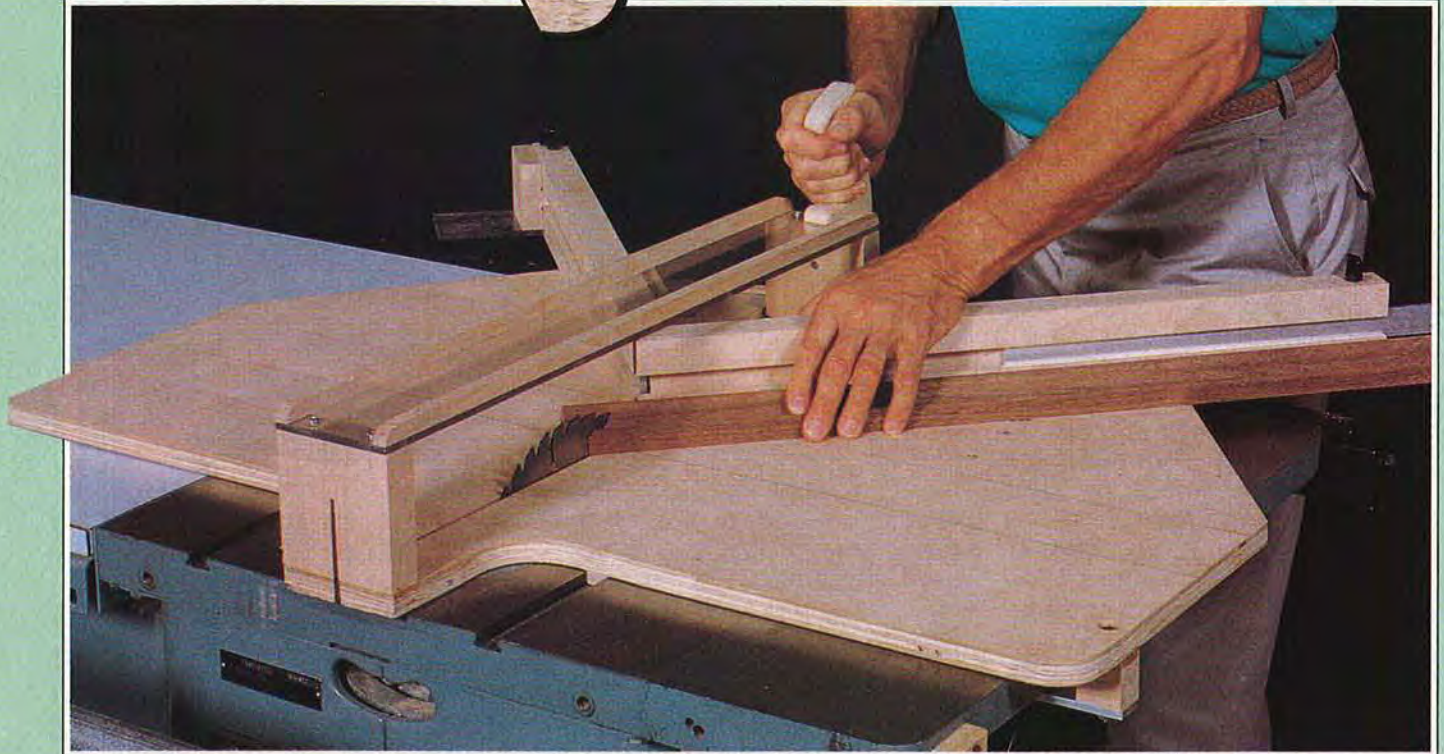
Half-round "chairs" prevent the straps of web clamps from damaging delicate mitered corners.

Written by Bill Krier with Jim Downing
Illustrations: Jim Downing; Kim Downing
Photographs: Hopkins Associates

ANGLE
MASTER

MITER JIG

NO TABLESAW
SHOULD BE
WITHOUT ONE




To cut accurate miters each and every time without the hassle of making numerous test cuts to constantly verify our miter-gauge setting, we designed this practical jig for the *WOOD* magazine shop. And, boy, does it work! The main components included are the one-piece plywood BASE and the two FENCES with adjustable STOPS.

The pivoting twin fences allow us to cut both left and right miters without changing settings. Opposing fences are also necessary to miter-cut molded trim on both ends. Miter jigs with only one fence can perform this operation only on flat stock. In addition, these pivoting fences lock positively without a tendency to creep when tightening the lock knob.

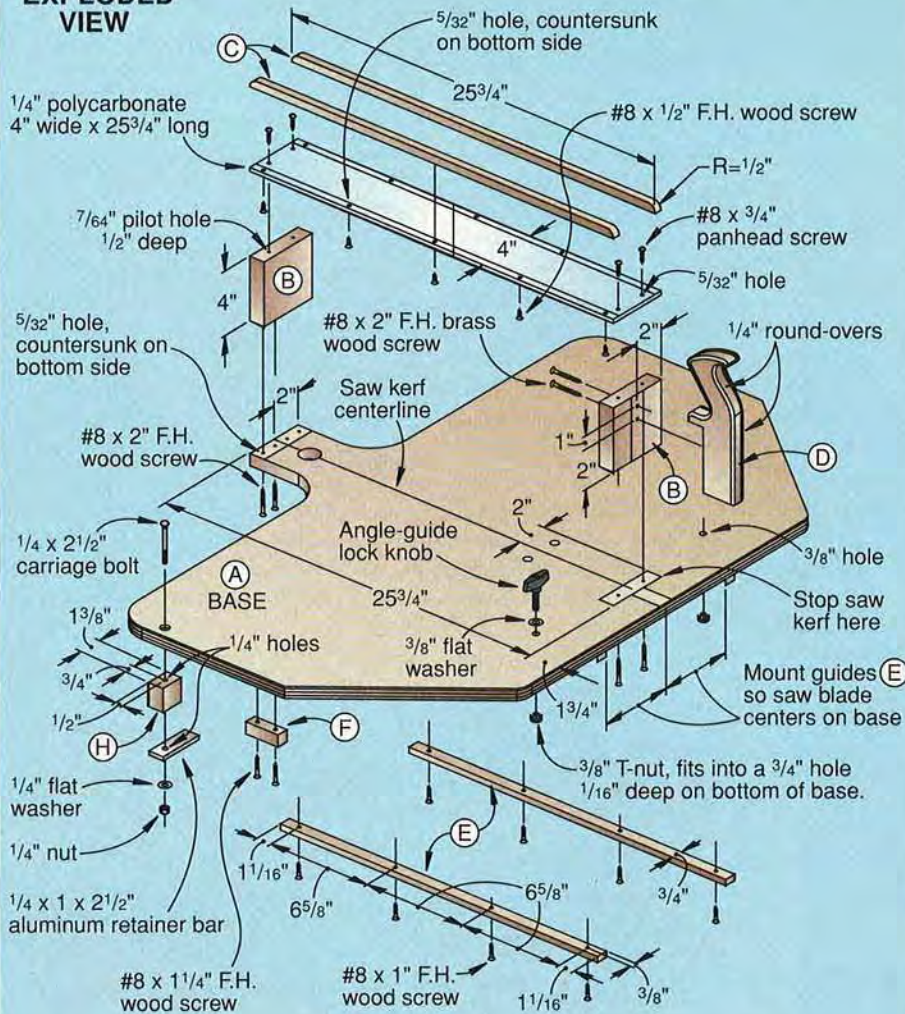
The adjustable stops on the fences provide a range of miter-cutting pieces from 0 to 46" long. The polycarbonate STOP PLATES provide a positive stop for mitered ends of stock up to 4" wide. The locks on the aluminum stop bars provide "creep-free" positioning.

For safety, we used a POLYCARBONATE GUARD to provide a dust and chip-free view of the cutting action, and positioned the large PUSH HANDLE well above the blade height. We've also added a SAFETY STOP permanently attached to the side of the table saw extension to prevent the jig from moving too far forward and having the saw blade accidentally cut through the rear support. Similarly, the sliding table support holds the jig on the table so it doesn't drop off the operator end of the table saw when pulled back.

 Print this article

A. R. Downing Design Editor
Jim Bowling Project Builder

EXPLODED VIEW



Bill of Materials

Part	Finished Size			Matl.	Qty.
	T	W	L		
BASE ASSEMBLY					
A base	3/4"	27 1/2"	40"	BP	1
B supports	1 1/16"	4"	4"	B	2
C rails	1/2"	1/2"	25 3/4"	B	2
D handle	1 1/16"	3"	8 3/4"	B	1
E* guides	3/8"	3/4"	22"	B	2
STOPBLOCK ASSEMBLIES					
F stopblock	3/4"	3/4"	2 1/4"	B	1
G stop	1 1/16"	1 3/8"	1 3/8"	B	1
H spacer	1"	1 7/16"	1 3/8"	B	1
FENCE ASSEMBLIES					
I angle guides	3/4"	8"	9 5/8"	BP	2
J fence supports	3/4"	2"	7 3/4"	B	4
K fence	1 1/16"	3"	26"	B	2
L fence retainers	1/4"	1 9/16"	26"	B	4
M stop	1 1/16"	2 5/8"	3"	B	2

*Width of guides (E) determined by width of the table saw miter-gauge slot.

Materials Key: BP- birch plywood, B-birch

Supplies: 3/8" T-nuts, #8x3/4" panhead screws, #8x1/2" flathead wood screws, #8x3/4" flathead wood screws, #8x1" flathead wood screws, #8x1 1/4" flathead wood screws, #8x1 1/2" flathead wood screws, #8x2" flathead wood screws, #8x2 1/2" flathead wood screws, 1/4" nut, 1/4x2" carriage bolt, 1/4x2 1/2" carriage bolt, 1/4" flat washers, 3/8" flat washers, 1/2" dowel stock, 1/4x1" aluminum bar stock, brass floor flange toilet bolt trimmed to 2 3/8" long, 1/4"-thick polycarbonate for guard and fence stops, 6 threaded knobs.

Start with the base

Note: We built this jig to fit our 10" Delta Unisaw. The width of the base (A) may vary depending on your particular saw. The base should be wide enough to overhang the left-hand saw-table edge by 1 1/2", allowing enough room to attach the safety stops.

1 Using the dimensions on the Parts View drawing on the next page, measure carefully, and lay out the outline for the base (A) on a piece of 3/4x27 1/2x40" plywood (we used birch).

2 Mark the centerpoints for all the holes shown on the drawing. Drill the holes to the sizes stated.

3 Cut the base (A) to shape.

Add a guard for safety

1 Cut the front and rear supports (B) to size. Mark and drill a pair of countersunk mounting holes in one support for attaching it to the handle (D) later.

2 Clamp the supports to the base where shown on the Exploded View drawing. Drill mounting holes, and screw (no glue) the supports to the base.

3 Cut the guard top plate to size from 1/4" polycarbonate, using the dimensions on the Exploded View drawing. (Although 1/4" acrylic would work, we used polycarbonate because of its shatter resistance.) Mark the locations and drill and countersink mounting holes through the polycarbonate.

4 Cut the two rails (C) to size. Drill mounting holes and screw them to the polycarbonate panel. Then, screw the polycarbonate panel/rails to the supports (B).

5 Transfer the full-sized handle pattern to a piece of 1 1/16" stock, and cut the handle (D) to shape. Rout 1/4" round-overs on the handle where shown on the Exploded View drawing.

6 Remove the guard (B, C, and polycarbonate plate) from the base. Clamp the handle to the guard. Using the previously drilled holes in the rear support as guides, drill 7/64" pilot holes into the handle. Screw the handle to the guard. Reattach the guard assembly to the base.

Continued

MITER JIG

Time for the miter gauge guides and stop

1 Cut a pair of miter-gauge guides (E) to fit snugly into the miter-gauge slots in your tablesaw.

2 Attach the guides to the bottom of the base (A) ensuring that the saw blade is centered on the base and that the base slides back and forth on your tablesaw's slots easily and without wobble. (We rubbed paraffin wax on the wood guides so the base assembly slides smoothly and effortlessly in the tablesaw miter-gauge slots.)

3 Position the base assembly on your tablesaw, and cut a kerf through the 1/4" hanging hole and DOWN THE CENTER of the base, stopping just before the blade cuts into the rear support (B).

4 Cut the stop pieces (F, G, H) and 1/4"x1x2 1/2" aluminum retainer to size.

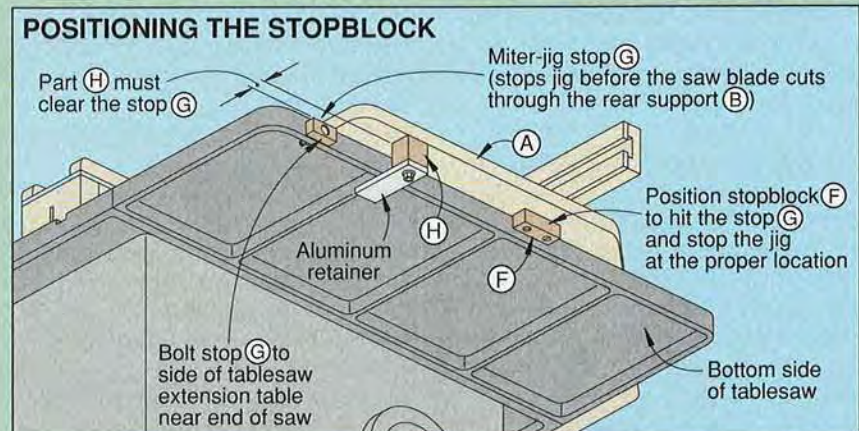
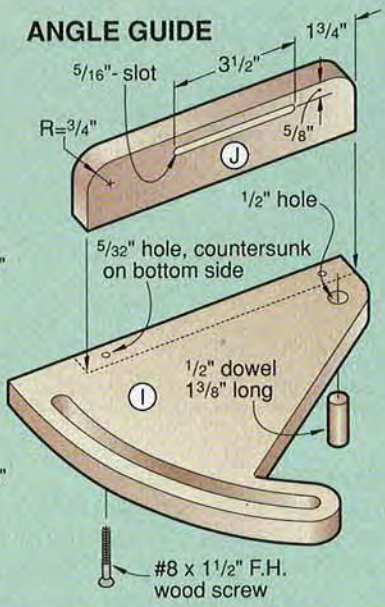
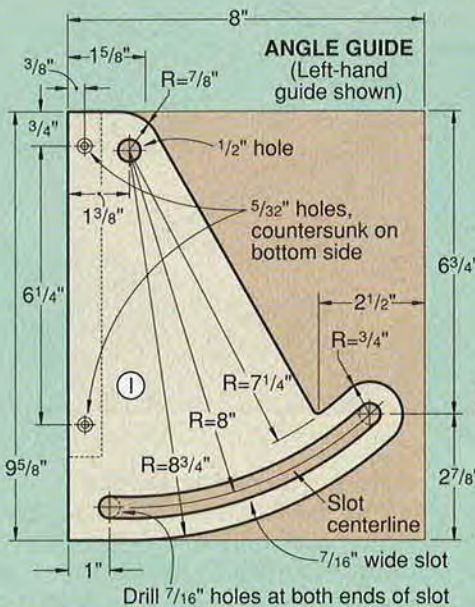
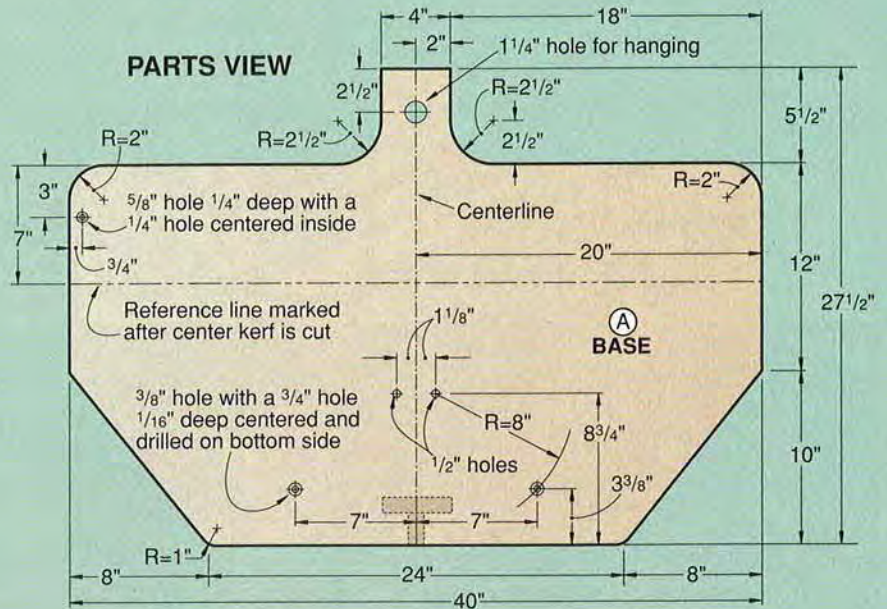
5 Drill a mounting hole through the stop (G) and your tablesaw table, and bolt part G to your tablesaw table about 1" from the end. See Positioning the Stop Block drawing for reference.

6 Position the jig base (A) on the tablesaw where the saw blade rests at the end of the kerf in the base and next to the rear support (B). Attach the stopblock (F) to the bottom side of the base (A) next to the stop (G) bolted to the saw table. The stopblock/stop combination (F, G) is designed to stop the jig before the blade cuts through the rear support and so the jig doesn't go over the back edge of the tablesaw.

7 Attach the retainer spacer (H) and aluminum retainer to the bottom of the tablesaw base. The spacer/retainer assembly holds the jig horizontal so it doesn't drop off the operator end of the tablesaw when the operator pulls the jig towards himself.

Construct the angle guides

1 Cut two pieces of 3/4" birch plywood to 8x10" for the angle guides (I). Tape the two angle-guide blocks face-to-face with double-faced tape.



2 Using the Parts View drawing for reference, lay out and cut the two angle guides (I) to shape.

3 Mark the two $\frac{7}{16}$ " hole centerpoints on the taped-together pieces. Use a compass to mark the outline of the $\frac{7}{16}$ "-wide slot between the $\frac{7}{16}$ " holes. Drill the $\frac{7}{16}$ " holes at each end of the slot. Using a scrollsaw or jigsaw cut along the marked lines between the holes to form the slot. Sand the slot edges.

4 Use a wood wedge to pry the pieces apart. If the tape bond resists, use lacquer thinner or acetone to weaken the tape.

5 Cut the fence supports (J) to shape, and form a $\frac{3}{16}$ "-wide slot in each. Screw a fence support to each angle guide. As noted on the drawing, the left-hand guide is shown; the right-hand guide is a mirror image.

6 Crosscut a pair of $\frac{1}{2}$ " dowels to $1\frac{3}{8}$ " long. Glue one in each angle guide (I) where shown on the Angle Guide drawing.

Let's add the fence assemblies and stops

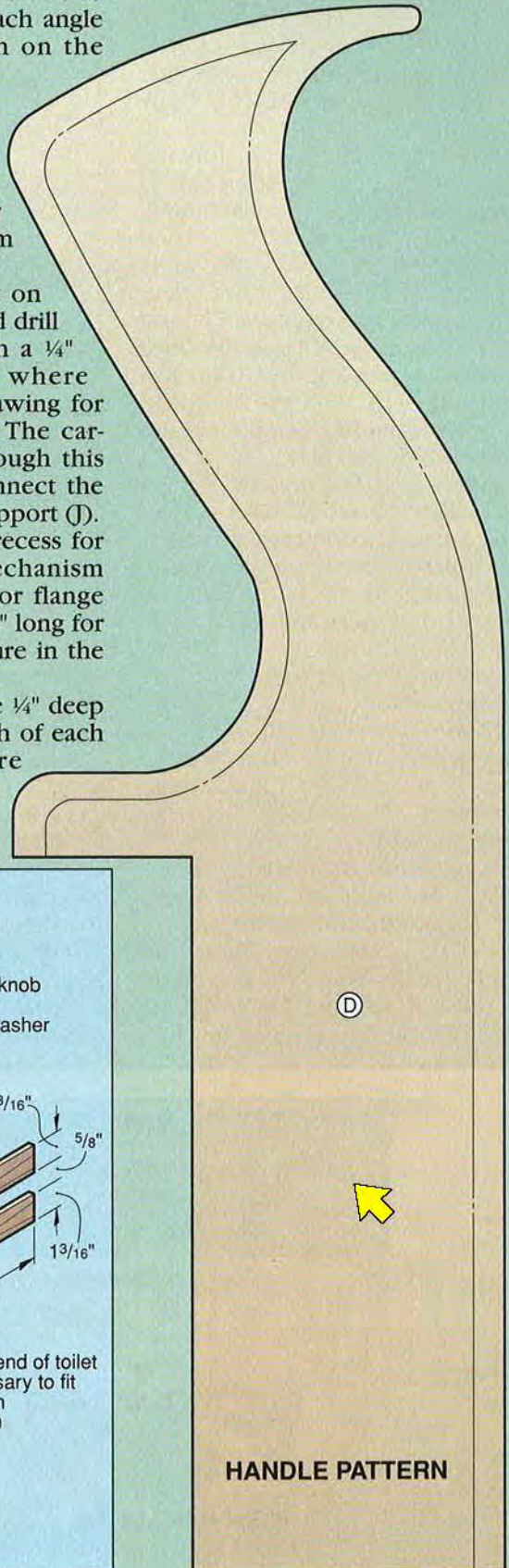
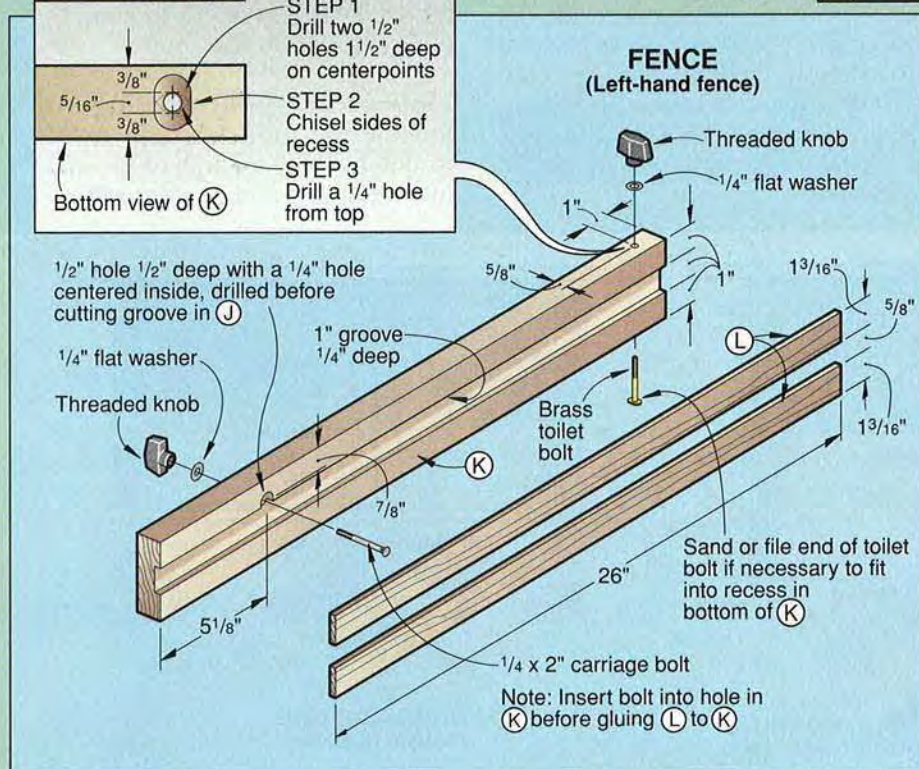
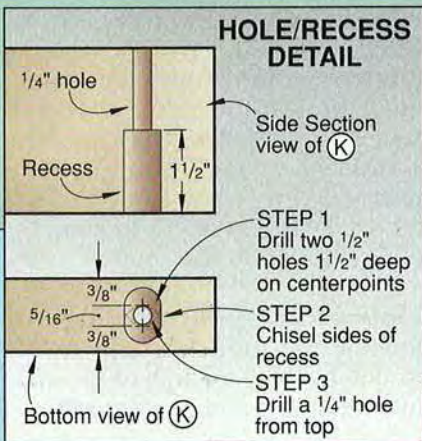
1 Cut the two fence pieces (K) and four retainers (L) to size from solid stock.

2 Mark the centerpoint on each fence piece (K), and drill a $\frac{1}{2}$ " hole $\frac{1}{2}$ " deep with a $\frac{1}{4}$ " hole centered inside where shown on the Fence drawing for the $\frac{1}{4} \times 2$ " carriage bolt. The carriage bolt that goes through this hole will be used to connect the fence (K) to the fence support (J).

3 To drill the hole and recess for the stop lock-down mechanism (we're using a brass floor flange toilet bolt trimmed to $2\frac{3}{8}$ " long for this), follow the procedure in the Hole/Recess detail at left.

4 Cut or rout a 1" groove $\frac{1}{4}$ " deep centered along the length of each fence piece (K) where shown on the Fence drawing below.

Continued



MITER JIG

5 Glue and clamp the retainers (L) to the fences (K) keeping the inside edges of the guides $\frac{5}{8}$ " apart the length of the fence. See the Fence Assembly Section View for reference.

6 Using the Fence Stop drawing for reference, cut the stops (M) to size. (For safety when machining, we started with a piece $1\frac{1}{16} \times 2\frac{5}{8} \times 10$ " and cut a pair of 1" rabbets $\frac{1}{4}$ " deep along one face. Then, we crosscut two 3"-long sections from it.) Check the fit of the the stops (M) between the retainers (L). The stop should slide back and forth easily without an excess of free play.

7 Cut two $\frac{1}{4} \times 3 \times 4$ " pieces of polycarbonate to act as stop plates. Drill a pair of countersunk mounting holes in each, and screw the stop plates to the bottom of the stops (M) where shown on the Fence Stop drawing.

8 Crosscut two pieces of $\frac{1}{4} \times 1$ " aluminum bar stock to 25" long. Drill a countersunk pair of mounting holes in each bar where shown on the Fence Stop drawing. Screw the stops (M) to the aluminum stock.

9 Trim a brass floor flange toilet bolt to $2\frac{3}{8}$ " long, and insert it into the recessed hole in the bottom side of fence (K) where shown on the Fence drawing. You may need to sand or file the head of bolt slightly to fit into the recess. Slide

a washer onto the top of the toilet bolt, and add a threaded knob. Turn the knob clockwise to pull the brass toilet bolt up against the bottom of the aluminum bar, locking it in place.

Marking the angle reference marks

1 As shown in Photo A on the *opposite page*, position and clamp a straightedge perfectly square to your saw blade on the jig base. (As shown in the photo, we used an adjustable triangle to accurately locate the straightedge. See the Buying Guide for our source of this handy device.) Mark a reference line across the jig where shown on the Parts View drawing. Leave the straightedge clamped to the base.

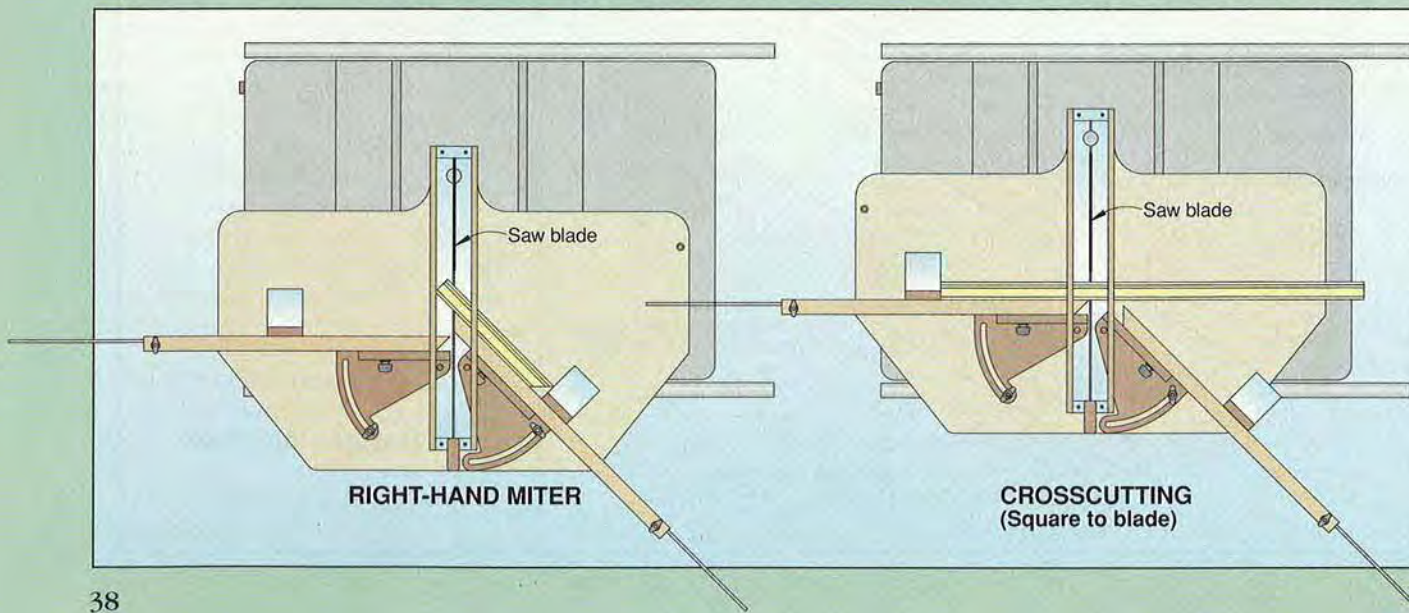
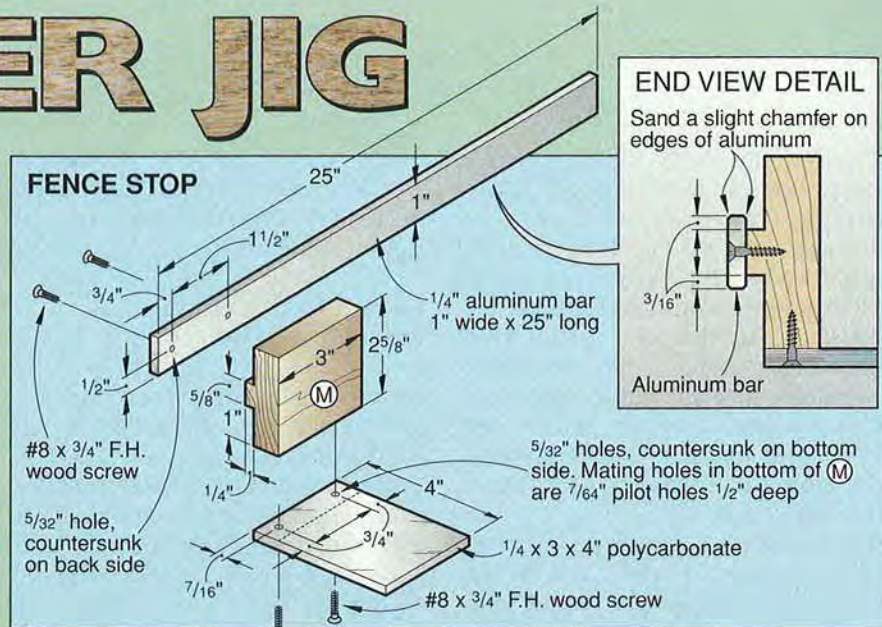
2 Position the pivoting fences (minus the stops) on the base.

3 Align both fences parallel to the marked reference line. Mark a second reference line along the FRONT EDGE of the fences. Use this line to position either fence for crosscutting at 90° .

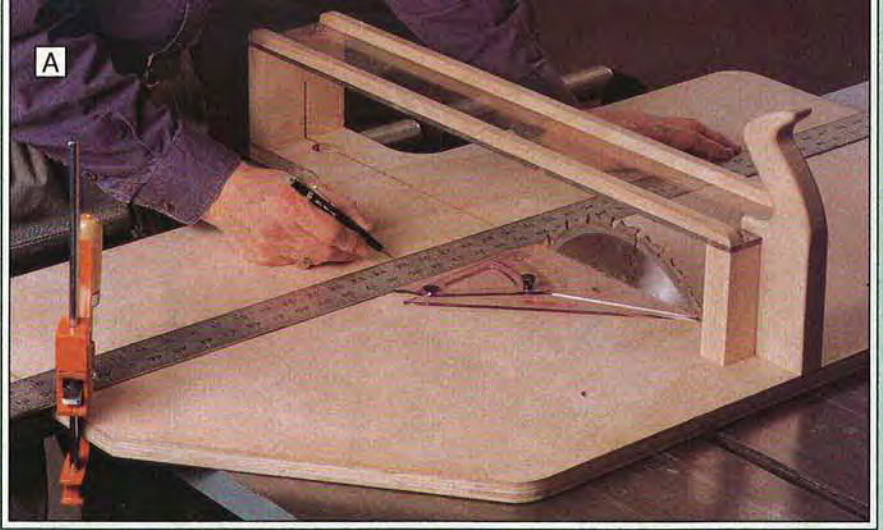
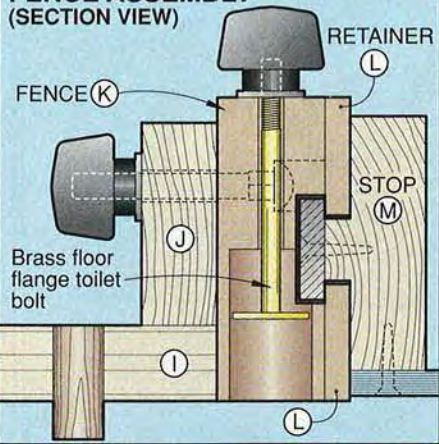
4 As shown in Photo B at *far right*, use the adjustable triangle to accurately position the fence. Then, mark reference lines onto the base, using the BACK EDGE of the fence as a straightedge. (We marked reference lines at 15° , 22.5° , 30° , and 45° .) Repeat for both sides of the jig.

How to use your new jig

Review the four drawings *below* to determine our method for making miter-cuts and crosscuts. 🌲



**FENCE ASSEMBLY
(SECTION VIEW)**



▲ Clamp a straightedge square to the saw blade. Mark a reference line across the back edge of the straightedge.

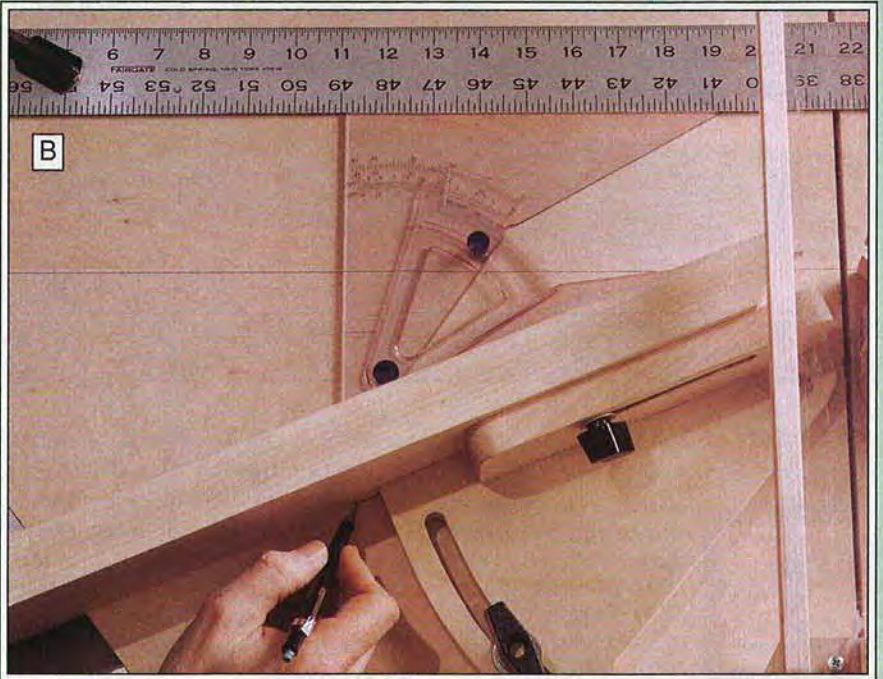
▼ Use an adjustable triangle to position the fence. Mark reference lines on the base along the back edge of the fence.

Buying Guide

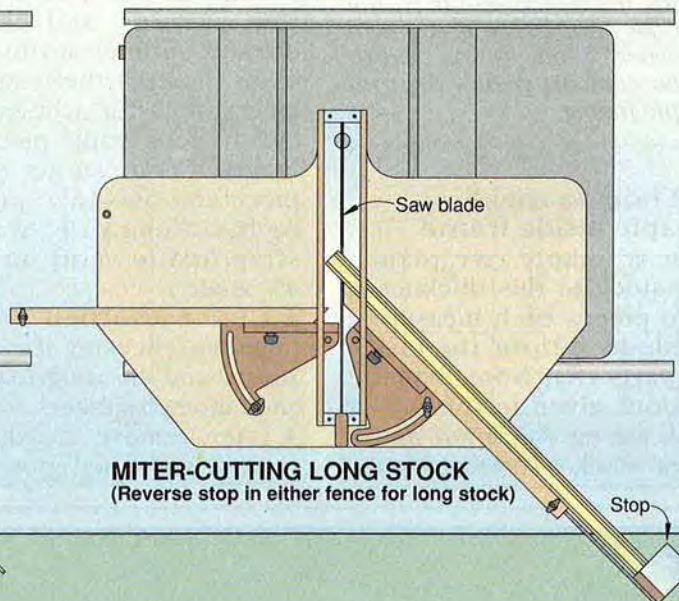
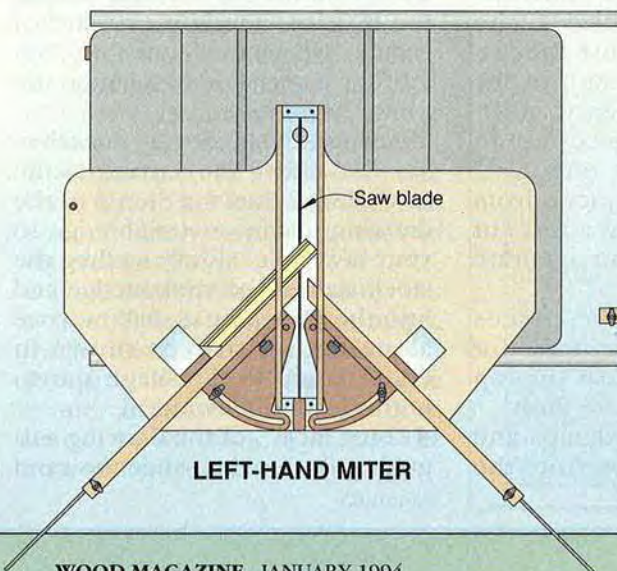
Miter jig hardware kit. Screws, toilet bolt, aluminum bar stock for fences and safety stop, polycarbonate for guard and stops, nuts, bolts, and washers. Kit no. WM-MJ, \$14.95 ppd. Miller Hardware, 1300 M.L. King Pkwy., Des Moines, IA 50314 or call 515/283-1724 to order.

Adjustable triangle.

8" model, stock no. 8211-8, \$19.37 ppd.. The Art Store, 600 M.L. King Pkwy., Des Moines, IA 50312 or call 800/652-2225 or 515/244-7000 to order.



Produced by Marlen Kemmet
Project Design: James R. Downing; Jim Boelling
Photographs: Bill Hopkins; John Hetherington
Illustrations: Kim Downing





True-to-Tradition Picture Frame



Note: The larger, more traditional frame shown here was miter-cut to fit a 14x20" piece of artwork. For other sizes, you'll need to change the frame size.

We made the inside maple frame first so we could size it around our artwork. Then, we cut and fit the outer walnut frame around the maple frame.

Here's how to make the maple inside frame

1 From $\frac{5}{8}$ " maple (we planed thicker stock to this thickness), cut two pieces each measuring $1\frac{1}{2}$ " wide by 42" for the inside frame parts (A). Note that the dimensions given in the Bill of Materials are for the *initial* size of the lineal stock. (To machine the

stock for the four inside maple frame pieces, we found it easier to work with two 42"-long pieces rather than one 84"-long strip.) Cut or rout a $\frac{1}{4}$ " rabbet $\frac{1}{2}$ " deep along one edge of each piece. See the Section View detail accompanying the Exploded View drawing for reference.

2 Mark the miter-cut locations on the maple (we used a combination square), and check the marked cutlines against the artwork to verify the length of the pieces. Adjust if necessary. Miter-cut the four maple pieces (A) to length. (You can get one $22\frac{1}{2}$ " piece and one $16\frac{1}{2}$ " piece from each 42"-long strip. We test-cut scrap first to verify an accurate 45° angle.)

3 Glue and clamp the pieces together, checking the frame for square and ensuring that the top and rabbeted surfaces are flush.

4 Later, remove the clamps and remove any dried glue from the

corners. Then, finish-sand both surfaces of the maple frame.

Now, for the walnut outer frame

1 For the walnut frame, cut two pieces to $\frac{3}{4} \times 1\frac{1}{2} \times 52$ " for parts B, two to $\frac{1}{2} \times 1 \times 52$ " for parts C, and two pieces to $\frac{1}{2} \times \frac{1}{2} \times 52$ " for frame parts D.

2 To contour the front surface of the B strips, bevel-rip one face of each at 16° where shown on Step 1 of the three-step drawing on the top of *pages 42 and 43*.

3 Position the blade on your table-saw $\frac{1}{16}$ " above the surface of the saw table. Following Step 2 of the drawing, clamp a straightedge to your saw table. Slowly feeding the stock against the straightedge and into the blade, cut a shallow cove along each B strip as shown in Photo A and to the shape shown in the Section View detail.

4 Using Step 3 of the drawing as a guide, use a palm sander to sand



CUSTOM-CUT YOUR OWN SHOW-STOPPING PICTURE FRAMES

Every year we receive numerous letters from readers interested in framing their own artwork or photos. The reason? Prices for quality picture frames have soared through the roof. But by building one or both of these good-looking hardwood frames, you can pocket a lot of change—and learn some practical woodworking techniques to boot. Come on—let's get started.

the areas noted to finish shaping the profile of the B strips.

5 With the back edges flat, glue and clamp one C strip and one D strip to one of the contoured center strips (B) where shown in the Section View detail. Immediately remove any excess glue from the front contoured edge of the frame blank. Repeat the process to laminate the remaining three pieces for the outer frame.

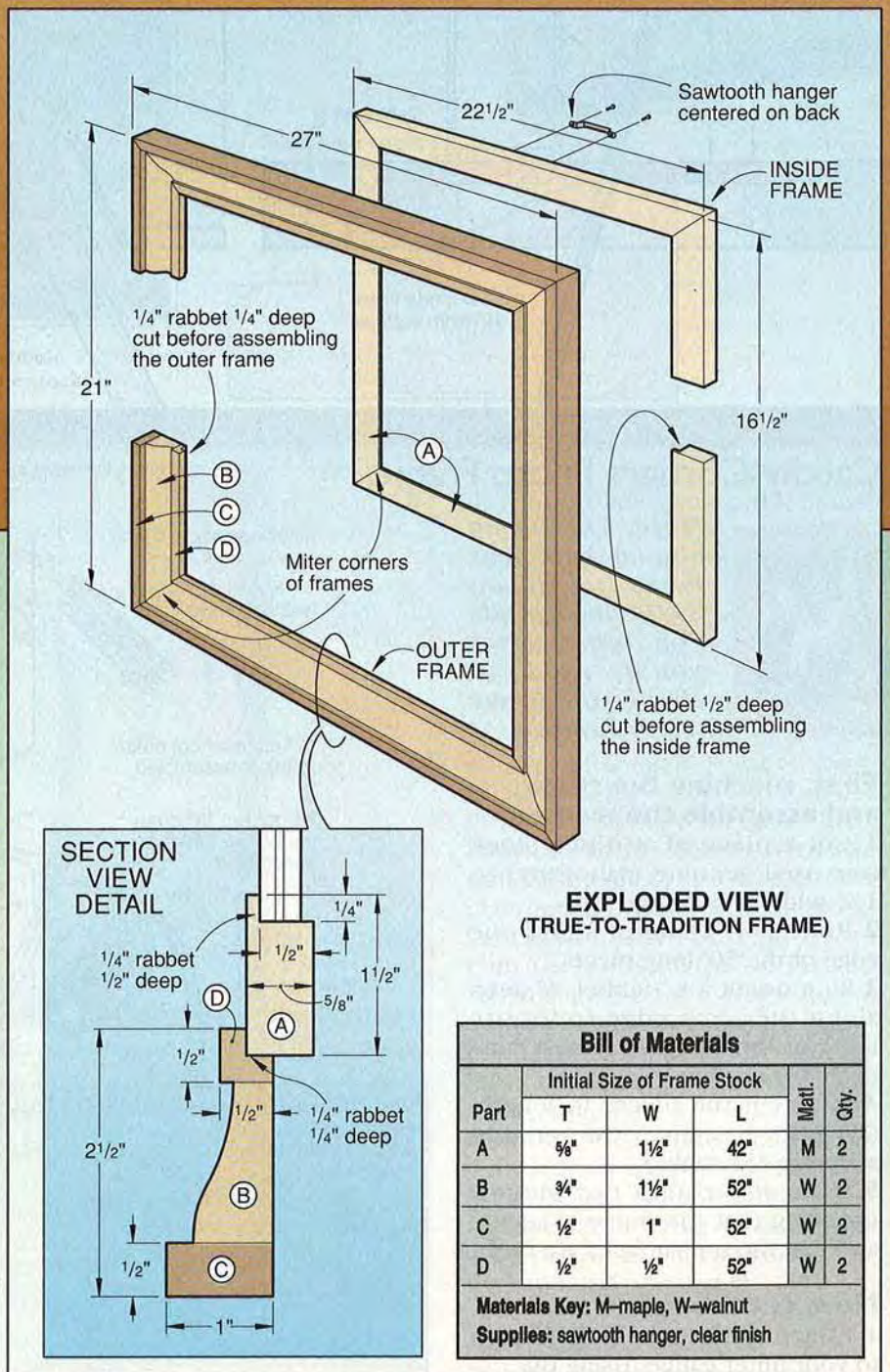
6 Cut or rout a 1/4" rabbet 1/4" deep along the inside edge of the walnut outer frame blanks where shown on the Section View detail.

7 Miter-cut one short and one long length of frame from each walnut lamination to fit around the maple frame.

8 Glue and clamp the miter-cut walnut pieces around the maple frame. Remove excess glue.

9 Apply a clear finish to the frame, and later add a sawtooth hanger to the back of it. Add the artwork and hang.

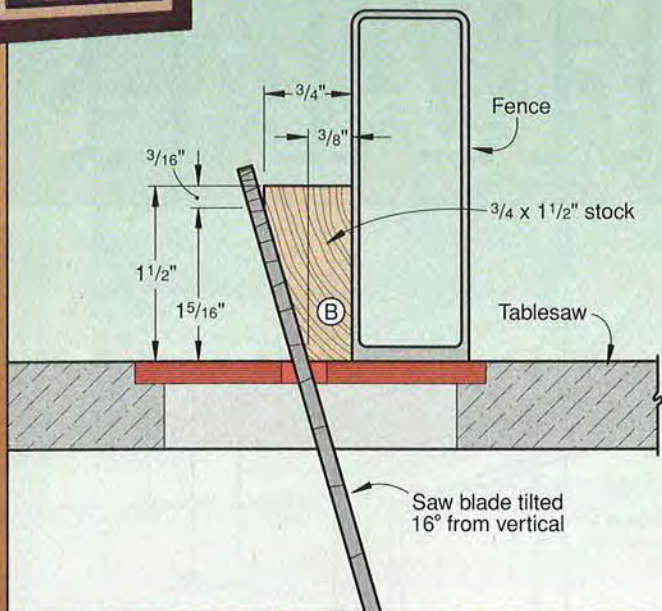
Continued



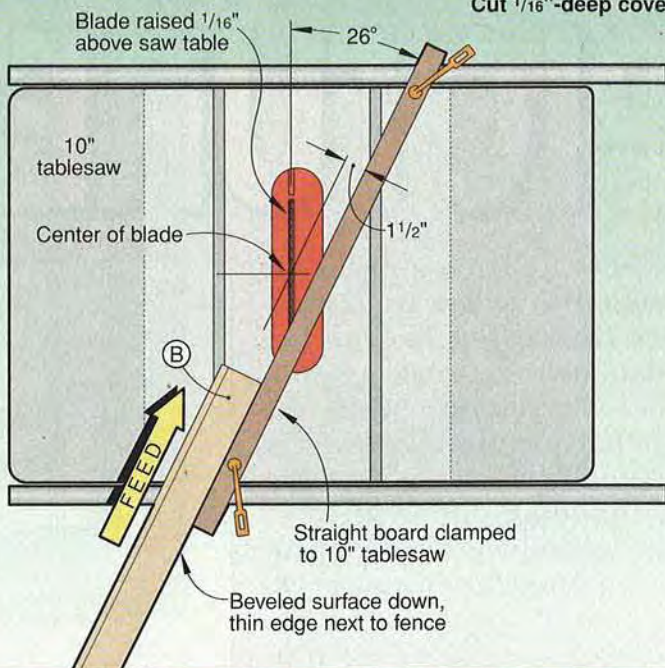


True-to-Tradition Picture Frame *Continued*

STEP 1 Bevel-rip stock



STEP 2 Cut 1/16"-deep cove



Catchy-Corners Photo Frame

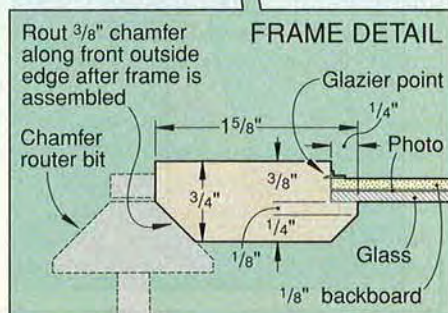
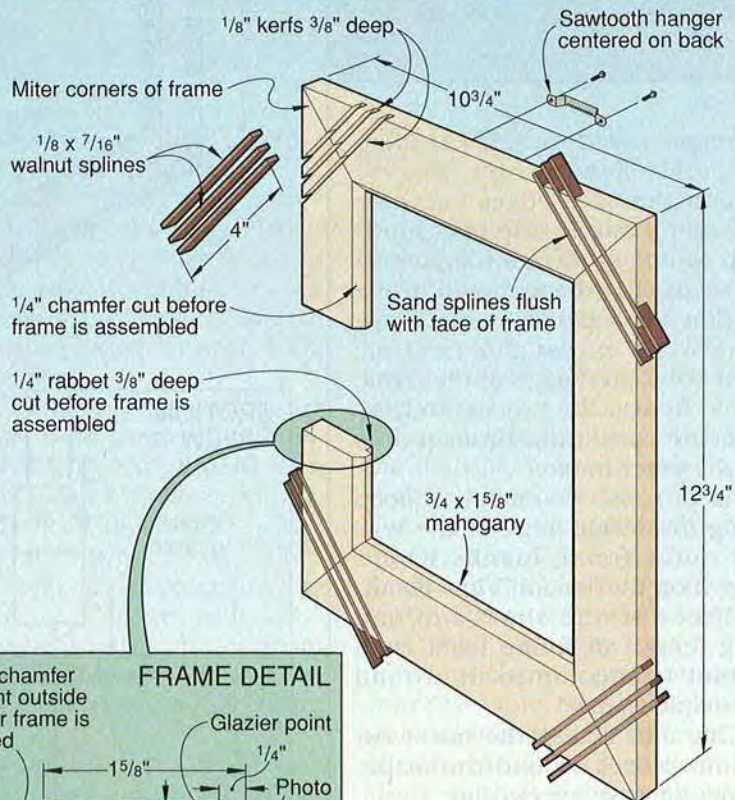
Note: The frame shown here was made to fit an 8x10" photograph. For other sizes you'll need to change the frame size accordingly.

First, machine the stock and assemble the frame

- 1 Cut a piece of 3/4"-thick stock (we used genuine mahogany) to 1 5/8" wide by 50" long.
- 2 Rout a 1/4" chamfer along one edge of the 50"-long piece.
- 3 Rout or cut a 1/4" rabbet 3/8" deep along the same edge (opposite face) of the stock. See the Frame detail for reference.
- 4 Miter-cut the pieces to length. (We test-cut scrap first to verify an accurate 45° angle.)
- 5 Glue and clamp the pieces, checking that the frame is square and that the top surfaces are flush.

Now, cut the spline kerfs

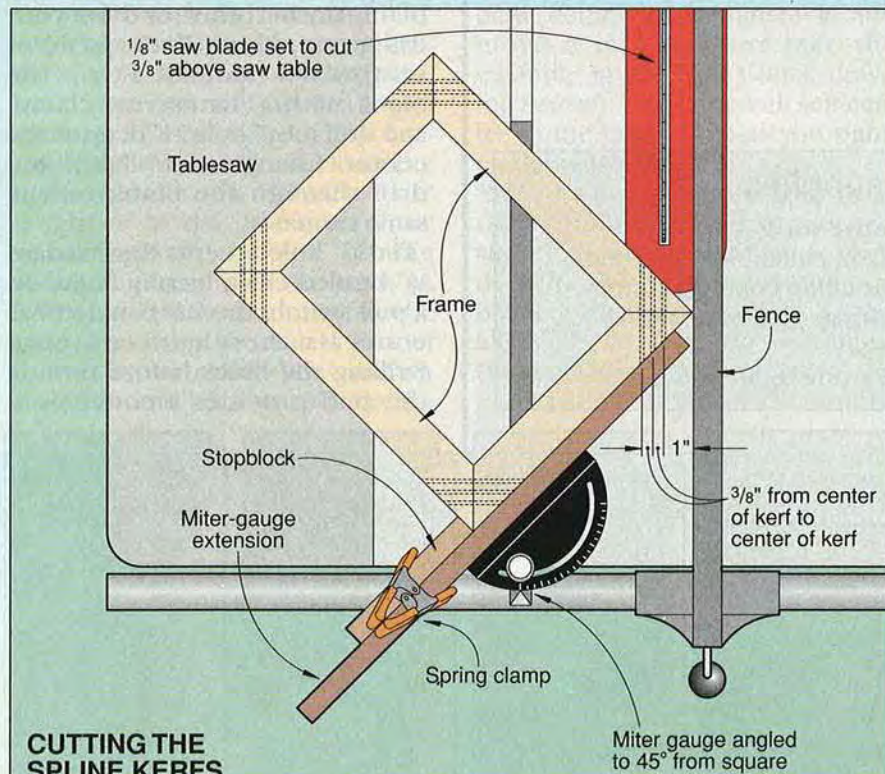
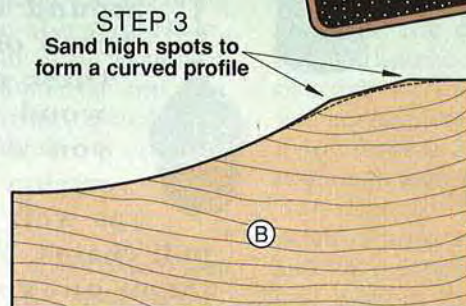
- 1 Attach a miter-gauge extension to your miter gauge. Using the



**EXPLODED VIEW
(CATCHY-CORNERS FRAME)**



A
Clamp a straightedge in place, raise the blade $\frac{1}{16}$ " above the saw surface, and cut a cove in the frame stock.



CUTTING THE SPLINE KERFS

Angle miter gauge 45° from center. Mark outside kerf location at one corner, and align marked kerf with saw blade. Clamp stopblock in place, position fence, cut opposing corners, adjust stopblock, and cut remaining corners. Repeat for middle and inside kerfs.

drawing titled Cutting the Spline Kerfs at left, mark the kerf locations, position the fence and stop, and cut the kerfs.

2 Plane or resaw maple until its thickness ($\frac{1}{8}$ ") fits into the kerfs. Next, rip $\frac{7}{16}$ "-wide strips, and crosscut 12 pieces 4" long each.

3 Glue one of the $\frac{1}{8} \times \frac{7}{16} \times 4$ " splines into each $\frac{3}{8}$ "-deep kerf. Check that the splines bottom out in the kerfs. After the glue dries, trim the splines flush with the outside edges of the frame. (We clamped the frame to our workbench, and used a dovetail saw to trim the ends of the splines to within about $\frac{1}{16}$ " of the frame edges. Finally, we used a palm-grip sander to sand the splines flush with the frame's edges and front surface.)

4 Rout a $\frac{3}{8}$ " chamfer along the outside front edge of the frame.

5 Finish-sand the entire frame and add the finish. From $\frac{1}{8}$ " stock (we used plywood) cut the back to fit the rabbeted opening. 🌲

Produced by Marlen Kemmet
Project Designs: James R. Downing
Photographs: John Hetherington
Illustrations: Kim Downing

PULLS



If you're a woodturning fan with a ceiling fan or two hanging around the house, here's one for you.


These nifty scrap-wood pulls give you a satisfying session at the lathe as well as classier pull chains. You can use them on your lamps, venetian blinds, or curtains, too.

Note: We sized the holes in our pulls to accommodate ceiling fan chains. To make pulls for lamps, venetian blinds, or other items, size the holes appropriately.

When he turns fan pulls in his Joliet, Illinois, woodturning shop, project designer Dick Sing starts with 1×1×2½" blanks cut from hardwood scraps. "You can alter the dimensions to fit stock you have," Dick points out, "and, of course, you can use any species."

After cutting the blank, mark the center on one end. Stand the blank on its other end on your drill-press table. (Put a piece of scrapwood under it.) Grip the blank with a handscrew clamp, and drill a ⅝" hole ½" deep at the center. Change to a ¼" bit, and drill through the blank on the same center.

The ¼" hole accepts the standard ⅛" beaded chain usually found on a pull switch; the ⅝" counterbore conceals the chain end clip. Drilling the holes before turning the pull provides a convenient

 Print this article

We used these tools and supplies

Stock

- Hardwood scrap, 1×1×2½"

Lathe speeds

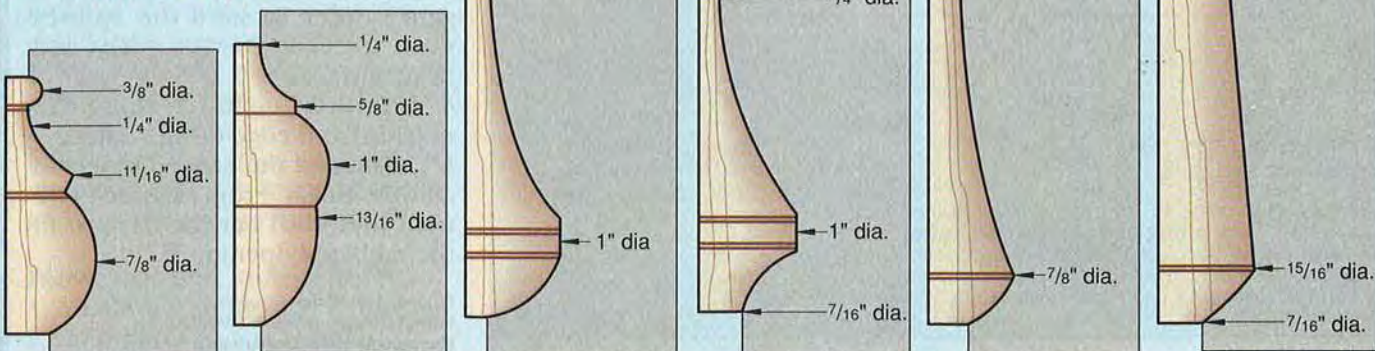
- Turning, sanding:
1100-1400 rpm

Lathe tools

- Drill chuck or 3" faceplate
- Rotating cone tail center
- Gouges, ⅝", ¼", and ½"
- Skew, ½"
- Parting tools, ⅛" and ⅜"

FAN PULLS FULL-SIZED PATTERNS

Brown lines represent burnt-in lines on pulls.



WITH PIZAZZ TURNING THEM IS A BREEZE

way to mount the blank on the lathe and ensures that the turning ends up concentric with the holes.

Friction drives for turning

You can dig in a gouge or snag a skew just as easily on a small turning as on a large one—some say it's even easier. Friction drives prevent such lapses in technique from doing damage—the turning simply stops spinning when it catches on a tool.

A friction drive also makes mounting and dismounting the work a snap. That's why production turners often rely on it.

For this project, Dick devised a simple friction drive utilizing a 1/2" drill chuck. If you don't have such a chuck for your lathe, you can set up a drive with a 3" faceplate.

•**With a drill chuck.** Cut a 1 1/2"-dia. circle from 1/8" stock (Baltic birch plywood will do the trick), and drill a 9/64" hole through its center. Install your drill chuck on the lathe headstock. Chuck a 3" length of 9/64"-dia. brass, steel, or aluminum rod into it, letting about 1" extend past the jaws. (A 9/64" twist drill works fine for the rod; just clamp the fluted part of the bit in the chuck jaws and let the plain end stick out.) Slide the

wooden disc against the jaws.

•**With a faceplate.** Alternatively, attach a 1 1/2"-thick auxiliary faceplate to a 3" faceplate. Mount the assembly on the lathe, turn the face true, and locate the center. Drill a 9/64" hole 1" deep straight into the center of the auxiliary faceplate. Turn a 1 1/2"-diameter tenon about 3/4" long for the drive surface, where shown *below*. Insert a 2" length of 9/64"-diameter brass, steel, or aluminum rod into the hole. Glue it into place with cyanoacrylate adhesive or epoxy.

It's time to pull it all together

To mount the workpiece on either drive, slide the small hole in the blank over the rod on the drive fixture. Install a revolving cone center in the tailstock, and move it into position (see the example in the Drill Chuck drawing *below*). The cone will self-center in the larger hole as you tighten the tailstock.

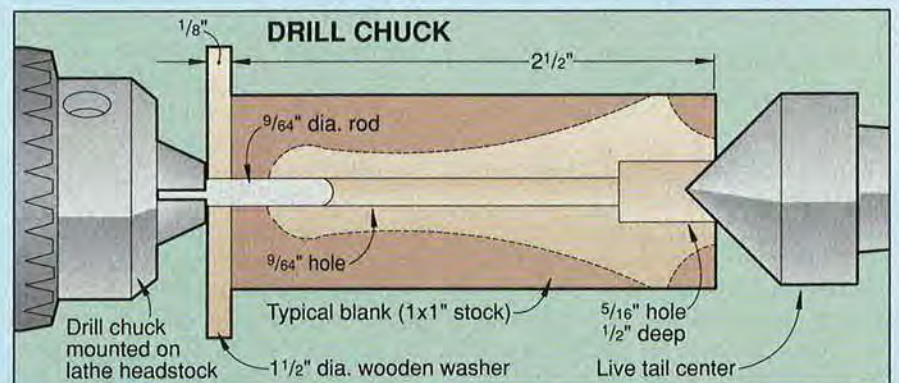
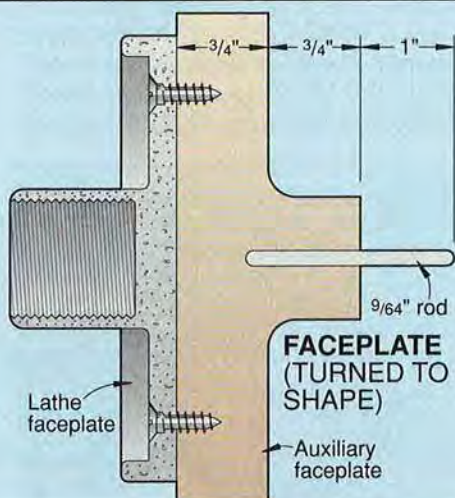
Select one of the designs from the templates *opposite page* or sketch a template of your own design. Then, round down the blank with the 1/2" gouge. At the tailstock end, form the bottom of the pull, cutting as close to the cone center as you feel comfort-

able. Shape the profile with gouges and skewers, but don't complete the rounded top yet.

Work with a light touch and sharp tools, cutting rather than scraping (see *Turning Between Centers*, *WOOD*® magazine, October 1993). If your turning stalls too easily, tighten the tailstock to increase the friction between the drive fixture and the workpiece. Be careful not to overtighten; the cone tail center will act just like a splitting wedge if you force it into the stock with too much gusto.

Cut decorative grooves with the point of a skew or a parting tool laid flat on the tool rest. You also can burn-in the grooves for an additional accent. To do that, cut a 12-18" length of light, solid wire (18 gauge or thereabouts). Tie each end to a handle, such as a 3" length of dowel or scrapwood. With the lathe running, press the wire into the groove and hold it there until friction burns the wood.

Sand the completed turning. Complete the rounded tip with the skew. (You can cut right down to the rod; it will keep the turning from flying off the lathe.) Spray on clear lacquer or dip the turnings in an oil finish. ♣



Project Design: © Dick Sing
Photograph: John Hetherington
Illustrations: Kim Downing

In the
Olympic
spirit



NORWEGIAN



 [Print this article](#)

Watch closely when television cameras cover life in snow-covered Lillehammer, Norway, during the Winter Olympics. You'll probably spot many of the items shown here. That's because Norwegians take pride in a wood tradition that goes back to the Vikings.

Archaeologists unearthing the nearly intact remains of a Viking ship from a farm called Oseberg, near Toensberg, Norway, in 1904 discovered, among other things, a wealth of wooden artifacts within. The Oseberg Ship, now housed in an Oslo museum, yielded a carriage, furniture, and all types of household and personal items, each of such craftsmanship

to indicate that carving and wood-working was a leading art form in 800-1050 A.D. And throughout the following centuries, it was from that 1,000-year-old tradition that Norway's self-taught craftsmen drew inspiration.

With but an ax and a knife

Factories born of the Industrial Revolution began to draw Norwegians to the cities in the late 19th century. But before that, they mostly lived on farms where, they practiced self-sufficiency. They raised their food, built buildings, and made their own tools, utensils, and furniture—mainly of birch, spruce, and pine. And they did this without the specialized tools of the trained wood craftsmen found in the cities.

A royal decree in effect from the late-17th century to the late-18th century actually made it illegal for anyone except members of the professional craftsmen's guild to own refined tools. So, for about

100 years, Norway's "hobby" woodworkers made do with axes and knives. Yet, they developed fine skills with these simple tools.

Norwegian home woodworkers learned to take advantage of misshapen wood, such as twisted branches, curved limbs, and oddly formed burls. With an ax and a knife, it was easier to finish off a preformed crooked branch into a coat hook or scythe handle than to shape one from straight wood. Also, the grain in the natural piece—because it followed the form—was stronger than that in a piece of wood worked to that shape. These items were decorated in the Viking way by chip-carving, relief, incising, or burning.

This carved birch-burl cup features decoration called *kolrosing* or *barkrosing* in Norway.



FOLK CRAFT IN WOOD



conomic necessity. "If my mother needed a new cup or container of some kind, my father made it out of wood," Kåre, 58, recalls.

He remembers hikes up into the surrounding mountains with his father, a jack-of-all-trades who didn't throw away anything that might later come in handy. "Dad always carried a small handsaw in his backpack," Kåre says, "and harvested birch limbs to bring back home. A branch that had been formed into a U-shape might be just the bend he was looking for when it came time to fashion a hook for coats or harnesses."

Kåre inherited the same appreciation of wood, and after secondary school, he realized that creating things from natural materials could become a career. So, he went to a teacher's college to study "forming," a subject combining industrial art with fine art.

After graduation, the young craftsman continued learning by taking summer courses that covered a wider variety of traditional woodworking techniques. For instance, Kåre mastered cooper-



After studying Norway's folk-style of woodworking, Kåre now prefers the hunt for wood as much as the crafting.

But in the years following World War II, economic circumstances changed in Norway. Handmade wooden articles, such as treenware and containers, were gradually replaced by manufactured items made of metal or plastic. And when the wooden articles were no longer being used regularly in the home, the skills required to make those articles faded. Now, though, the old skills are once again being practiced as a growing number of woodworkers learn them in government-sponsored programs and schools.

A craftsman of old ways

Modern-day craftsman Kåre Herfindal (sounds like CORE-ah HAIR-fin-doll) grew up on a farm near where he now lives in Voss, Norway. His boyhood was spent in an era when making wooden objects for the home was an eco-

ing, and how to make *tiner* (bentwood containers similar to Shaker boxes). To get materials, he once again found himself in the woods and mountains of his childhood.

And what Kåre learned and continues to learn, he passes on both to his students and to his three sons. "I think it's important to relay not only the specific techniques, but also the cultural and historical traditions behind them," he comments.

The Nordic craftsman also practices what he preaches by crafting and selling bentwood containers, hooks, clamps, and other items made from naturally shaped wood, as shown in the photos below. Kåre's customers—tourists and fellow Norwegians—represent the growing number of people who enjoy things out of a pre-plastic past. ♣

The large ladle, carved from birch, sells in Norway for \$73 (U.S.)

In Norwegian, *tiner* means lidded containers made of thick wood veneer.

This bentwood piece could be used as a flour scoop or a bread basket.

Kåre crafted this C-clamp (about 7" across) from a curled birch branch.

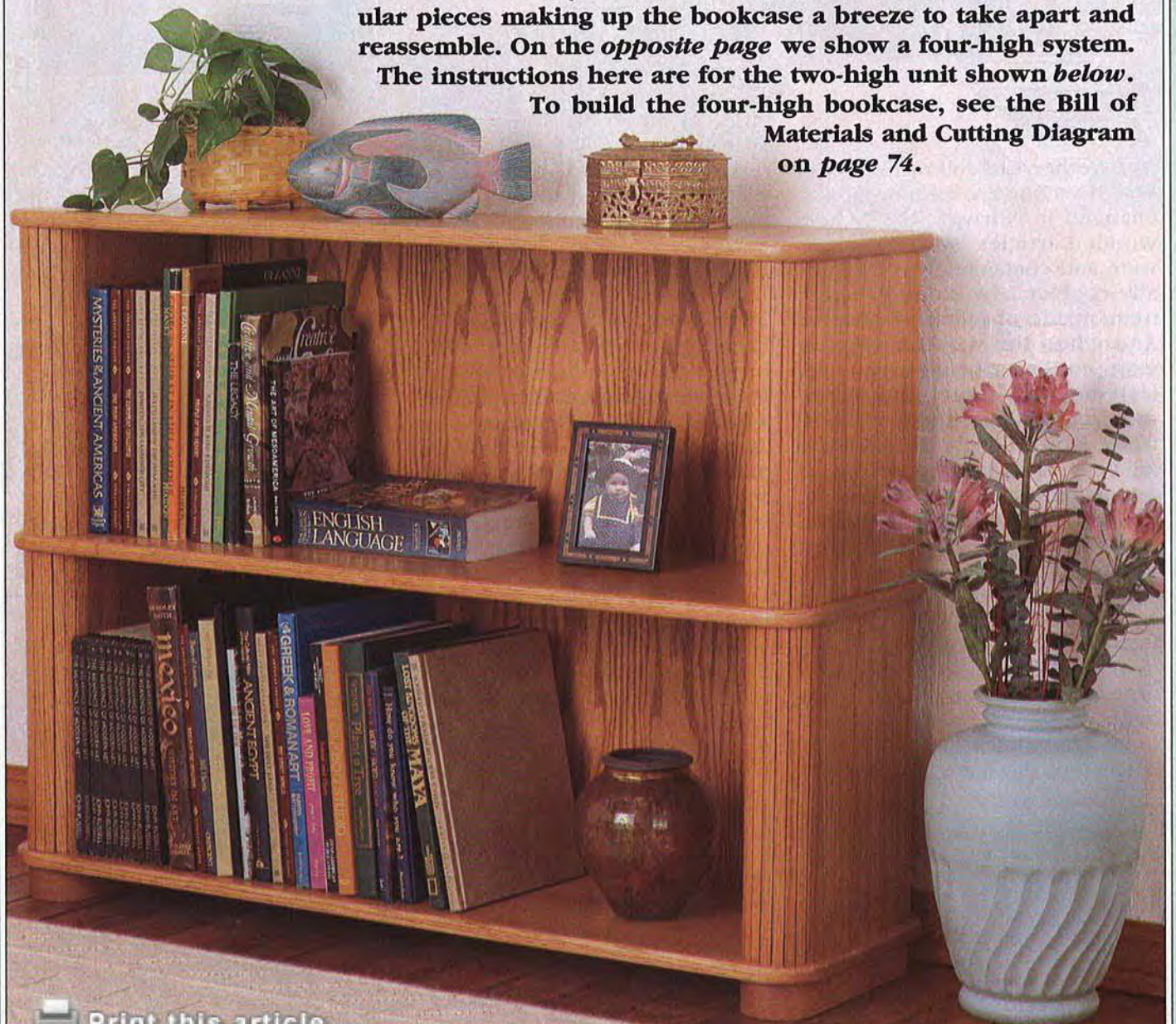


TERRIFIC TAMBOUR BOOKCASE

We've seen a great many bookcases in our travels around the country, but none more good-looking and versatile than this one. And should you ever have to relocate, you'll find the modular pieces making up the bookcase a breeze to take apart and reassemble. On the *opposite page* we show a four-high system.

The instructions here are for the two-high unit shown *below*.

To build the four-high bookcase, see the Bill of Materials and Cutting Diagram on *page 74*.



Print this article

Start by forming the edge-joined oak shelves

1 From $\frac{3}{4}$ "-thick hardwood (we used oak), edge-join enough narrow stock to form three panels measuring 13" wide by 44" long. You'll use one panel for the upper shelf, another for the middle shelf, and the third for the lower shelf (all labeled A).

2 Rip and crosscut the three shelves to $12\frac{1}{2}$ " wide by 42" long. Sand both faces of each panel.

3 Mark a $2\frac{1}{8}$ " radius on each corner of each shelf. (See the Parts View drawing *below* for reference.) Cut and sand the corners to shape. If you do this on the bandsaw, you'll need a helper to support the long panels when making the corner cuts. Using a pencil, label one shelf UPPER, another MIDDLE, and the third, LOWER. Labeling the parts now helps ensure the correct machining to the proper face of each shelf later.

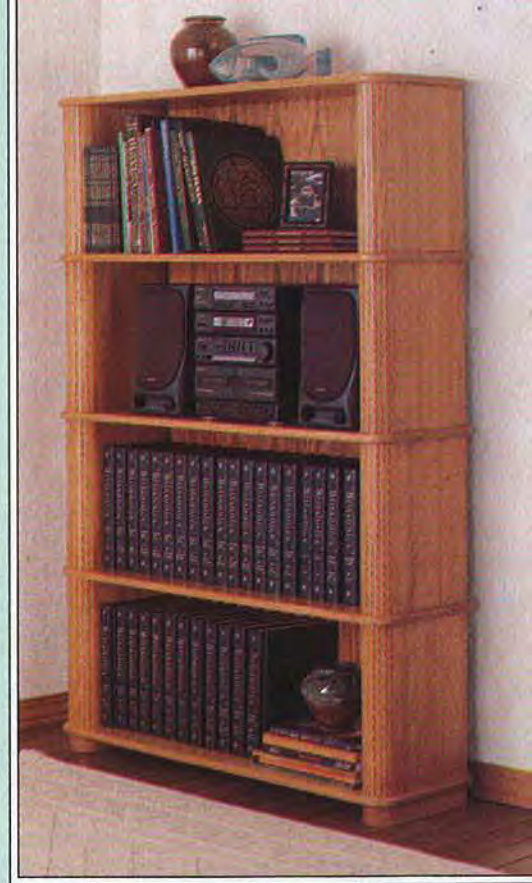
4 Drill four $\frac{7}{16}$ " holes $\frac{1}{2}$ " deep into the bottom side of the upper shelf, using the same centerpoints

used to mark the $2\frac{1}{8}$ "-radiused corners. Using a wide-blade screwdriver, drive a $\frac{1}{4}$ "-threaded insert squarely into each of these holes until the notched end of the insert is flush with the bottom surface of the shelf where shown on the Threaded Insert detail accompanying the Exploded View drawing.

5 Switch bits, and drill $\frac{5}{16}$ " holes through the middle shelf and lower shelf, again using the hole centerpoints you marked earlier. You'll slide the all-thread rod through these holes later when assembling the modules.

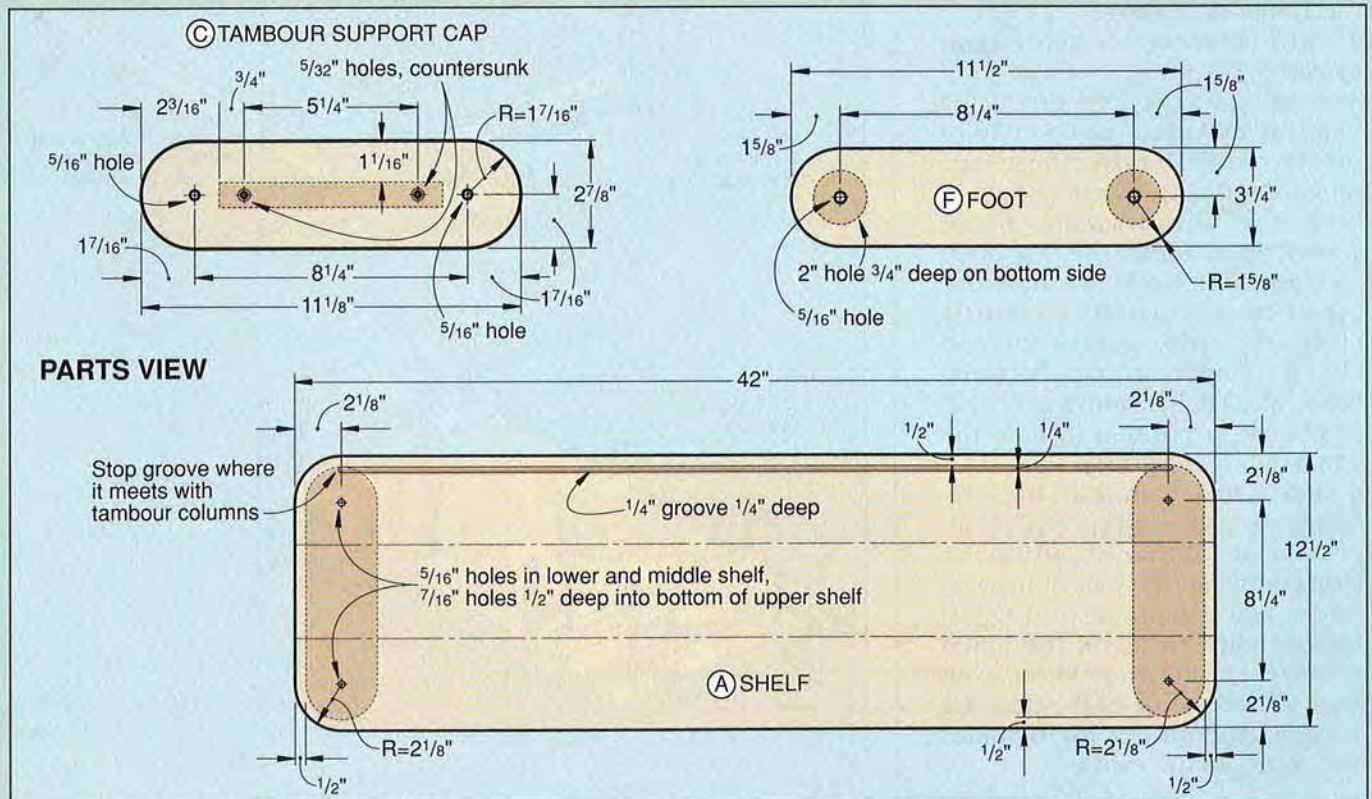
6 Make start and stop marks for the grooves ($2\frac{1}{8}$ " from the ends) along the back edge on the bottom side of the upper shelf, both sides of the middle shelf, and top side of the lower shelf where dimensioned on the Parts View.

7 Fit your router with a $\frac{1}{4}$ " straight bit and edge guide. If you don't have an edge guide, clamp a straightedge (a straight board will



work) to the shelf. Rout a $\frac{1}{4}$ " groove $\frac{1}{4}$ " deep along the back edge of each shelf where marked. You'll use these grooves to house the plywood backs (E).

Continued



BOOKCASE

8 Rout $\frac{1}{4}$ " round-overs along the top and bottom edges of each shelf. Sand the shelves smooth.

Now, let's cut the tambour strips to size

1 To make four tambour support columns, you'll need 56 strips (B) per column, or a total of 224 strips for the four columns. (We cut about 240 strips, giving us extras to substitute for strips with defects.) To form the strips, plane thicker stock to $\frac{7}{16}$ " thick. Crosscut the $\frac{7}{16}$ "-thick stock to 29" long.

2 Set the fence on your tablesaw $\frac{3}{16}$ " from the inside edge of the blade (for smooth cuts, we used a 40-tooth, carbide-tipped saw blade). Rip 120 of the $\frac{3}{16} \times \frac{7}{16} \times 29$ " strips (B).

3 Complete the B parts by cross-cutting two 14"-long strips from each of the 29"-long strips.

Glue and clamp the oak strips to the canvas

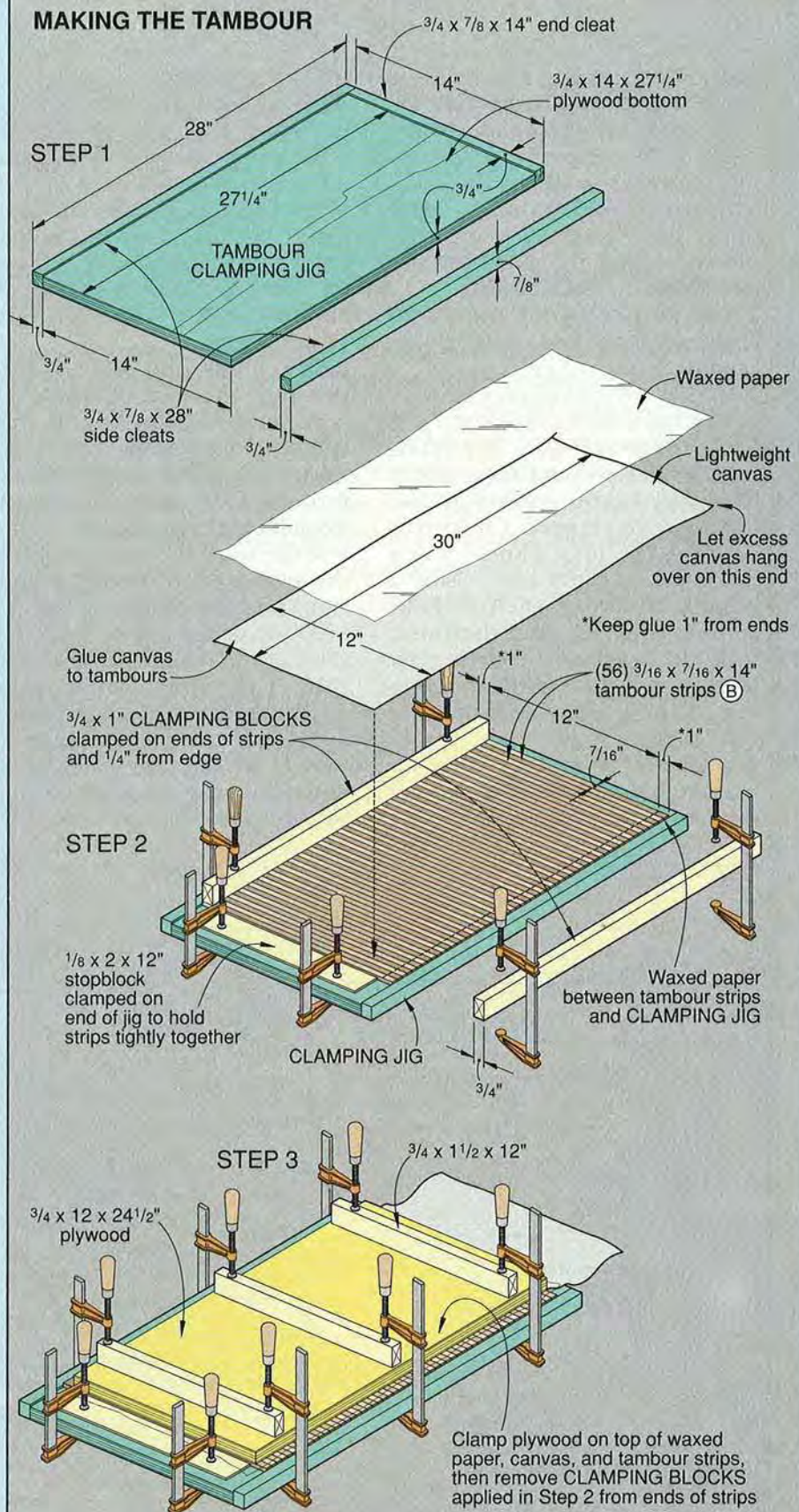
1 Build the Tambour Clamping Jig shown in Step 1 of the Making the Tambour drawing.

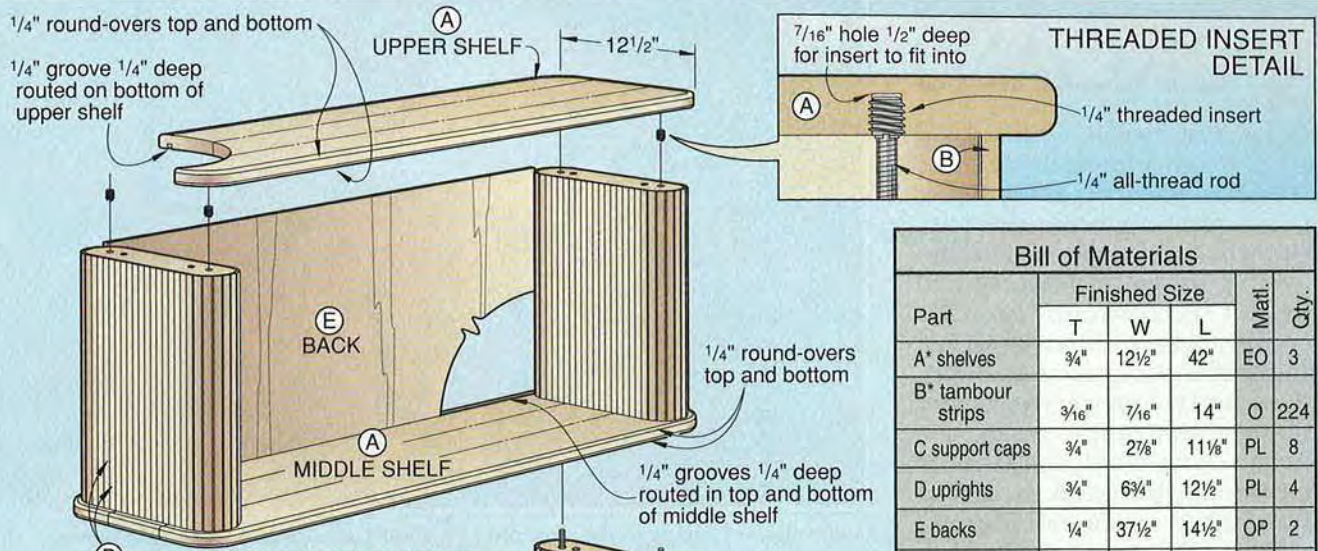
2 Cut four pieces of lightweight canvas to 12×30 ".

3 Starting at the end of the jig with the end cleat, position 56 of the $\frac{3}{16} \times \frac{7}{16} \times 14$ " strips, best face down, on the jig where shown in Step 2 of the drawing. Place waxed paper under the first three and last three tambour strips. Use a pair of bar clamps to lightly clamp the strips against the end cleat to remove any gaps between the strips. Then, clamp a $\frac{1}{8} \times 2 \times 12$ " stopblock in position to hold the strips tightly together.

4 Mark a line 1" in from the tambour-strip ends, and spread a thin, even coat of glue on all of the strips between the pair of marked lines. Place a piece of 12×30 " lightweight canvas on the glued strips where shown in Photo A on page 52 and Step 2 of the drawing at right. Smooth out any wrinkles or bubbles in the canvas.

Continued





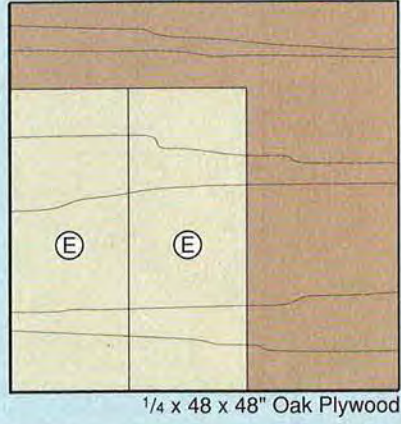
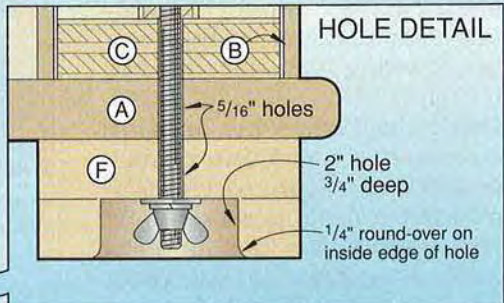
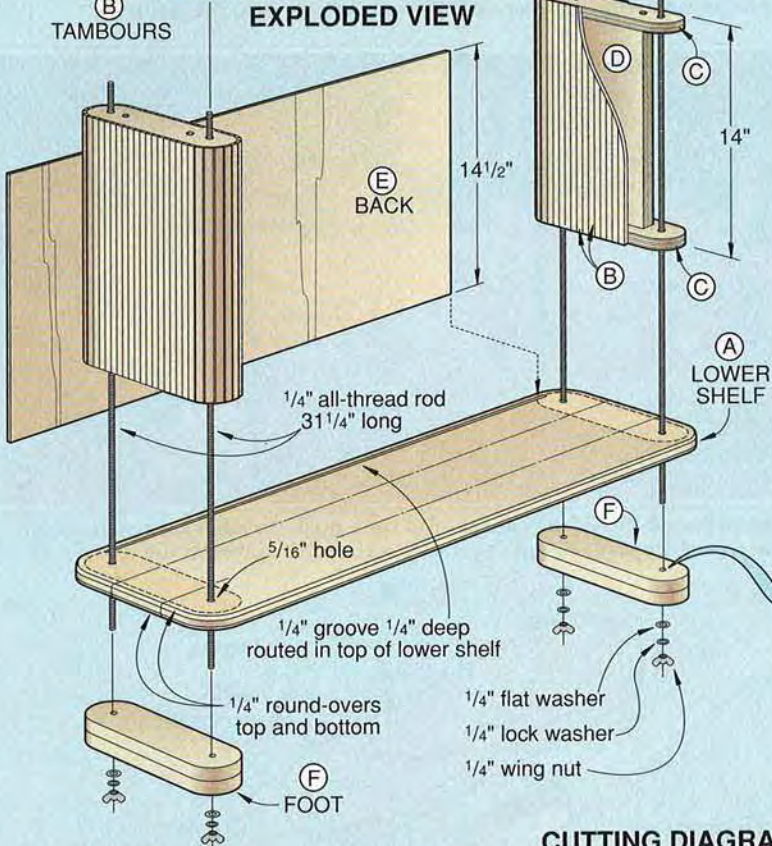
Bill of Materials

Part	Finished Size			Mati.	Qty.
	T	W	L		
A* shelves	3/4"	12 1/2"	42"	EO	3
B* tambour strips	3/16"	7/16"	14"	O	224
C support caps	3/4"	2 7/8"	11 1/8"	PL	8
D uprights	3/4"	6 3/4"	12 1/2"	PL	4
E backs	1/4"	37 1/2"	14 1/2"	OP	2
F feet	1 1/2"	3 1/4"	11 1/2"	LO	2

*Initially cut parts marked with an * oversized. Then, trim each to finished size according to the how-to instructions.

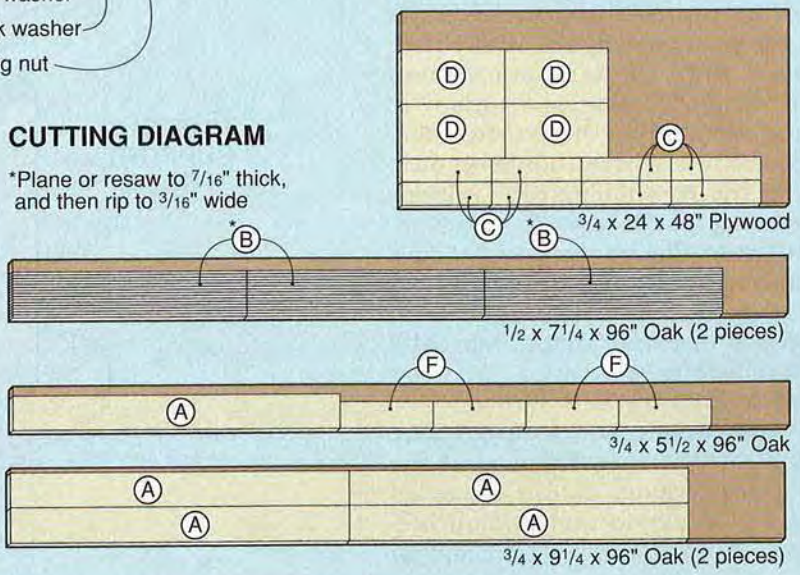
Materials Key: EO—edge-jointed oak, O—oak, PL—plywood, OP—oak plywood, LO—laminated oak

Supplies: lightweight canvas, #18x3/4" brads, #8x1 1/2" flathead wood screws, 1/4" threaded inserts, 1/4" all-thread rod, 1/4" flat washers, 1/4" lock washers, 1/4" wing nuts, stain, finish.



CUTTING DIAGRAM

*Plane or resaw to 7/16" thick, and then rip to 3/16" wide



BOOKCASE

5 Cover the canvas with waxed paper. Next, clamp a piece of $\frac{3}{4} \times 12 \times 24\frac{1}{2}$ " plywood to the top of this assembly to press the tambour strips uniformly against the canvas as shown in Photo B and Step 3 of the drawing. Leave the assembly clamped overnight. Remove the clamps and tambour, and repeat to form the remaining tambour assemblies.

6 Remove the tambour assembly from the jig, and sand the wood side of each tambour until the pieces are flush with each other and all machining marks are gone. (We first belt-sanded the tambour with 80 and then 120-grit sandpaper. Next, we used a palm sander and 150- and 220-grit sandpaper to finish-sand the tambour.)

Build the tambour frames for a supporting role

1 To build the tambour support frames, cut the support caps (C) to the shape shown on the Parts View drawing. Cut the uprights (D) to size.

2 Using the Parts View drawing for reference, mark the center-points and drill four holes in each top and bottom support cap (C).

3 Glue and screw the supports together in the configuration shown on the Tambour Support Frame drawing. (We used a framing square to check that the edges of the top and bottom caps [C] were perfectly aligned.)

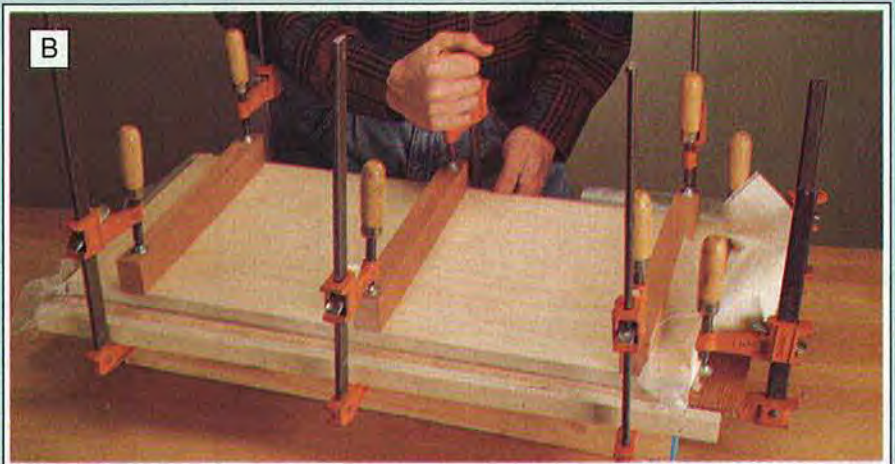
4 To wrap the tambour around the frames, drill $\frac{1}{16}$ " holes $\frac{3}{8}$ " from the ends of the first two tambour strips where shown on Step 1 of the Assembling the Columns drawing on the *opposite* page.

5 Spread glue on the mating edges and wrap the tambour tightly around the frame where shown in Step 1 of the drawing. Start the first strip centered on the radiused ends where shown.

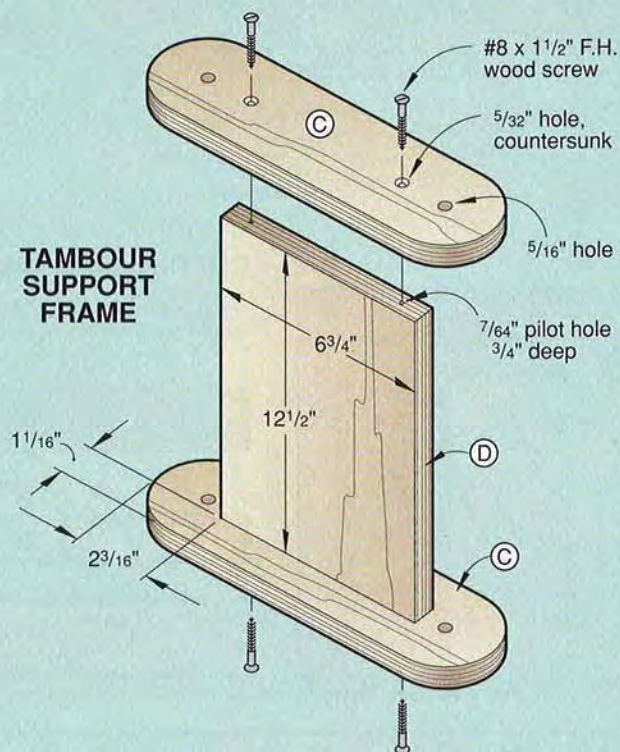
6 After gluing and wrapping the tambour completely around the support frame, clamp a pair of clamp blocks to the top and bottom of the assembly where shown

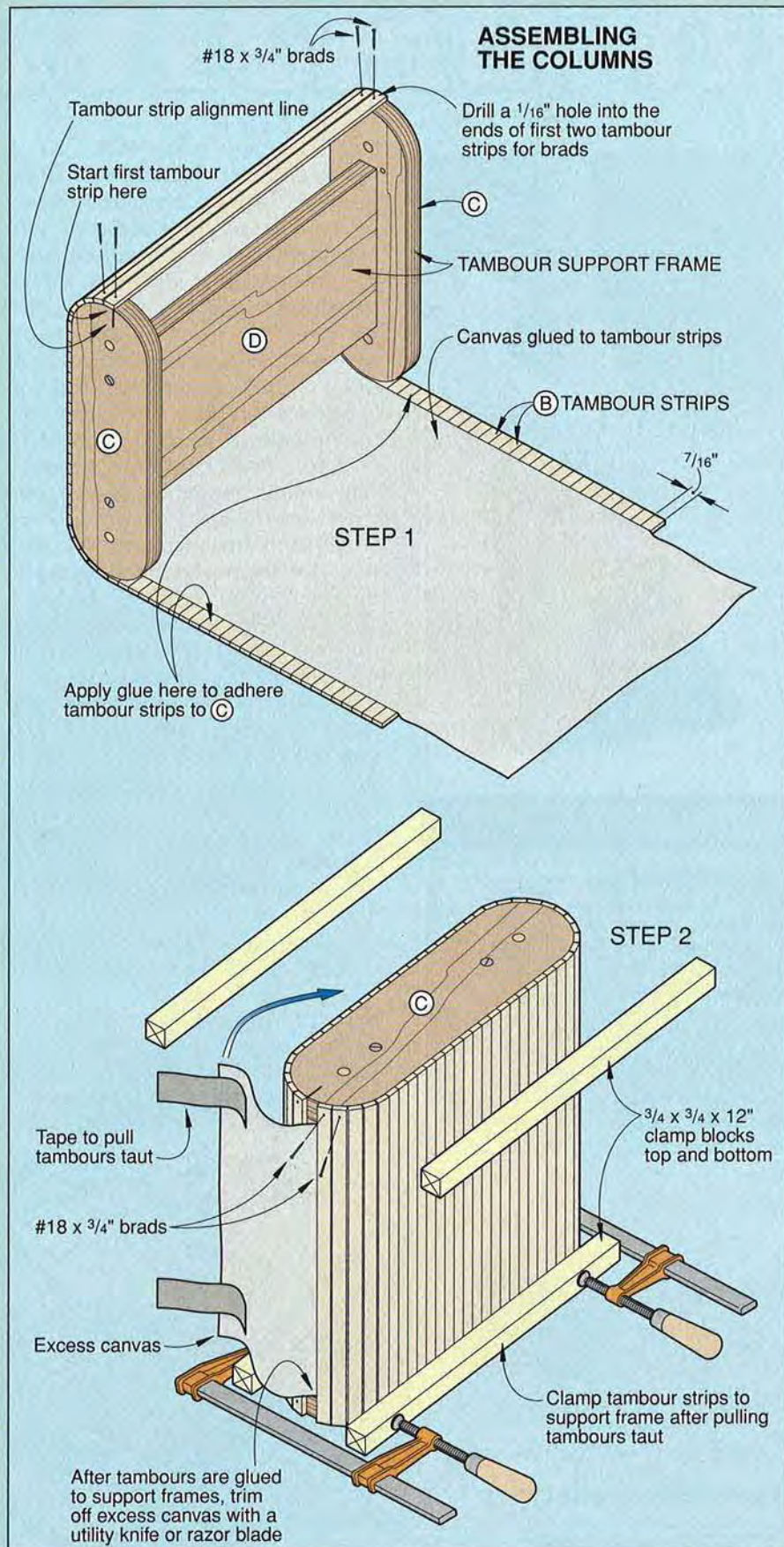


Clamp the oak strips to the clamping jig good face down. Spread glue between the clamping blocks, and adhere a piece of lightweight canvas to the strips.



Place waxed paper on top of the canvas, and then position and clamp a piece of plywood on top of the waxed paper to firmly secure the canvas to the oak strips.





in Step 2 of the drawing *below left*. The clamp blocks hold the ends of the tambour strips flush while the glue dries. Repeat the process to form each column. Drive brads into the last two tambour strips in the wrap to hold them firmly in place.

7 Using a hobby knife, trim the excess canvas from each column. Set the brads, and fill the holes with putty. Sand smooth.

8 Belt-sand the top and bottom surfaces of the column flush. Hand-sand a slight round-over on the exposed edges of the tambour pieces where they wrap around the frame radiused ends.

Cut the backs, and put the pieces together

1 From $\frac{1}{4}$ " oak plywood, cut the backs (E) to size. Notice that the grain runs up and down on the backs where shown on the Exploded View drawing.

2 Cut two pieces of $\frac{3}{4}$ "-thick stock for each foot (F) to the shape shown on the Parts View drawing. If you don't have a 2" Forstner bit to form the holes in the bottom pieces, drill blade start holes and cut the openings with a scrollsaw or jigsaw. Glue the pieces face-to-face with the edges and ends flush. Sand the edges smooth.

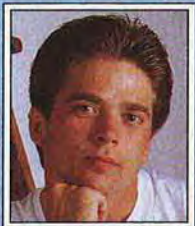
3 Drill $\frac{5}{16}$ " holes through each foot where shown on the Parts View drawing.

4 Finish-sand all of the pieces. Stain the components and apply a clear finish.

5 Using a hacksaw, cut two $3\frac{1}{4}$ "-long pieces of $\frac{1}{4}$ " all-thread rod. Assemble the bookcase in the configuration shown on the Exploded View drawing. To prevent scratching the floor, make sure that the bottom of the all-thread is above the bottom surface of the feet where shown on the Hole detail accompanying the Exploded View drawing. Trim the all-thread rod more if necessary. 🌳

Produced by Marlen Kemmet
 Project Design: Parman Brothers LTD.,
 Johnson, Kansas
 Illustrations: Kim Downing
 Photographs: John Hetherington

BRUSH BASICS



Professional painter Wade Sunde tackles much of the finishing work for projects that

appear in both *WOOD*® magazine and our sister publication, *Weekend Woodworking Projects*®. Many times, he brushes on a paint or varnish, with results that rival the smoothness of sprayed finishes. Read on and discover how you, too, can apply finishes like a pro.

First things first: Buy the right brush

With price tags in the \$10-\$25 range, high-quality brushes don't come cheap. So, the temptation to buy a less-expensive brush in the \$1-\$10 range can be quite strong. Our advice: Buy the best available brush and you will be rewarded many times over in better results and time savings. And remember, high-quality brushes will last years if you take care of them properly. (We'll cover this important topic in depth later.)

As shown below, you can buy brushes with either synthetic bristles



During use, a 3" brush will sprawl to about 4" wide.



A high-quality brush (left) has finer flags and a smoother taper than a low-quality brush (right).

or natural (animal hair) bristles. Remember to purchase synthetic-bristle brushes for water-based finishes and latex paints, and natural-bristle brushes for oil-based varnishes, polyurethanes, enamels, and brush-on lacquers. The reason: Because of their pores, natural bristles will absorb loads of water, making them puffy and hard to control. And, oil-based finishes will attack and break down synthetic bristles.

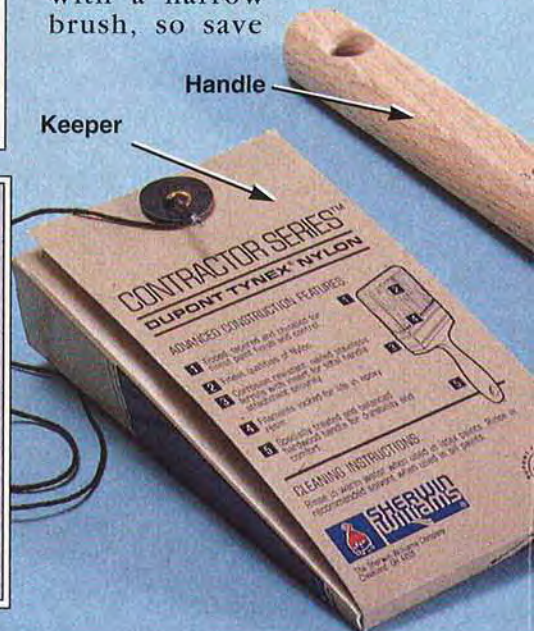
Although brush manufacturers use the hair of many animals, including skunks, horses, badgers, and oxen, you only need commonly found black or white China-bristle brushes (made from hog's hair) for most finishing tasks. It makes no difference if you use black or white, but many professionals use black-bristled brushes for paints, and white for clear finishes, just to keep them separate.

You can buy brushes from 1" to 4" wide in ½" increments, but you'll rarely need a brush wider than 3". You'll have better control with a narrow brush, so save



White China bristle Black China bristle Angled nylon Nylon/polyester blend

Here's a look at commonly available brush types



How to select, use, and clean this trusty finishing tool

When to use something other than a good brush

At times, it just doesn't make sense to use a good brush. One such situation is when you're working on a project so small that it takes you more time to clean a brush than it does to apply the finish. Then, use inexpensive disposable bristle brushes or foam brushes (we especially like the latter for applying stains). Or, get an exceptionally smooth coat with an aerosol finish.



A cutting pot serves as a handy container during finish application and brush cleanup.

the larger sizes for big projects such as tabletops. Keep in mind that a brush will sprawl, meaning it will fan out when you use it as shown *opposite page*. So, a 3" brush will actually cut a swath about 4" wide. Wade Sundeen typically chooses a 1"-wide brush for moldings, spindles, and other areas with tight spots, a 3" brush for large surfaces such as tabletops and doors, and a 2"-wide brush for surfaces between these two extremes. For most woodworking applications you can get by with 1" and 2" brushes.

Finally, you can buy brushes with the bristles cut either perpendicular to the handle (straight brush) or at an angle (sash brush). Use a straight brush for most tasks, and save the sash brush for times when you have to reach into corners and other tight spots.

Here's what makes a high-quality brush

You'll have an easy time finding the best brushes at your local hardware or paint store—they cost the most. But what separates them from the less-expensive brushes? Here's a top-to-bottom analysis of what to look for in a good brush.

Although split ends may not look good in your own hair, these flags help a brush smoothly spread finish with minimal brush marks. The bristles should be varying lengths so that the brush smoothly tapers toward the top as shown in the *middle photo* on the *opposite page*. Cheap brushes have bristles chopped off in distinct layers.

The best brushes have durable, stainless-steel ferrules that won't rust or fall apart.

The ferrule should be nailed or screwed to a wooden handle that's long

enough to give the brush good balance. Although less-expensive brushes come without a package, or in a throwaway container, high-quality brushes have reusable keepers for maintaining the shape of the bristles during storage.

Let's brush up on some basic techniques

Even the best brush won't do you much good unless used correctly. These tips will help you get smooth results job after job:

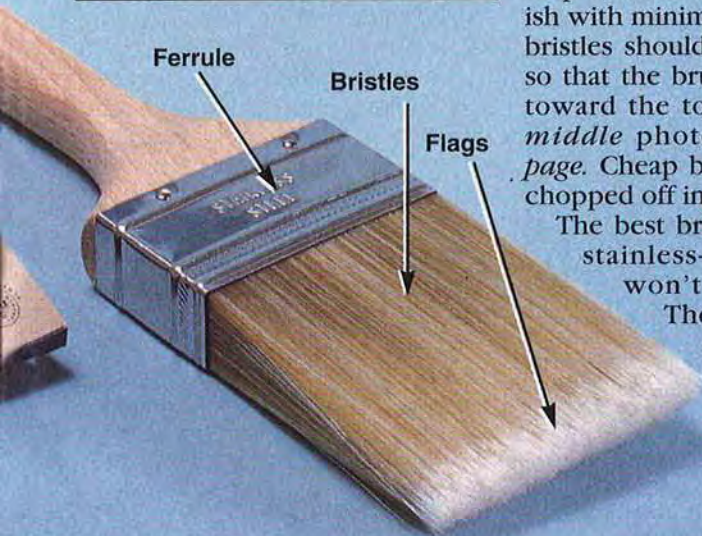
- Unless you intend to use all of the finish in a container at once, pour only what you'll need for the job at hand into a cutting pot (a fancy term pros use for an empty can). This way, the debris picked up by the brush won't contaminate the original container.

- Wade prefers old paint cans, the type with plastic tubes on the handles for comfort. He cuts off the indented rim of the pot with a can opener so that finish doesn't collect there, and holds it as shown *left*, with his thumb securely around the plastic tube.

- If you must pour unused finish back into its original container, always strain the finish with a commercial strainer (available at paint stores) or an old nylon. With water-based clear finishes, you must strain them before each use to keep coagulated chunks of the finish off your project.

- To get a super-smooth appearance, add a paint conditioner to your finish before applying it. These products help the finish flow uniformly without causing runniness or decreased coverage as thinners might. They also reduce the drag on brushes or rollers, and make finishes flow

Continued



BRUSH BASICS

through spray equipment with greater ease.

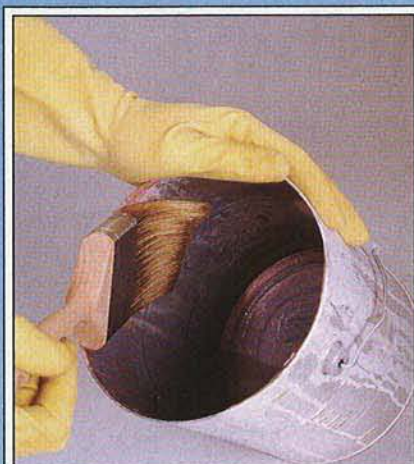
Wade uses Penetrol with oil-based finishes, and Floetrol with latex paints. (The Flood Company manufactures both products. Call 800/321-3444.)

He adds about one ounce of each product to a quart of finish, and may increase the percentage for thick-bodies finishes. You can buy the products at paint stores such as Sherwin-Williams and Glidden, and at many hardware stores. For water-based clear finishes, use the manufacturer's recommended flow-out additive.

- Never dip the bristles more than halfway into the finish. Doing so overloads the brush and increases the chances of the finish running onto the ferrule and your hand.

- Place the brush in a plastic bag during short breaks as shown *opposite page* to keep the finish from drying out. Doing this also saves you one more cleaning.

- Let's face it: there's little mystery to the method of stroking a paintbrush back and forth. Just hold the brush in a comfortable position, and keep an eye out for drips and runs. After applying a finish, lightly drag the tips of your brush through it. This technique



1 To rinse your brush, swish it side-to-side as you pull it up the inside of the cutting pot.

will usually decrease the size of the brush marks.

- Carefully plan the sequence in which you brush the parts of your project. Generally, it makes sense to start with the parts farthest away from you (such as the inside of a cabinet) so that your clothing doesn't touch wet areas as you brush. If a project has painted and clear-finished surfaces, apply the clear finish first. Then, you can cleanly wipe up a spilled drip on a clear area.

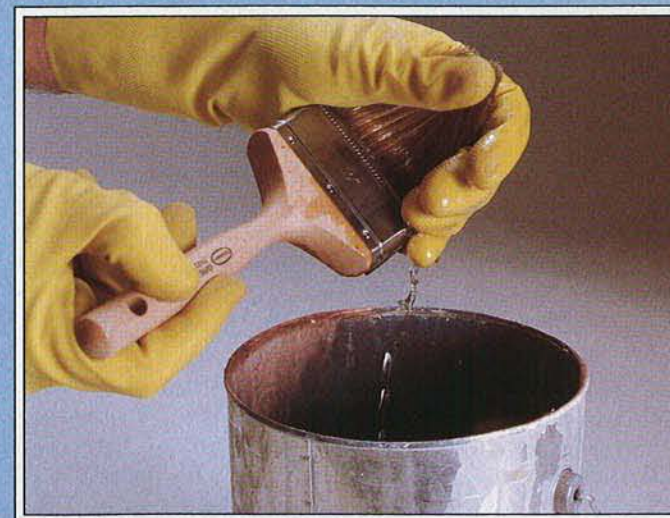
A surefire system for cleaning and storing brushes

To keep his brushes as good as the day he bought them, Wade



2

When cleaning off dried finish, push the wire brush in one direction only: away from the handle.



3

Gently wring out the bristles as shown. Repeat Steps 1 and 3 until the solvent runs clear.

follows this five-step cleaning and storage process:

Step 1: Pour all of the remaining finish out of your cutting pot and add solvent (water for water-based finishes, or the appropriate solvent for oil-based products) to a depth of about 1/4". Gently pull the brush up the sides of the pot as shown *top* and move it from side to side to clean it and the pot. Do not mash the bristles!

Step 2: Fast-drying finishes may become crusty and resist your rinsing. At these times, use a wire brush to clean this residue off of

the ferrule and bristles. To do so, push the wire brush toward the tips of the bristles as shown *opposite page, middle*. Skip this step if your brush has no dried finish on it.

Step 3: Gently wring out the bristles as shown *opposite page, bottom*. Repeat Steps 1 and 3 at least three more times, or until the solvent runs clear.

Step 4: Knock out the last traces of solvents by tapping the brush against the toe of your boot as shown *below*.

Step 5: Run a brush comb (available at paint stores) through both sides of the brush, pushing it away from the handle as shown *below right*. Repeat this step three or four more times to straighten the bristles and keep them from matting together.



4 Knock the last traces of finish out of the brush by rapping its handle against the tip of your shoe.



5 A brush comb can help you keep the bristles straight and prevent matting.



Gently dry off the brush (so it's damp, not wet) with a rag and replace it in its keeper. Hang the brush until you use it again.

Tip: Wade suggests that you never rinse out a natural-bristle (animal hair) brush in water, or a synthetic-bristle (nylon or polyester) brush in mineral spirits. Doing so may damage the bristles and cause them to puff out, making them less effective. 🌳

Written by Bill Krier with Wade Sundeen Photographs: Hopkins Associates

SNAPPY THE TURTLE

Oklahoma woodcarver Bob Grufik could easily call his turtles snappers—folks just snap 'em up at carving shows. Here's how to carve one of Bob's popular little creatures for yourself.

Transfer the full-sized body top view, *opposite page*, including the lengthwise centerline, to your carving stock. Cut out the blank with a bandsaw or scrollsaw.

Along each edge of the blank, draw a line between the neck and the tail, $\frac{1}{2}$ " from the top. Mark a line along the edge of the head and neck about $\frac{3}{16}$ " from the top, and another on the tail, $\frac{5}{8}$ " from the top, where shown *below*.

Carve the head and tail to thick-

ness. First, stop-cut where indicated by the dotted lines on the Turtle Blank drawing. Then carve the head and tail down to the depth line drawn around the edge. Leave the top surfaces flat.

Shape the turtle's shell

Next, rough out the shell. Starting between the arrowheads on the centerline, slope the surface down and away from the centerline to the line on the edge of the body. The no. 7 and no. 5 gouges work fine for establishing the rough shape. Take deep cuts with the no. 7 to remove wood quickly, shallower cuts with the less-curved no. 5 for finer shaping.

Control cutting depth by taking advantage of the tool's beveled edge. With the beveled part of the

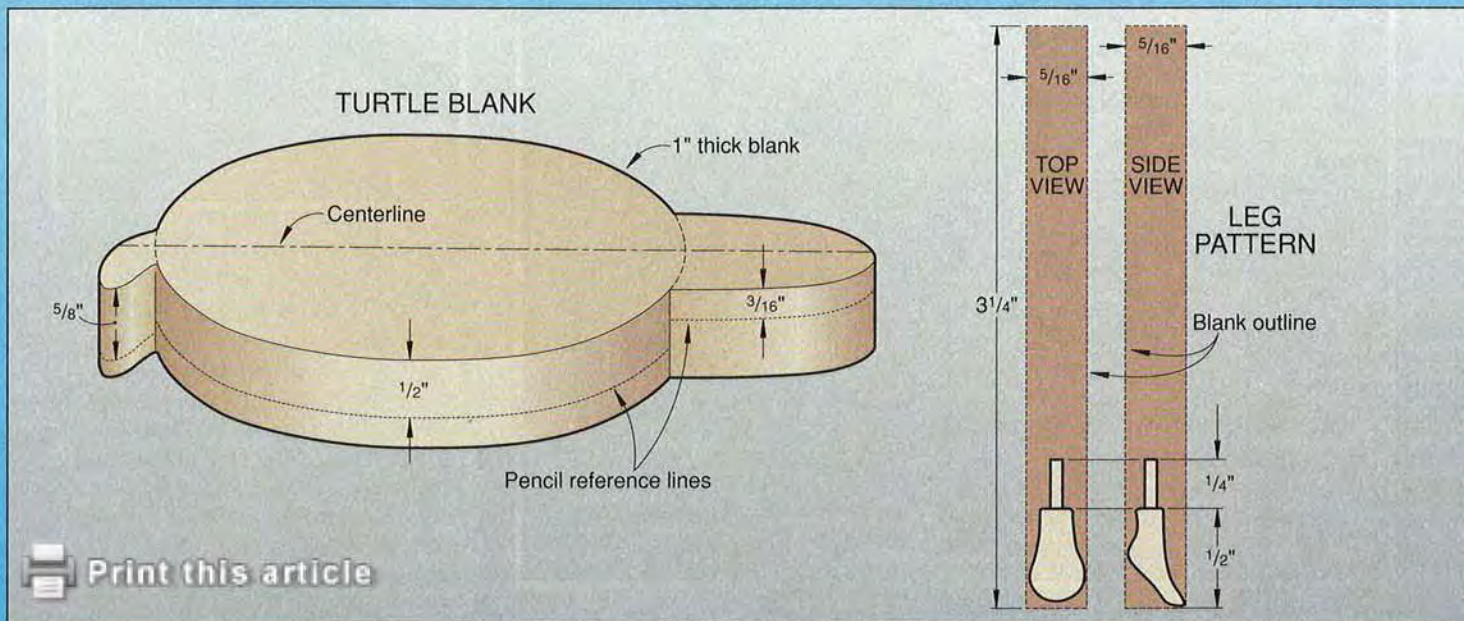
gouge blade rubbing against the wood, raise or lower the tool's handle to vary the depth of cut.


Beyond the arrows, carve toward each end, leaving a ridge about 1" long at the center of the shell. You won't be able to carve much at the front yet, but you can begin to form an arc in the shell over the turtle's neck.

Carve the shell surface slightly concave, as shown in the Body Front Section View. And don't worry about getting both sides of the shell exactly alike; perfect symmetry ranks right up with a vacuum on the list of things Mother Nature abhors.

As you work from the sides of the shell to the front and back, you'll encounter changing wood-grain direction. Going against the grain

Continued



 Print this article




CARVE THIS TORTOISE IN NO TIME FLAT

Tools and supplies



Stock

Basswood, butternut, or other carving wood
1×2¾×5"

Gouges

10mm no. 7 palm 
8mm no. 5 palm 
3mm no. 11 U-veiner 

V-Tools

¾" no. 13 (90°) 
1mm no. 12 (60°) 

Knives

Bench knife

Finishing supplies

Optional: woodburning tool,
acrylic paints



FULL-SIZED PATTERNS

HEAD
FRONT VIEW

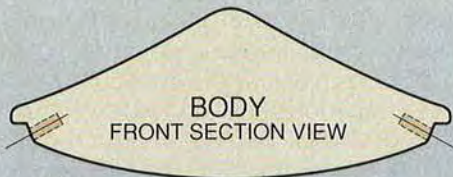


Carve shallow reliefs

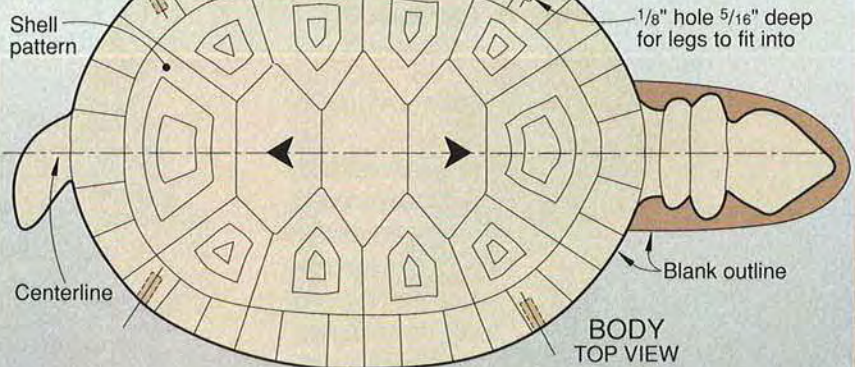
HEAD
TOP VIEW



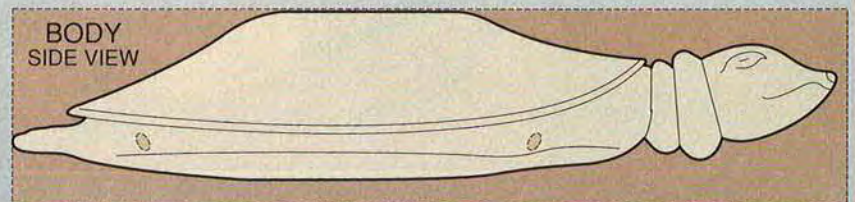
eye location
(on side)



BODY
FRONT SECTION VIEW



BODY
TOP VIEW



BODY
SIDE VIEW

TURTLE

leaves a rough surface, and you could dig in and break out a chunk of your carving. To avoid that, alter your position or turn the carving (sometimes you'll need to do both) so you're always cutting with or diagonally across the grain. In end grain, make shallow shaving or planing cuts.

By this stage, your turtle's shell should look somewhat like a tiny circus tent that's billowing up at one end. Smooth the surface—make it reasonably smooth, not too smooth with the no. 5 gouge and your knife. Just remove the deepest of the gouge marks in the surface, and create a relatively even edge.

Take a little off the sides

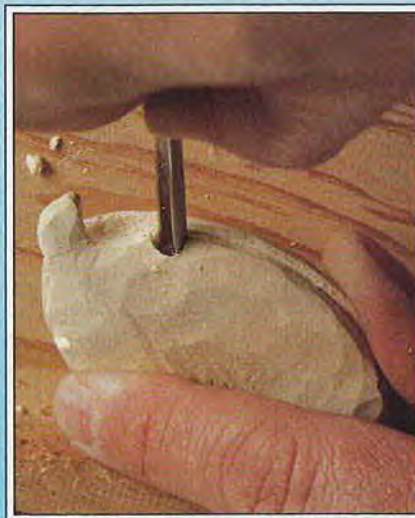
Now, form the overhanging rim of the shell by cutting back the edge of the turtle's body. Mark the line of the shell by rubbing the side of your pencil lead around the corner of the shell. Draw a line parallel to the marked edge and about $\frac{1}{16}$ " below it.

With one wing of the large V-tool against the side of the body and the tool's corner on the line, carve away the lower part of the body, as shown *below*. Undercut the edge of the shell by about $\frac{1}{8}$ " at the sides and over the tail, but not at the front just yet. Around the tail, stop-cut, then carve from

the bottom of the turtle with your knife. An X-acto knife with a no. 11 blade comes in handy for carving between the tail and the shell.

Bore holes for the legs where indicated on the body drawings, placing the top of each hole right under the rim of the shell. Angle the holes toward the front or back as shown, and aim each one upward, roughly parallel to the slope of the shell.

The 3mm U-veiner will do the job; just rotate it as you push the end straight into the wood, shown *below*. Go about $\frac{1}{4}$ " deep. Clean out the hole with the tip of your knife.



As you push the U-shaped no. 11 gouge into the wood, rotate it to drill the leg holes.



Carve the overhanging edge of the shell with a V-tool.

Pare the rings around the neck

Starting about $\frac{3}{8}$ " back from the point at the front of the head, pencil in the neck rings and head (the tinted area of the pattern). Refer to the Body Side View, and sketch in the head and neck on the edge of the blank.

Round the neck to about $\frac{5}{8}$ " diameter, re-marking the locations of the rings as you carve. Now, form the rings, starting with the large one. Stop-cut the line between the head and large ring and the one between the rings. Then, with your knife, make angled slicing cuts from the middle of the ring down to the stop cuts on each side.

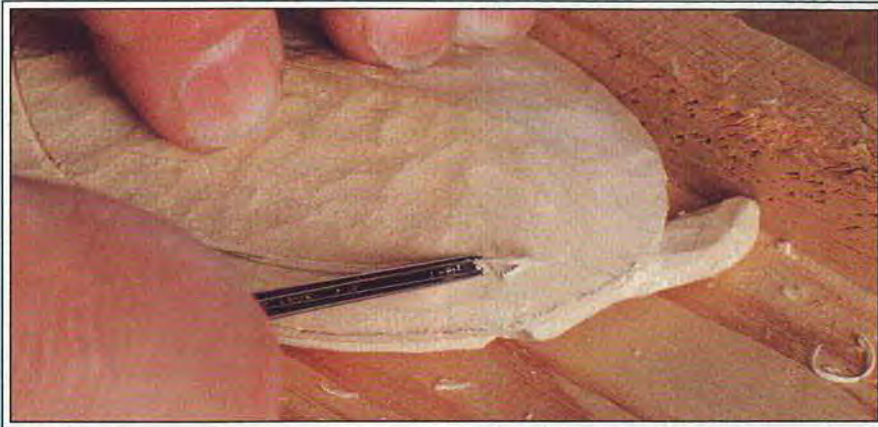
Similarly cut the back of the head to form a V-groove between the head and the ring. Carve the smaller ring using the same method. You should now have two roughed-out rings with a narrow V-groove between them, as shown *opposite page, bottom*.

Shave the front of the sloping shell top so the surface stands about a rim thickness above the neck. Form the slight arch over the neck, and then complete undercutting the shell on the front of the body. Carve a sharp V-groove (actually, more of a half-V) where the neck joins the body.

Make both ends neat

With the turtle neck shaped up, turn your attention to the head. Study the head in the top- and side-view illustrations. Notice that it looks almost like a pentagon in the top view, but more like a slightly misshapen bullet in side view. The turtle is looking upward, so the top of the head and the straight portion of the bottom angle up from the neck.

Shape the long curve on the bottom of the head. Then round off the bottom corners, creating a U-shaped cross section. Mark the eye locations on the sides of the head, and carve from behind them back to the neck on the sides and top. Starting from in front of the



V-tool cuts delineate the pattern on the turtle's shell.

eyes, bring the head to a point. Re-carve the rounded bottom corners, as necessary.

On top of the head, carve two shallow lengthwise reliefs on either side of the center (lifting out a thin shaving with the tip of your knife works best). Blend the resulting ridge into the top of the head and on out to the nose. At the same time, form the two eye bulges atop the head.

Round the edges of the tail, and gently curve the bottom of the turtle. Carve from the center of the bottom to each edge, reducing the thickness of the body at the edge below the overhanging shell to about $\frac{1}{8}$ ". Round the bottom corners, and blend in the neck and tail.

Add some sturdy turtle legs

With the wood grain running the length of the turtle, the legs would be carved across the grain if carved as part of the body. Thus, they would be fragile and weakly attached. Separately carved legs with the grain running lengthwise solve the problem.

Lay out the legs on four pieces of $\frac{3}{16}$ "-square stock about 3" long (for ease of handling). You can whittle the leg stock from the scraps left over when you cut out your blank.

Sketch the leg side view onto one face of each piece. Slice off the angled end first, then carve the leg to shape with your knife.

Make the feet about $\frac{5}{16}$ " wide, and shape the legs to an oval cross-section $\frac{1}{4}$ " wide and $\frac{3}{16}$ " thick.

Whittle the long end to a tenon that fits into the leg holes on the body. Cut each tenon to about $\frac{1}{4}$ " long, and fit the leg to the body. Glue the legs into the holes with woodworker's glue or cyanoacrylate adhesive.

Blend the legs into the body. Inspect the carving, and clean up any fuzzy areas or rough cuts. Sand as necessary. To maintain the look of hand-carving, don't sand all of your tool marks away.

Finish it your way

Now, you have a number of choices for finishing your turtle. You



V-shaped knife cuts separate the turtle's neck rings.



can paint the carved, sanded turtle in realistic or fanciful colors. Or, carve the shell with the decorative motif shown. You can further dress up the carved shell with stain, paint, or woodburning.

To carve the design shown, draw the pattern onto the turtle's shell. Carve the lines with the small 60° V-tool. Be careful of the changing grain direction as you V-tool the lines, shown *above left*.

The radial lines near the rim pose a problem: You'll probably break a chunk from the edge of the shell when you cut toward the unsupported edge with the V-tool. For best results, carve those lines with your knife. Holding the knife at a 60° angle to the surface, cut carefully along the line toward the edge. Then, starting at the rim, cut along the line in the other direction to slice out a V-shaped groove without any damage to the shell edge.

Accent the carved design with woodburned lines in the bottoms of the V-grooves. Also woodburn rings on the tail, the V-grooves on the neck, the toes (burn deep enough to actually separate the toes at the ends), the speckles on the legs, and the mouth and eyes.

For a painted turtle, use acrylic colors. Thinned paints applied over bare wood will yield a muted, aged look. For brighter colors, coat the carving with white acrylic gesso or similar undercoat first, then paint. 🐢

What woodworkers need to know about...

 Print this article

Try clamping some of those joints! One advantage of cyanoacrylate glue: You can bond parts almost instantly without clamping.



Some woodworkers speak of “instant glue” and “hot glue” when they talk about cyanoacrylate adhesive. That’s not just because the real name looks like such a tongue-tangler (It’s not; just say *sigh-anno ack-rill-late*). It’s because those nicknames describe the stuff so perfectly.

Fast, strong, and—once you get the hang of it—easy to use, cyanoacrylate (CA) adhesive has met a growing array of industrial needs for decades. Now, home woodworkers are benefiting from this hot-shot adhesive.

Just what is this stuff?

Cyanoacrylate ester, instant glue’s active ingredient, derives from acrylic acid, a versatile chemical that figures in products as diverse as sweaters and shower doors. CA glue, a watery liquid, can be compounded with thickeners for added body. Curing by chemical reaction occurs in seconds with thin CA, but may take up to a minute in thickened formulations.

Full bond strength can reach 5,000 psi (about 40 percent stronger than yellow glue) on a clean, dry surface. As with other adhesives, damp, dirty, or oily surfaces reduce bond strength.

Here are three keys to success with CA glue

•*Choose the right formulation.* You can choose from among three types of instant glue: regular CA, a thickened gap-filling variety, and super gap-filling glue, an even thicker version.

Regular CA works great on tight-fitting joints, but we have found the medium-viscosity gap-filling type best for all-around wood-working. (But don’t count on gap-filling CA to make up for sloppy joinery. The glue bridges only those gaps measured in thousandths of an inch, such as slight surface imperfections.)

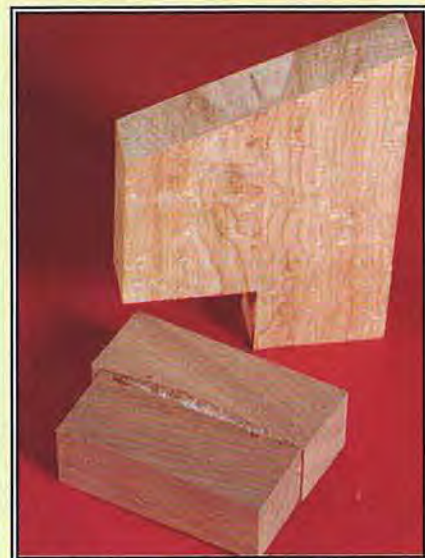
•*Apply it correctly.* Don’t go overboard when applying CA; it doesn’t respect the “more’s better” rule. The ideal application rate: one drop of glue per square inch of joint. Too much leads to longer curing times or no curing.

Use CA glue at room temperature, applying it to one side of the joint only. A spiral pattern works well when gluing large parts, a squiggly line for narrower pieces. Make a tighter spiral or closer squiggles when the adhesive readily soaks into the wood; widen your pattern to apply less glue on less porous surfaces.

CYANOACRYLATE

•*Use an accelerator.* Buy a pump-spray bottle of accelerator along with the glue; you’ll save a lot of frustration and make better joints. Some makers offer standard and super-strength accelerators; the standard one handles most jobs.

And go easy! Don’t wet the wood with accelerator. Don’t wet uncured glue with it, either. Mixing them starts a sizzling, bubbling reaction that ends in a weak bond. White, crystalline-looking glue lines mean you’re probably overdoing the accelerator.



A good joint, like the one holding the two pieces of bird’s-eye maple together, will be virtually invisible.

Three sure strategies for joining wood with CA glue

•*Accelerator first.* Spray a mist of accelerator onto the mating surface of one piece (Part A). When it dries (it will in a flash), apply glue to Part B. Join the parts and hold until the glue cures. (Shown in the three photos, *right*.)

You probably won’t have time to reposition the parts before the glue cures. If you need adjustment time, use the next method.

•*Accelerator last.* Apply gap-filling glue to one mating surface and assemble the parts. (Don’t try to wipe away squeeze-out—you’ll most likely glue your finger or

ADHESIVE

Make a perfect joint by following these three steps:



Spray accelerator on Part A. A light mist is all that's needed.



Next, apply glue to Part B of the joint. Gap-filling glue shown works great for most woodworking joints.



Finally, assemble the parts. Hold with hand pressure until glue cures, usually in a few seconds



For precise alignment, hold parts together and let regular cyanoacrylate seep into the joint. A shot of accelerator speeds up curing.

wiping rag to the project.) Align the pieces, then mist the edges of the joint with accelerator. Hold until the glue cures.

•*The seep-in method.* Join tight-fitting, precisely aligned parts with standard thin CA glue. Spray accelerator on the joining surface of one piece, and assemble the parts. Hold them together, and apply thin CA along the joint line as shown *above*, allowing it to seep into the joint. Wait about 10 seconds for the glue to cure.

You can unglue, too

You already know that this stuff will glue your fingers to the project, to each other, or to almost anything else within reach. So, be careful, but be prepared. Buy some debonder, a solvent for CA.

In addition to undoing accidents and cleaning up, debonder lets you separate parts that have been

glued together. Simply apply it to the joint. The parts will separate cleanly, but not quite as quickly as they went together.

Where to get it and store it

Woodworking stores, mail-order tool and supply houses, and crafts-supply dealers sell CA glue, accelerator, and debonder/solvent. The glue costs about \$10 for a 2-oz. bottle (the size shown in the photos); accelerator, about \$5 for 3 oz. (the size shown); debonder, about \$6 for 2 oz. A 3-oz. bottle of accelerator should be enough for a 2-oz. bottle of glue.

A 2-oz. bottle of CA glue has a shelf life of about one year at room temperature, two years for a new bottle stored unopened in your freezer. Don't, however, refrigerate glue that has been opened; that will introduce moisture and shorten shelf life.

WHAT CAN I DO WITH IT?

Here are some places where CA will shine in your shop. You'll discover plenty more as you go.

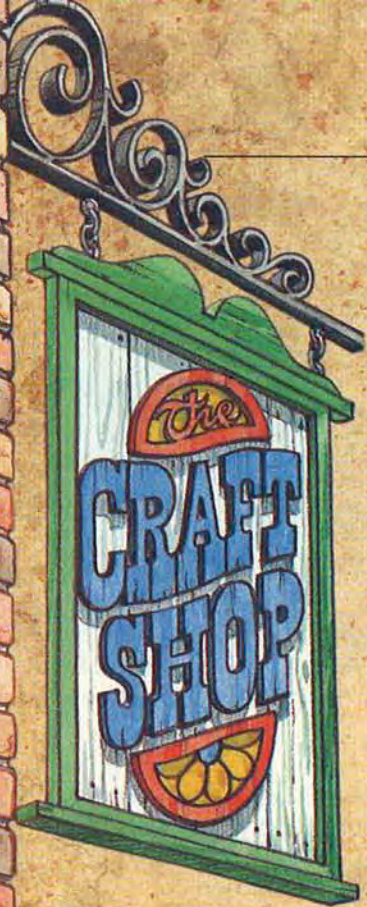
•**Project building.** Assemble mitered joints, glue splinters or splits, attach moldings, and bond other materials to wood.

•**Jigs and fixtures.** With CA, you can stick shop aids together

instantly rather than waiting hours for ordinary glue to dry before you can use a jig.

•**Woodturning.** Glue turning stock to an auxiliary faceplate for a no-delay start on a turning.

•**Woodcarving.** Before carving delicate areas, soak the wood with CA to strengthen it. ♣



WHAT A SHOW-

A grand display for small items

You'll need a 3⁷/₁₆ × 3⁷/₁₆ × 4⁷/₁₆" clear-plastic show box, available from many craft-supply dealers or our Buying Guide source.

First, machine the base (A). Tilt your tablesaw blade 45° away from the rip fence. With the fence 5" from the blade (at table level), saw chamfers on both edges and both ends of one side of the stock, best face down.

Install a 3/8" core-box bit in a table-mounted router. Refer to the Routing the Base drawing, and rout both edges and both ends on the unchamfered side of the base.

The resulting four grooves delineate a square at each corner of the base; these squares serve as legs. Rout out the waste between the legs with a 1/2" hinge mortising (or straight) bit. Set the cutting depth to 1/4", and move the fence to 1 3/8" from the bit center.

Rout with each edge and end of the base against the fence. Move the fence about 1/2" farther from the bit, and rout again. Continue until only the feet remain. Sand the base smooth.

Now, remove the lid from the 3⁷/₁₆ × 3⁷/₁₆ × 4⁷/₁₆" clear-plastic box. Miter-cut four stops (B) to fit snugly around the rabbeted box top. Assemble the four stops, gluing the miter-cut corners with cyanoacrylate glue. Glue the assembly to the base.

With the base completed, turn to the top. First, saw a 5/8" 45° chamfer along each edge of a 3/4 × 6 × 12" piece of stock. (We started with stock this size for safety and convenience.)

Then, install a 1/4" straight bit in the table-mounted router. Refer to the Routing the Top drawing, and

machine the chamfered side of each edge. Rip 1 1/4" from each edge, forming two pieces of stock for the top segments (C).

Tilt the tablesaw blade to 22 1/2°. Bevel-cut four facets, forming a shallow peak on one end of a 1 1/4 × 1 1/4 × 12" workpiece. (Laminate stock, or use a turning square.) Crosscut 1 1/8" from the tip to make part D.

Miter-cut four top segments (C) to fit tightly around the top ornament (D). Glue the parts together, clamping them with a heavy rubber band. When dry, sand the bottom side flush, and finish-sand.

Finish the base and top assemblies. Center the bottom of the plastic box on the underside of the top, drill where shown, and drive in a roundhead brass wood screw from inside the box.

Buying Guide

Plastic box. Clear plastic box, style no. SM-1209, \$6.45 ppd. in U.S. Althor Products, 996 Danbury Rd., Wilton, CT 06897, 800/688-2693

Photograph: John Hetherington
Illustrations: Kim Downing
Project Design: Larry Johnston

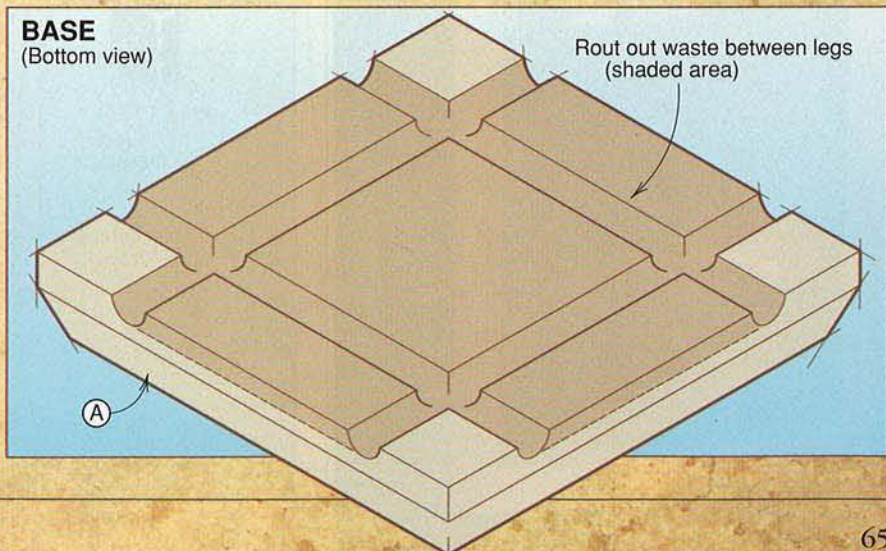
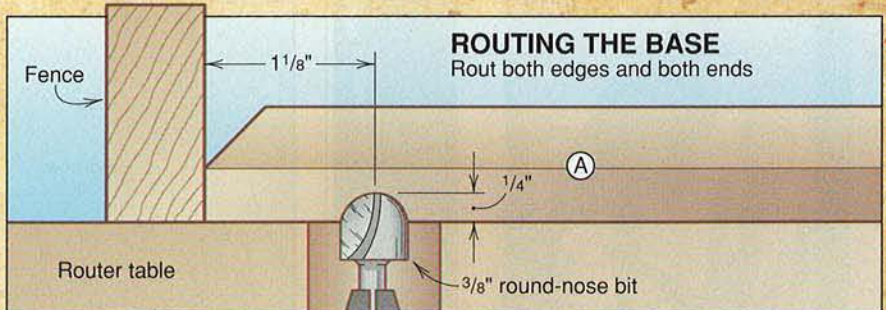
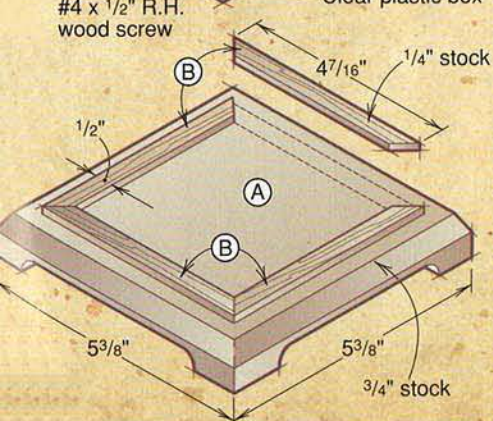
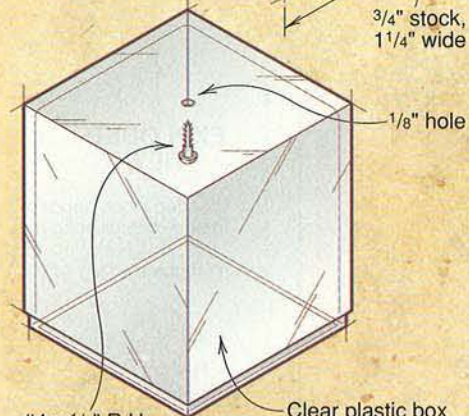
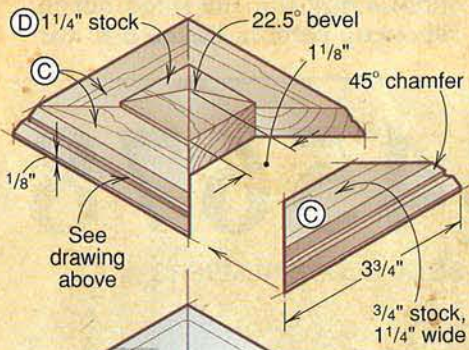
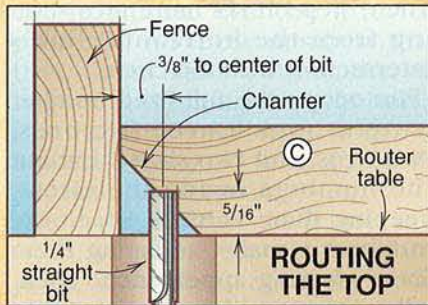
Combine a plastic box with our simple walnut base and top for the perfect way to exhibit—and protect—a small collectible. This rich-looking showcase creates a perfectly elegant display, highlighting whatever you put inside.



Bill of Materials					
Part	Finished Size			Mati.	Qty.
	T	W	L		
A base	3/4"	5 3/8"	5 3/8"	W	1
B* stops	1/4"	1/2"	4 7/16"	W	4
C* top segments	3/4"	1 1/4"	3 3/4"	W	4
D* ornament	1 1/4"	1 1/4"	1 1/8"	W	1

*Make these pieces longer initially; cut them to finished length in accordance with the how-to instructions.
Material Key: W-walnut

OFF!





WETLANDS

A SIMPLY STYLISH CLOCK WITH

You can wade right into this project without any fear of getting in over your head. Our heron clock goes together quickly and simply, and it looks great standing on a shelf or hanging on the wall.

Cut parts A and B 1" longer than the sizes shown in the Bill of Materials. On each inside face, $\frac{3}{4}$ " from the front edge, saw or rout a $\frac{1}{4}$ " groove $\frac{3}{8}$ " deep for part C.

Miter-cut parts A and B to length, keeping the groove to the inside. Cut part C to finished size. Then assemble parts A and B around C, glue, and clamp.

Cut part D to size. Draw on it a vertical centerline and a line perpendicular to the centerline $3\frac{1}{4}$ " from the bottom. Scribe a 5"-diameter circle ($2\frac{1}{2}$ " radius) centered on the lines' intersection.

Now, lay out 12 equally spaced points around the circle for the hour markers. Here's one way to do it: Without changing your compass setting, step off a series of six

arcs around the circumference of the circle, starting where the vertical line intersects the circle. Then, step off six more arcs starting from the horizontal line's intersection with the circle.

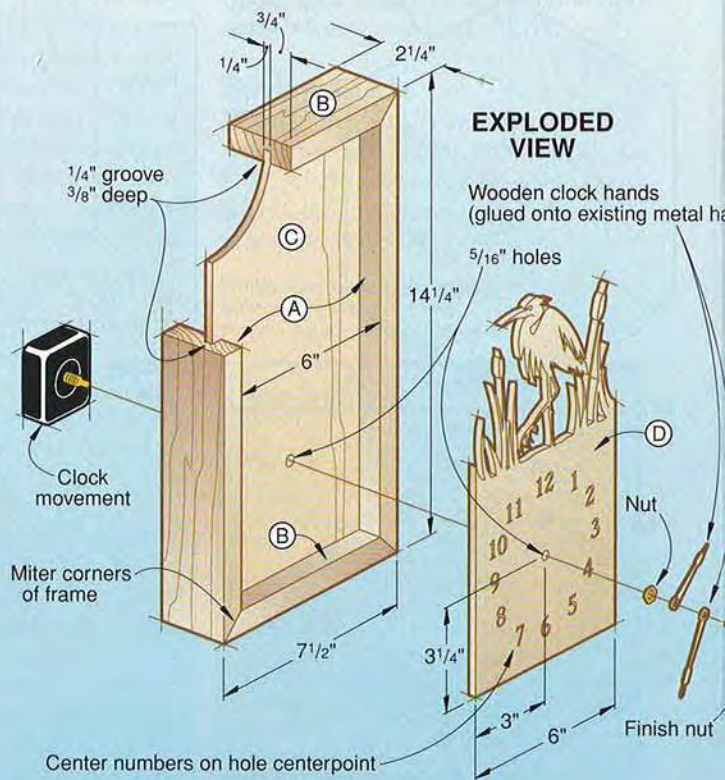
Photocopy the full-sized number patterns (you'll need five ones, two twos, and two sixes). Lay out the numbers inside the circle, keeping them vertical. Space the numbers visually, adjusting them for a pleasing appearance. Then, adhere them with rubber cement.

Photocopy the full-sized heron silhouette pattern. Fasten it to the



123456780

FULL-SIZED CLOCK NUMBERS



SILHOUETTE

A SCROLLSAWED FACE

stock, placing the top of the head at the top edge of the wood. Drill blade start holes, and scrollsaw the numbers. Saw the interior parts first on those numbers that have them. Then cut out the silhouette, beginning with the small inside cuts. (We used a no. 4 blade, .033×.014" with 15 teeth per inch for all cutting.)

Sand the assembled frame and front. Glue the cut-out face into place on the front. Spear the small center pieces for the 4, 6, 8, 9, and 0 on the tip of an X-acto knife to glue them into place.

Cyanoacrylate (CA) adhesive works great for attaching those small inside pieces.

Snip the teardrop-shaped ends from the clock hands. Cut the cat-tail hands out of veneer that contrasts with the clock face, and attach to the metal hands with epoxy or CA glue.

Drill a 5/16" hole at the center of the clock circle. Sand the clock face as necessary, and apply a clear finish overall. When the glue has dried, insert the clock movement, secure with the nut provided, and install the hands.

Buying Guide

•**Clock parts.** Movement with hands and battery, product no. 71220, \$7.75 ppd. in U.S., Klockit, P.O. Box 636, Lake Geneva, WI 53147, or call 800/556-2548. ♣

Project Design: © Bill Zaun
Photograph: John Hetherington
Illustrations: Kim Downing

Bill of Materials

Part	Finished Size*			Matl.	Qty.
	T	W	L		
A* sides	3/4"	2 1/4"	14 1/4"	B	2
B* ends	3/4"	2 1/4"	7 1/2"	B	2
C front	1/4"	6 3/4"	13 1/2"	BP	1
D face	1/4"	6"	11 3/8"	W	1

*Start with longer stock, and cut to finished length in accordance with how-to instructions.

Materials Key: W-walnut, B-birch, BP- birch plywood

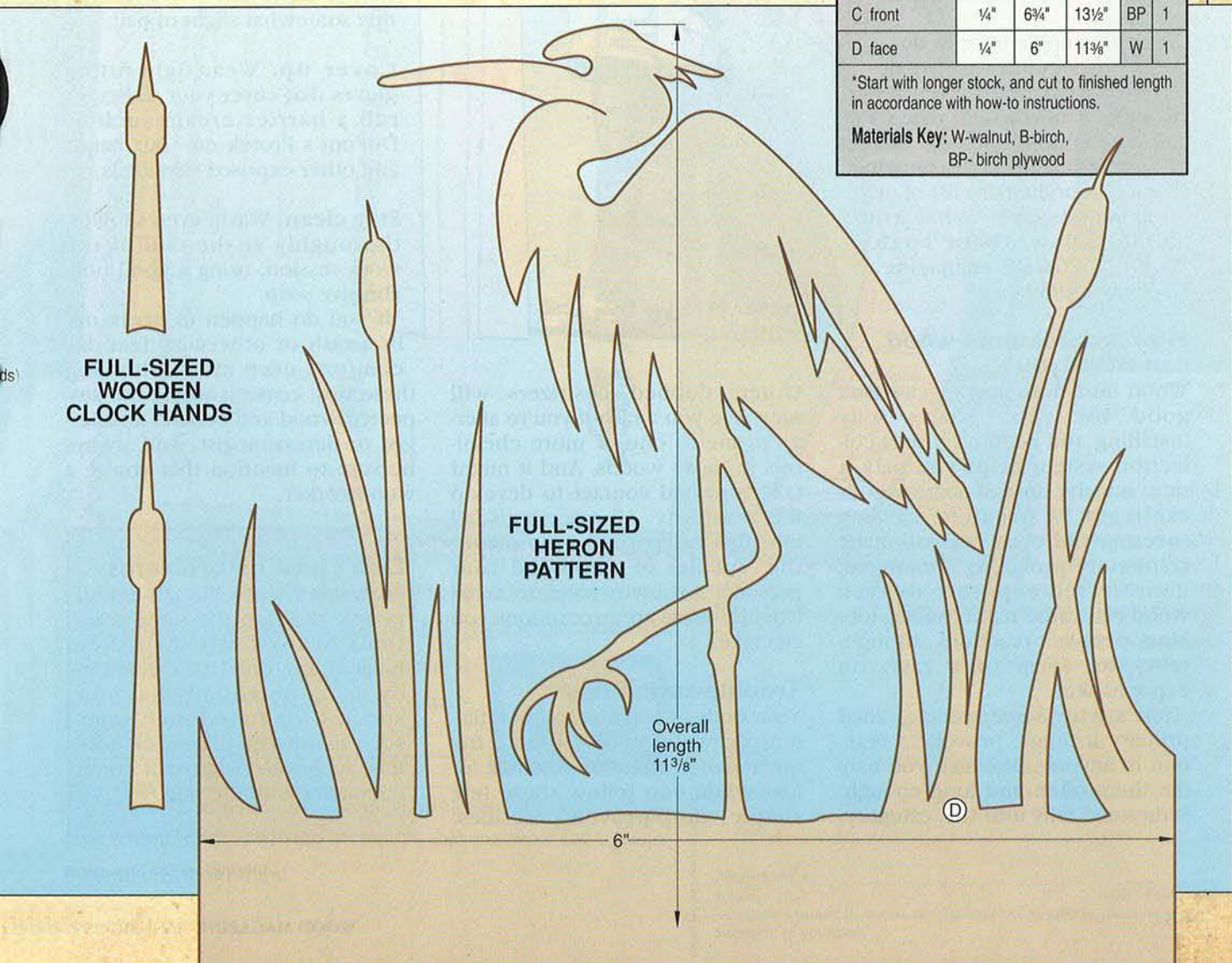
FULL-SIZED
WOODEN
CLOCK HANDS

FULL-SIZED
HERON
PATTERN

Overall
length
11 3/8"

6"

ⓓ



DON'T LET WOOD IRRITATE YOU

A guide to handling toxic stock



Just like wild mushrooms, not every species of wood may agree with you. But unlike avoiding some forest fungi, you can still work potentially irritable wood. Here's how.

In Canada years ago, several families in a community suffered stomach upset when they drank the water that ran off their new western red cedar roofs. But you don't actually have to ingest wood or its derivatives and extractives to feel the effects of a few species.

All some people have to do is touch cocobolo to break out in a crawly, rash. Even jewelry made of olivewood, rosewood, and certain other exotics, can set off a reaction from the wearing. (For a comprehensive list of irritable woods, see "What You Should Know About Toxic Wood," *WOOD*® magazine, December 1989.)

How troublesome wood can affect you

Wood dust from any species isn't good for you. That's why installing and running a dust-collection system helps you play it safe. But the dust of some woods can really be irritating, causing sneezing and even near-asthmatic respiratory problems. Prolonged, unprotected exposure to such wood can cause nasal cancer, too. Most people's reactions, though, take the form of a rash on exposed skin.

Here's why: Some woods, called primary irritants, provoke a reaction in anyone, provided you handle them often and long enough. Satinwood falls into this category.

Others, dubbed sensitizers, will only give you a rash if you're allergy prone to one or more chemicals in those woods. And it might take repeated contact to develop this sensitivity. All rosewoods fall into this category. But no matter the species of wood and your personal sensitivity level, to avoid trouble, there are precautions you can take.

Trouble-saving tips

Your odds of reacting to potentially toxic wood tumble from a frequency of 1 in 100 to a whole lot less when you follow these few simple, shop-proven practices:



Keep cool. Provide sufficient ventilation to keep the temperature down and limit dust-collecting perspiration on your skin.

Avoid dust. Run your dust-collection system, or if you don't have one, wear a government-approved (NIOSH) dust mask that covers the eyes, too. And rub the rim with petroleum jelly for a tight seal.

Dress tight. Wear a long-sleeved shirt buttoned at the wrists and neck. Even a cap helps, especially if you're getting somewhat slight of hair.

Cover up. Wear tight-fitting gloves that cover your wrists, or rub a barrier cream such as DuPont's Protek on your hands and other exposed skin areas.

Stay clean. Wash, even shower, thoroughly at the end of the work session, using a good non-abrasive soap.

If you do happen to break out in a rash or otherwise feel discomfort, even after following these tips, cease working the suspected wood and contact an allergist or dermatologist. And always be sure to mention that you're a woodworker.

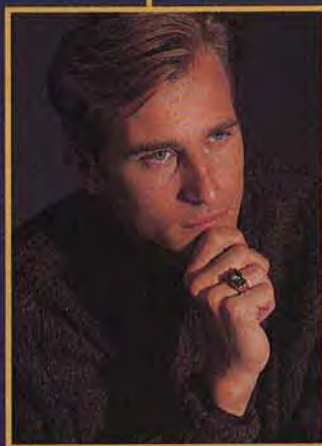
Don't pass off problems

Remember, even though not all people develop the same reactions to toxic wood (if they react at all), don't take chances by using potentially harmful species for functional items such as bowls, plates, or goblets, or jewelry that will come in contact with the skin. 🌲

Illustration: Jim Stevenson

WINGS OF GOLD

Solid Gold Majestic Eagle. Genuine Onyx.



The famous eagle artistry of world-renowned artist Gilroy Roberts portrayed in an emblem of strength and power.

The American Eagle. The ultimate symbol of those things we value the most. Our history. Our pride. Our American ideals. Now brought to life in a bold ring bearing the original art of Gilroy Roberts, former Chief Sculptor of the U.S. Mint.

Sculptured in solid 14 karat gold. Hand-set on a field of genuine onyx. Showcased on a band of solid sterling silver richly coated in 22 karat gold. Issued at \$195, payable in convenient monthly installments. *Wings of Gold*, a proud possession today...a treasured heirloom for generations to come.

Satisfaction Guaranteed

If you wish to return any Franklin Mint purchase, you may do so within 30 days of your receipt of that purchase for replacement, credit or refund.



Please mail by January 31, 1994.

The Franklin Mint
Franklin Center, PA 19091-0001

Please send me Wings of Gold by Gilroy Roberts, to be crafted of solid sterling silver richly coated with 22 karat gold, hand-set with genuine black onyx and a solid 14 karat gold eagle.

I need SEND NO MONEY NOW. I will be billed for a deposit of \$39.* prior to shipment of my specially imported ring and for the balance, after shipment, in 4 monthly installments of \$39.* each.

*Plus my state sales tax and a one-time charge of \$3. for shipping and handling.

SIGNATURE _____

ALL ORDERS ARE SUBJECT TO ACCEPTANCE

MR/MRS/MISS _____

PLEASE PRINT CLEARLY

ADDRESS _____ APT. # _____

CITY/STATE _____ ZIP _____

TELEPHONE # (_____) _____

© 1994 FM

14690-8DXQ-510

To assure a proper fit, a custom ring sizer will be sent to you prior to shipment of your ring.

STEVE WALL LUMBER CO.

Quality Hardwoods and Woodworking machinery For
The Craftsmen and Educational Institutions

STEVE H. WALL LUMBER CO.

BOX 287 • MAYODAN, N.C. 27027

919-427-0637 • 1-800-633-4062 • FAX 919-427-7588

Ash	4/4	Select	2.10
Basswood	4/4	Select	1.50
Birch	4/4	Select	2.20
Butternut	4/4	1C	1.70
Cherry	4/4	Select	2.90
Hickory - Pecan	4/4	Select	1.80
Mahogany (Genuine)	4/4	Select	2.90
Maple (Hard)	4/4	Select	2.30
Maple (Soft)	4/4	Select	1.70
Poplar	4/4	Select	1.45
Red Oak	4/4	Select	2.25
Walnut	4/4	Select	3.00
White Oak	4/4	Select	2.20
Cedar (Aromatic Red)	4/4	1C+Btr.	1.55
Cypress	4/4	Select	1.85
White Pine	4/4	F.G.	1.00
Yellow Pine	4/4	Clear	1.50

Above prices are for 100' quantities of kilndried rough lumber sold by the Bd. Ft. FOB Mayodan, NC. Call for quantity discounts. Other sizes and grades available.

.....	\$ 65.00
.....	\$ 53.00
UPS	\$ 67.00
Specials	\$ 57.00
.....	\$ 81.00
.....	\$ 59.00
.....	\$ 81.00
.....	\$ 69.00
.....	\$ 57.00
.....	\$ 52.00
.....	\$ 68.00
.....	\$ 83.00
.....	\$ 67.00
.....	\$ 54.00
.....	\$ 60.00
.....	\$ 43.00
.....	\$ 53.00

Above prices are 20 bd. ft. bundles of clear kilndried lumber 3'-10" wide x 3'-7" long (Random widths & lengths) Surfaced 2 sides or rough. Delivered UPS prepaid in the Continental U.S.



MiniMax
.....scmi
\$45 18"
Band Saw
Special Sale
Price
\$1399
Reg. \$1590
FOB Mayodan
Call for best price
on Mini Max
Machines

Send \$1.00 For Lumber Catalog

Wood Moisture Meter

For all woodworkers:
New Mini-Ligno-XL
with greater
accuracy,
versatility,
reliability
and a wide
moisture
range.



Basic Mini-Ligno still only
... \$ 110 ...

For new brochure on
all moisture meters contact:

Lignomat USA, Ltd. PO Box 30145
503/257-8957 800/227-2105 Portland, OR 97230

WOOD TOY

- * Patterns
- * Parts
- * Wheels
- * Many New Patterns to Choose from.
- * Executive toys



SEND \$1.00 FOR NEW CATALOG

toys and joys

Box 628 w Lynden, Wash. 98264



RESTORE FURNITURE for SECURE INCOME Perfect 2nd Career

Make \$200-\$2,000 a day! Unlimited market; turn-key business. Free workshops. Set-Up Shop for \$2,999-\$9,999! Part-time or full-time. Great for men, women, families.

Make Molds*Veneer*Resilver Strip*Repair*Refinish

Business Preview Video \$8.95 - Catalog \$2.00
MINUTEMAN, INC., Ste. 17
Box 8, Waterloo, WI 53594
1-800-733-1776



BOSCH
ROUTER BITS & SHAPER CUTTERS
SAVE 30%
on any mix of 6 bits or cutters
SUPER SAVER SPECIAL
1/4" STRAIGHT BIT
85250M
1/4" SHANK, CARBIDE TIP,
2 FLUTE, 7/8" CUT LENGTH List \$12.40
Add \$5 Shipping & Handling to each order
For catalog or to order
1-800-423-2450
WOODWORKERS Source
5402 S. 40th Street • Phoenix, AZ 85040

SQUARE DRIVE SCREWS

Simply the Best!

- Square Drive Beats Driver Slippage
- Hardened Steel for Extra Strength
- Deep Thread for Super Grip
- Also Stainless and Brass

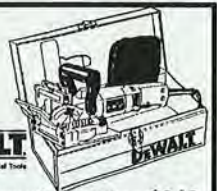


Send \$3 for Samples and Catalog

McFEELY'S P.O. Box 3
SQUARE DRIVE SCREWS Lynchburg • Va • 24505
1-800-443-7937 or FAX (804) 847-7136

Heavy Duty Plate Joiner Kit w/Biscuits

\$225 **DEWALT**
#DW682K High Performance Industrial Tools



- DW705 12" compound saw with dust bag \$349.
- DW625 NEW 3 hp vs plunge router 269.
- DW945K-2 12V drill w/2 batteries 169.
- DW615 NEW 1-1/4 hp vs plunge router 159.
- DW364 7-1/4" saw with brake 148.
- DW254 0-2500 deck scrugun 89.

PO Box 1716 Grand Forks, ND 58206
Jan. Wood **1-800-358-3096**

WINTER CLEARANCE SALE!



STEEL BLDGS
SAVE UP TO 40%
Buy Factory Direct. Build it yourself!
16 x 31 • 25 x 47
35 x 55 • 50 x 121
800-888-4606 **STEELMASTER**



LOOKING FOR PIERCED TIN?

Come to the source . . . COUNTRY ACCENTS® as featured in many national magazines.

Quality handcrafted and reasonably priced panels available in 16 different metals including copper and brass. 100s of designs ready to install in a wide variety of sizes.

- Panels have a variety of uses:
- Cabinets
 - Hutches
 - Jelly cupboards
 - Pie or food safes
 - and MORE!
 - Hoosiers
 - Ice boxes

Custom size and design a specialty.

Our extensive line of Do-It-Yourself supplies include over 20 types of punches and metal chisels, blank metal stock and patterns for the home crafter.

Send today for 70+ page catalog plus set of metal sample swatches - \$15.95 OR catalog only - \$5.00. For everything in pierced metal . . . Since 1979.
COUNTRY ACCENTS,® P.O. Box 437, Dept. WD-94/1, Montoursville, PA 17754
(717) 478-4127 M-F 9-4 ET • MasterCard/VISA accepted

Mason & Sullivan

Serving Fine Clock Builders Since 1947

Our new 32 page catalog is packed with Clock Kits, Mechanical and Quartz Clock Movements, Tools and Supplies for hobbyist or craftsman. To order a Free catalog:



Call Toll-Free
1-800-542-9115

210 Wood County Ind. Park
Dept. 94ME01T
PO Box 1686,
Parkersburg, WV 26102-1686



New rasps cut quickly and cleanly

For years I've used traditional rasps for shaping contours by hand. These tried-and-true tools

work fine, but I recently came across a new type of rasp that produces cleaner cuts in less time.



Called Ultra Shaper by the manufacturer, General Tools, these wood gobblers have a thin stainless-steel blade with hundreds of tiny cutting surfaces punched into it. Each of these incredibly sharp cutting surfaces acts like a little plane iron to cleanly shear wood fibers as you stroke the Ultra Shaper in a forward motion.

I tried six different versions of this tool, each shown in the photo left, and identified by its product number. I found models 875 and 876 round and square planing rasps to be the most useful

products in this lineup. Both have a wooden handle and work with greater ease and efficiency than a traditional rasp.

Three other planing rasps—models 870, 872, and 874—fit into a standard 12" hacksaw frame. These proved to be effective cutting tools, but were more awkward to handle. I do not recommend the Fast-Cut Hacksaw Blade (model 865). It, too, mounts in a hacksaw, but I had little luck making accurate cuts with one.

—Tested by Chuck Hedlund

General Tools Ultra Shapers, \$7.98-\$11.46 list each. Available through many woodworking catalogs and distributors nationwide including Ace Hardware Stores. For more information contact General Tools Manufacturing Co. at 212/431-6100.

Continued on page 72

THE WOODTURNERS CATALOG



Craft Supplies USA offers woodturners the finest selection of woodturning tools and accessories anywhere.

CHOOSE FROM:

- HENRY TAYLOR TOOLS
- RICHARD RAFFAN TOOLS
- DALE NISH WORKSHOPS
- WOODFAST WOOD LATHES
- COMPLETE LINE OF PEN, PENCIL, FOUNTAIN AND ROLLERBALL KITS

We offer the best quality, prices and service, guaranteed! Send \$2.00 for our 52 page color catalog. Craft Supplies USA PO Box 50300 Provo UT 84605-0030 Phone (801) 373-0919

GREAT IDEA!

"This has to be the most attractive and practical way yet to cover a pickup bed."

A key locked roll-up hard cover that's weathertight.



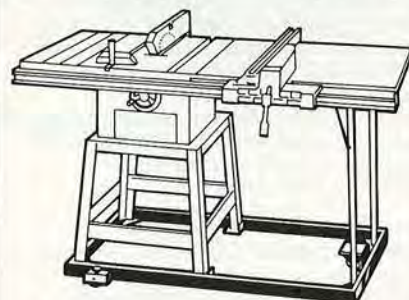
for free brochure on the **ROLL-TOP-COVER™**

call or write: Pace-Edwards Co. 100 Commercial Street Centralia, WA 98531

1-800-338-3697

Put Your Entire Shop On Wheels

MOBILE MACHINE BASES



- Increase your working area
- Store machines when not in use
- Hundreds of models available
- Precision welded steel construction
- Three 2-1/2" wheels for stability
- Dual wheel locks provide positive positioning

• Lifetime warranty

Call for a free catalog



HTC Products, Inc.
120 E. Hudson • P.O. Box 839
Royal Oak, Michigan 48068-0839

(800) 624-2027

Free Workshops • Prizes • Hundreds of Products • Seminars by Mastercraftsmen

See the Widest Variety of Woodworking Products All Under One Roof!



★ THE WOODWORKING SHOWS ★
machinery • tools • supplies

FREE BROCHURE!

1993/1994 SHOWS

- Arizona
- Columbus
- Milwaukee
- So. California
- Atlanta
- Delaware Valley
- New Jersey
- St. Louis
- Baltimore
- Denver
- No. California
- Tampa
- Buffalo
- Detroit
- Pittsburgh
- Twin Cities
- Charlotte
- Indianapolis
- Portland
- Virginia
- Chicago
- Kansas City
- Seattle
- Washington, D.C.

Call for free brochure Monday - Friday 8 am - 5 pm Pacific Time
1-800-826-8257 or 310-477-8521

Sleep Better On Air

• Adjust Firmness to Fit Your Exact Needs.

• Research shows 94% of back pain sufferers say Select Comfort gives them the back support they need to get a better night's sleep.



• Unique air-cushion design contours to your body, providing superior back support and comfort.

Customized Comfort - You Control The Firmness

Revolutionary Air Support System

Select Comfort's unique air support sleep system lets you control the feel and firmness of your bed—simply by pushing a button. Your mattress can be firmer than the firmest innerspring or softer than the softest feather bed...helping you sleep more comfortably, reducing back pain and muscle aches, and providing true support. Change the firmness whenever you like to meet your exact preference.

Adjust Your Side Separately

Inside the mattress are two air chambers. You can adjust your own side independently. With Select Comfort, you satisfy your own needs without compromise.



Select Comfort provides proper back support and contours to your body, distributing weight evenly.



Innerspring mattresses create pressure points and uneven support.



Waterbeds rely on displacement and can cause a "hammock effect," bending your spine unnaturally.

Try Risk-Free for 90 Nights

Sleep on a Select Comfort for 90 nights. If you are not completely satisfied, return it for a full refund.

15 Year Limited Warranty

Discover why 96% of Select Comfort users recommend it to their family and friends

"I am a doctor and often come home exhausted. This mattress is the most comfortable I've tried."

Dr. Connie H., M.D., Clarksville, OH

"For the first time in years, we wake up without aches and pains and have more energy!"

Mr. & Mrs. Dennis C., Lawrenceville, GA

Order Now or Call For Your

FREE VIDEO

and FREE Brochure

1-800-831-1211

YES! Please send me a FREE Video & Information Packet.

Name _____

Address _____

City _____ State _____ Zip _____

Evening Phone (____) _____

Select Comfort Corp.

9301 75th Ave. N.

Minneapolis, MN 55428-1003

© Select Comfort Corp. 1993

Dept 2142

PRODUCTS THAT PERFORM

SHOP TESTED

Continued from page 71

Hone a winning edge with a power strop

Woodworkers who take pride in well-sharpened tools use a strop to remove burrs and microscopic imperfections left behind by sharpening stones. Stropped edges cut easier and stay sharp longer. Until Surgi-Sharp came along, however, you had to strop by hand—a tedious process.

With the Surgi-Sharp Leather Power Strop you can aggressively polish tool edges with the help of a portable electric drill. The kit consists of a leather sleeve that fits over a hard rubber drum, and a stick of sharpening compound that you apply to the leather.

I put the Surgi-Sharp in a drill clamped to my workbench, loaded it up with sharpening compound, and gave it a spin. It polished my chisels to a sharp, mirror-like edge in just seconds. The manufacturer says you can use the strop in a drill press, but I found it awkward working with the tool tilted up horizontally.

You can get the same polished edge with a felt buffing wheel on your bench grinder, but the felt wheels cost double or triple the price of this kit. I found the Surgi-Sharp practical, affordable, and easy to use.

—Tested by Chuck Hedlund



Surgi-Sharp Leather Power Strop (includes the leather sleeve, drum, and sharpening compound), \$17.45 ppd. Woodcraft, P.O. Box 1686, Parkersburg, WV 26102-1686. Call 800/535-4482.

FREE FREIGHT SAME DAY SHIPPING

Makita

2708W
8½ Portable Table Saw

• Powerful • Lightweight Reg. List \$544 Super Sale **\$288**

6211DWE 12V HiTorque Cordless Drill Kit w/FREE Battery	\$168
6201DWE 9.6V Hi Torque MAKPAK Cordless Drill with Free Extra Battery	\$158
6095DWE 9.6V Cordless Drill Kit with Case, Charger & 2 Batteries	\$139
BC5000 5" Random Orbit Sander	\$59
LS1030 10" Miter Saw w/ Dust Bag	\$199
5007NBK 7¼" Circ Saw Kit with CT Blade & FREE Case	\$119

Complete Line of Makita & DeWalt

1-800-262-5482

HOME LUMBER CO.

449 WHITEWATER ST., WHITEWATER, WI 53190 C.O.D.

NordicTrack introduces the first skier-stepper-treadmill in one!

Three Workouts in One Machine!

1 Ski

2 Step

3 Walk/Run

or write: NordicTrack, Dept. 2W3A4, 104 Peavey Road, Chaska, MN 55318-2355
 ©1993 NordicTrack, Inc., A CML Company • All rights reserved.

NordicTrack's Aerobic Cross-Trainer™ lets you add health-club variety and excitement to your exercise program by choosing a new heart-pumping, calorie-burning workout each day. It's the ultimate way to shape and tone your body, strengthen your heart and lungs and take off weight. Say good-bye to dull workouts! Now you can cross-train at home on one innovative machine, without investing space or money in three separate machines!

30-day in-home trial!

FREE Video and Brochure

Call **1-800-441-7836** Ext. 2W3A4

NordicTrack's Aerobic Cross-Trainer™

SIGNCARVING

IS FUN & PROFITABLE

And it's easy, if you use the Marlin Woodcarvers and accessories. You can carve signs quickly at home or at swap meets. *No special training is required.* The machines do the work, the operator has the fun and the profits. These machines will also 3-D carve panels and plaques. Our templates work well with other machines.

SEND \$1.00 FOR OUR FULL LINE BROCHURE AND PRICE LIST AND START PLANNING YOUR FULL OR PART-TIME BUSINESS.

MARLIN DIVISION

tercco incorporated
 222 1st Ave. N.W. W41 • Watertown, SD 57201
 (605) 882-3888 • Fax (605) 882-0778

CHILD'S ROCKER PLAN

★ Full Scale Patterns
 ★ 12"Wx28"D x30"H
 ★ Plans Shipped Same Day

Specify Plan #1293 and send \$6.95 along with \$2.00 shipping & handling

RAN TECH PLANS
 P.O. Box 174
 Greenville, IL 62246

RIP AW

The Portable Sawmill.

The "affordable portable" one man band sawmill. Weighs only 45 lbs. Cuts 20" diameter logs into lumber. Minimum 1/8" to maximum 9" thickness. 14"W x 9"H throat capacity. Write or call for free brochure. Videos also available.

Better Built CORPORATION
 (508) 657-5636
 845 Woburn Street, Dept. W01, Wilmington, MA 01887

MasterCard VISA DISCOVER

INTRODUCING... AMANA TOOL'S PROFESSIONAL COUNTERSINK & PLUG SET

✓ Countersinking and Drilling with a single tool!

✓ Screwheads are concealed with perfectly fitted plugs.

High-Performance Cutting Tools™

AMANA TOOL

Circle #1300 in Worth Writing For

Call 1-800-445-0077, for the dealer nearest you

Call or write for Literature!

WIN A FREE HEGNER SCROLL SAW

After fifteen years of leadership, HEGNER Precision Saws are still the #1 choice! Now you can win a HEGNER... absolutely FREE!

We will also send you our catalog at no cost or obligation. Call or write today!

1-302-322-2226

ADVANCED MACHINERY IMPORTS, LTD.

P.O. Box 312, Dept. 595 New Castle, DE 19720

GLUE SPOT PROBLEMS?

SPOTLIGHT

exposes glue before stain
exposes it for you!

Mixed with white or yellow wood glue, SPOTLIGHT makes the glue visible when exposed to a fluorescent U-V light.



1/3 oz. makes 1 pt. \$300
2/3 oz. makes 1 qt. \$450
22/3 oz. makes 1 gal. \$600
18" U.V. fluorescent light \$2700
S&H for SPOTLIGHT and light \$800
S&H for SPOTLIGHT only \$400
PA res. add 6.9%

Questions? Call: 800-933-7963



P.O. Box 97
Carlisle, PA 17013

HARDWOODS

EXOTIC & DOMESTIC OVER 75 SPECIES

LUMBER • VENEER • TURNING STOCK

COLLECTORS SAMPLE KIT

30 GORGEOUS WOODS

Exotic & Domestic from Around the World

1/2" X 3" X 6" Sanded Finish

\$39.00

*ppd in Cont US

Together with Book **\$51.00**
of Fine Hardwoods *ppd in Cont US

Over 70 woods shown in full color. Charts compare physical properties. 60 pgs



1-800-423-2450
WOODWORKERS Source

5402 S. 40th Street • Phoenix, AZ 85040
602-437-4415

CHAINSAW CARVING VIDEO

EASY STEP-BY-STEP INSTRUCTION TEACHING VIDEO VOLUME I includes
2 projects:
• Dock Polican
• American Eagle
FUN & PROFITABLE SELL YOUR WORK



VOLUME I

Send Check or Money Order For \$29.95

Plus \$3.90 S/H to:

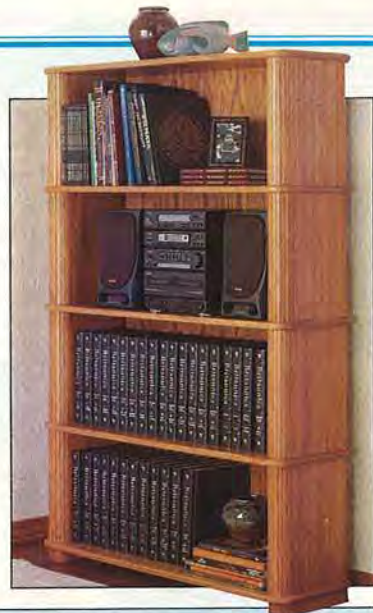
WOOD CARVING 3 PRODUCTS
P.O. BOX 292526, DAVIE, FL 33329

TAMBOUR BOOKCASE

Continued from page 48

BILL OF MATERIALS AND CUTTING DIAGRAM

(for 4-high tambour bookcase)



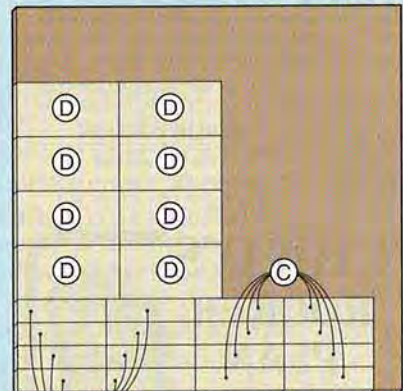
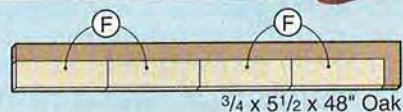
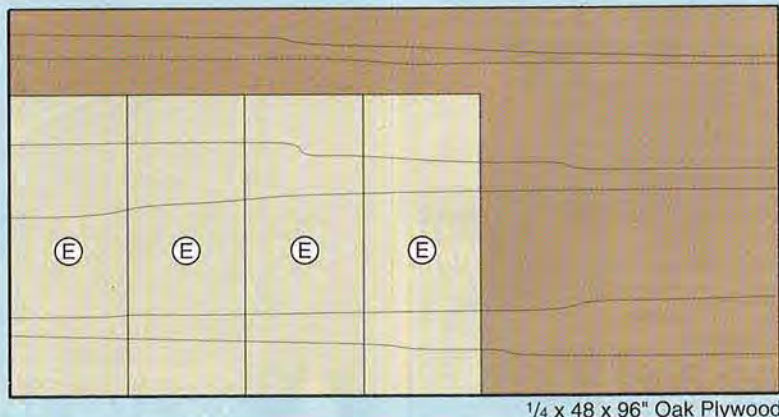
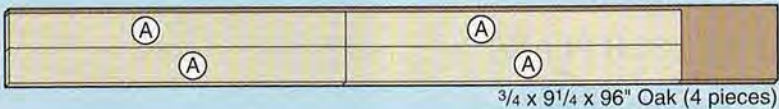
Bill of Materials

Part	Finished Size			Mtrl.	Qty.
	T	W	L		
FOUR-HIGH UNIT					
A* shelves	3/4"	12 1/2"	42"	EO	5
B* tambour strips	3/16"	7/16"	14"	O	448
C support caps	3/4"	2 7/8"	11 1/8"	PL	16
D uprights	3/4"	6 3/4"	12 1/2"	PL	8
E backs	1/4"	37 1/2"	14 1/2"	OP	4
F feet	1 1/2"	3 1/4"	11 1/2"	LO	2

*Initially cut parts marked with an * oversized. Then, trim each to finished size according to the how-to instructions.

Materials Key: EO—edge-jointed oak, O—oak
PL—plywood, OP—oak plywood,
LO—laminated oak.

*Plane or resaw to 7/16" thick, and then rip to 3/16" wide



Whether your woodworker's license reads "Beginner," "Intermediate," or "Advanced," you're bound to have a few questions about your favorite hobby. We can help by consulting our staff and outside experts. Send questions to:

Ask WOOD
Better Homes and Gardens®
WOOD® Magazine
1912 Grand Ave.
Des Moines, IA 50309-3379

Shelf life of glue

What's the shelf life of wood glue, and can it be preserved by freezing?

—Hank Riccio, Stratford, Conn.



For an answer, Hank, we contacted the glue experts at Franklin International. They told us the recommended shelf life of their yellow woodworker's glue varies from 6 to 12 months after opening. They recommend against freezing any water-based glue product for storage.

What's the real horsepower?

I have a Craftsman tablesaw with its motor rated 4 horsepower at 3450 rpm and 16.8 amps. I also bought a Grizzly tablesaw with its motor rated 1½ hp at 3450 rpm and 17.2 amps. How do different manufacturers manage to rate their electric motors so differently?

—Mike Kunz, Ocean Park, Wash.

Mike, manufacturers typically rate a tool's power in terms of continuous horsepower or maximum-developed horsepower. The same motor will have completely different continuous or maximum-developed horsepower ratings, with the maximum developed horsepower always being the higher number. (Maximum developed horsepower ratings can be two to three times a tool's continuous-duty horsepower.) For a more realistic comparison of power, compare two motors by looking at their amperage draw.

Some manufacturers of power tools sold predominantly to consumers use the maximum-developed horsepower ratings on their motors. Tools aimed at the professional woodworker will have the more conservative continuous horsepower ratings.

Continued on page 78

Everyone Has Furniture

Offices • Hotels • Restaurants • Homes



Now Your Wood Skills Can Mean Serious Business!

As a FURNITURE MEDIC®, you can use your woodworking talent to start a full-time business of your own.

Advanced restoration techniques allow FURNITURE MEDIC® to repair various types of furniture damage on site. These repairs are only a fraction of replacement or refinishing costs. The market for our services is virtually unlimited.

We provide equipment, specialized training, territory, marketing materials, and continuous support.

Lines Open 24 Hours Every Day
(800) 877-9933



FURNITURE MEDIC®

"the prescription for damaged furniture!"

ROBLAND X 31

THE INTELLIGENT ONE MAN SHOP

90-MINUTE
DEMO
VIDEO



- 1100 lbs.
- 3 separate 3HP motors
- 12" jointer
- 12" planer
- 10" table saw
- 50" sliding table
- 3HP shaper
- mortiser
- cast iron

The Robland X 31

is designed to make maximum use of minimum space ideal for the small professional shop and the demanding hobbyist. Change from one tool to another in 20 seconds or less! Solid, sturdy, reliable.

CALL OR WRITE FOR MORE INFORMATION NOW!

2265 LAGUNA CANYON RD., LAGUNA BEACH, CA 92651

LAGUNA TOOLS

1-800-234-1976 or 714-494-7006

ASK WOOD

Continued from page 76

More twists on bending wood

I would like to know if there are any other ways of bending wood besides steaming?

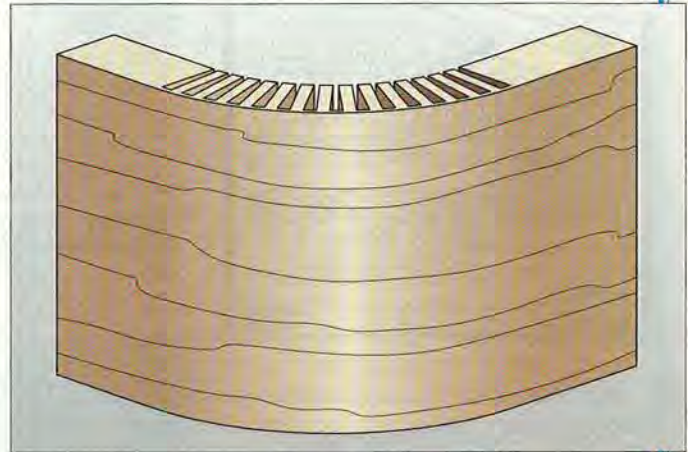
—Edwin Yusko, Tucson, Ariz.

There are several other methods to bend wood, Ed. Which method you use depends on the type and thickness of the wood, the radius of the bend, and the stresses placed on the finished piece.

The strongest of the non-steam methods is the cold-molding or laminated-veneer method. To do this you laminate several layers of 1/16- to 1/8"-thick wood around a form (see our Bentwood Toboggan project in the October 1991 issue). The finished piece will retain the shape of the mold when the glue dries.

Musical instrument makers bend sides and linings of their instruments using dry heat. Here, you bend thin wood (1/16 to 1/8" thick) over an electric bending iron or a heated pipe to set the shape of the sides. Instrument makers often assemble their creations on a mold to ensure the best alignment of the sides with the instrument's top and back.

Old-time chair makers bend green wood on a simple form to make the slats for ladder-back chairs.



These pieces will retain some of the bend after the wood dries.

You can use kerf-bending on plywood or solid wood where one side will not be seen. First, you make a series of cuts partially through the wood, on the inside of the bend. Generally, we recommend leaving at least 1/8" of wood at the bottom of the kerf. Dampen the outside grain of the wood just before bending to help reduce splintering. ♣

Introducing The Most Versatile, Affordable Planer You'll Ever Buy.



Special Introductory Price
\$849
(Planer Only)



Comes Pre-Wired with a 3 HP (TEFC) Motor

Here's What The RBI 812 Can Do.

No other planer gives you this much versatility at such an affordable price.

The 812 is a heavy-duty, 3-in-1 precision wood-working system complete in just one compact tool.

The Model 812 will plane, mold, or sand at 11 feet per minute all day long.

- Create cabinets and furniture
- Customize home woodworking
- Finish and dimension stock
- Turn rough lumber into beautiful molding in minutes
- Produce uniform surfaces
- Plane to 12" wide in seconds
- Create hundreds of ornamental moldings or picture frames on hard or soft woods with standard or customized knives
- Eliminate distortions caused by tedious hand sanding

Call 800-487-2623 To Order or FREE Catalog.

Our Guarantee To You
30-Day
Money Back Guarantee
3-Year Warranty

rbindustries
The American Tool Manufacturer
1801 Vine Street • PO Box 369
Harrisonville, MO 64701

D101

CAN YOU KEEP A SECRET? WE COULDN'T



Model
ATF-0350

For years AIRY's line of high quality nailers and staplers have been known primarily only to our West Coast customers. Our innovative designs, consistent quality and low prices are now available to fine woodworkers nationwide. Check out these innovative features:

- 16 ga brads 3/4" to 2" lengths (uses Senco, Bostitch, Paslode)
- Clear magazine cover with convenient length scale
- Includes special attachment for repetitive operations, angle & edge fastening
- Easy depth adjustment
- Kit version includes 5000 brads, extra driver/piston assembly, carrying case, oil, wrenches

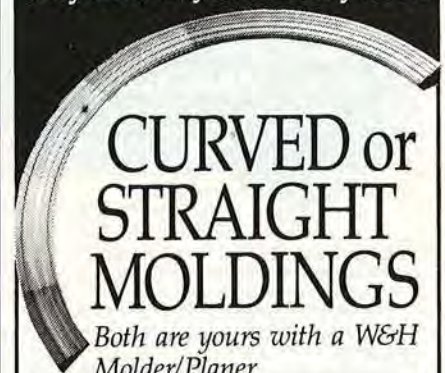
ASK your dealer about our complete line of nailers and staplers.

AIRY

AIRY SALES CORPORATION

14535 Valley View Ave., #N
Sante Fe Springs, CA 90670
310-926-6192 • (FAX) 310-404-1400

Anytime Anywhere Anywood



CURVED or STRAIGHT MOLDINGS

Both are yours with a W&H Molder/Planer

Thousands of professionals and serious woodworkers use our American-made cast iron molder/planers to produce smooth moldings, raised panels, crowns and curved molding.

In the shop or at the job site, W&H meets your needs every day with quick knife changeover and ultimate versatility with all kinds of wood.

Over 40 years of experience supports our products with a 5 year warranty! Call or write today for our FREE information kit!

800-258-1380 (USA) 603-654-6828
FAX 603-654-5446

Williams & Hussey
Machine Co., Inc.
Dept. 234AM

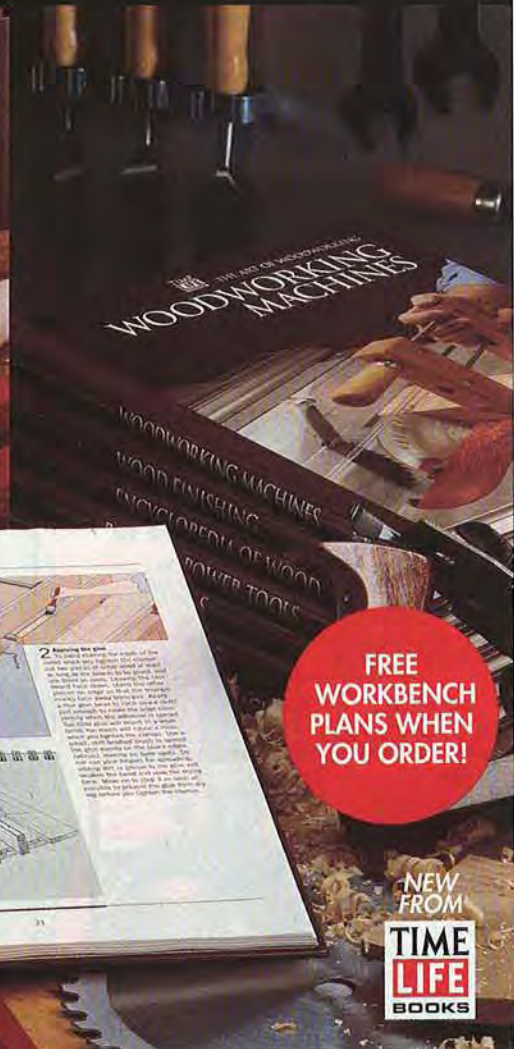
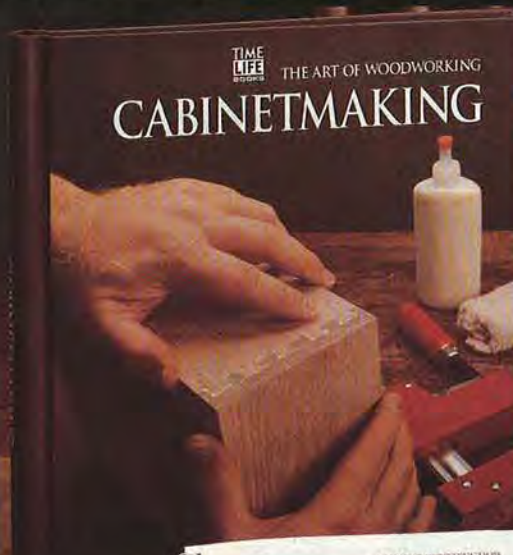
P.O. Box 1149 Wilton, NH 03086



Now Master Woodworkers Pass on Their Skills and Secrets to You

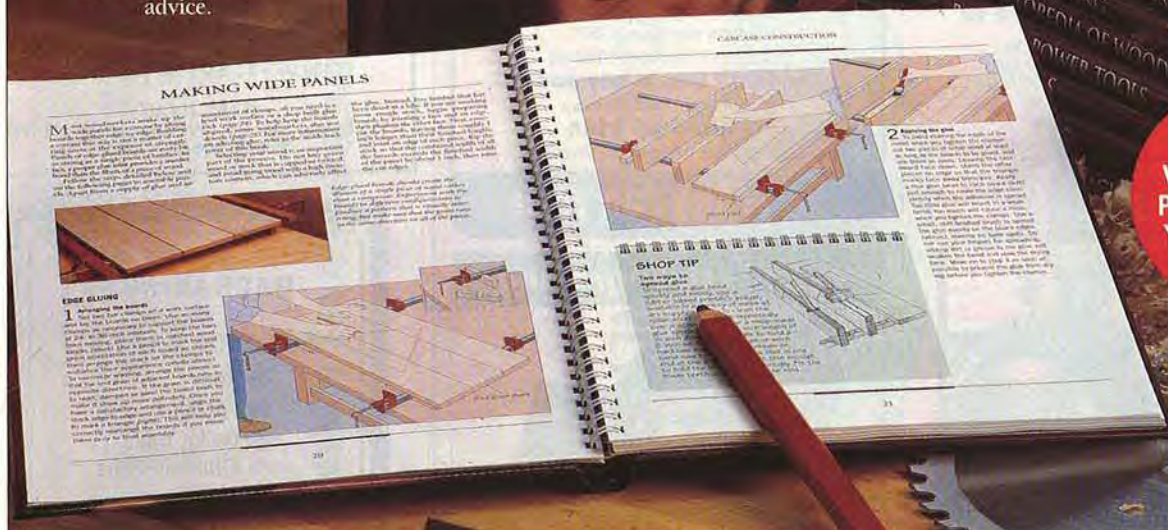


Meet veteran furniture maker Giles Miller-Mead plus dozens of other master craftsmen who share their tips, tricks and advice.



FREE WORKBENCH PLANS WHEN YOU ORDER!

NEW FROM
TIME LIFE BOOKS



THE ART OF WOODWORKING

Your complete guide to woodworking tools, techniques and materials.

Now you can build the skills and master the techniques that will turn you into a better woodworker. And get plans for just about every shop-made jig and fixture you're ever likely to need in THE ART OF WOODWORKING, new from TIME-LIFE BOOKS.

Here's the perfect workbench companion—with clear, easy-to-follow illustrations—and a unique spiral binding that allows the book to lie flat while in use. In your first volume, *Cabinetmaking*, you'll discover the secrets and skills that have taken master woodworkers years to acquire. And

you'll learn every important technique in the cabinetmaking process—from selecting flawless materials to mounting the hardware.

Shop-test *Cabinetmaking* free for 15 days and receive a bonus set of workbench plans! If you keep the book, pay just \$16.99, plus shipping and handling. Then about every month, you'll receive another book, like *Hand Tools*, *Woodworking Machines* and *Portable Power Tools*, on the same free-examination basis. There is no purchase necessary, and the free plans are yours to keep without any obligation!

FREE BONUS GIFT



WORKBENCH PLANS SET

YES! I would like to examine *Cabinetmaking* free for 15 days as my introduction to THE ART OF WOODWORKING. Please send it to me, along with my free Workbench Plans and other future volumes, under the terms described in this ad.

NAME _____
ADDRESS _____
CITY _____
STATE/ZIP _____

SEND NO MONEY NOW
If card is missing mail to: TIME-LIFE BOOKS, P.O. Box 85563, Richmond, VA 23285-5563 **KGBAH7!**

BEST CARVING SUPPLIES!



100s of quality hand & powercarving tools, books,

kits, plus more. Fast friendly service, lowest price & satisfaction guaranteed. Join 100's of happy customers, send \$2 for our 76 pg. color catalog.

Wood Carvers Supply, Inc.

SERVING CARVERS SINCE 1955

P.O. Box 7500-G,
Englewood, FL 34295-7500

Wood-Mizer

Models from \$695!*

World's Largest
Manufacturer
of Portable
Sawmills

Own a
Sawmill!



1-800-553-0219

32-Page Full-Color Catalog \$2.00
Business Profitability Booklet \$2.00
66-Minute Demonstration Video \$10.00
Mastercard or Visa Accepted
*Shown with optional trailer

Wood-Mizer Products, Inc.
8180 West 10th Street, Dept. QG79
Indianapolis, IN 46214-2400

Van Dyke's

Presents a
Catalog

with supplies for
upholstery, antique
restoration, wood
working, caning,
brass hardware,
carvings and many
related trades!



40 Years in Creative Arts & Trades

Many Hard-To-Find Items!

SEND \$1.00 FOR CATALOG TO:
VAN DYKE'S RESTORERS

Dept. D55, P.O. Box 278, Woonsocket, SD 57385

BRANDING IRON

Your Satisfaction Guaranteed

- Convenient torch heating
- Solid Brass—lasts years
- Special wording available
- Electric Models Start at \$48.00
- 2nd line—
20 letters/spaces max.
- 1/4" letters
- Distinctive Border
- Add \$3.50 shipping
and handling
- OH res. add 6% sales tax



Order by mail from:
BrandMark **\$28.00**

462 Carthage Dr., Dept. W1-4
Beaver Creek, OH 45434-5865
(513) 426-6843

TO ORDER CALL TOLL FREE
1-800-323-2570
8:00-5:00 EASTERN TIME

Build "Merrilegs"

Full-size
Plan #121
\$16.00
(catalog free
with order)

CATALOG
200 full-size
professional
furniture plans
— \$3.00



SEND TODAY!



Full-Size Professional Plan

FURNITURE DESIGNS, INC., Dept. BZ-14
1827 Elmdale Ave., Glenview, IL 60025 — (708) 657-7526

HERITAGE

Building Specialties

PROJECT-PAK®
A WOODWORKERS
DREAM COME TRUE!

- Save money on projects
- Reduce waste by 25-50%
- Eliminate layout headaches

The ONLY way to buy wood!

Call for details & catalog today.

1-800-524-4184

205 N. Cascade • Fergus Falls, MN 56537

WE WORK FOR YOU!

High Tech Engraving



See what everyone has been talking about!
Engrave on: Wood, Glass, Metal, Stone, Ceramics, Eggshell

- Precise Detail
- No Vibration
- 400,000 RPM
- No heat buildup

• You don't have to be an artist when you use our
exclusive stenciling system.

1-800-755-0261 or 414-251-0981

SCM Enterprise • W16N11318 Western Avenue, Germantown, WI 53022

The professional weather
station for people curious
about the weather.



Temperature, Barometric
Pressure, Wind Speed,
Wind Direction, Wind
Chill, Highs and
Lows, Alarms,
Rainfall Option,
Humidity Option,
Computer Interface Option

For more information or a free catalog, call

1-800-678-3669

or write

DAVIS INSTRUMENTS
2465 Diablo Ave., Hayward, CA 94545

WM2370

Heavy Glass Table Tops

FACTORY
DIRECT
DISCOUNT
PRICING



- Table Tops
- Shelves
- Doors
- Display Cases
- Entertainment Centers
- Tempered Glass

TABLE
TOPS
BY PHONE
SATISFACTION
GUARANTEED!

WGB GLASS ■ SHAPES ■ THICKNESSES ■ EDGE DESIGNS

FREE CATALOG - 1-800-288-6854

NEW GUIDE FOR Professional Hand Routing

Unique tool is used to mark straight line and arc patterns,
then Replace the Pencil with Any Router in the GUIDE for
CUTS EXACTLY WHERE MARKED!

Preview each cut and set stops.

Range 1" to 44" D SIMPLE-FAST-ACCURATE

PATENTED-MADE IN USA

\$39.95 + \$3 S&H ck, visa, or mc

MARK-N-CUT

115 Hubert Siler Rd. • Williamsburg, KY 40769
Phone: 606-549-0524

Quality

MECHANISMS
For Making
WOODEN BARREL

- ✍ Pens
- ✍ Pencils
- ✍ Roller Balls
- ✍ Fountain Pens

plus other related items.

Wholesale/Retail

Call or Write:

BereaHardWoods.co

6367 Eastland Rd. Brookpark, Ohio 44142
216-234-7949 Master Card/Visa

15 PIECE Router Bit Set



\$89.95

MAGNATE

800-827-2316

Ask for Free 1993/94 Edition Catalog



Statement of Ownership. Management and Circulation (Required by 39 U.S.C. 3685) 1A. Title of Publication: Better Homes and Gardens® WOOD®. 1B. Publication No. 724890. 2. The Date of Filing is September 28, 1993. 3. Frequency of Issue: Nine times a year in January, February, April, June, August, September, October, November, and December. 3A. No. of Issues Published Annually: 9. 3B. The Annual Subscription Price is \$25. 4. The Complete Mailing Address of the Known Office of Publication is 1716 Locust Street, Des Moines, Polk County, IA 50309-3023. 5. Complete Mailing Address of the Headquarters of General Business Offices of the Publisher: 1716 Locust Street, Des Moines, Polk County, IA 50309-3023. 6. Full Names and Complete Mailing Addresses of Publisher, Editor, and Managing Editor: Publisher: William R. Reed, 1912 Grand Avenue, Des Moines, IA 50309-3379; Editor: Larry Clayton, 1912 Grand Avenue, Des Moines, IA 50309; Managing Editor: Jim Harrold, 1912 Grand Avenue, Des Moines, IA 50309-3379. 7. Owner: Meredith Corporation, 1716 Locust Street, Des Moines, IA 50309-3023. The Names and Addresses of Stockholders Owning or Holding 1 Percent or More of the Total Amount of Stock: The Bank of New York, 925 Patterson Plank Rd., Secaucus, NJ 07094; Bankers Trust, Corporate Securities Services, 16 Wall Street, New York, NY 10005; Boston Safe Deposit & Trust Co., c/o ADP Proxy Services, 51 Mercedes Way, Edgewood, NY 11717; Brown Brothers Harriman & Co., 63 Wall Street, New York, NY 10005; The Chase Manhattan Bank, N.A., 1 Chase Manhattan Plz., New York, NY 10081; Chemical Bank, 270 Park Ave., New York, NY 10017; Mellon Bank, N.A., c/o ADP Proxy Services, 51 Mercedes Way, Edgewood, NY 11717; Norwest Bank Minnesota National Assn., 733 Marquette Ave., 5th Floor, Minneapolis, MN 55479-0056; The Northern Trust Company, c/o ADP Proxy Services, 51 Mercedes Way, Edgewood, NY 11717; Prudential Securities, Inc., 315 Hudson St., New York, NY 10013; State Street Bank & Trust Co. Fiduciary, c/o ADP Proxy Services, 51 Mercedes Way, Edgewood, NY 11717; U. S. Trust Co. of New York, 770 Broadway, New York, NY 10003; Wells Fargo Institutional Trust Co., 45 Fremont St., 16th Floor, San Francisco, CA 94105. Through some of the nominees listed above, the E. T. Meredith and Bohlen families and family foundations own directly or beneficially, approximately 30% of the issued and outstanding stock of the corporation. Each nominee listed above holds stock for one or more stockholders. 8. Known Bondholders, Mortgagees, and Other Security Holders Owning or Holding 1 Percent or More of Total Amount of Bonds, Mortgages, or Other Securities: None. 9. Item 9 of PS Form 3526 not applicable. 10. Extent and nature of Circulation—A. Total No. Copies (Net press run): Average No. Copies Each Issue During Preceding 12 Months, 802,580; Actual No. Copies of Single Issue Published Nearest to the Filing Date, 809,935. B. Paid and/or the Requested Circulation: 1. Sales Through Dealers and Carriers, Street Vendors, and Counter Sales: Average No. Copies Each Issue During Preceding 12 Months, 70,444; Actual No. Copies of Single Issue Published Nearest to the Filing Date, 75,000. 2. Mail Subscriptions (Paid and/or requested): Average No. Copies Each Issue During Preceding 12 Months, 560,111; Actual No. Copies of Single Issue Published Nearest to the Filing Date, 575,157. C. Total Paid and/or Requested Circulation (Sum of 10B1 and 10B2): Average No. Copies Each Issue During Preceding 12 Months, 630,555; Actual No. Copies of Single Issue Published Nearest to Filing Date, 650,157. D. Free Distribution by Mail, Carrier, or Other Means; Samples, Complimentary, and Other Free Copies: Average No. Copies Each Issue During Preceding 12 Months, 6,444; Actual No. Copies of Single Issue Published Nearest to Filing Date, 4,000. E. Total Distribution (Sum of C and D): Average No. Copies Each Issue During Preceding 12 Months, 636,999. Actual No. Copies of Single Issue Published Nearest to Filing Date, 654,157. F. Copies Not Distributed: 1) Office Use, Left Over, Unaccounted, Spoiled after Printing: Average No. Copies Each Issue During Preceding 12 Months, 11,025. Actual No. Copies of Single Issue Published Nearest to Filing Date, 5,778. 2) Return from News Agents: Average No. Copies Each Issue During Preceding 12 Months, 154,556; Actual No. Copies of Single Issue Published Nearest to Filing Date, 150,000. G. Total (Sum of E, F1, and 2—should equal net press run shown in A): Average No. Copies Each Issue During Preceding 12 Months, 802,580. Actual No. Copies of Single Issue Published Nearest to Filing Date, 809,935. 11. I certify that the statements made by me above are correct and complete. (Signed) James V. Harrold, Managing Editor.

Strength You Can Use.



NORDICFLEX GOLD GIVES YOU STRENGTH FOR A BETTER LIFE.

Strength training gives you extra energy and helps control stress. Best of all, extra strength makes your everyday activities easier — moving furniture, aching your serve, or planting a tree. To improve the quality of your life, turn to the NordicFlex Gold® strength conditioner.

- Trim, lean muscles
- Slower aging process
- Better weight control
- More self-confidence

IMPROVE STRENGTH WITHOUT MUSCLE PAIN.

Our patented isokinetic resistance system maximizes your workout by automatically adjusting to your own strength level. And to ensure that you enjoy each workout, our positive-only resistance minimizes after-exercise soreness and the risk of injury.

IT'S THE FAST, FOCUSED WORKOUT.

NordicFlex Gold offers 32 exercises for your back, legs, shoulders, chest and abdominal muscles. Get strength you can use in just three, 30-minute workouts a week. Call 1-800-441-7890.



Best of all, it's from NordicTrack!

NORDIC FLEX Gold

FREE Video and Brochure! Call 1-800-441-7890 Ext. 3FCA4

or write: NordicTrack, Dept. 3FCA4, 104 Peavey Road, Chaska, MN 55318-2355

Send me a FREE brochure Also a FREE VHS videotape

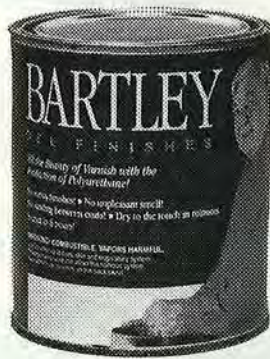
30-day in-home trial!

Name _____ Street _____
City _____ State _____ Zip _____ Phone () _____

©1993 NordicTrack, Inc., A CML Company • All rights reserved.

NO SANDING between coats!

Bartley Gel Finishes save you time, while giving you the beautiful, professional results you want! Great color selection too!



The Bartley Collection
LIMITED

For Your Local Dealer
Call 1-800-787-2800
29060 Airpark Drive, Easton, MD 21601

The Ultimate Woodworking Tool!



**NEW! 1993-94 Catalog
from The Woodworkers' Store
Over 200 new, hard-to-find items!**

**YES! Send me the next four issues of
The Woodworkers' Store catalog for only \$2 a year**

Name _____
Address _____
City _____ State _____ Zip _____

The Woodworkers' Store

Dept. 33116
21801 Industrial Blvd.
Rogers, MN 55374

WOOD® MAGAZINE ANNOUNCES THE SIXTH ANNUAL CONTEST TO BENEFIT KIDS THROUGH TOYS FOR TOTS, WITH OVER \$16,000 IN TOOLS AND SUPPLIES TO WIN!

1994 Contest

Everyone wins in this contest because all toys go to help the U.S. Marine Corps Reserve's Toys for Tots program to help needy kids at Christmas. And that gives you a great feeling. Of course, your toy could win you one or more dandy prizes too—brand-name portable and stationary power tools, woodworking supplies, finishing materials, and more. In fact, there's over \$16,000 worth of merchandise that you would just love to have in your shop!

PRIZES & SPONSORS

GRAND PRIZE (original design)

Professional: Your choice of Bosch power tools totaling \$2,000
Hobbyist: A tablesaw, jointer, planer, and bandsaw from Grizzly valued at \$2,000

FIRST PLACE (original design)

Professional: Your choice of \$1,500 in Delta power tools
Hobbyist: Your choice of \$1,500 in Delta power tools

SECOND PLACE (original design)

Professional: From AMI, a Hegner Multimax 18V scrollsaw worth \$1,000
Hobbyist: A shopful of Craftsman benchtop power tools worth \$1,000

THIRD PLACE (original design)

Professional: Your choice of Skil power tools totaling \$500
Hobbyist: Your choice of Skil power tools totaling \$500

ENTER TODAY!

For rules look in the October '93 issue of WOOD Magazine.



CITATIONS (ALL DESIGNS)

Best Use of Wood

Professional: \$250 in Constantine's merchandise
Hobbyist: \$250 in Formby's finishing supplies

Best Clear Finish

Professional: \$250 in Formby's finishing supplies
Hobbyist: Campbell Hausfeld HVLP sprayer

Best Action Toy

Professional: \$250 in Dremel tools
Hobbyist: \$250 in Dremel tools

Best Painted or Dyed Finish

Professional: \$250 in Trend-Lines merchandise
Hobbyist: \$250 in merchandise, The Woodworkers' Store

Best Doll Accessory

Professional: \$250 in merchandise, Meisel Hardware Specialties
Hobbyist: \$250 in merchandise, Meisel Hardware Specialties

Best Educational Toy

Professional: \$250 in Dremel tools
Hobbyist: \$250 in Dremel tools

Best Pull Toy

Professional: \$250 in Dremel tools
Hobbyist: \$250 in Dremel tools

Best Transportation Toy

Professional: \$250 in Crafts Supplies USA merchandise
Hobbyist: \$250 in Toys-N-Joys merchandise

SPECIAL AWARDS

Best Toy from a Woodworking Club

\$250 in Leichtung merchandise;
Milwaukee Tool \$500 miter saw

Best Toy from a Shop Class

\$250 in Delta tools;
\$250 in 3-M supplies

Top Money Raiser from Auction

(from 1993 Crafted for Joy wooden toy auction)
20" Hawk scrollsaw from RBI worth \$1,000

HEGNER
Precision
Scroll Saws

DELTA

BOSCH
Power Tools
& Accessories

SKIL

Milwaukee

SEARS
CRAFTSMAN

Grizzly
IMPORTS, INC.

DREMEL

WOOD® Magazine's 1994 BUILD-A-TOY™ Competition

There is no limit to the number of entries.
Please provide the following information for each toy submitted.

My entry is: Original design* Built from plans
My skill level is: Student (K-12) Home Hobbyist
 Professional
My Affiliation: WW Club Shop Class

*For Original Design entries: I certify that I have designed and built this toy myself. Should my entry win, I agree to cooperate with WOOD® Magazine to supply builder's notes and a bill of materials for publication.

Signature _____
Date _____

Name _____
Address _____
City _____
State _____ ZIP _____
Phone (____) _____

Send toys to: 1994 BUILD-A-TOY, WOOD® Magazine
1912 Grand Avenue, Des Moines, IA 50309-3379

1994 BUILD-A-TOY ENTRY DEADLINE:
FEBRUARY 1, 1994

TRANSPOWERFOR EXPRESS NEW CATALOGUE CALL
1-800-654-7702

TS200HD



HP500

**SUPER HEAVY DUTY WOODWORKING EQUIPMENTS**

200HD	10" SUPER HEAVY DUTY TABLE SAW, 3HP	\$895
200HA	10" SUPER HEAVY DUTY TABLE SAW, 3HP	\$740
MS250	10" TABLE SAW, 1½HP	\$345
SB800	20" BAND SAW, 3HP	\$1190
SB700	18" BAND SAW, 2HP	\$595
SB600	16" BAND SAW, 1½HP	\$475
SB500	14" BAND SAW, ¾HP	\$230
AP200A	20" AUTO PLANER, 2 SPEEDS, 3HP	\$1195
AP400	24" AUTO PLANER, 3 SPEEDS, 7HP	\$2590
AP650	15"X8" AUTO PLANER, 2 SPEEDS, 2HP	\$695
AP800	16"X8" AUTO PLANER, 2 SPEEDS, 3HP	\$695
AP150	12"X6" AUTO PLANER, 2HP	\$328
SP980	TILTING SPINDLE SHAPER, 1¼" & ¾", 3HP	\$1250
HP500L	3HP SHAPER, 1" ¾" ½" SPINDLES	\$740
HP500	3HP SHAPER, 1" ¾" ½" SPINDLES	\$695
SP860	3HP SHAPER, 1" ¾" ½" SPINDLES	\$840
JT850	6" LONG BED JOINTER, 1HP	\$250
JT860	8" HEAVY DUTY JOINTER, 1½HP	\$650
1200	12" HEAVY DUTY JOINTER, 3HP	\$1695
747	DUST COLLECTOR, 650 CFM, 1HP	\$168
2000	DUST COLLECTOR, 1250 CFM, 2HP	\$285
3000	DUST COLLECTOR, 1850 CFM, 3HP	\$325
RF150	AUTO FEEDER, ¼HP	\$385
RF250	AUTO FEEDER, 1HP	\$640
SD800	90° EDGE SANDER, 2HP	\$420
SD1200	123° EDGE SANDER, 2HP	\$980
DB600	AIR DRUM SANDER, 1HP	\$285
..... AND MORE.		

C.P. Tools, Inc. • 14257 E. Don Julian Rd., Industry, Ca. 91746
818-333-7701**Airlite™ Air Visor**Eye and Face Protection from
Racal Health & Safety, Inc.Introductory Price
\$235⁰⁰**IDEAL FOR WOODWORKERS!**

- Lightweight & Comfortable
- Refreshing Flow of Filtered Air
- Impact Resistant Visor (Meets ANSI Z87.1)
- Accommodates Glasses
- Soft, Flexible Face Seal
- 4-Hour Battery Pack (Rechargeable)

30-Day, Money-Back Guarantee if you are not satisfied.**CALL TOLL-FREE: 1-800-682-9500**RACAL HEALTH & SAFETY, INC., 7305 Executive Way, Frederick, MD 21701-8368
(301) 695-8200 • (800) 682-9500 • FAX (301) 695-4413**RACAL** © Racal Health & Safety, Inc. 1993**FORSTNER BIT SPECIAL!**Part No. C3187
ONLY \$24⁹⁵
REG. \$29⁹⁵**7-pc Forstner Bit Set**

Used for flat bottom holes, boring through knots, making pocket holes and partial arcs. Seven most used sizes: ¼", ⅜", ½", ⅝", ¾", 7⁄8", and 1". All shanks are ⅜". Precision ground for smooth, vibration-free operation.

16-pc Forstner Bit Set

This quality set includes 16 bits: ¼", ⅜", ½", ⅝", ¾", 7⁄8", 1", 1 1⁄8", 1 ¼", 1 ⅝", 1 ½", 1 ¾", 1 7⁄8", 2", and 2 ½". Approximately 3 ½" long. You can drill pocket, partial arc, and flat bottom holes. Drill through wood at virtually any angle. All shanks are ⅜".

Part No. C3188
ONLY \$79⁹⁵
REG. \$89⁹⁵**CASCADE TOOLS, INC.**FREE SHIPPING
ON ORDERS
OVER \$100⁰⁰**ORDER 24 HRS A DAY!**
1-800-235-0272 EXT. 36
FAX 1-800-392-5077

93C-116

WOOD MAGAZINE JANUARY 1994

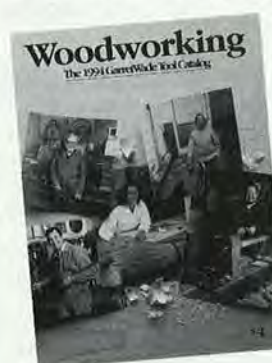
Another breakthrough tool only from Garrett Wade...

With 224 pages, our Free Catalog is probably the biggest in the business. We think it's the best, too.

We have the woodworking supplies and tools that you just can't find in your local hardware store anymore. Everything from traditional old-style hand planes and saws to the very latest in power tools and accessories.

We've got Measuring tools, Chisels, Carving tools, Turning tools, Sharpening tools, and much, much more. Plus half a dozen kinds of glue to hold your work together, 70 stains to color it, and 20 different top coats to protect it.

Just send us the coupon below or call toll-free for your free 1994 Garrett Wade Catalog – plus free supplements throughout the year. It could be just the tool your workshop needs.

**Our free 1994 Catalog.**Garrett Wade Co., Inc.
161 Avenue of the Americas
New York, NY 10013, Dept. 924
800-221-2942Name _____
Address _____
City _____ State _____ Zip _____

Worth writing for...



You can get useful ideas and product information by mail. Use the coupon in this section to order your choice of literature listed below. Each company mails the catalogs or information directly to you.

POWER TOOLS

SCROLL SAW, CRAFT & WOODWORKING CATALOG—Specialty products from the exclusive distributors of HEGNER, the precision saws with SCROLLVERGUEGEN. Complete information on scroll accessories, including blades and lettering guides. Also JET Clamps, HEGNER Lathes, PLANO Vertical Glue Press, and more. Toll-free customer service hotline included! AMI, LTD. \$2.00. Circle No. 3.

TOOL CRIB CATALOG—Since 1948, woodworkers, homebuilders, industry and schools across the country have looked to the Tool Crib as their source for power tools and equipment. Our prices are low; our sales people are knowledgeable; and our service is first-rate! We stock over 10,000 tools with top name brands like Black & Decker, Delta, Ryobi, Makita, Powermatic, Jet, Freud, Bosch, Porter Cable, Milwaukee and many more. We offer competitive prices with quality service and same day shipping. Send for your NEW 1993 catalog. It's worth it! TOOL CRIB. \$3.00. Circle No. 6.

TRANSPOWER, CP TOOLS INC.—A fine line of quality woodworking machinery, saws, shapers, planers and more. Send for free catalog. CP TOOLS INC. Free. Circle No. 15.

OUR HOLIDAY SEASON PROMOTION—starts December 1st, '93 and ends February 15th, '94. Don't miss it. We have the best deal for your woodworking machinery and supplies in today's market, find out yourself. We offer a large selection of fine woodworking machinery, tools and accessories for your home and business workshop. Let's have a great holiday season folks. ENLON IMPORT CORP. Free. Circle No. 35.

INCA MACHINERY INFORMATION—Complete information on the famous line of Inca woodworking machines. Designed for precision work by the small to medium sized cabinet shop. Used by thousands of hobbyists and professionals. Table saws, band-saws, joiner/planers, dust collector, radial arm saw. GARRETT WADE CO. Free. Circle No. 44.

HOME LUMBER—For the largest selection of Makita at the right price. We also provide great pricing on Amana Carbides, DeWalt power tools, Bostitch Air Nailers & David White Instruments. Same day shipping, free freight. We accept Visa, Mastercard, Discover, COD. Send for information. HOME LUMBER. \$1.00. Circle No. 48.

INTERNATIONAL TOOL CORPORATION CATALOG—features the best tools & accessories at the absolute lowest prices anywhere! Whether you are a home woodworker or an industrial user, you will find an incredible selection featuring Porter Cable, Bosch, Skil, Freud, Delta, Milwaukee, Hitachi, and many, many more. We offer same day shipping, the most knowledgeable sales staff and free shipping on most UPS orders in the continental U.S. INTERNATIONAL TOOL CORP. Free. Circle No. 49.

GET TO THE FINISH LINE FASTER—with a Performax drum sander. Don't spend hours with a hand-held belt sander. Sand ultra-wide stock ultra-smooth in just minutes. Models start at \$300 to \$3495. Select the model that fits your budget and your needs. New metal abrasive fasteners keep sandpaper tight without re-wrapping. PERFORMAX PRODUCTS. \$1.00. Circle No. 78.

WOODWORKING TOOLS & ACCESSORIES—While the history of RB Industries goes back 60 years, this is the first time we've brought together all our precision-made tools and accessories in one catalog. The Hawk Precision Scroll Saw, 4-in-1 Woodplaner, Panel Master Door Machine, Router System, and much more. Quality equipment built here in the heart of America. When you buy from us, you deal directly with the manufacturer. Our prices, quality, and 3 year Warranty reflect our commitment. Send today for FREE information. RB INDUSTRIES, INC. Free. Circle No. 84.

TOOLS ON SALE™—A division of Seven Corners Ace Hardware, Inc. offers a catalog of over 400 pages of the most popular brands of power tools available anywhere, all at discounted prices. Included are saws, planers, sanders, routers, drills and more from manufacturers such as Milwaukee, Makita, Porter Cable, Black & Decker, Dewalt, Freud, Bosch, Delta, and many more. Now introducing a full range of Werner brand ladders. Tools on Sale™ division of SEVEN CORNERS ACE HARDWARE, INC. \$1.00. Circle No. 92.

WILLIAMS & HUSSEY—Thousands of professionals use our American-made molder/planers to produce curved or straight moldings. Over 40 years of experience with a 5-year warranty. In the shop or at the job site, W & H meets your needs every day with quick knife changeover and ultimate versatility with all kinds of wood. Send for catalog. WILLIAMS & HUSSEY. \$1.00. Circle No. 93.

PORTABLE SAWMILLS—Convert logs into valuable lumber—Wood-Mizer® Products manufactures a line of portable bandsaw mills that allows the novice as well as the experienced sawyer to safely convert standing logs into lumber. Then, with the use of our SolaryDry™ Kiln or Vacu-Kiln™ to dry your lumber, you could increase the value of every board you produce. We manufacture some of the most progressive woodworking equipment on the market today. Product videos available. Send for our 31-page catalog. WOOD-MIZER PRODUCTS. \$2.00. Circle No. 94.

HAND TOOLS

MARK-N-CUT—Patented new multi-tool guide is used to design, measure, preview, mark layout, set tool stops, and guide cuts with any standard or plunge base router and other tools. Simply substitute the router for the pencil in the versatile guide for accurate cutting of circular, straight line, and multi-pivot designs you mark. Literature \$1.00—refunded with order. MARK-N-CUT DISTRIBUTORS, INC. \$1.00. Circle No. 130.

PERSONAL BRANDING IRONS—Brochure describes branding irons that enable you to put your name on your work quickly and easily. Made especially for branding wood, they are available with 1, 2,

3 or 4 lines of copy. Changeable date also available. NOVA TOOL CO. \$1.00. Circle No. 160.

IMPROVE YOUR WOODWORKING SKILLS!—Craftsmen around the world have discovered the secret of better quality work. The 72 page Japan Woodworker Catalog is loaded with a huge selection of Japanese saws, waterstones, chisels, gouges, carving tools, planes, cutlery and garden tools. Send for 1992 catalog and all supplements for two years. THE JAPAN WOODWORKER. \$1.50. Circle No. 190.

STAINS/FINISHES

GEL FINISHES—Known for their ease of use and professional results on architectural woodwork, unfinished furniture, fiberglass doors, and refinishing. No brushes required, just wipe on and wipe off. No sanding between coats, low odor, no runs or drips, and never needs shaking. The easy way to the hand rubbed look. 12 colors and a satin gel varnish. Product and dealer information. THE BARTLEY COLLECTION LTD. Free. Circle No. 205.

PLANS

HEIRLOOM WOOD TOY PATTERNS—First time these original designs are available! A catalog of full-size patterns, kits and finished toys too. Unique patterns for every skill level. We have arks, cars, trucks, trains and much more. Designs are based on our exclusive puzzle concept. BALDWIN TOY COMPANY. \$2.00. Circle No. 320.

FULL-SIZE FURNITURE PLANS CATALOG—Illustrates and describes over 200 plans for making furniture of quality found in museums and fine furniture stores. Plans include rolltop desk, cradles, dining tables, chairs, buffets, chests, gun cabinets, poker table, children's furniture, rocking horse, spinning wheels, and more. Bill of materials exploded drawings assist the woodworker. FURNITURE DESIGNS, INC. \$3.00. Circle No. 345.

PROJECT PLANS—Full-size patterns for over 500 easy-to-build woodworking projects. Nation's leading source for scroll saw patterns, cow projects, toy plans, yard ornaments, wood furniture, etc. Over 3000 hard-to-find specialty items. Send for your big new 80-page catalog. MEISEL HARDWARE SPECIALTIES. \$2.00. Circle No. 401.

WOOD TOY PATTERNS—Patterns for all ages including children's patterns and executive toys. New catalog has many new patterns to choose from including parts and wheels. Send for new catalog today. TOYS AND JOYS. \$1.00. Circle No. 465.

LUMBER

QUALITY EXOTIC LUMBER/TURNING WOODS—We offer a comprehensive selection of fine quality exotic woods. Also available are mechanisms for making wooden barrel pens/pencils/roller balls/fountain pens. Ebony, Kingwood, Tulipwood, Snakewood, African Blackwood, Cocobolo, Bloodwood, Figured Maple, Spaulded Maple, Padauk, etc. Unique and unusual turning woods and burls are also available. Send for catalog. BEREA HARDWOODS. \$1.00. Circle No. 510.

ONE STOP WOOD SHOP—Domestic and exotic hardwood plywood and lumber, marine plywood, over 30 species in stock—all under one roof. Custom cutting services to your exact specifications with little or no waste at competitive prices! We specialize in bundling and shipping. Send for catalog. **BOULTER PLYWOOD CORP.** Free. Circle No. 512.

ATTENTION WOOD READERS—If you want to spend more time in your wood shop and less time shopping for wood, **PROJECT-PAK** is for you! Our catalog contains 60 **PROJECT-PAKs** of projects originally built in **WOOD** Magazine. Send today and enjoy hassle free woodworking. Catalog. **HERITAGE BUILDING SPECIALTIES.** \$1.00. Circle No. 550.

STEVE H. WALL LUMBER CO.—Quality hardwoods and woodworking machinery for the craftsman and educational institutions. 16-page catalog lists 17 species of popular hardwoods at wholesale prices. Also dealers for MiniMax, Freud and ProCut woodworking machines. **STEVE H. WALL LUMBER CO.** \$1.00. Circle No. 592.

EXOTIC IMPORTED AND DOMESTIC HARDWOODS—Over 75 species of lumber, bowl blanks, turning squares and veneer. Samples (1/2" x 3" x 6") ideal for craftsmen, furniture and cabinet makers, architects, and designers available. Catalog provides common and botanical name, source, and description of each wood. Send for catalog. **WOODWORKERS SOURCE.** \$1.00. Circle No. 598.

VIDEOS

LAGUNA TOOLS VIDEO—Learn why most European workshops are using a central machine center rather than separate machines. 90 min. video presentation of "The Intelligent One Man Shop. The Robland X 31". Send for video. **LAGUNA TOOLS.** \$6.00. Circle No. 615.

EPOXIES/GLUES

DETECT UNWANTED GLUE EASILY—before ruining your work! Add **SPOTLIGHT** to your glue, then view the work under the available U-V light. The savings pay for **SPOTLIGHT** with the first otherwise missed spot. **SPOTLIGHT's** only effect is to make glue highly visible under U-V light. Send for information. **SPOTLIGHT.** \$1.00. Circle No. 710.

GENERAL WOODWORKING CATALOGS

THE WOODTURNERS CATALOG—48 color pages of the finest woodturning tools, machinery and supplies available. Featuring Henry Taylor, Sorby, Richard Raffan and Dale Nish workshops. Catalog price refunded with order. **CRAFT SUPPLIES USA.** \$2.00. Circle No. 830.

MASTER TOOLS CATALOG—1992-93 236-page master woodworking tools catalog. Full line of the best hand tools, power tools & accessories, machinery, glues, finishing supplies, workbenches, and much more. Hundreds of books included. All four-color. Lots of technical information. **GARRETT WADE CO.** \$4.00. Circle No. 855.

GRIZZLY IMPORTS, INC.—1993 is our 10th year of providing woodworkers with an incredible selection of machines, tools and accessories at prices you can afford. Send for your free 1993 catalog today and celebrate with tremendous savings on all your woodworking needs. **GRIZZLY IMPORTS INC.** Free. Circle No. 860.

SEND TODAY FOR THE 1993 CATALOG—featuring **JET's** line of woodworking tools, including tablesaws, drill presses, bandsaws, planers, jointers, sanders, lathes, shapers, scroll saws, dust collectors and accessories. All **JET** woodworking tools feature a one or two year warranty, plus **JET** maintains a large national distributor network so you get great value and service locally. **JET EQUIPMENT & TOOLS.** Free. Circle No. 876.

COMPLIMENTARY TOOL CATALOG—Woodcraft offers over 4,000 of the finest quality woodworking tools, books, supplies, and cabinetry hardware in our complete full color catalog. Craftsmen, cabinet-makers, carvers, woodturners, and hobbyists have depended on Woodcraft since 1928. Backed by Woodcraft's unconditional guarantee. Free technical assistance. **WOODCRAFT SUPPLY CORP.** Free. Circle No. 955.

THE WOODWORKERS' STORE CATALOG—New! The Woodworkers' Store 1993/94 catalog with over 200 new items features 104 full color pages of domestic and exotic hardwoods, veneers, wood parts, specialty hardware, kitchen accessories, finishing supplies, tools, books, and plans... Many exclusive items and hard to find specialties. Orders shipped in 24 to 48 hours. Over 39 years in business! Satisfaction guaranteed. Catalog. **THE WOODWORKERS' STORE.** \$2.00. Circle No. 965.

KITS

OUR QUEEN ANNE FURNITURE KITS—are ready to assemble and finish. They include dining room table, chairs, hutch, sideboard, a variety of occasional tables, and a personal desk. All are made in solid cherry, oak, walnut, and mahogany. We also stock individual Queen Anne legs for every project. Complete information in our brochure packet. **ADAMS WOOD PRODUCTS.** Free. Circle No. 1002.

MUSEUM QUALITY ANTIQUE REPRODUCTION FURNITURE KITS—from a selection of Queen Anne, Chippendale, Federal, and country styles. Constructed of solid cherry, mahogany, maple, and oak. Everything from highboys and sideboards to rice beds and jewelry boxes. The perfect project for creating a family heirloom. Catalog. **THE BARTLEY COLLECTION LTD.** \$1.00. Circle No. 1008.

ATTENTION WOOD READERS—If you want to spend more time in your wood shop and less time shopping for wood, **PROJECT-PAK** is for you! Our catalog contains 60 **PROJECT-PAKs** of projects originally built in **WOOD** Magazine. Send today and enjoy hassle free woodworking. Catalog. **HERITAGE BUILDING SPECIALTIES.** \$1.00. Circle No. 1040.

SHIP MODELING CATALOG—Historic Ship Models—Museum quality replicas you build yourself. Pre-cut wooden parts, metal and brass fittings, cloth sails, plans and instructions. Send for 80 page color catalog. **MODEL EXPO, INC.** \$1.00. Circle No. 1075.

SHOP ACCESSORIES

ECON-ABRASIVES—manufactures abrasive belts up to 52" wide in any grit. We carry hundreds of woodworking related accessories including: Velcro® backed discs, bar clamps, wood glue, drawer slides, chisels, hinges and hundreds of sanding accessories. Send for our 1992 catalog. **ECON-ABRASIVES.** Free. Circle No. 1229.

KLINGSPOR'S SANDING CATALOGUE—64 pages of industrial quality sanding products now offered to the home hobbyist at unbelievable low prices. Included are sanding & finishing machines, industrial sandpaper and shop helpers. **KLINGSPOR ABRASIVES, INC.** Free. Circle No. 1240.

EASY DOES IT—with **HTC'S** power tool accessories. Discover many unique items, designed only with you, the dedicated woodworker, in mind. Make your machinery safer, increase the working area of your shop and accomplish nearly impossible tasks easily, quickly, accurately. Full-line catalog and price list. **HTC PRODUCTS, INC.** Free. Circle No. 1245.

WOOD MOISTURE METER—Avoid moisture defects such as cracking, warping, splitting, delamination. The pin-type moisture meter "Mini-Ligno" can read surface or core moisture in any thickness of lumber, from veneer through heavy timbers. A flat surface is not necessarily required, thus the Mini works on rough

sawn lumber and curved or round pieces. A most versatile instrument. Many hobbyists and professionals use the Mini-Ligno C or E/C with attachments to monitor lumber during air or kiln drying or use external electrode for depth readings. Catalogue describes complete line of moisture meters. **LIGNOMAT USA, LTD.** Free. Circle No. 1250.

ROUTER SPEED CONTROL—Reduces speed electronically without reducing torque. Route at the speed that gives best results with the wood and bit you are using. Speed adjustable from full speed to 0 RPM. Less tear out—stops burning—less wear on bits—easy to use. Send today for information. **MLCS LTD.** Free. Circle No. 1251.

RESPIRATORY PROTECTION FOR WOODWORKERS—Anyone who values good health yet does not wish to diminish the enjoyment of woodworking should be wearing a respirator. Send for **Racal Health & Safety's** "Woodworker" brochure for information on **Airlite, Air-Mate 3, Breathe-Easy, Delta** and **Airstream** protection. **RACAL HEALTH & SAFETY, INC.** Free. Circle No. 1266.

"WOOD-FRIENDLY"™ L606 MOISTURE METER—uses advanced electromagnetic wave technology to accurately measure wood moisture content from 6% to 30% to a depth of 3/4". No pins to "abuse" wood and leave ugly holes. Check out boards from top to bottom in just seconds before you buy and avoid the headaches of splitting, warpage, delaminating and failed glue joints. The **Wagner L606's** convenient pocket size, easy-to-read analog meter, and low price make it a must for anyone working with wood. Literature. **WAGNER ELECTRONIC PRODUCTS, INC.** Free. Circle No. 1285.

BITS, BLADES, CUTTING TOOLS

AMANA CUTTING TOOL CATALOG & TECHNICAL MANUAL—100 pages of the finest quality professional carbide-tipped router bits, saw blades, dado sets, countersinks, plug cutters, planer knives and shaper cutters. Includes very informative technical data pertaining to wood cutting tools. **AMANA TOOL CORP.** Free. Circle No. 1300.

ASK FOR CMT'S CATALOG AND WE'LL GIVE YOU \$5!—CMT Tools will send you our free, full-color router bit catalog and we'll give you a \$5.00 discount on your first order! CMT bits feature anti-kickback design, Teflon coatings and micrograin carbide cutting edges. Our catalog is packed with accessories, project ideas and safety tips—it's one catalog you'll want to keep! **CMT TOOLS, INC.** Free. Circle No. 1310.

CASCADE TOOLS—The 1993 Cascade Tools catalog is the finest ever. It's jammed with great buys on **SY** brand industrial-grade router bits, shaper cutters and an excellent assortment of hard-to-find accessories. You'll have to see it to believe it. **CASCADE TOOLS, INC.** Free. Circle No. 1315.

ENLON IMPORT CORPORATION—Fellow woodworkers, professional builders and remodelers. We offer a wide selection with over 100 varieties of professional quality carbide tipped router bits & shaper cutters with irresistible prices, find out for yourself. Catalog. **ENLON IMPORT CORPORATION.** Free. Circle No. 1318.

FREUD—Premier line of carbide-tipped sawblades, router bits, shaper cutters and other woodworking tools. **Freud** offers a full-line on anti-kickback carbide-tipped router bits. Send for a free new router bit catalog. **FREUD.** Free. Circle No. 1321.

SUPER-SMOOTH, EXTRA-DURABLE, CARBIDE-TIPPED CIRCULAR SAW BLADES—Get a smooth-as-sanded surface with our all-purpose 40-tooth Woodworker Blade. You will be able to rip and cross-cut 1 - 2 in. rock hards and soft woods with an unbelievably smooth finish. You will also be able to cross-cut oak and birch ply-veneers with no bottom splinters. Send today for our information pack. **FORREST MFG. CO., INC.** \$1.00. Circle No. 1322.

PRODUCTION QUALITY CARBIDE TIPPED ROUTER BITS—MLCS Ltd. has a new 32-page catalog featuring hundreds of high quality carbide tipped router bits, shaper cutters, the Router Speed Control, the "Merle Adjustable Corner Clamp," plus other Professional Woodworking Products. Prices 50% to 70% lower than elsewhere. Value, quality and prompt service guaranteed! MLCS LTD. Free. Circle No. 1350.

MAGNATE—provides a full line of affordable carbide tipped router bits and shaper cutters. Send for FREE new 1992-93 catalog. MAGNATE. Free. Circle No. 1355.

HARDWARE/WOOD PARTS

HARDWARE CATALOG—A unique 48-page catalog of the very finest in classic, traditional solid brass cabinet hardware. All of British or No. American manufacture. Double & single post handles, knobs, escutcheons, standard & specialty hinges, box hardware, brass screws, castors, latches, catches, locks, and more. GARRETT WADE CO. \$3.00. Circle No. 1427.

INCOME OPPORTUNITIES

MAKE MONEY IN FURNITURE RESTORATION THE MINUTEMAN WAY—Earn \$200-\$1000 per day stripping, repairing, refinishing, mirror resilvering, and/or veneering, at home or in shop, spare time or full time. We provide complete training; no experience necessary. Free workshop teaches you latest in furniture restoration. You have to see it to believe it! Business preview video \$19.95. Send for catalog. MINUTEMAN. \$2.00. Circle No. 1661.

MISCELLANEOUS

MECHANISMS FOR MAKING WOODEN BARREL PENS—Pencils/Roller Ball Pens/Fountain Pens. High quality. Low prices. Wholesale/Retail. Plus other related items. BEREA HARDWOODS CO. \$1.00. Circle No. 1900.

LOOKING FOR PIERCED TIN? COME TO THE SOURCE!—70+ page color highlighted catalog introduces you to a treasury of pierced metal panels affordably priced and ready to install in your woodworking projects. Available in a wide variety of sizes, 16 different types of metal (copper & brass, tool) & over 300 designs. Custom size & design a specialty. OR all the materials and tools needed to create it yourself. Catalog includes furniture plans you can order, lantern kits, specialized metal piercing tools and MORE. COUNTRY ACCENTS. \$5.00. Circle No. 1910.

ROLL-TOP COVER—QUICK & EASY! The Roll-Top Cover instantly rolls out to keep contents dry and secure. When not required it rolls into its small 9" storage canister for carrying tall loads. The full length handle can be easily operated with one hand from either side of the truck. Send for brochure. PACE-EDWARDS CO. \$1.00. Circle No. 1985.

HI-TECH ENGRAVING—You don't have to be an artist with the System One High Speed Engraver (400,000 RPM). The incredible high speed combined with SCM's exclusive stenciling system allows you to produce professional results. You can engrave on wood, glass, metal, stone, ceramic, egg shell. It's as easy as writing with a pen. Send for information. SCM ENTERPRISES. \$1.00. Circle No. 1990.

STEELMASTER BUILDINGS—are available in almost any size for almost any use. From 10' to 100' wide and any length imaginable. Whether you need a back yard shop... an industrial shop... equipment storage building... whatever your requirements, you'll find a Steelmaster that's just the right size for the job. Our buildings are so easy to construct, most owners opt to construct their buildings themselves which adds up to even bigger savings. Send for information. STEELMASTER. \$1.00. Circle No. 2030.

IF YOU ARE INTERESTED IN RESTORING ANTIQUES—this 272-page catalog packed with unusual, hard-to-find items is just for you. Included are hundreds of essential items for antique restoration including top quality brass reproduction hardware, oil lamps and accessories, numerous wood

component repair parts and kits, caning and basketry supplies, everything needed for wood refinishing, related tools, books, and a complete line of upholstery equipment and supplies. All at wholesale prices. Send for this informative catalog. VAN DYKE'S RESTORERS. \$1.00. Circle No. 2077.

LEGAL IVORY—Virtually identical to animal ivory. Tagua is the nut from a tropical palm tree. Ideal for jewelry, knobs, small turnings, inlay, or scrimshaw. Available in 3 sizes. Send for information. WOODWORKERS SOURCE. Free. Circle No. 2090.

"THE WOODWORKING SHOWS" MACHINERY, TOOLS AND SUPPLIES—Hundreds of products for the woodworker demonstrated and sold at discount prices at every "Woodworking Show". In-depth seminars and free workshops on a variety of woodworking topics. Shows are scheduled in 27 cities. Send for free brochure. *THE WOODWORKING SHOWS*. Free. Circle No. 2095.

CARVING SUPPLIES

WOOD CARVING MACHINES AND ACCESSORIES—make all types of wood carving easy, fun and profitable. The machines do the work. Whether for sign carving, flat 3-D, decoys, panels, gun stocks or furniture, we have the proper machine for the job. Professional woodcarving for the hobbyist and superior quality for the professional. Begin your hobby or full or part-time business by ordering our catalog and price list. MARLIN INDUSTRIES. \$1.00. Circle No. 2150.

WOODCARVING TOOLS—Whittlers and carvers—Warren Tool Co., Inc. offers a complete catalog of whittling and carving, hand tools, sharpening aids, wood cut-outs, and related wood carving supplies. WARREN TOOL CO., INC. \$1.00. Circle No. 2185.

WOOD CARVERS SUPPLY INC.—Serving with pride since 1955. Family owned & operated with superior customer service & a large selection of quality carving supplies. Each order is inspected 3 times before leaving our warehouse, delivered fast & backed by a 30 day money back guarantee. Discover the joy & relaxation of wood carving. Order our superb color 76 page catalog with over 2,000 items including hand & power carving tools, books, knives & much more. Join 1,000s of happy customers by sending \$2 for a two year catalog subscription. WOOD CARVERS SUPPLY, INC. \$2.00. Circle No. 2190.

1994 GLOBAL CARVING CHALLENGE—AQUATIC LIFE—Over \$15,000 in cash & prizes will be awarded in the 1994 G.C.C. carving contest featuring all forms of aquatic life including a Mythical category. Mail in & hand delivered entries are both welcome. Send for free information. WOOD CARVERS SUPPLY, INC. Free. Circle No. 2191.

CLAMPS

MERLE ADJUSTABLE CORNER CLAMP—Quick & easy to use. It forces your work into square. Fully adjustable from 2 1/2" x 2 1/2" to 69" x 69" in. Perfect for clamping picture frames, cabinets, or anything that requires 90° corner clamping. The Merle Clamp is cast aluminum & steel construction, a true industrial quality tool. Send today for information. MLCS LTD. Free. Circle No. 2250.

FASTENING PRODUCTS

SQUARE DRIVE SCREWS—Thousands agree—once you try them you will never want to use anything else! The square drive recess virtually eliminates work-damaging driver bit "cam-out," the deep threads result in exceptional holding power, and they are heat treated for strength. Sizes from #4 x 3/8" to #12 x 4", with stainless steel, solid brass, brass plated, and zinc plated available. Quantity discounts. Send for literature. McFEELY HARDWOODS. \$1.00. Circle No. 2450.

Worth writing for...



Better Homes and Gardens®
WOOD Magazine, January 1994
Dept. JAW094
P.O. Box 2713
Boulder, Colorado 80329-2713

TO ENSURE PROMPT HANDLING OF YOUR ORDER FOLLOW THESE INSTRUCTIONS:

- Circle your choice
- Enclose check or money order for cost of booklets plus \$2.00 service charge (no stamps accepted)
- NO FOREIGN ORDERS ACCEPTED
- Send coupon and remittance to address above
- ALLOW 4-6 WEEKS FOR DELIVERY
- Coupon expires February 14, 1995

WOOD SUBSCRIPTION

1. A 1 year WOOD subscription (9 issues) for \$25.00 (U.S. price)—a \$19.55 savings off newsstand rate. Allow 6-8 weeks for first issue. Be sure to include payment with total below. NO FOREIGN ORDERS ACCEPTED ON THIS COUPON; please contact Subscription Dept. directly.

Circle numbers below corresponding to items in this issue. Please include \$2.00 for handling charge.

3.....\$2.00	93.....\$1.00	510.....\$1.00	876.....Free	1250.....Free	1350.....Free	2090.....Free
6.....\$3.00	94.....\$2.00	512.....Free	955.....Free	1251.....Free	1355.....Free	2095.....Free
15.....Free	130.....\$1.00	550.....\$1.00	965.....\$2.00	1266.....Free	1427.....\$3.00	2150.....\$1.00
35.....Free	160.....\$1.00	592.....\$1.00	1002.....Free	1285.....Free	1661.....\$2.00	2185.....\$1.00
44.....Free	190.....\$1.50	598.....\$1.00	1008.....\$1.00	1300.....Free	1900.....\$1.00	2190.....\$2.00
48.....\$1.00	205.....Free	615.....\$6.00	1040.....\$1.00	1310.....Free	1910.....\$5.00	2191.....Free
49.....Free	320.....\$2.00	710.....\$1.00	1075.....\$1.00	1315.....Free	1985.....\$1.00	2250.....Free
78.....\$1.00	345.....\$3.00	830.....\$2.00	1229.....Free	1318.....Free	1990.....\$1.00	2450.....\$1.00
84.....Free	401.....\$2.00	855.....\$4.00	1240.....Free	1321.....Free	2030.....\$1.00	
92.....\$1.00	465.....\$1.00	860.....Free	1245.....Free	1322.....\$1.00	2077.....\$1.00	

Name (please print) _____
Address _____
City _____
State _____ Zip Code _____
Phone (Optional): _____

I AM ENCLOSING:

\$ _____ for priced items
\$ 2.00 for handling
\$ _____ total remittance

FINISHING TOUCHES

SING A SONG OF WOOD

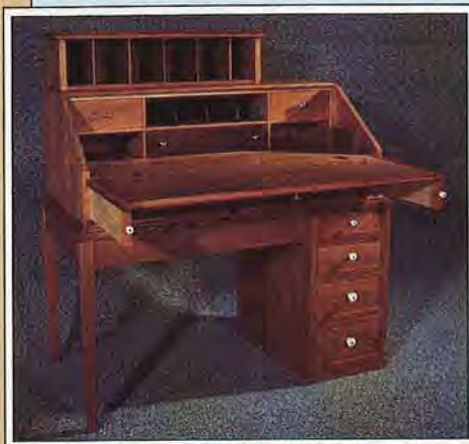
By day, professional woodworker Robert Ortiz designs and builds exquisitely crafted, custom furniture in his Baltimore shop. But by night, he plays conga drums in an acoustic musical group called "Terra Nova." Pamela Cardullo, his wife, writes most of the quar-

ter's music. For their latest 10-song album, *Beyond the Gate*, Pamela created a lyrical ballad about the material her husband knows so intimately.

Its words should strike a familiar chord with every woodworker. In part, here's how the song goes:



Woodworker Robert Ortiz, center, and fellow musicians Tom Scullen, left rear, Mark Divita, right rear, and Pamela Cardullo, sing the song of wood on their new, all-original album.



The cherry desk, above, was designed and built by Robert and his associates.

To inquire about Terra Nova's album, write: Terra Nova, Dept. W, 416 George St., Baltimore, MD 21201.

The Story of the Wood
 Respect the eye that chose this tree beneath the forest canopy
 It was the last eye to see it in its glory
 It knew the tale the wood would tell, but could not speak until it fell,
 It chose this story for ourselves like a good book off the shelf.

Chorus

The story of life's seasons is the ballad that it sings
 Our lives are marked and bound together by concentric rings

Respect the heart and mind that conceived a new design
 That would bring together disparate slabs of timber
 To rebuild the tree anew in a form both me and you
 Could appreciate in awe what God's eye alone once saw. Chorus

Last of all respect the hand that took these pieces and this plan
 And added skill and art and all that it was able,
 The hand that chiseled, carved and planed,
 that sanded once and twice again
 And now the story of the wood is more clearly understood
 As it speaks to us through this chair and table. Chorus © 1993



TOY-CONTEST COUNTDOWN

If you're counting the days to WOOD® magazine's 1994 Build-A-Toy Contest deadline, you still have about 45 of them to get your entry in. Toys must be received in Des Moines by February 1. Hey, you can do it! Help a needy child enjoy the holidays.

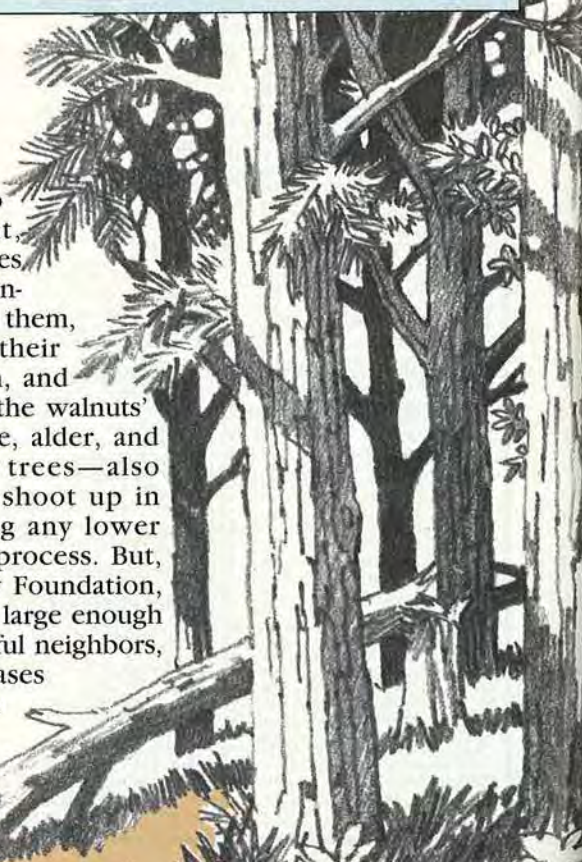
Getting a treeful

Swedish sawmills manage to use 98 percent of a tree. In comparison, Malaysian ones use only 40 percent. Although constantly striving to reduce waste by utilizing more and more of the tree for a variety of wood products, U.S. sawmills still hover at about 75 percent of full usage, says the U.S. Forest Products Association.

Illustrations: Brian Jensen, Jim Stevenson

SO LONG, THANKS FOR YOUR HELP

Tree-farm walnut trees, to grow good and straight, require plantings of other trees, between the rows. These trainer trees, as tree farmers call them, keep the grass down with their shade, give wind protection, and provide needed nitrogen to the walnuts' roots. The plantings of olive, alder, and white pine—ideal trainer trees—also encourage the walnuts to shoot up in search of the sun, shedding any lower limbs (self-pruning) in the process. But, says the National Arbor Day Foundation, when the walnut trees grow large enough to no longer need their helpful neighbors, they kill them off with releases of the chemical juglone from their roots. ♣



NOW! PLANE, MOLD, SAND and SAW with

Infinitely Variable Power-Feed!

**MAKES YOU MONEY...
SAVES YOU MONEY!**

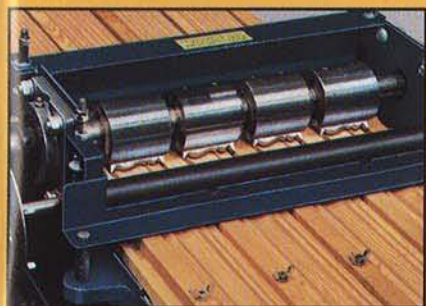
Put this versatile power-feed tool to work in your shop... see how fast it pays for itself! Quickly converts low-cost rough lumber into valuable finished stock. Turns out perfect picture frame moldings, quarter-round, casing, tongue and groove... all popular patterns... any custom design.

✔ **Just a twist of the dial** puts twice as many cuts-per-inch at your fingertips as any comparable planer – from 70 to over 1,000 CPI! This heavy-duty machine will sail through even the toughest oak at higher speeds, or you can slow it down to handle those “hard-to-work” pieces like curly maple, knotty cedar, burls, knees and much more! A valuable feature for molding work, where profiles make sanding impossible.

✔ **Change to Molding, Sanding or Sawing in just minutes!** Unique “Morse-Taper” Quick Change Cutterhead guarantees fast changeover... bearings remain factory set... precisely aligned at all times.

✔ **Now choose from three powerful models!** Woodmaster introduces the first 18" and 25" Planer/Molders... with all the features that have made the 12" model the most versatile Planer/Molder on the market! Send for Free Facts today!

**FREE
30-DAY
TRIAL!**



Woodmaster's Quick-Change Molding Head lets you create custom moldings from any stock. Choose from over 250 standard trim and picture frame patterns... or design your own!



Power-fed sanding speeds production and improves the quality of your work. No more waves or cross-grain scratches. Separate sanding head installs in just minutes.



New rip saw attachment lets you gang-rip with power feed in a fraction of the time it takes for multiple hand-fed passes on an ordinary table saw.

**MAIL TODAY OR CALL
1-800-821-6651 Ext PW67**



YES! Please rush me your FREE Information Kit plus details on your 30-DAY FREE TRIAL GUARANTEE!

Woodmaster Tools, Dept. PW67, 1431 N. Topping, Kansas City, MO 64120

NAME _____

ADDRESS _____

CITY _____

STATE _____ ZIP _____

PHONE () _____

Here's What Woodmaster Owners Say:

Shop Test Results—“It does an excellent job of planing, on a par with more expensive machines, and even better than some commercial models.”

Editor, Workbench Magazine

Best Value—“After checking them all, Woodmaster was obviously the best deal for the money. Also, I would like to acknowledge the polite and prompt service.”

E. D. Holtz, North Carolina

CRAFTSMAN! The Standard In Radial Saws... For Generations



The radial saws that helped make Craftsman a household name are now more accurate and easier to align than ever before.

We built our first radial arm saw in 1956. And we've been building on that design ever since. Our newest radials incorporate improvements such as our revolutionary new blade guard that will make Craftsman an industry leader for generations to come.

You can crosscut, rip, miter, or bevel cut, and with easy to install accessories, you can create dados and decorative molding, route, drill, sand or plane. No other tool lets you accomplish so much with such ease or accuracy.

The new Craftsman radials are on display at your nearby Sears store.

CRAFTSMAN®
Only at Sears